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NATIONAL GUARD REGION SOUTH
INDUSTRIAL HYGIENE OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

NGB-ARS-IHSE (40-5f) January 12, 20010

MEMORANDUM FOR The Adjutant General of Tennessee, ATTN: Non-Responsive
TN Army National Alamo Armory, 778 HWY 54 N, Alamo, TN

THRU Non-Responsive Deputy State Surgeon, Tennessee National Guard, HQS, AGTN-DCSPER-DSS, P.O. Box 41502, Houston Barracks, Nashville, Tennessee 37204-1501.

SUBJECT: Transmittal of IH Survey of TN ARNG Alamo Armory, Alamo, TN.

1. References.

   a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 19 August 1998.

   b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1996 rev.

   c. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 25 May 2007

   d. AR 385-10, The Army Safety Program, 23 August 2007.

   e. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.

   f. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, 23 May 2008.

   g. TB MED 503, The Army Industrial Hygiene Program, 30 October 2000.

   h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2008, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

   i. Industrial Ventilation, 26th rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

   j. Title 29, Code of Federal Regulations (CFR), 2001 rev., part 1910, Occupational Safety and Health Standards.

   k. Industrial Hygiene Survey Report by Non-Responsive, Douglasville, GA 30134.

2. General.

   a. At the request of Non-Responsive, RN, of the Tennessee National Occupational Health Office, an Industrial Hygiene Survey was put together to conduct Health Hazard Information module (HHIM) Field survey of the s and industrial hygiene sampling of the TN ARNG Alamo Armory, Alamo,, TN.

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b. The surveys were conducted by Non-Responsive Stonecreek Drive, Douglasville, GA 30134.

3. Findings: The information that follows is based on the findings of the survey performed. All HHIM field survey forms, industrial hygiene sampling and survey findings of the report are enclosed (See ENCL 1). Operations of very short duration were not sampled due to the requirements of the sampling method. If the operation changes or if the length of the operation is increased, contact this office to schedule sampling if it is deemed needed then.

4. Recommendations. Understand that all findings documented in the enclosed report have been reviewed by the Regional Industrial Hygienist and the following recommendations are the ones to be followed.

a. Use the guidance given in the enclosed report as good IH practices, requesting industrial hygiene (IH) services where needed. The recommendations that follow are based on the survey findings as reported for the areas surveyed:

i Up grade the illumination in the Armory to meet Standard. Consider the use of supplemental lighting at locations that were below the recommended standards and replace burned out bulbs and/or light fixtures in the offices, classrooms and drill hall. See Light Readings Section. (RAC 3)

ii Ensure that engineering inspect and evaluate the integrity of the crack in the wall in the exercise room. (RAC 2)

iii Place the MSDS book at a visible location in an easy to access area of the armory. Ensure that personnel and troops have knowledge of the location of the MSDS book, and are take the hazardous materials safety training. Upkeep the MSDS binder by placing a table of content in the front of the book to make it easier to locate MSDS sheets in the binder. The old MSDS sheet should be replaced as a new one comes in. The old one should be placed in a historical MSDS binder and kept for future reference. Also a Hazardous Materials Inventory List should be made from the MSDS forms and be placed in the POL storage. (RAC 3)

b. The recommendations given in the comments section of the HHIM data sheets and data collected will serve as an update of the baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY2009. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY2010 IHIP.

c. Have all HHIM data entered into the HHIM computer module.

d. Use the report to help in correcting all deficiencies noted.

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e. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present visits, especially if this will help eliminate health hazards and reduce medical surveillance cost.

f. Contact the State Occupational Health Office for any medical Surveillance that may be needed.

g. To execute your responsibilities in correcting all deficiencies, coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed about the industrial hygiene survey or air sample results, please contact Non-Responsive Regional Industrial Hygienist, NGB-ARS-IHSE, Non-Responsive

Non-Responsive
Non-Responsive

CF:
Non-Responsive nessee State Safety and Occupational Health Manager, 3041 Sidco Drive, 504
, Occupational Health Nurse, Tennessee State Safety and Occupational Health Office, Smyrna, TN 37167

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INDUSTRIAL HYGIENE INITIAL BASELINE SURVEY

TENNESSEE NATIONAL GUARD

ALAMO ARMY NATIONAL GUARD ARMORY
(LTG JOHN G. GLAD CASTELLAW ARMORY))
778 HIGHWAY 54 NORTH
ALAMO, TN

DATE: OCTOBER 27, 2009

PREPARED BY

Non-Responsive
[redacted]
7045 STONECREEK DRIVE
DOUGLASVILLE, GA 30134

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TABLE OF CONTENTS

BACKGROUND	Pg 1
Introduction	Pg 1
Scope of Work	Pg 1
INSTRUMENTATION	Pg 1
OBSERVATION	Pg 2
ADMINISTRATIVE OFFICES	Pgs 2 & 3
AIRFLOW/VENTILATION	Pg 3
KITCHEN	Pgs 3 & 4
RESTROOM	Pg 4
DRILL HALL	Pg 4
SUPPLY	Pg 5
MOTOR POOL	Pg 6
HAZMAT STORAGE FACILITY	Pg 6
MATERIAL SAFETY DATA SHEETS	Pg 6
EXERCISE ROOM	Pg 7
FINDINGS	Pgs 7 & 8
TABLE 1A GENERAL ILLUMINATION LEVEL	Pg 9
TABLE 1B TASK LEVEL MEASUREMEMNTS	Pg 9
TABLE 2 (LEAD WIPE SAMPLES RESSULTS)	Pg 10
TECHNICAL ASSISTANCE	Pg 10
APPENDIX A, PROBLEM AREAS	Pg 11
APPENDIX B1, (LEAD WIPE SAMPLE LOCATION IFR)	Pgs 11 thru 13
APPENDIX B2 (LEAD WIPE SAMPLE LOCATION HALLWAY)	Pg 13
APPENDX B3 (LEAD WIPE SAMPLE LOCATION GUN VAULT)	Pg 13
APPENDIX C (PICTURES OF ALAMO ARMORY)	Pg 14

ATTACHMENTS:

Facility Diagram
List of MSDS on Hand
HHIM Sheet
Analytical Environmental Services, Inc. Chain of Custody
Analytical Environmental Service, Inc. Analytical Results

MEMORANDUM FOR: Tennessee National Guard, Attn: Non-Responsive Readiness NCO, 778 Highway 54 North, Alamo, Tennessee

Subject: Industrial Hygiene Initial Baseline Survey of Alamo Army National Guard Armory, Alamo, Tennessee

BACKGROUND:

Introduction:

At the request of Non-Responsive National Guard Bureau Regional Industrial Hygiene South Office, Atlanta, GA., an initial baseline industrial hygiene survey was conducted at Alamo Army National Armory, Alamo, Tennessee on October 27, 2009 as part of the Tennessee Army National Guard Occupational Health in the workplace. The point of contact for this facility was Non-Responsive at Non-Responsive

Scope of Work:

The survey consisted of a general illumination survey, task lighting survey, lead wipe sampling and evaluating the condition of the building, including the airflow of the heating Ventilation and Air Conditioning (HVAC) System as it relates to indoor air quality. A review of several industrial programs, such as hazard communication, hearing conservation and personal protective equipment was also performed. A field survey form is complete on all industrial operations at the facility, and the data is contained in this report.

INSTRUMENTATION:

The following survey instrumentation was provided by or for the contractor, and was used to obtain illumination measurements, task lighting measurements. All instruments were pre-calibrated according to the manufacturer's instructions.

Instrument	Serial Number	Calibration
Sper Scientific Light Meter	025434	10 Dec 2008
Alnor Velometer	54120023	February 2010

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Released by National Guard Bureau
Page 6 of 2531

OBSERVATION

Alamo Army National Guard Armory is also known as LTG John G. Glad Castellaw Armory. The armory is home to 230th Sustainment Brigade, Signal Network Detachment and the building number is 00001. Non-Responsive Readiness NCO and Non-Responsive Non-Responsive Human Resource/Training NCO met with and assisted the Industrial Hygiene Technologist Non-Responsive by opening all the doors to the armory. Duty hours are from 07:00 - 15:30 hours for Non-Responsive and 0800 hrs to 1630 hrs for Non-Responsive Supply Monday through Friday. PT is three hours a week one hour per day on Monday, Wednesday and Friday. The armory is a one level brick structure with a metal roof and was built in 1980 and according to Non-Responsive had a serious leak problem in the roof that was corrected by engineering. The building in my opinion is in good condition inside and out. The old indoor firing range was turned-into a caged storage facility that was fully in use at the time of the survey.

ADMINISTRATIVE OFFICES

There are seven offices, where personnel use computer systems, files, read, write and perform administrative tasks as necessary. Computer use occurs throughout the day. General illumination levels in the 1SG's office did not meet IES, Illuminating Engineering Society Handbook, 8th Edition requirement of 50 FC - 100 FC (foot candles).

Task lighting taken at computer work stations in the following areas did not meet IES requirement of 50 FC – 100FC: Two in the Orderly Room and one in the 1SG's office.

1SG's Office

Orderly Room

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 7 of 2531

Recruiting Office

Platoon SGT's Office

Distant Learning Lab

Dispatch

AIRFLOW/VENTILATION

Mainly the administrative areas are provided with central air and heat, everywhere else has no air conditioning and heat is provided by gas or hot water heating. The ventilation system for maintenance building service bay will be discussed later in the report.

KITCHEN

The kitchen has two separate areas (1) food preparation, dishwashing and storage (2) kitchen office. The kitchen is not used during drill weekend to prepare food for troops, it is normally used for day to day storage of full time personnel food and when the hall is rented. Food for drill weekend is catered. The general illumination levels in the kitchen met IES requirement of 50 FC – 100 FC. The kitchen office also met IES requirement of 50 FC – 100 FC.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 8 of 2531

Kitchen

Kitchen Office

RESTROOMS

There are two restrooms, one for men and one for women. The men restroom has five stalls, three urinals, shower and five sinks. The female rest room has a shower, two stalls and two sinks. The general illumination in all the restrooms met IES requirements of 10 FC – 20 FC.

DRILL HALL

The floor was very impressive, clean and mirror like reflective. The hall is heated by four hot water heaters during the colder months and comfort ventilation is provided a large room exhaust vent located on the front wall near the ceiling during the hotter months. The hall also has four air conditioning bowers that have been deactivated. The hall is moped after each drill and after each rental. One of the eighteen light fixtures has a blown bulb. The general illumination levels measured did not meet IES requirement of 50 FC – 100 FC.

Drill Hall

Drill Hall

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 9 of 2531

SUPPLY

Supply is responsible for (1) supply room (2) Office (3) NBC storage room (4) the supply caged area/old indoor firing range. The supply room general illumination levels did not meet IES requirement of 20 FC – 50 FC. One of the twelve light fixtures had two bulbs blown. The office general illumination levels met IES requirement of 50 FC - 100 FC. The NBC storage room general illumination levels met IES requirement of 20 FC – 20 FC. Thirteen lead wipe samples were collected in the old indoor firing range (IFR). The range had been converted to a storage area with lockers and cages. The supply samples collected were sent to Analytical Environmental Services, Inc. for analyses. The results received were all negative for lead.

The gun vault floor was lead wiped and the two lead wipe samples were sent to Analytical Environmental Services, Inc., for analyses. The results came back negative for lead in all samples.

Supply Room

Supply Office

Supply Caged Area/
Old Indoor Firing Range

Supply Cage Area/
Old Indoor Firing Range

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Released by National Guard Bureau
Page 10 of 2531

MOTOR POOL

Motor Pool has a security fence around it and is kept closed during duty hours Monday through Friday and gate opened during drill weekend.

Motor Pool

HAZMAT STORAGE FACILITY

Stored in the hazmat storage facility are the following, new oil (15W40), anti-freeze, gear oil, lube oil and hydraulic fluid. The luminescent bulb that provides light to the room was blown. There's no oil water separator and the wash rack is not used.

HazMat/POL Storage Facility

MATERIAL SAFETY DATA SHEETS

The material safety data sheets are kept in a binder in the orderly room on a book shelf. The Binder was in good condition, however, there were no table of content and some of the MSDSs were at least ten years old.

EXERCISE ROOM

In the corner of the room is a crack where the two walls join. Also around the window frames are signs of rust from water damaged. General illumination levels met IES requirement of 50 FC – 100 FC. See Appendix A (Problem Areas) for crack in corner wall and rust around frame of windows.

Exercise Room

FINDINGS

A. Administrative Offices

1. General illumination levels measured in the 1SG's office did not meet IES requirement of 50 FC – 100 FC.
2. Task lighting taken at two computer work stations in the Orderly Room did not meet IES requirement of 50 FC – 100 FC.

B. Drill Hall

1. There are eighteen light fixtures in the hall and one had a blown bulb
2. General illumination levels did not meet IES requirement of 50 FC – 100 FC.

C. Supply

1. There are twelve light fixtures in the supply room and two had own bulbs.
2. General illumination levels in the supply room did not meet IES requirement of 50 FC – 100 FC.
3. The lead wipe samples collected in the caged supply room/old indoor firing range analyses came back negative for lead.
4. The lead wipe samples collected from the floor of the gun vault analyses came back negative for lead.

F. The one light fixture in the hazmat storage facility bulb was blown.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 12 of 2531

G. Exercise Room

1. A crack was noticed in the corner where the front and back wall met.
2. Rust from water demaged was noticed around window frames.

D. The MSDS Binder is located on the book shelf in the orderly room. The MSDS binder was inspected and found not have e table of contents.

E. A total of seven portable fire extinguishers (PFE's) certified March 2009 were noted throughout the facility and inspected by the unit monthly.

F. Fulltime employees have only administrative duties and they are not exposed to hazardous chemicals. No ambient or breathing zone air sampling accomplished during this survey.

G. Fulltime employees have only administrative duties and they are not exposed to any hazardous noise. No noise dosimeter or sound level survey accomplished during this survey.

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 13 of 2531

TABLE 1A (General Illumination Levels)

Location	Range in Foot Candles (FC)	Average FC	IES Standard in FC
Orderly Room	40 – 70	53	50 – 100
1SG Office	38 – 55	47	50 - 100
Commander's Office	42 - 78	52	50 - 100
Exercise Room	52 – 86	70	50 – 100
Drill (Assembly Hall)	20 – 29	25	50 – 100
Distant Learning Lab	48 – 85	69	50 – 100
Dispatch	89 – 100	94	50 – 100
Recruiter Office	5 – 77	64	50 – 100
Platoon SGT's Office	67 – 92	74	50 – 100
Class Room	95 m- 135	116	50 - 100
Kitchen	40 – 103	70	50 - 100
Kitchen Office	29 – 71	50	50 – 100
NBC Storage Room	12 – 13	13	10 – 20
Supply/Janitorial Closet	6 – 7	7	10 - 20
Supply Room	17 – 21	21	20 – 50
Supply Office	44 – 100	71	50 - 100
Caged Area/Old Indoor Firing Range	5 – 27	17	20 – 50
Supply Gun Vault	17- 33	24	20 - 50
Women Restroom	23 – 62	9	10 – 20
Men Restroom	25 – 69	54	10 - 20

TABLE 1B (Task Troubled Areas at Work Stations)

Location	Average FC	IES Standard
Orderly Room Computer Workstation (CWS) #1	26	50 – 100
Orderly Room CWS #2	31	50 - 100

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May, 2018

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Released by National Guard Bureau
Page 14 of 2531

TABLE 2 (Lead Wipe Samples Results)

Location	Sample Number	Analytical Results
IFR at 10 Feet from front wall	091027-01	BRL
IFR at 20 Feet from front wall	091027-02	BRL
IFR at 30 Feet from front wall	091027-03	BRL
IFR at 40 Feet from front wall	091027-04	BRL
IFR at 50 Feet from front wall	091027-05	BRL
IFR at 60 Feet from front wall	091027-06	BRL
IFR at 70 Feet from front wall	091027-07	BRL
IFR at 80 Feet from front wall	091027-08	BRL
IFR at 90 Feet from front wall	091027-09	BRL
IFR at 100 Feet from front wall	091027-10	BRL
IFR at 110 Feet from front wall	091027-11	BRL
Hallway to IFR	091027-12	BRL
Hallway to IFR	091027-13	BRL
Gun Vault Floor	091027-14	BRL
Gun Vault Floor	091027-15	BRL

Remarks: BRL – Not Detected at the Reporting Limit

TECHNICAL ASSISTANCE

POC for further assistance concerning this evaluation is Non-Responsive

Non-Responsive

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May, 2018

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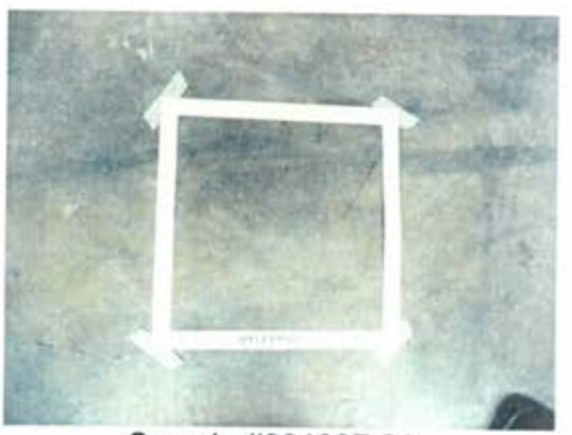
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 15 of 2531

APPENDIX A, Problem Area of Alamo Armory

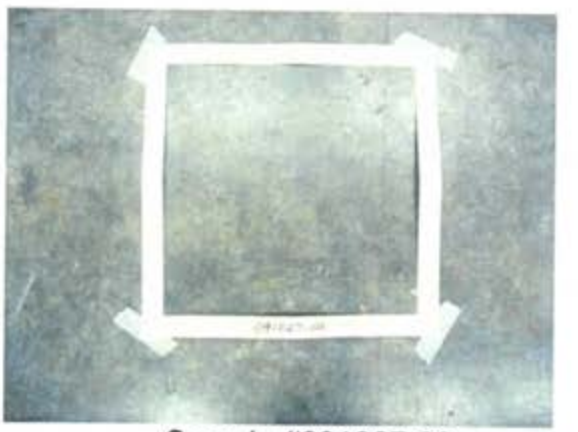
Rust around window frame
From Water Damage

Crack in corner of wall and water
Damaged Ceiling

APPENDIX B1, LEAD WIPE SAMPLE LOCATIONS (IFR)

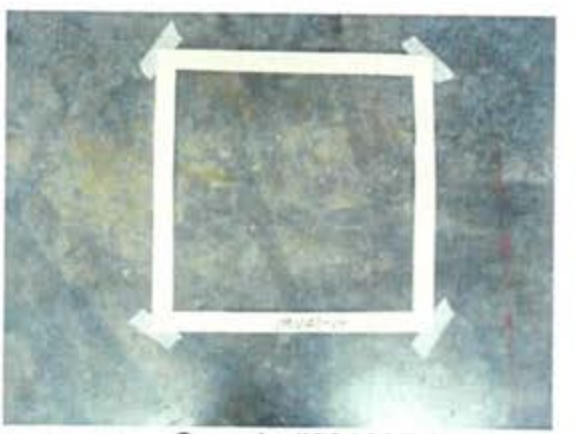


Sample #091027-01



Sample #091027-02

Sample #091027-03

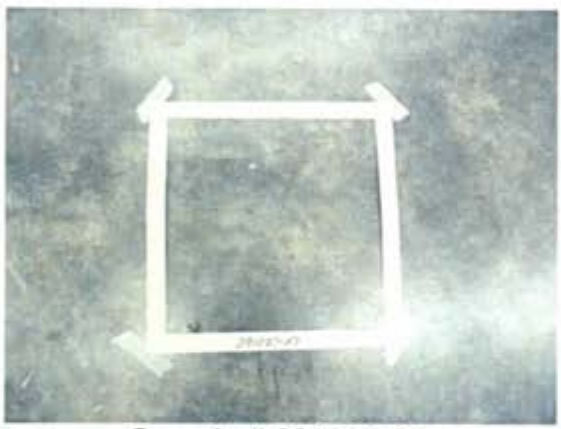


Sample #091027-04

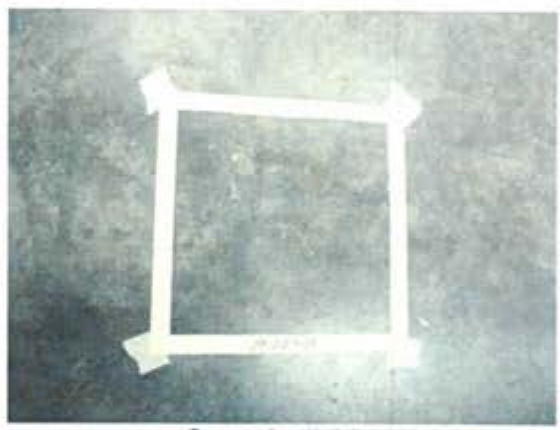
APPENDIX B1, LEAD WIPE SAMPLE LOCATIONS, continued (IFR)

Sample #091027-05

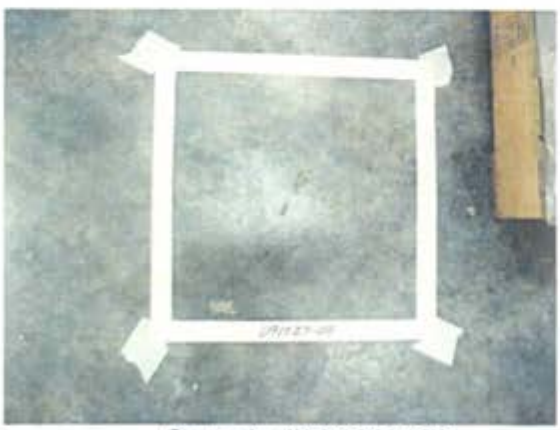
Sample #091027-06



Sample # 091027-07



Sample # 09127-08



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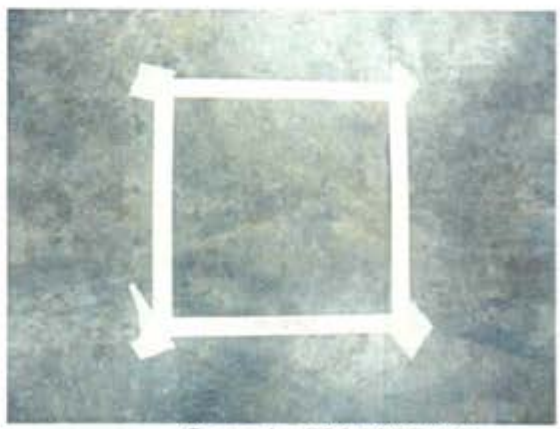
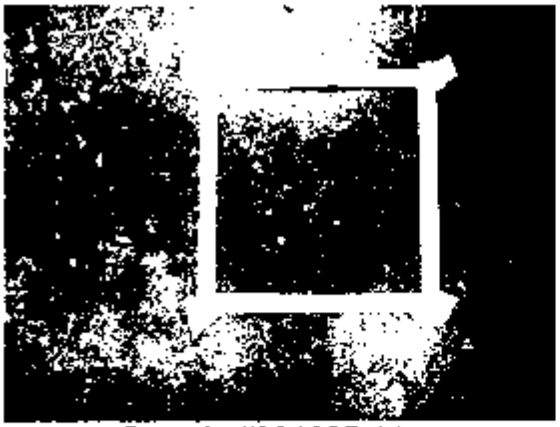


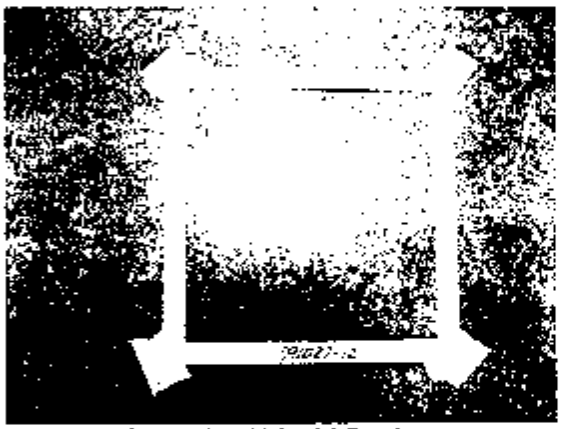
Sample #091027-10

APPENDIX B1, LEAD WIPE SAMPLE LOCATIONs, continued (IFR)



Sample #091027-11

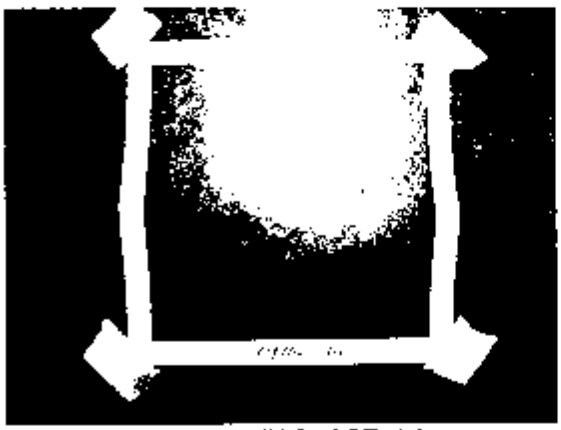
APPENDIX B2, LEAD WIPE SAMPLE LOCATIONS (Hallway)



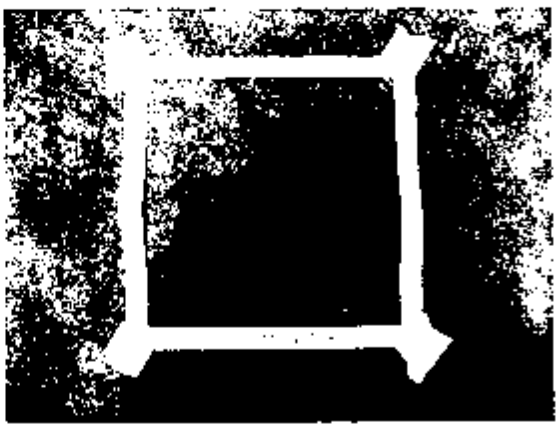
Sample #091027-12

Sample #091027-13

APPENDIX B3, LEAD WIPE SAMPLE LOCATION (GUN VAULT FLOOR)



Sample #091027-14



Sample #091027-15

APPENDIX C, Pictures of Alamo Armory

Class Room

NBC Storage Room

Back of Armory

POV Parking

Wash Rack

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Released by National Guard Bureau
Page 19 of 2531

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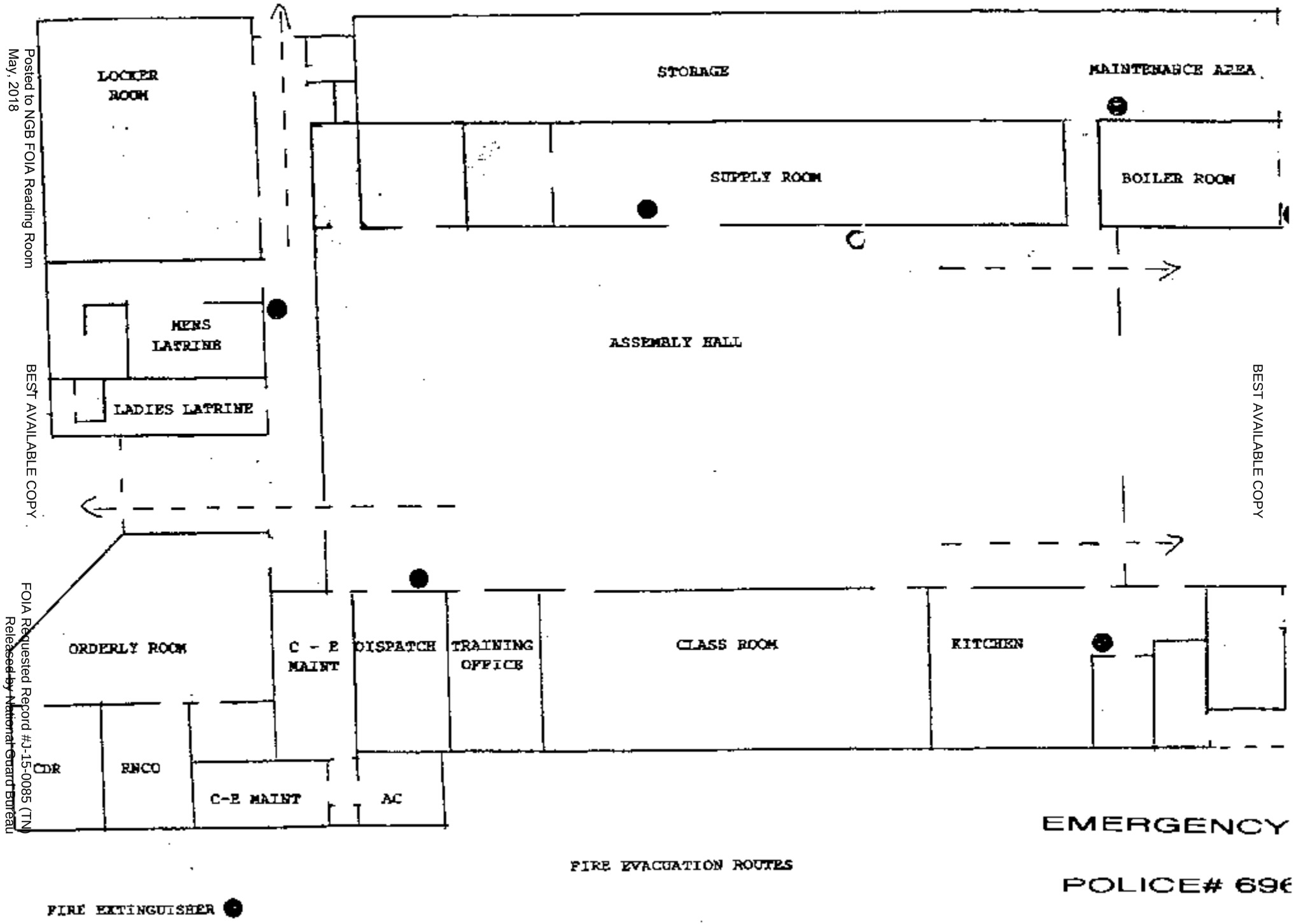
May, 2018



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Alamo Army National Guard Armory
778 Highway 54 North
Alamo, TN

1. Insecticide, D-trans Allethrin Resmethrin, 6840-01-067-2137
2. Kilz 51652-1000Z-0,8010-00N011271
3. Bonide Wasp & Hornet Killer
4. Carb-n Rid, 6850-01-085-1423
5. Clean Action II
6. Cleaning Compound, Windshield
7. Royco ® 634, 9150-01-102-1473
8. Devastator
9. Explorer
10. Formula 409 Carpet Spot & Stain Remover
11. Greased Lightning (Multipurpose Cleaner and Degreaser)
12. Hil-Tex
13. Ironclad Alkyd Low Lustre Metal & Wood Enamel
14. Engine Starting Fluid (Diesel Start), 2910-01-128-9537
15. Lubricating Oil, 9150-00-889-3522
16. Misty Anti-crawl Resident Insecticid
17. 565-1322 Liquid Buffer, 7930-00-000-7290
18. NAPA Universal Cement
19. 90-330 Pitt-tech Gloss Acrylic enamel, 8010-00F051861
20. Premium Exterior S/G Black Latex
21. Lubricating Oil, General Purpose Preservative, 9150-00-458-0075
22. Pyrol Carb & Choke Cleaner, 6850-01-085-1423
23. Quick ands Clean Spray Cleaner HD
24. Quick and Clean Glass and Plastic Cleaner
25. Royco 634. 9150-01-054-6453
26. Industrial Choice Aerosol-Water Based Fluorescent Marking
27. Seal 341
28. WD 40 Silicone Spray Lubricant, 8030-00-838-7789
29. Skilcraft So Sure Black Spray Paint, 8010-01-331-6108
30. Skilcraft So Sure Brown Spray Paint, 8010-00-348-7715
31. Fuel, Engine Primer, Spray Starting Fluid, 6850-00-823-7861
32. Vindicator
33. WT-88

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0911252

ANALYTICAL ENVIRONMENTAL SERVICES, INC

3785 Presidential Parkway, Atlanta GA 30340-3704
TEL.: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

Work Order: _____

Date: 11-2-09 Page 1 of 2

COMPANY: [redacted] Non-Responsive

ADDRESS: 7043 STONECREEK DRIVE Douglasville, GA

FAX: [redacted] Non-Responsive

ANALYSIS REQUESTED: Lead Dust

Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.

#	SAMPLE ID	DATE	TIME	Grab	Composite	Matrix (See codes)	PRESERVATION (See codes)	REMARKS	No # of Containers
1	091027-01	10-27-09	—				✓	1 Foot Square Template	
2	091027-02		—				✓		
3	091027-03		—				✓		
4	091027-04		—				✓		
5	091027-05		—				✓		
6	091027-06		—				✓		
7	091027-07		—				✓		
8	091027-08		—				✓		
9	091027-09		—				✓		
10	091027-10		—				✓		
11	091027-11		—				✓		
12	091027-12		—				✓		
13	091027-13		—				✓		
14	091027-14		—				✓		

RELINQUISHED BY: [redacted] Non-Responsive DATE/TIME: 11/3/09 12:00

RECEIVED BY: DATE/TIME:

PROJECT INFORMATION

PROJECT NAME: ALAMO ARMORY

PROJECT #:

SITE ADDRESS: 778 Highway 54 North Alamo, TN

SEND REPORT: [redacted] Non-Responsive

INVOICE TO: (IF DIFFERENT FROM ABOVE) Army National Guard 510 Plaza Drive Suite 1530 College Park, GA 30349

QUOTE #: _____ PO#: _____

RECEIPT

Total # of Containers

Turnaround Time Request
- ☒ Standard 5 Business Days
- ○ 2 Business Day Rush
- ○ Next Business Day Rush
- ○ Same Day Rush (auth req.)
- ○ Other _____

STATE PROGRAM (if any): _____

E-mail? Y / N; Fax? Y / N

DATA PACKAGE: I II III IV

SPECIAL INSTRUCTIONS/COMMENTS:

SHIPMENT METHOD
OUT / / VIA:
IN / / VIA:
CLIENT FedEx UPS MAIL COURIER
GREYHOUND OTHER _____

SAMPLES RECEIVED AFTER 3PM OR SATURDAY ARE CONSIDERED AS RECEIVED ON THE NEXT BUSINESS DAY; IF NO TAT IS MARKED ON COC AES WILL PROCEED AS STANDARD TAT.
SAMPLES ARE DISPOSED OF 30 DAYS AFTER COMPLETION OF REPORT UNLESS OTHER ARRANGEMENTS ARE MADE.

MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify)

PRESERVATIVE CODES: H+I = Hydrochloric acid + ice I = Ice only N = Nitric acid S+I = Sulfuric acid + ice S/M+I = Sodium Bisulfate/Methanol + ice O = Other (specify) NA = None

White Copy - Original; Yellow Copy - Client

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0911252

ANALYTICAL ENVIRONMENTAL SERVICES, INC
3785 Presidential Parkway, Atlanta GA 30340-3704
TEL: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

Work Order: _____

Date: 11-2-09 Page 2 of 2

COMPANY: [redacted] Non-Responsive

ADDRESS: 7043 STONECREEK DRIVE DOUGLASVILLE GA 30134

FAX: [redacted] Non-Responsive

ANALYSIS REQUESTED: LEAD DUST

Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.

#	SAMPLE ID	SAMPLE ID DATE	SAMPLE ID TIME	Grab	Composite	Matrix (See codes)	PRESERVATION (See codes)	REMARKS	No # of Containers
1	091027-15	10-27-09	—				✓	1 Foot Square Template	
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									

[redacted] Non-Responsive

DATE/TIME: 11/3/09 12:00

SPECIAL INSTRUCTIONS/COMMENTS

SHIPMENT METHOD: OUT / / VIA / IN / / VIA / CLIENT FedEx UPS MAIL COURIER GREYHOUND OTHER

PROJECT INFORMATION

PROJECT NAME: ALAMO ARMORY

PROJECT #:

SITE ADDRESS: 778 Highway 54 North Alamo TN

SEND REPORT [redacted]

INVOICE TO (IF DIFFERENT FROM ABOVE): 510 PLAZA DRIVE SUITE 1530 COLLEGE PARK GA 30349

QUOTE #: PO#:

RECEIPT

Total # of Containers

Turnaround Time Request
- ☒ Standard 5 Business Days
- ○ 2 Business Day Rush
- ○ Next Business Day Rush
- ○ Same Day Rush (with req.)
- ○ Other

STATE PROGRAM (if any)

E-mail? Y / N, Fax? Y / N

DATA PACKAGE I II III IV

SAMPLES RECEIVED AFTER 3PM OR SATURDAY ARE CONSIDERED AS RECEIVED ON THE NEXT BUSINESS DAY; IF NO TAT IS MARKED ON COC AES WILL PROCEED AS STANDARD TAT.
SAMPLES ARE DISPOSED OF 30 DAYS AFTER COMPLETION OF REPORT UNLESS OTHER ARRANGEMENTS ARE MADE.

MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify)

PRESERVATIVE CODES: HH = Hydrochloric acid + ice I = Ice only N = Nitric acid SH = Sulfuric acid + ice S/M-1 = Sodium Bisulfite/Methanol + ice O = Other (specify) NA = None

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AES

ANALYTICAL ENVIRONMENTAL SERVICES, INC.

November 12, 2009

Non-Responsive [redacted] h IH

RE: Alamo Armory

Order No.: 0911232

Dear Non-Responsive [redacted]

Analytical Environmental Services, Inc. received 15 samples on 11/3/2009 12:00:00 PM for the analyses presented in the following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.
AES' certifications are as follows:
-NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/09-06/30/10.
-AIHA Certification ID #100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) effective until 09/01/11.

These results relate only to the items tested. This report may only be reproduced in full and contains 5 total pages (including cover letter).

If you have any questions regarding these test results, please feel free to call.

Sincerely,

Non-Responsive [redacted]

for Project Manager

3785 PRESIDENTIAL PARKWAY • ATLANTA, GEORGIA 30340 • TEL: (770) 457-8177 • FAX: (770)457-8188

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Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client GA Army

Work Order Number 0911232

Non-Responsive

Checklist completed by [redacted] 11/4/09

Sig Date

Carrier name: FedEx __ UPS __ Courier __ Client __ US Mail ✓ Other _____

Shipping container/cooler in good condition? Yes ✓ No __ Not Present __

Custody seals intact on shipping container/cooler? Yes __ No __ Not Present ✓

Custody seals intact on sample bottles? Yes __ No __ Not Present ✓

Container/Temp Blank temperature in compliance? (4°C±2)* Yes ✓ No __

Cooler #1 amb Cooler #2 _____ Cooler #3 _____ Cooler #4 _____ Cooler#5 _____ Cooler #6 _____

Chain of custody present? Yes ✓ No __

Chain of custody signed when relinquished and received? Yes ✓ No __

Chain of custody agrees with sample labels? Yes ✓ No __

Samples in proper container/bottle? Yes ✓ No __

Sample containers intact? Yes ✓ No __

Sufficient sample volume for indicated test? Yes ✓ No __

All samples received within holding time? Yes ✓ No __

Was TAT marked on the COC? Yes ✓ No __

Proceed with Standard TAT as per project history? Yes __ No __ Not Applicable ✓

Water - VOA vials have zero headspace? No VOA vials submitted ✓ Yes __ No __

Water - pH acceptable upon receipt? Yes __ No __ Not Applicable ✓

Adjusted? _____ Checked by _____

Sample Condition: Good ✓ Other(Explain) _____

(For diffusive samples or AIHA lead) Is a known blank included? Yes __ No ✓

See Case Narrative for resolution of the Non-Conformance.

* Samples do not have to comply with the given range for certain parameters.

\L\Quality Assurance\Checklists Procedures Sign-Off Templates\Checklists\Sample Receipt Checklists\Sample_Cooler_Receipt_Checklist

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Analytical Environmental Services, Inc.

Date: 11/12/2009

LEAD ON WIPES (N9100/7082)
N7082

CLIENT:	National Guard Bureau Region-South IH	**Lab Order:**	0911232
Project:	Alamo Armory	**Date Received:**	11/3/2009 12:00 PM
Delivery Order:		**Matrix:**	Wipe
PO No:			

Laboratory ID	Client Sample ID	Results	Units	Report Limit.	DF	Date Collected	Date Analyzed	Analyst
0911232-001A	091027-01	BRL	µg/ft²	20	1	10/27/2009	11/5/2009	MAW
0911232-002A	091027-02	BRL	µg/ft²	20	1	10/27/2009	11/5/2009	MAW
0911232-003A	091027-03	BRL	µg/ft²	20	1	10/27/2009	11/5/2009	MAW
0911232-004A	091027-04	BRL	µg/ft²	20	1	10/27/2009	11/5/2009	MAW
0911232-005A	091027-05	BRL	µg/ft²	20	1	10/27/2009	11/5/2009	MAW
0911232-006A	091027-06	BRL	µg/ft²	20	1	10/27/2009	11/5/2009	MAW
0911232-007A	091027-07	BRL	µg/ft²	20	1	10/27/2009	11/5/2009	MAW
0911232-008A	091027-08	BRL	µg/ft²	20	1	10/27/2009	11/5/2009	MAW
0911232-009A	091027-09	BRL	µg/ft²	20	1	10/27/2009	11/5/2009	MAW
0911232-010A	091027-10	BRL	µg/ft²	20	1	10/27/2009	11/5/2009	MAW
0911232-011A	091027-11	BRL	µg/ft²	20	1	10/27/2009	11/5/2009	MAW
0911232-012A	091027-12	BRL	µg/ft²	20	1	10/27/2009	11/5/2009	MAW
0911232-013A	091027-13	BRL	µg/ft²	20	1	10/27/2009	11/5/2009	MAW
0911232-014A	091027-14	BRL	µg/ft²	20	1	10/27/2009	11/5/2009	MAW
0911232-015A	091027-15	BRL	µg/ft²	20	1	10/27/2009	11/5/2009	MAW

Qualifiers: BRL - Not Detected at the Reporting Limit DF - Dilution Factor

Results are blank corrected where applicable

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 26 of 2531

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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-ARS-IHSE (40-5f) November 18, 2006

MEMORANDUM THRU Non-Responsive, Deputy State Surgeon, Tennessee National Guard, HQS, TNARNG STARC, Attn: AGTN-DCSPER-DSS, P.O. Box 41502, Houston Barracks, Nashville, Tennessee 37204-1501

TO: ATTN: Non-Responsive, State Occupational Health Office, P O Box 41502, Nashville, TN 37204-1502.

SUBJECT: Transmittal of Survey Reports for the Alamo Armory, Alamo, TN, FMS 12 Trenton, TN, FMS 13 Jackson, TN

1. References.

a. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1996 rev.

b. AR 40-5, Preventive Medicine, 22 July 2005.

c. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.

d. AR 385-10, 29 February 2000, Army Safety Program.

e. TB MED 503, The Army Industrial Hygiene Program, 30 October 2000.

f. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.

g. Industrial Ventilation, 25th, 2004, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

h. Title 29 Code of Federal Regulation (CFR), Part 1910.1025 Lead.

i. Industrial Hygiene Survey Report, OSHEA II, Industrial Hygiene Consulting, Fayetteville, NC.

2. General.

a. At the request of the TN ARNG Safety and Occupational Health Office, an Industrial Hygiene Service was put together to conduct Health Hazard Information module (HHIM) Field surveys and industrial hygiene sampling of the Alamo Armory, Alamo, TN, FMS 12 Trenton, TN, FMS 13 Jackson, TN.

b. The surveys were conducted by OSHEA II, Industrial Hygiene Consulting, P.O. Box 35669 Fayetteville, N.C. 28303

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SUBJECT: Transmittal of Survey Reports for the Alamo Armory, Alamo, TN, FMS 12 Trenton, TN, FMS 13 Jackson, TN

3. Findings. All HHIM field survey forms, industrial hygiene sampling and survey findings of the report are enclosed (See ENCL 1). The report has been designed, by this office, to extract personal data from the report which is enclosed. Additionally Hearing Conservation Program Notification Letters were generated based on the noise dosimetry performed, 3 notification letters for FMS 12 and four for FMS 13.

4. Recommendations.

a. Follow all recommendations made in reference 1.I., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Control water infiltration in the armory and/or replace or repair damaged surfaces or components (ceiling and floor tiles). Building conditions that present IAQ concerns or problems not only exacerbates normally minor health issues but also tend to promote or accelerate building deterioration.

c. The recommendations given in the comment section and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-06. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-07 IHIP.

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present survey, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

f. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

5. If additional information is needed about the industrial hygiene survey or air sample results,

Non-Responsive

[redacted]

CF: NGB-ARS-IH
COL [redacted]ennessee State Safety and Occupational Health Manager, 3041 Sidco Drive, Nashville, TN 37204-1504
as

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Tennessee Army National Guard
Alamo Armory

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 29 of 2531

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MEMORANDUM FOR: Tennessee Army National Guard: ATTN: Non-Responsive
Armory Supervisor, Signal Net Support, 230th Sustainment Brigade, Alamo, TN 38001

SUBJECT: Baseline Industrial Hygiene Health Hazard Information Module (HHIM) Survey of Signal Net Support, 230th Sustainment Brigade, 778 Hwy 54 West, Alamo, Tennessee 38001

August 15, 2006

REFERENCES

a. Title 29 Code of Federal Regulations (CFR) part 1910, Occupational Safety and Health Administration (OSHA).

b. Army Regulation 385-10, The Army Safety Program.

c. Army Regulation 11-34, February 1990, The Army Respiratory Protection Program

d. Technical Bulletin (TB MED) 503, 1 February 1985, The Army Industrial Hygiene Program

e. Industrial Ventilation, 22nd Edition, The American Conference of Governmental Industrial Hygienist (ACGIH), Cincinnati, Ohio.

f. National Guard Regulation 385-10, 20 December 1989, Army National Guard Safety and Occupational Health Program.

g. IES Lighting Handbook, Application Volume 2000, Illumination and Engineering Society of North America.

h. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation Program.

i. Technical Bulletin (TB MED) 503, 1 February 1985, The Army Industrial Hygiene Program.

j. Army Regulation (AR) 40-5, 15 October 1990, Preventive Medicine.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 30 of 2531

2. GENERAL: At the request of Non-Responsive National Guard Bureau South, Regional Industrial Hygienist, Atlanta, Georgia, a Health Hazard Information Module Baseline Survey was performed at Signal Net Support, 230th Sustainment Brigade, Alamo Tennessee. The purpose of this survey was to evaluate health hazards, existing controls in the work site to perform a baseline survey in accordance with references 1a through 1j and collect bulk samples.

3. FINDINGS:

Armory Site Description: The Signal Net Support, 230th Sustainment Brigade is housed in this armory.. Three full time individuals perform administrative duties. The armory was constructed in 1980 and is approximately 19,000 square feet. It contains several offices/ five administrative areas, one combined kitchen/mess hall, supply rooms, weapons room/vault and a converted indoor firing range. The armory was well kept but there was evidence of leaking as indicated by the water circles on the ceiling tiles. No tile was found friable on the floors or in the ceilings. Signs of leaks were all over the facility.

Non-Responsive stated that the roof had been leaking for two years. The warranty on the roof expired three years prior to this survey. Water was also upon electrical sockets and the conditions for mold and spore growth was present on the walls of the workout room.

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Ceiling tile showed evidence of leaking in all office areas and hallways. A work order had been submitted to repair the roof.

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Water entered this room under windows when it rained.

mold growth on the wall

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The floor of the drill hall was concrete. (Below) The kitchen is used to prepare food.

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Food prep area of the kitchen. The kitchen is used during drill weekends.

The armory cleaning supplies are stored in this room down the main hallway.

This class room is used during drill. The ceiling tiles were filled with water circles.

In the administrative office area of the armory phone answering, computer use and paper generation is performed.

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Wipe sampling was performed in the area that was the old firing range. It is primarily used for storage.

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a. **Hearing Conservation Program:** All employees are enrolled in the Hearing Conservation Program and receive annual audiograms.

b. **HAZCOM:** HAZCOM training had been performed prior to this survey. MSDS were available for their inventory.

c. **Illumination:** Illumination levels were recorded in all administrative areas, classrooms, training rooms and supply areas throughout the Armory. See chart below for specific location of measurements.

Location	*Illumination level (FTC)*	*IES Standard (FTC)*
Chief's office	86.6------119.4	50----100
Class room	67.0-------85.2	50----100
Hallways	38.3-------90.6	50----100
Kitchen	87.3-------112.9	50----100
Weight room	132.1-----137.4	50----100
Converted range	23.2-------28.4	5------10
Vault	21.1-------32.9	50----100
Supply	15.6-------17.3	50----100
C&E maintenance	5.9---------29.5	5-----10
Empty storage	73.0-------74.9	50----100
Recruiter's office	65.2--------80.5	50----100

The majority of readings are at the IES lighting standard of 50 to 100 foot candles.

d. Administrative Areas: Personnel perform administrative duties that consist of reading, handling and generating paper work. Employees use computers and answer phones.

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e. Wipe sampling was performed in the Armory. A total of 45 wipe samples were collected and sent to the laboratory for lab analysis. Samples were analyzed for lead. All sample results were below reading limits (BRL) in the kitchen, converted indoor range and the drill hall. [redacted] provided a copy of the clearance samples for the converted range (presently a storage room). One sample taken from the top shelf of the weapon's rack contained 32micrograms of lead, or 0.0032 milligrams per cubic meter. (Sample No. 060816)

f. **Motor Pool Area:** The motor pool is located behind the armory. There were three blazers on site. They are used to run errands or transport supplies. Armory's personnel perform no maintenance operations or vehicle repairs.

g. A noise level survey was performed of the vehicles located on site. Noise hazard caution signs are posted on vehicles and hearing protection is available and easily assessable for personnel and visitors.

h. **Arms Room/Weapons Vault:** Weapons are stored in the armory's vault. It is reported that no weapons cleaning is performed inside of the weapons storage vault. It was also stated that weapons are cleaned before being placed in the arm's vault.

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i. **Solvent Bath:** During drill training the solvent bath is used. The fluid in the solvent bath tank is warmed and weapons are cleaned on the drill hall floor. Full time Personnel place their weapon in the cleaning solution for a few minutes, remove it and finish the cleaning process. It is stated that it is a two- part process. The cleaning process takes less than thirty minutes.

4. **Technical Assistance:**

Non-Responsive

[redacted]

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 40 of 2531

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RECOMMENDATIONS

a. Hearing Conservation Program. Continue with annual audiometric testing for relevant personnel in accordance with reference 1h.

b. Hazardous communication or HAZCOM refresher training. Continue with annual HACOM training. Dated and signed records should be maintained of all HAZCOM training administered.

c. A work order should be resubmitted for repair of the roof. There is evidence of mold growth in the armory. Cleaning with walls with a sodium hypo- chlorite solution is not feasible as long as the roof continually leaks.

d. The sample from the top shelf of the weapons rack tested positive for lead. Weapons are never to be cleaned inside the weapon's storage vault or any other enclosed area without adequate ventilation in accordance with references 1a and 1c. Personal Protective equipment, such as goggles, should be worn to protect eyes from splash hazards and gloves should be worn to prevent solvent absorption through the skin.

e. Based on the limited, short duration, nature, of contact cleaners, and solvents used at this armory, there is no need for a Respiratory Protection Program, neither is there a need to perform atmospheric monitoring during weapons cleaning if windows and doors are open to circulate air during weapons cleaning.

Enclosure No. 1

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INSTRUMENTATION: The following survey instrumentation was utilized to obtain noise, illumination or ventilation measurements. All equipment was used according to manufacturer/ manual recommendations. All equipment was calibrated prior to and after use.

Nomenclature	Serial No.
Extech Light Meter	L595339
Extech Sound Level Meter	6134582
Extech Sound Calibrator	5431625
Extech Thermo Anemometer	9184009

Enclosure No. 2

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DD2214 -Sound Level Survey

Enclosure No. 3

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NOISE SURVEY
(Sound Lever Meter Survey)

1. DATE (YYYMMMDD)	2. TYPE SURVEY (Enter Code)
2006 / 08/ 01	2 1- INITIAL SURVEY 2- RESURVEY 3- OTHER

3. SOUND LEVEL METER		4. MICROPHONE		5. CALIBRATOR	
a. MANFACTURER Extech		a. MANFACTURER		a. MANUFACTURER Extech	
b. MODEL 407703	c. SERIAL NO. 041002810	b. MODEL	c. SERIAL NO.	b. MODEL 7703A	c. SERIAL NO. 4XX69
d. LAST ELECTROACOUSTIC CALIB DATE YR/ M/D 06/03/06		d. LAST ELECTROACOUSTIC CALIB DATE YR/M/D		d. LAST ELECTROACOUSTIC CALIB DATE YR/M/D 06/03/06	

6. WIND SCREEN (X one)	7. MEASUREMENTS OBTAINED (X one)
USED X NOT USED __	INDOORS ___ OUTDOORS X

8. DESCRIPTION OF AREAS/DUTIES WHERE NOISE SURVEY CONDUCTED (Illustrate on additional sheet and attach to form)	9. PRIMARY SOURCE OF NOISE
Alamo Armory 778 Hwy 54 N Alamo, TN 38001	Trucks 10. SECONDARY SOURCE OF NOISE

11. SOUND LEVEL DATA / 12. PROTECTION REQUIRED (re: dBA- Level)

a. LOCATION	b. METER	c. dBC	d. dBA	e. RISK ASSESSMENT CODE	a. None (less than 85)	b. PLUG OR MUFF (85-108)	c. PLUG AND MUFF (108-118)	d. PLUG + MUFF + TIME LIMIT (Greater than 118)
Blazer #1	S		84.1			X		
Blazer #2	S		83.5			X		
Blazer #3	S		84.6			X		

NOTES: Rang of levels noted by /;i.e., 102/109. At operator stations, measure at ear level.
METER ACTION: Enter F for fast meter action and S for slow meter action.

13. REMARKS (*i.e. Area and equipment posted, hearing protection in use, etc.*)

Decals/ Signs were posted in work area and on machinery indicating the need for hearing protection.

14. MORE DETAILED NOISE EVALUATION REQUIRED YES NO X (*If "YES", identify type of evaluation needed*)

15. NAME(S) OF PERSON(S) IDENTIFIED FOR AUDIOMETRIC MONITORING (*Use additional sheet if more space is needed and attach to form*) All who work in this shop area

16. SUPERVISOR OF NOSE- HAZARDOUS AREA OR OPERATION

a. NAME (Last, First, Middle Initial)	b. TELEPHONE (include area code)	c. ORGANIZATION Alamo Armory
[redacted]		

[redacted]EARING CONSERVATION MONITOR (Last Name, First Name ,MI)

Non-Responsive

DD FORM 2214, JAN 2000 PREVIOUS EDITION MAY BE USED

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Hazardous Material inventory

Enclosure No. 4

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Maintenance Bay (FLAMMABLE ITEMS CABINET #1)

TOP SHELF	ITEMS	QUANTITY
	CROWN SPRA-TOOL	19 CANS
	QUICK START DIESEL STRATING FUEL	1 CAN
	SO-SURE (PRIMER) BROWN	10 CANS
	SO-SURE (LACQUER PAINT) WHITE	3 CANS
	PITTBULL (ENAMEL PAINT) WHITE	1 CAN
	PITTSBURG (ENAMEL PAINT) WHITE	1 CAN
2ND SHELF	CORROSION PREVENTION COMPOUND	8 CANS
	LUBRICANT SOLID FILM	1 CAN
	STENCIL AND MARKING INK (YELLOW)	1 CAN
	WD-40 LUBRICANT	1 CAN
	LIQUID WRENCH	1 CAN
	PITTSBURG (FLAT LATEX PAINT) WHITE	1 QUART CAN
3RD SHELF	OIL TESTING BOTTLES	3 BOTTLES
	TIRE REPAIR KIT	BOX KIT
	ELASTOMERIC LATEX SEALANT(CEDAR TAN)	1 TUBE
	ACRYLIC LATEX CAULK (BROWN)	1 TUBE
BOTTOM	OIL SEMI-GLOSS ENAMEL PAINT (DOVE GRAY)	2 GAL. CANS
	PAINT TRAYS	2
	PAINT ROLLER/BRUSH	1 EA.
	GOGGLES	2 PR.
	MASKING TAPE	1 ROLL

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MAINTENANCE BAY (FLAMMABLE ITEMS CABINET #2)

TOP SHELF	ITEMS	QUANTITY
	SO-SURE PENETRATION FLUID	2 CANS
	DIAGRAPH STENCIL INK	1 CAN
	ALL PURPOSE CLEANER	1 SPRAY BOTTLE
	GM ATF AUTO TRANS. FLUID	1 BOTTLE
	SILICONE SEALANT (WHITE)	1 TUBE
	SILICONE SEALANT (CLEAR)	1 TUBE
	TUB SEALANT	1 TUBE
	TUB ADHESIVE CAULK	1 TUBE
2ND SHELF	SO-SURE LACQUER PAINT (GRAY)	1 CAN
	S/W INTERIOR SEMI-GLOSS PAINT (GRAY)	1 GAL.
	PARKER PAINT (FORREST GREEN)	1 GAL.
	PARKER PAINT (BROWN)	2 GAL.
	TARKETT VINYL ASPHALT ADHESIVE	1 GAL.
3RD SHELF	DEVO-KO SUPER ENAMEL UNDERCOAT	1 GAL.
	S/W EXTERIOR SATIN LATEX PAINT (BROWN)	1 GAL.
	ENAMEL ALKYD PAINT	2 GAL.
	CORROSION PREVENTION	1 GAL.
BOTTOM SHELF	EXTERIOR SATIN LATEX (BRONZE)	1 GAL.
	LATEX PAINT (WHITE)	5 GAL.

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FLAMMABLE CABINET (SUPPLY ROOM)

TOP SHELF	ITEMS	QUANTITY
	CARBURETOR & CHOKE CLEANER	9 CANS
	WINDSHIELD CLEANING COMPOUND	1 BOTTLE
	PENETRATING FLUID	3 CANS
	STARTING FLUID	3 CANS
	PROLUBE (GENERAL PURPOSE LUBRICANT)	7 CANS
2ND SHELF	CARBON REMOVAL COMPOUND	5 CANS
	GREASE GUNS	2 GUNS
	BATTERY CLEANER	1 CAN.
	BRASSO CLEANER	1CAN
	SILICONE RUBBER SEALANT	1 TUBE
	OIL CAN (SMALL) (10wt)	1 CAN.
BOTTOM SHELF	INSECTICIDE	8 CANS
	PROPANE FUEL CANISTERS	5 CANS
	DIESEL STARTING FLUID AND CONTAINERS	8 CANS

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Laboratory Analysis

Enclosure No. 5

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Analytical Environmental Services, Inc.

Date: 8/15/2006

TOTAL LEAD IN WIPE SAMPLES
N7082

CLIENT: OSHEA II
Project: Alamo Armory
Delivery Order:
PO No:

Lab Order: 0608570
Date Received: 8/9/2006 12:25 PM
Matrix: Wipe

Laboratory ID	Client Sample ID	Results	Units	Report Limit	DF	Date Collected	Date Analyzed	Analyst
0608570-001A	80101F	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608570-002A	80102F	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608570-003A	80103F	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608570-004A	80104F	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608570-005A	80105F	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608570-006A	80106F	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608570-007A	80107F	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608570-008A	80108F	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608570-009A	80109F	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608570-010A	80110F	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608570-011A	80111F	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608570-012A	80112F	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608570-013A	80113F	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608570-014A	80114F	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608570-015A	80115F	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608570-016A	81161	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608570-017A	81162	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608570-018A	81163	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608570-019A	81164	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608570-020A	81165	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608570-021A	81166	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608570-022A	81167	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608570-023A	81168	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608570-024A	81169	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA

Qualifiers: BRL - Not Detected at the Reporting Limit DF - Dilution Factor

Results are blank corrected where applicable

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Released by National Guard Bureau
Page 50 of 2531

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Analytical Environmental Services, Inc.

Date: 8/15/2006

TOTAL LEAD IN WIPE SAMPLES
N7082

CLIENT: OSHEA II
Project: Alamo Armory
Delivery Order:
PO No:

Lab Order: 0608572
Date Received: 8/9/2006 12:25 PM
Matrix: Wipe

Laboratory ID	Client Sample ID	Results	Units	Report Limit.	DF	Date Collected	Date Analyzed	Analyst
0608572-001A	060801	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608572-002A	060802	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608572-003A	060803	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608572-004A	060804	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608572-005A	060805	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608572-006A	060806	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608572-007A	060807	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608572-008A	060808	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608572-009A	060809	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608572-010A	060810	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608572-011A	060811	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608572-012A	060812	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608572-013A	060813	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608572-014A	060814	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608572-015A	060815	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608572-016A	060816	23	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608572-017A	060817	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608572-018A	060818	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608572-019A	060819	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608572-020A	060820	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA
0608572-021A	060821	BRL	µg, Total	20	1	8/1/2006	8/14/2006	VA

Qualifiers: BRL - Not Detected at the Reporting Limit DF - Dilution Factor

Results are blank corrected where applicable

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 51 of 2531

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Full Time Personnel

Non-Responsive

[redacted]

Enclosure No. 6

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Lead Sample Clearance letter

Enclosure No. 7

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SPECIALIZED ASSAYS, INC.
2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

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ANALYTICAL REPORT

J. G. TN ARMY NATIONAL GUARD 5132
DFE-ENV
P. O. BOX 41502
NASHVILLE TN 37204-1502

Lab Number: 98-A128669
Sample ID: F6
Sample Type Wipe
Site ID:

Date Collected:
Time Collected:
Date Received: 10/20/98
Time Received: 11:40

Project: ALAMO
Project Name: LEAD SAMPLE
Sampler: IDA PRATHER

Analyte	Result	Units	PQL	Date	Time	Analyst	Method
Lead	ND	ug/wipe	2.50	10/22/98	13:31	R Street	6010

Report Approved By: [redacted] Report Date: 10/22/98

Non-Responsive

, Q.A. Officer
chnical Director
ratory Director
Technical Services

Laboratory Certification Number: 02008

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0739

DEPARTMENT OF THE ARMY
HEADQUARTERS, TENNESSEE ARMY NATIONAL GUARD (STARC)
HOUSTON BARRACKS, 3041 SIDCO DRIVE
NASHVILLE, TENNESSEE 37204-1502

AGTN-DCSEN

7 December 1999

MEMORANDUM THRU:

7JAN00 Jan

~~HHC 194TH Engr Bde, 1510 Hwy 70 By Pass PO Box 2347 Jackson, TN 3830-22347~~

HHC 230TH Sig Bn, 15 Hadley Dr. PO Box 464 Humboldt, TN 3834-30464

FOR CO A (-) 230TH Sig Bn, 778 Hwy 54 North, PO Box 9 Alamo, TN 38001-0009

SUBJECT: Indoor Firing Range Utilization

1. The area designated for an Indoor Firing Range at your facility has been tested for Lead Contamination and is below the threshold amount for a lead hazard. The range is safe to occupy and utilize for other than indoor weapons firing. Do not fire on this range.

2. The Construction, Facilities, and Maintenance Office must approve any structural modifications for the range.

3. Keep this memorandum and the attached lead test results on permanent file.

4. [redacted] N

Non-Responsive

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HHIM

Enclosure No. 8

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HHIMS

INDUSTRIAL HYGIENE SURVEY FORM

ARLOC_047000 INSTALLATION_AARNG BLDG_____ ROOM_____

LOCATION	OPERATION	SURVEY DATE	EVALUATOR	MACOM
AV	ADO	YR 06/ 08/01	KJS	NG

SUPERVISOR	ORGANIZATION	RAC
Non-Responsive	Alamo Armory Signal Net Support Brigade	3

	COMMERICAL/DSN	FREQUENCY	# CIV	#MIL	#CONTRACT	# LOC
[redacted]	x /	6-8 hours/ day	3 /		/	

LAB HOODS	VAPOR/DEGREASERS	PAINTBOOTH	SANDBLASTING BOOTH	OPEN SURFACE
0	1	0	0	0

NO VENTILATION UNITS

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED

PPE REQUIRED UTILIZED

GLOVES	R U	RESPIRATOR	R U	EYES/FACE	R U
ACID	__/__	AIRLINE	__/__	CHEM/SPLASH	__/__
COLD SURFACE	__/__	ABRASIVE BLASTING HOOD	__/__	FULL FACE SHIELD	__/__
HOT SURFACE	__/__	DISPOSABLE	__/__	CHEM/SAF IMPACT	x / x
NBC AGENTS	__/__	FULL FACE AIR PURFYING	__/__	SAFETY IMPACT	__/__
OIL	__/__	½ FACE AIR PURFYING	__/__	WELDING HELMET	__/__
SOLVENTS	__/__	POWERED AIR PURFYING	__/__	WELDING GOGGLES	__/__
SURGICAL GLOVES	__/__	¼ FACE AIR PURIFYING	__/__	LASER EYE PROTECT	__/__
OTHER_____	__/__	SCBA	__/__	OTHER_____	__/__

EARS/ HEARING	R U	BODY	R U	HEAD AND FEET	R U
CANAL CAPS	__/__	APRONS	__/__	COLD WEATHER BT&HAT	__/__
>85-108 STDY EPLG	x / x	COLD WEATHER CL	__/__	HARD HAT	__/__
" "HLMT/PLG	__/__	COVERALLS	__/__	IMPERMEABLE BOOTS	__/__
" " MUFF ONLY	__/__	FULL BODY SUIT	__/__	SAFETY SHOE CONDUCT	__/__
108-118 MUFF/PLG	__/__	HEAT REFLECTIVE	__/__	SAFETY NON CONDUCT	x / x
118 OR> MUFF/PLG	__/__	VEST/SUIT	__/__	OTHER _____	__/__
W/ TIME LIMIT		SAFETY BELT/ HARNESS	__/__		
OTHER_____	__/__	SPECIAL PURPOSE CLO	__/__		
		OTHER BDU	x / x		

	CAS CODE	PAC	EPC	HAZARD DESCRIPTION
PONOISECO	P0noiseco	2	0	Noise, continuous
POFOOTHAZ	P0stress	3	0	Mental / physical stress
POFLYPROJ	P0lifting	3	D	Heavy lifting
POEYEHAZA	P0eyehaza	2	A	Eye Hazards
POFLAMMHAZ				
POLIFTING				
POSHARPOBJE				
POELSHOCK				
COLUBEOIL				

DESCRIBED OPERATION

Administrative duties are performed six to eight hours a day and consists of answering phones, using computers, generating paper work and running errands.

PERSONNEL LIST ATTACHED

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Facility layout

Enclosure No. 9

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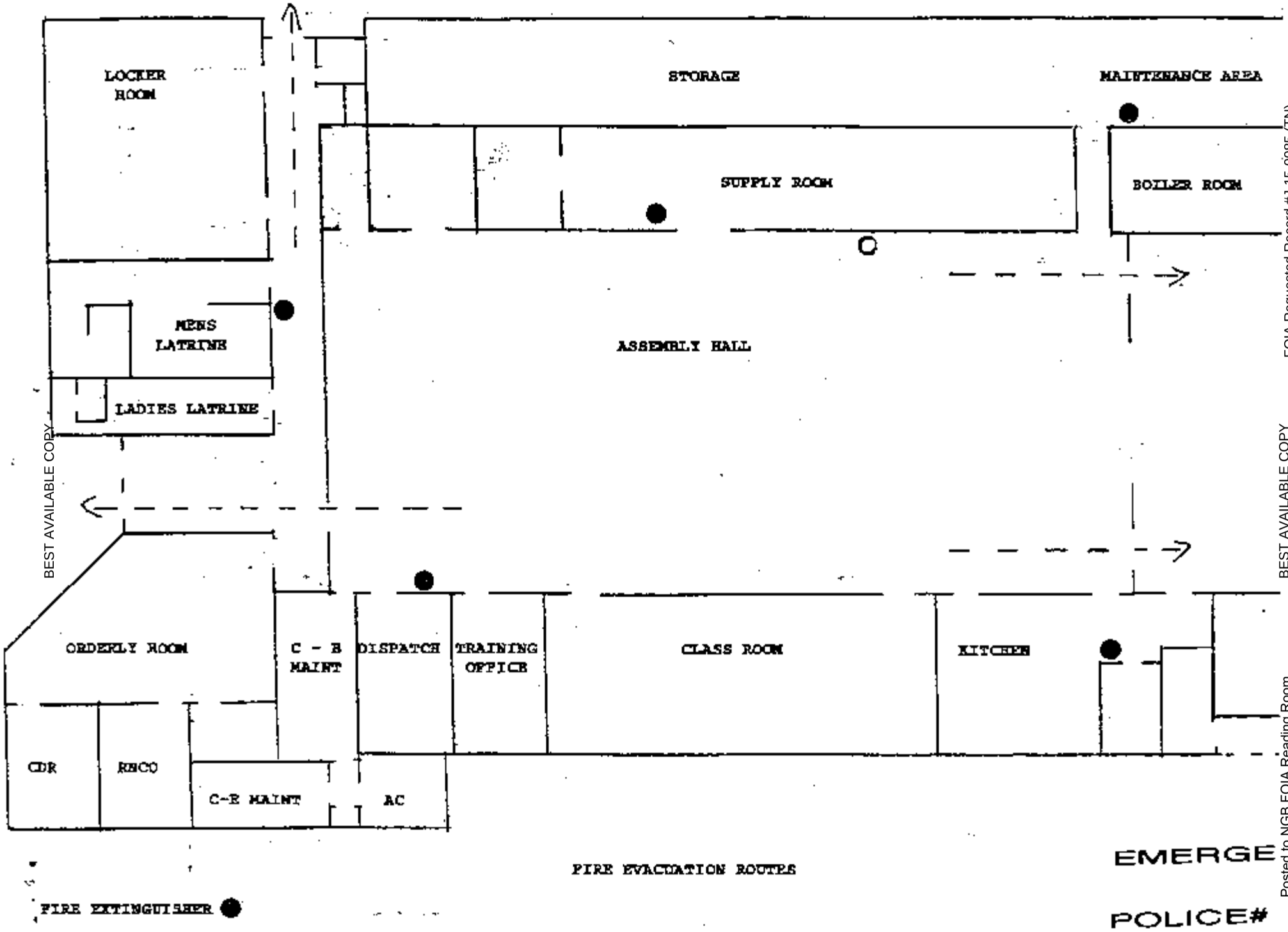

FIRE EVACUATION PLAN

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 59 of 2531
Posted to NGB FOIA Reading Room
May, 2018

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NATIONAL GUARD REGION SOUTH
INDUSTRIAL HYGIENE OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

NGB-ARS-IHSE (40-5f) 21 June 2010

MEMORANDUM FOR THE ADJUTANT GENERAL OF TENNESSEE, ATTN: [redacted] Non-Responsive, DET 1 251st Military Police Company, 11185 HWY 64 West, Bolivar, Tennessee 38008.

THRU Non-Responsive Deputy State Surgeon, Tennessee National Guard, HQS, AGTN-DCSPER-DSS, P.O. Box 41502, Houston Barracks, Nashville, Tennessee 37204-1501.

SUBJECT: Industrial Hygiene Survey Bolivar National Guard Armory, Bolivar, TN.

1. References.

a. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1996 rev.

a. Title 29, Code of Federal Regulations (CFR), 2009 rev., part 1910, Occupational Safety and Health Standards.

b. Title 29 CFR, General Industry, revised 1996 rev. Part 1940

c. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 25 May 2007

d. AR 385-10, The Army Safety Program, 23 August 2007.

e. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.

f. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, 12 September 2008.

g. TB MED 503, The Army Industrial Hygiene Program, 30 October 2000.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2010 American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 26th rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

k. NG PAM 420-15, 03 November 2006, Facilities Engineering, Rehabilitation and Conversion of Indoor Firing Ranges.

SUBJECT: Industrial Hygiene Survey Bolivar National Guard Armory, Bolivar, TN.

1. Report Industrial Hygiene Survey, Safety Solutions, 2607 Treburne Lane, Hampton Cove, AL.

2. General.

a. At the request of Non-Responsive, RN, of the Tennessee National Guard Occupational Health Office, an Industrial Hygiene Survey was put together to conduct a Health Hazard Information module (HHIM) Field survey of the s and industrial hygiene sampling of the Bolivar National Guard Armory.

b. Non-Responsive of SE Safety Solutions, 2607 Treburne Lane, Hampton Cove, AL conducted the survey.

3. Findings. All Health Hazard information is on the survey findings of the report. (See enclosure 1). Operations of very short duration were not sampled due to the requirements of the sampling method. If the operation changes or if the length of the operation is increased, contact this office to schedule sampling if it is deemed needed then.

4. Recommendations. Understand that all findings found in the enclosed report have been reviewed by the Regional Industrial Hygienist and the following recommendations are the ones to be followed.

a. Use the guidance given in the enclosed report as good IH practices, requesting industrial hygiene (IH) services where needed. The recommendations that follow are based on the survey findings as reported:

i. Ensure to perform semi-annual inventories and updates of MSDS's on all chemicals in the facility. Establish an inventory roll up sheet to be kept in the binder. **(RAC 3)**

ii. Decontaminate the areas were the lead dust wipe results were high (i.e.: the Drill Hall floor, Indoor Firing Range, Vault and the Supply room weapons issue area) IAW NGB (AR) 385-15 Appendix C. **(RAC 2)**

iii. Repair all building damaged walls, replace the water damaged ceiling tile and replace the missing floor tiles in the hall way on the north side entrance of the building. **(RAC 3)**

b. The recommendations given in the comment section of the HHIM data sheets and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-10. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-11 IHIP.

c. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present survey, especially if this will help eliminate health hazards and reduce medical surveillance cost.

SUBJECT: Industrial Hygiene Survey Bolivar National Guard Armory, Bolivar, TN.

d. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance, also provided a corrective action plan to the OHN within 30 days of receipt of this report.

e. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

5. If additional information is needed about the industrial hygiene survey or air sample

Non-Responsive

[redacted]

CF: NGB-ARS-IHSE
Safety and Occupational Health Manager, Tennessee State Safety and Occupational Health Manager, 3041 Sidco Drive, Nashville, TN 37204-1504

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Industrial Hygiene Report
For
Tennessee National Guard
(TN ARNG)
At
Bolivar Armory
11185 Hwy 64 West
Bolivar, Tennessee 38008

Prepared for:
Department of the Army
National Guard Bureau
Regional Industrial Hygiene Office
Region South
510 Plaza Drive, Suite 1530
College Park, Georgia 30349

By

Non-Responsive

[redacted]

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Table of Contents

Subject ..... Page 1

Background ..... Page 1
- Introduction
- Site Description
- Scope of Work
- POC

Instrumentation ..... Page 1

Findings
- DET 1 251st MP CO ..... Page 1
- Lead Wipe Results ..... Page 2
- Area Deficiencies ..... Page 2
- Illumination Readings ..... Page 3

Recommendations: ..... Page 5

Enclosures:

1. Health Hazard Information Module (HHIM) Survey Form
2. Listing of hazardous chemicals/materials at the facility
3. Analytical Lead Wipe Results
4. Personnel Roster
5. Design Floor Plan
6. Lead Clean up Procedures
7. References
8. Pictures: 1-24

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SESS May 18, 2010

MEMORANDUM FOR: Tennessee Army National Guard, ATTN: Non-Responsive DET 1 251st Military Police Company, 11185 HWY 64 West, Bolivar, Tennessee 38008

SUBJECT: Industrial Hygiene Consultation and Health Hazard Information Module (HHIM) Survey, 251st MP Company

1. REFERENCES: See Enclosure 7.

2. BACKGROUND: At the request of Non-Responsive National Guard Bureau Regional Industrial Hygienist, Atlanta, Georgia, an Industrial Hygiene Consultation and Health Hazard Information Module Field Survey were performed at the Tennessee National Guard Armory, 11185 HWY 64 West, Bolivar, Tennessee 38008 on May 18, 2010. The POC was Non-Responsive [redacted] The primary mission of DET 1 251st MP Company is to provide Law and Order to the Military Community. The purpose of the survey was to perform lead wipe samples; a ventilation survey, an Illuminations survey, and complete HHIM field survey forms on all industrial operations at the facility (see Encl 1 for completed HHIM Survey Form).

3. INSTRUMENTATION: The following survey instrumentation was provided by the contractor and was used to obtain lead wipe dust samples and illumination measurements. All other instrumentation was operated according to manufacturer recommendations.

   a) Reed LM-81LX, Light Meter, S/N: Q303521, calibrated: 12/15/2009
   b) Ghost Lead Dust Wipes, Manufactured: December 28, 2006, Expiration: 06/2010

4. FINDINGS:

   a) DET 1 251st MP Company and Supply:

      i) Administrative duties included pay, promotions, schools, family support, assignments, and supplies. The supply area was broken down into Class 2 items of clothing and equipment. The supply area was also responsible for maintaining some TA 50.

      ii) Forty five M-Day soldiers trained at the facility.

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SESS
SUBJECT: Industrial Hygiene Consultation and Health Hazard Information Module

b) General Area Armory Information:

i) Material Safety Data Sheets (MSDS) were located in the facility. All employees must be initially trained in the Federal Hazardous Communication Program IAW 1910.1200 (see Encl 2 for a listing of hazardous chemicals/materials at the facility).

ii) Seven teen lead dust wipe samples were taken, using a 12 inch by 12 inch template. Three samples were at or above the federal standard of 40μg/ft². One sample contained low levels of lead at 24μg/ft². Pictures of the lead sample wipes were taken (see Encl. 8, photos M156 to M172). The analytical lead result sheet included the sampled locations and corrected results. The following table notes where the samples were taken, the surveyor's field number, and the lead results:

Location:	Surveyor's Field No:	Results:
Drill Hall Floor S.E. Side	M156	24
Drill Hall Floor S.W. Side	M157	BRL
Drill Hall Floor Center	M158	BRL
Drill Hall Floor N.E. Side	M159	BRL
Drill Hall Floor N.W. Side	M160	BRL
Water Fountain in Drill Hall	M161	BRL
Kitchen food Issue Counter top	M162	BRL
Entrance Hall way to Drill Hall	M163	BRL
Area were bullet stop was	M164	BRL
Floor were bullet stop was	M165	58
Desk stored in Old Range	M166	BRL
Wall Locker stored in Old Range	M167	BRL
Rear Wall near exit door of Range	M168	BRL
Old Range Floor Left Side	M169	BRL
Range Wall Right side	M170	BRL
Vault Floor	M171	52
Weapons Issue Pt in Supply Room	M172	40
Blank		

Note 1: μg/ft² refers to micrograms or one millionth of a gram per sq ft.
Note 2: BRL means Not Detected at the Reporting Limit.

iii) Drill Hall: Conducting classes and drill formations is the main purpose in the hall. (See Encl. 8, photo 21). Illumination levels ranged from 12 to 19 FC's.

iv) Furnace/General Mechanical Ventilation: Good.

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 66 of 2531

SESS
SUBJECT: Industrial Hygiene Consultation and Health Hazard Information Module

v) The following table identifies area deficiencies:

AREA	DEFICIENCIES
Class Room	Cracked cinder block wall
Hallway	Water damage possible mold
Hallway	Missing FL Tiles on N. Entrance

vi) Due to the low noise levels (administrative areas) there was no requirement for a Hearing Conservation Program. The only requirement would be when the M-Day troops were firing their weapons. All M-Day and full-time soldiers had earplugs.

vii) A listing of the DET 1 251st MP personnel is attached as Encl. 4.

viii) A design floor plan and illumination levels of the armory is attached as Encl. 5.

5. ILLUMINATION SURVEY RESULTS:

a) Illumination Levels: The following additional illumination level readings were taken during the survey and are reported below in foot candles (FC's).

AREA/LOCATION	FOOT CANDLES (FC)
Front Entrance Hallway	25-50
Commander's Office	30-37
Admin Office (Main)	48-60
Kitchen	53-91
Locker Room	22-35
Female Latrine	21-23
Male Latrine	23-25
Drill Hall	12-19
Class Room	31-81
Recruiting Office	74-105
Vault	20-35
Old Range	4-21
Supply Room	20-25
Library	35-69
Storage	26-45

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 67 of 2531

SESS
SUBJECT: Industrial Hygiene Consultation and Health Hazard Information Module

As indicated in the IES Lighting Handbook, Application Volume 1987, Offices: 20-50 FC's, Supply and Publication Areas: 20-50 FC's, Assembly 20-50 FC's, Restrooms: 5-10 FC's, Classrooms: 50-100 FC's, Kitchen: 20-50 FC's, FC's, Library: 50-100 FC's, Storage Rooms: 10-20 FC's, Mail Room: 20-50 FC's.

6. TECHNICAL ASSISTANCE:

POC for further assistance concerning this evaluation Non-Responsive [redacted]

Posted to NGB FOIA Reading Room
May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 68 of 2531

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 69 of 2531

HHIMS Industrial Hygiene Survey Form

Front page

AALOC

Installation [redacted]

Building

Room Number

Location: AA

Operation: ADD

Survey Date: month 10, day 05 18

Evaluator [redacted]

Mscom: WG

Submscom: X X

Unit / Organization (45)

Supervisor: Mr. [redacted] Mc. [redacted] Rank [redacted]

RAC

Supervisor, or Point of Contact Telephone Number

DSN [redacted] Commercial [redacted]

Frequency (hrs/day): 08

No. CIVs

No. MIL: 00

Contractors: 00

No. LOCs: 00

Lab Hoods: 00

Vapor Degreasers: 00

Spray Booths: 00

Open Surface Tanks: 00

Ventilation Units: 00

Controls Present (if >6 , continue in comments)(25)	Evaluation (25 characters max)	Unit code	Controls Required (25 characters max)
OTH	4-21	F T C	20-50 FTC
OTH	12-14	F T C	20-50 FTC

Gloves	e*	R	U
cold			
cold surfaces			
hot surfaces			
NBC agents			
oil			
solvents			
surgical gloves			
leather / cotton			
other			

Respirator	e*	R	U
airline			
abrasive blasting hood			
disposable			
full face air purifying			
1/2 face air purifying			
powered air purifying			
1/4 face air purifying			
self-contained			
other			

Manufacturer's Description (10 characters max)

NIOSH TC # or Foreign equivalent (10 characters max)

Eyes and Face	e*	R	U
chemical splash			
full-face shield			
chem/safety impact			
safety impact			
welding helmet			
sunglasses			
welding goggles/glasses			
laser eye protection			
other			

Hearing	e*	R	U
canal caps			
(>85-108 dBA steady) earplugs			
" helmets w/ muffs			
" muffs alone			
(108-118)muff/earplug comb			
muffs and earplugs			
(118 or >) with time limit			
other			
other			

Body	e*	R	U
aprons			
cold weather clothing			
coveralls			
full body suit			
heat reflective			
vest/suit			
safety belt/harness			
special purp. clothing			
other			

Head and Feet	e*	R	U
cold weather boots/shoes			
hard hats			
impermeable boots			
safety shoes (conductive)			
safety (nonconductive)			
other			
other			
other			
other			

e* = evaluator's recommendation or agreement

Reminders: ergonomics - dermatitis - physical agents - flammable storage
EYE (permanent) ____ - EYE (portable) ____ - SHW - GMV - LEV

ACO ADM DSA DEN LAB LCK
RAD ECB EPL RHB SPR WEL

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HHMS Industrial Hygiene Survey Form

Back page

CAS code

PONDISECO
PCFOOTHAZ
PCFLYPROJ
PCEYEHAZA
PCFLAMMAE
PCLIFTING
PCSHARPOB
PCHOTOBJE
PCELSHOCK
COLUSEOIL

PAC | SPC

Hazard Description

Social Security Number or Unique Identifier

Last Name (20 characters max)

First Name (20 characters max)

MI | Sex | Category

Personnel data provided by the facility is attached to this form

Insert Privacy Act Statement

Comments

Operation described is Personnel, Admin & Training: Supporting the Soldiers with Promotion, Enlistment, Extention & Record processing

This operation was explained to the authorities, but was not actually observed.

There is a noise data sheet attached to this form

There is a ventilation data sheet attached to this form

[comments continued on attached]

2/8/95 CHPMBACK.XLB

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Ref# [redacted] A1

BETCO

Material Safety Data Sheet

WHMIS (Pictograms)	WHMIS (Classification)	HCS
T	WHMIS Class D-2B: Material causing other toxic effects (TOXIC).	Class: Irritating substance.

Section 1: Chemical Product and Company Identification

Product Name/ Trade name	Citrufoam	Code	068
Synonym	All Purpose Cleaner/Degreaser	CAS#	Mixture
Chemical Family	Not available	Validation Date	2/2/2001
Chemical Formula	Not applicable	Print Date	2/12/2001
Manufacturer	Betco Corporation 1001 Brown Avenue Toledo, Oh 43607 (419) 241-2156	In Case of Emergency	Chemtrec (800) 424-9300
TSCA	TSCA Inventory: All components listed or are exempt from listing.		
DSL	DSL : All components listed unless noted elsewhere on this MSDS	Protective Clothing	

Section 2: Composition and Information on Ingredients

Name	CAS#	% by Weight	Exposure Limits	LC_{50}/LD_{50}
1) Water	7732-18-5	0-100	Not available.	Not available
2) Liquified Petroleum Gas	68476-85-7	5-10	TWA: 1000 (ppm) TWA: 1800 (ppm) from OSHA (PEL) [United States]	Not available
3) Glycol Ether	112-34-5	0-5	Not available	Not available
4) Sodium Lauryl Sulfate	151-21-3	0-5	Not available	Not available
5) Amphoteric Surfactant	68298-20-4	0-5	Not available	Not available
6) Citrus Terpenes	8008-27-5	0-5	Not available	Not available
7) Monoethanolamine	141-43-5	0-5	TWA: 3 (ppm) TWA: 9 (ppm) from OSHA (PEL) [United States] STEL: 6 (ppm)	Not available
8) Coconut Diethanolamide	8051-30-7	0-5	Not available	Not available.
9) Tetrasodium salt of ethylenediaminetetraacetic acid	64-02-8	0-5	Not available	ORAL (LD50): Acute: 3030 mg/kg [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects	Irritant. Irritating to mouth, throat and stomach. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.
Potential Chronic Health Effects	Repeated skin exposure can produce local skin destruction, or dermatitis.
Carcinogenic Effects	Not classified or listed by IARC, NTP, OSHA, EU and ACGIH

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Analytical Environmental Services, Inc

Date: 27-May-10

Lab Order: 1005H67
Client: SES
Project: Bolivar, TN Armory
Matrix: Wipe
Date Received: 5/21/2010 2:10:00 PM

LEAD ON WIPES (N9100/7082)

N7082

Laboratory ID	Client Sample ID	Result	Units	Reporting Limit	DF	Qual	Date Collected	Date Analyzed	Analyst
1005H67-001A	M156	24	ug, Total	20	1		05/18/2010	05/25/2010	TA
1005H67-002A	M157	BRL	ug, Total	20	1		05/18/2010	05/25/2010	TA
1005H67-003A	M158	BRL	ug, Total	20	1		05/18/2010	05/25/2010	TA
1005H67-004A	M159	BRL	ug, Total	20	1		05/18/2010	05/25/2010	TA
1005H67-005A	M160	BRL	ug, Total	20	1		05/18/2010	05/25/2010	TA
1005H67-006A	M161	BRL	ug, Total	20	1		05/18/2010	05/25/2010	TA
1005H67-007A	M162	BRL	ug, Total	20	1		05/18/2010	05/25/2010	TA
1005H67-008A	M163	BRL	ug, Total	20	1		05/18/2010	05/25/2010	TA
1005H67-009A	M164	BRL	ug, Total	20	1		05/18/2010	05/25/2010	TA
1005H67-010A	M165	58	ug, Total	20	1		05/18/2010	05/25/2010	TA
1005H67-011A	M166	BRL	ug, Total	20	1		05/18/2010	05/25/2010	TA
1005H67-012A	M167	BRL	ug, Total	20	1		05/18/2010	05/25/2010	TA
1005H67-013A	M168	BRL	ug, Total	20	1		05/18/2010	05/25/2010	TA
1005H67-014A	M169	BRL	ug, Total	20	1		05/18/2010	05/25/2010	TA
1005H67-015A	M170	BRL	ug, Total	20	1		05/18/2010	05/25/2010	TA
1005H67-016A	M171	52	ug, Total	20	1		05/18/2010	05/25/2010	TA
1005H67-017A	M172	40	ug, Total	20	1		05/18/2010	05/25/2010	TA
1005H67-018A	BLANK	BRL	ug, Total	20	1		05/18/2010	05/25/2010	TA

Qualifiers: BRL - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
DF - Dilution Factor

Results are blank corrected where applicable

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Bolivar, TN Armory

SUBJECT: Personnel Roster

NAME	RANK	POSITION
Non-Responsive		Readiness NCO
		Admin/Supply NCO
		Recruiter

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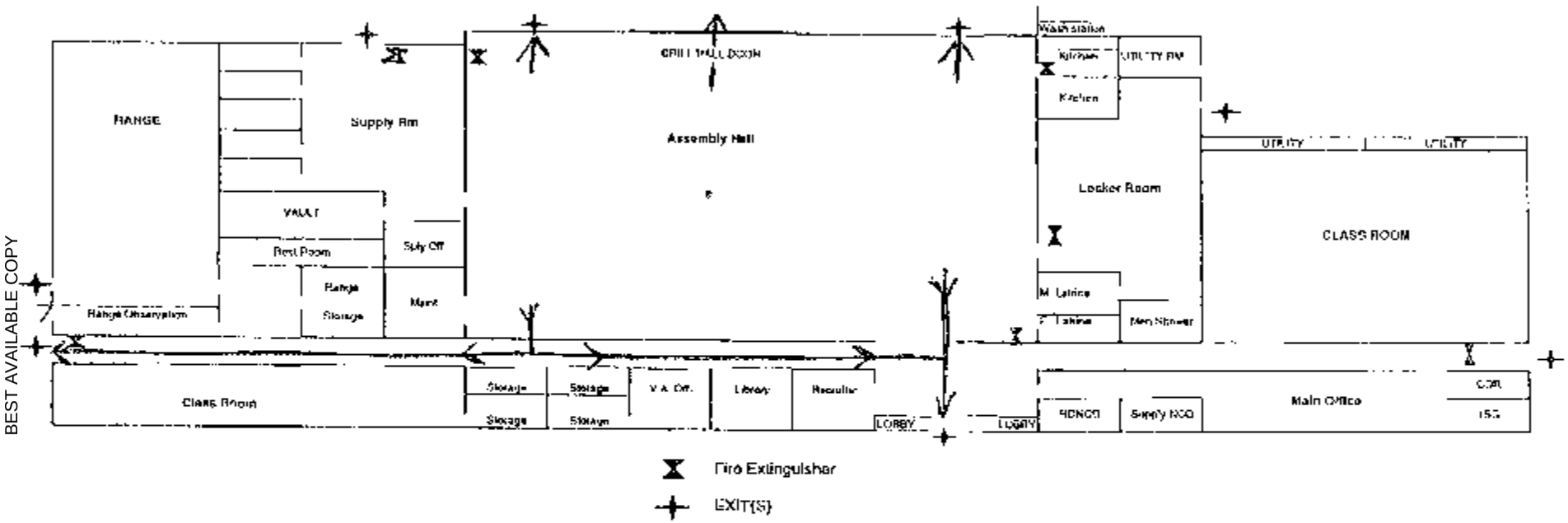
BOLIVAR NATIONAL GUARD ARMORY

FIRE ESCAPE ROUTE



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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 74 of 2531

Posted to NGB FOIA Reading Room
May, 2018

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ENCLOSURE 6

ARMORY CLEANUP REQUIREMENTS

High Test Results

If the public utilizes your facility and the test results for lead came back above 40 $\mu g/ft^2$ you are responsible for cleaning this area and adjoining areas to meet the 40 $\mu g/ft^2$ or less, unless:

1. You can guarantee that no children under the age of 7 will come into your facility.

2. Your state public health has other guidance, for example, signage is required to warn personnel who are pregnant or of child bearing age, or under the age of 7 years old.

3. Signs stating "No smoking, drinking, eating, or applications of cosmetics without washing of hands prior to activity" are properly installed in your facility.

1. Cleaning of Building.

Before proceeding into the cleanup mode, first discuss with your Environmental Office what procedures are recommended and then coordinate your cleanup efforts with local agencies, if warranted.

a. The building, as well as the dusty materials and equipment in it, should be cleaned one time to reach the lead dust levels that are appropriate for the function of the facility, for example, facilities used by full-time personnel only, utilized by adults or children 7 years old or older children only, or not utilized by pregnant individuals and/or children under the age of 7. **NOTE:** This type of cleaning implies that this is not at a facility that has an active Indoor Firing Range. For facilities with active ranges, these facilities should be monitored with wipe samples taken over the drill floor area by the Range Custodian quarterly, to ascertain that the level of lead is at the required level for your particular facility and situation.

   1. This cleanup can be accomplished using a HEPA vacuum (a very tedious and time-consuming operation) and then by utilizing a wet method with "Spic n Span" or something equivalent to this detergent -- using wet rags to wipe down surfaces and mops soaked in this solution to do the entire floor area. **NOTE: Personal protective gloves, rubber boots, or protective disposable shoe/boot covers should be used during this procedure and personnel who have performed the cleanup should wash their clothing separately from their family's clothing.**

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 75 of 2531

BEST AVAILABLE COPY

ENCLOSURE 6

especially if they have young children at home. Personnel should wash their hands after performing this operation to assure that lead contaminates are not ingested.

2. Frequent changing out of the water used for cleaning is vital. Disposal of this hazardous waste water and rags/mop heads, Personal Protective Equipment (PPE), etc., should be coordinated with your Environmental Office.

b. Clean all ductwork where lead was found. EPA has a protocol specifically for replacing or cleaning lead in dust form in HVAC systems. EPA Office of Pollution Prevention and Toxics, "*Renovate Right -- Important Lead Hazard Information for Families, Child Care Providers and Schools*". http://www.epa.gov/lead/pubs/rrpamph.pdf .

c. Continue to enforce good housekeeping and hygiene practices. These measures make good sense to minimize exposures to any toxic chemicals in the workplace.

d. Provide lead awareness training to the general workforce and any occupants of your facility.

***NOTE:* Before you start any new procedures or practices be aware of the local city and state regulations in your area.**

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 76 of 2531

BEST AVAILABLE COPY

ENCLOSURE 6

ARMORY

CLEANUP & FOLLOW-UP HOUSEKEEPING RECOMMENDATIONS

Materials Needed:

1. Cloth Mop head(s) & Mop head holder(s) with handle.
2. Mop bucket(s) with wringer.
3. Clean cotton rags and sponges.
4. Disposable gloves.
5. Large barrel (55 gallon) to store wastewater in after changing out of dirty scrub water.
6. Disposable overshoes or rubber boots. Personnel conducting cleaning operations should not take clothes, boots, etc. home for laundering.
7. HEPA vacuum
8. Six (6) mill plastic bags to dispose of waste.
9. Wastewater containers.

Disposal of Waste Water and Cleaning Materials:

1. ***NOTE:*** Consult with the Local Army National Guard Environmental Office prior to taking any collection, disposal, or commencement of wiping activities. Each state and territory may have additional regulatory guidance regarding the collection, storage, and disposal of wastewater.

2. Mop heads should be disposed of after initial cleaning, unless otherwise advised by Environmental Office personnel. ***NOTE:*** **Thorough cleaning of mop heads may be sufficient enough to permit subsequent reuse on future Armory cleanups, but check with the local Environmental Office before reuse.**

3. Disposable gloves should be treated as hazardous waste material.

4. Soiled cotton rags should be treated as hazardous waste material.

5. Wash water contaminated with lead may be collected and allowed to slowly evaporate leaving lead deposits/sludge that may be collected in plastic containers, placed in metal drums, and stored for future delivery to an authorized hazardous waste disposal site.

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 77 of 2531

BEST AVAILABLE COPY

ENCLOSURE 6

a. Drums shall be properly labeled to identify contents in accordance with (IAW) Federal, state, and local regulatory guidance.

b. Disposal of containerized waste shall be coordinated IAW state hazardous waste program requirements.

c. The Environmental Office shall coordinate removal and disposal of all containerized hazardous waste through established waste streams.

Post-Cleanup Precautionary Measures:

1. Thoroughly wash hands with soap and water.

2. Rinse off rubber boots with soap and water, capturing wastewater for collection into the established waste stream. If personnel have chosen to use overshoes for protection, dispose of the used overshoes into the established waste stream. ***NOTE***: **This recommendation is for initial cleanup activities; PPE requirements may be reduced after it has been determined that non-hazardous levels of lead have been achieved.**

3. Wash BDU's or personal clothing separately from children's clothes.

IMPORTANT NOTES:

1. **No eating, drinking or application of cosmetics is allowed during cleanup procedures (these may be allowed after washing of hands/face and done outside of cleanup area).**

2. **Avoid blowing, shaking or like actions which could potentially disperse lead dust. Dry sweeping, dusting, wiping, or blowing with compressed air shall not be permitted.**

Initial Armory Cleanup:

1. Use a vacuum cleaner equipped with a HEPA exhaust filter. HEPA vacuum all surfaces in room (ceiling, wall trim, and floors). Start with the ceiling and work down, moving toward the entry door. **Completely clean each room before moving on.**

2. Prepare water and detergent for the wipe down phase, according to manufacturer's recommendations.

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 78 of 2531

BEST AVAILABLE COPY

ENCLOSURE 6

3. Wet wipe, with cotton rags or sponge, any horizontal, diagonal or vertical surfaces up six (6) feet from floor surfaces using hot water and "Spic-n-Span" or an equivalent product.

***NOTE*: If walls to be cleaned show signs of deterioration, for example, chipping or crumbling paint in which wiping, scrubbing, or disrupting might potentially increase or spread contamination, then this portion of the cleanup should be avoided.**

4. Now prepare water and detergent (for example, Spic n Span, Mr. Clean, Pine Sol) for the mopping phase, according to manufacturer's recommendations, which should be found on the product's label for general clean up.

    a. Change out water and detergent frequently (when water appears dirty)

    b. Rinse out mop heads frequently to prevent contamination of dirty water.

5. Cover entire drill floor surface with above prescribed water and detergent.

6. Final rinse should be with clean water only – after mop heads have been cleaned.

Recommended Follow-up Housekeeping Practices ***after Clearance sampling of cleaned area is performed by certified personnel:***

1. Floor cleaning and dusting should be accomplished using the wet cleaning described in Initial Armory Cleanup SOP.

NOTE: The only exception to these wet cleaning procedures is the use of an approved chemically treated dust floor mop. This can be used for follow-up armory cleaning by sweeping of large particles of dirt and paper.

    a. Use of a pre-treated (chemically treated) dust floor mop will prevent lead dust particles from being disbursed into the surrounding atmosphere.

    b. If a pre-treated dust mop is used – Do Not Shake Mop Head – have mop head laundered after use. **Always keep used dust mop heads in sealed double plastic bags when stored at an armory or facility.** Shaking of a pre-treated mop head may release unwanted contaminants into surrounding atmosphere.

2. Frequency of Cleanup – Armories will vary, according to usage and how often they should be cleaned. The following cleaning schedule is provided:

    a. Only full-time technicians and traditional soldiers using facility during the month. (Cleaned Monthly.)

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 79 of 2531

BEST AVAILABLE COPY

ENCLOSURE 6

b. Occasional activities taking place during the month, for example, 1-2 classes or volleyball games, etc. (Cleaned Twice Monthly.)

c. Used regularly by soldiers or outside agencies/personnel. (Cleaned Regularly – at least Weekly)

IMPORTANT NOTES:

1. **Armories with adjoining Indoor Firing Ranges (IFR) should be cleaned more than weekly, again depending on the use of the Armory and IFR.**

2. **Clearance sampling/testing is to be accomplished by certified IH personnel after these cleanup procedures are followed. If the area is an average Armory, occupied by adults only, for whom you are cleaning and is not a converted IFR space, you may continue to utilize the Armory space before officials re-test this space. Please notify your Safety and/or Occupational Health personnel of the completion of this cleaning regime and they will notify the proper officials of the sampling/testing requirements needed.**

3. **If lead cleanup work was contracted out, a third party should do the clearance sampling.**

4. **If young children and pregnant females are, or may be present, signs shall be posted on all facilities, warning of the potential danger of exposure to lead dust.**

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 80 of 2531

BEST AVAILABLE COPY

References

Army Regulation (AR) 11-34, The Army Respiratory Protection Program.

Army Regulation (AR) 40-5, Preventative Medicine.

Army Regulation (AR) 385-10, The Army Safety Program.

NGR 385-10, Army National Guard Safety and Occupational Health Program.

TB MED 503, The Army Industrial Hygiene Program.

Title 29, Code of Federal Regulations (CFR), 1999, revision, Part 1910, Occupational Safety and Health Standards.

TG 022, US Army Environmental Hygiene Agency (YSAEHA), Industrial Hygiene Evaluation Guide.

TG 141, US Army for Health Promotion and Preventative Medicine (USACHPPM) Industrial Hygiene Air Sampling Guide.

IES Lighting Handbook

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Photo No. 1

Photo No. 2

Photo No.3

Photo No.4

Photo No.5

Photo No.6

ENCLOSURE 8
Page 1 of 5

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Photo No.7

Photo No.8

Photo No.9

Photo No.10

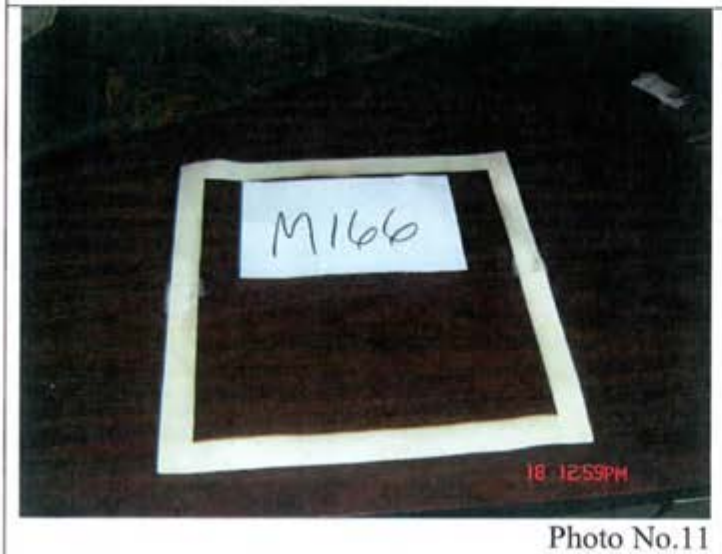

Photo No.11

Photo No.12

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 83 of 2531

BEST AVAILABLE COPY

Photo No.13

Photo No.14

Photo No.15

Photo No.16

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 84 of 2531

BEST AVAILABLE COPY

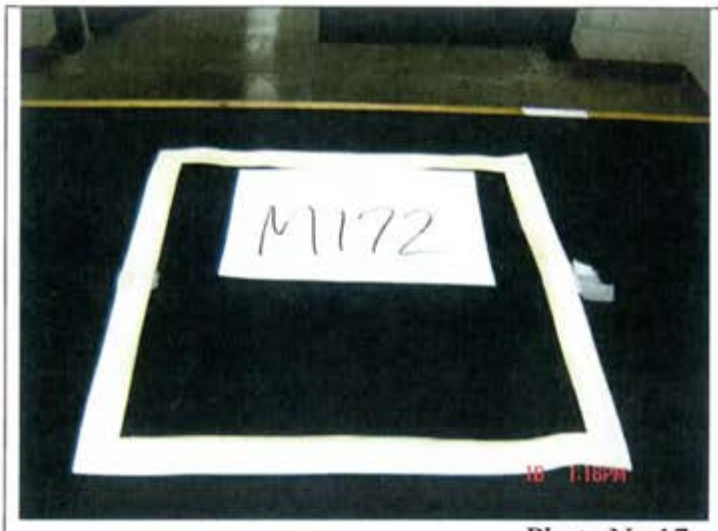

Photo No.17

Photo No.18

Photo No.19

Photo No. 20

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 85 of 2531

BEST AVAILABLE COPY

Photo No.21

Photo No.22

Photo No.23

Photo No. 24

ENCLOSURE 8
Page 5 of 5

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 86 of 2531

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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-ARS-IHSE (40-5f)

October 25, 2005

MEMORANDUM FOR: The Adjutant General of Tennessee, ATTN: State Occupational Health Office, P O Box 41502, Nashville, TN 37204-1502.

SUBJECT: Transmittal of the Survey Reports for Dayton, TN Armory, Cookeville, TN Armory, and Bolivar, TN Armory.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, 22 July 2005, Medical Service, Preventive Medicine.

c. National Guard Regulation (NGR) 385-10, 29 February 2000, Army National Guard Safety and Occupational Health Program.

d. AR 11-34, The Army Respiratory Protection Program, 15 February 1990.

e. TB MED 502, Occupational and Environmental Health Respiratory Protection Program, February 1982.

f. DA PAM 40-503, 30 October 2000, The Army Industrial Hygiene Program.

g. DA PAM 40-501, 10 December 1998, Hearing Conservation.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2001, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

k. Title 29, Code of Federal Regulations (CFR), 2005 rev., part 1910, Occupational Safety and Health Standards.

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NGB-ARS-IHSE (40-5f) October 25, 2005

SUBJECT: Transmittal of the Survey Reports for Dayton, TN Armory, Cookeville, TN Armory, and Bolivar, TN Armory.

1. Report dated November 17, 2003, Industrial Hygiene Survey, Non-Responsive Fayetteville, GA.

2. General.

a. At the request of the IL ARNG Safety and Occupational Health Office, an Industrial Hygiene Service was put together to conduct Health Hazard Information module (HHIM) Field surveys and industrial hygiene sampling of the Dayton, TN Armory, Cookeville, TN Armory, and Bolivar, TN Armory.

b. Non-Responsive 583 Ginger Cake Rd., Fayetteville, GA, conducted the surveys.

3. Findings. All Health Hazard information is on the survey findings of the report. (See enclosure 1)

4. Recommendations.

a. Follow all recommendations made in reference 1.l., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Control water infiltration in the armory and/or replace or repair damaged surfaces or components (ceiling and floor tiles). Building conditions that present IAQ concerns or problems not only exacerbates normally minor health issues but also tend to promote or accelerate building deterioration.

c. The recommendations given in the comment section and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-06. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-07 IHIP.

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present survey, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

f. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

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NGB-ARS-IHSE (40-5f) October 25, 2005

SUBJECT: Transmittal of the Survey Reports for Dayton, TN Armory, Cookeville, TN Armory, and Bolivar, TN Armory.

5. If additional information is needed about the industrial hygiene survey or air sample

Non-Responsive

[redacted]

CF:
NBG-IH
State Safety Office, P O Box 41502, Nashville, TN 37204-1502.
Encl
as

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Non-Responsive

[redacted]

October 10, 2005

Non-Responsive

[redacted]

RE: Baseline Industrial Hygiene Survey

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FINAL REPORT

FOR

BASELINE INDUSTRIAL HYGIENE SURVEY

TENNESSEE ARMY NATIONAL GUARD

BOLIVAR ARMORY

BOLIVAR, TN

DATE:

SEPTEMBER 21, 2005

PREPARED BY

Non-Responsive

[redacted]

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May, 2018

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CONTENTS

1.0 INTRODUCTION

2.0 INSTRUMENTATION

3.0 FINDINGS

4.0 REFERENCES

Attachment 1 HHIM Forms

Attachment 2 Laboratory Reports: Deactivated Indoor Firing Range Weapons Vault

Attachment 3 Laboratory Reports: A/C-Heating System Outlet Grills & Filter

Attachment 4 Photographs of the Facility

Attachment 5 Schematic Drawing of Facility

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1.0 INTRODUCTION

At the request of the National Guard Bureau South Region Industrial Hygiene Office, Non-Responsive performed a Baseline Industrial Hygiene Survey at the TN ARNG Bolivar Armory. The purpose of the survey was to perform a baseline survey to evaluate health hazards, controls present in the work site, collect lead swipe samples from renovated/inactive or closed Indoor Firing Ranges, Weapons Vault, A/C-Heating System, illumination survey and to make recommendations regarding health hazards associated with the work at the Bolivar Armory.

The facility was built in 1989. The facility houses the Battery C 2/115th FA. The armory is used by the troops of the Battery C 2/115th FA for their monthly weekend drills.

The Battery C 2/115th FA with about 60 troops had 2 full time AGR personnel at the time of the survey. The AGR employees are assigned to perform administrative duties Monday-Friday 8:00am-5:00pm. Personnel reported that on October 2005, the unit will be changed to Det. 1 251st MP Co. The facility houses administrative areas, a drill hall, classrooms, a supply room, a weapons vault, a kitchen, and a deactivated Indoor Firing Range. The kitchen has not been used to cook for the troops since they came back from deployment on April 2005 and during the fifteen months they were away. At the time of the survey, they were using a cater service that bring the food on weekend drills. Personnel reported that there are water leaks from the roof in the Main office. It has stained several ceiling tiles in the room (See pictures). Sometimes the water falls on the floor. It was also reported that the A/C unit that cools the Classroom 1 (Left side of building), was not working. It was repaired but it quit working again. A schematic drawing of the facility can be found in Attachment 5.

The facility was visually examined and personnel consulted to assess potential hazards present. Health Hazard Information Modules were completed. Illumination survey was performed throughout the facility.

2.0 INSTRUMENTATION/CALIBRATION

The following instrumentation was used to obtain light measurements. The instrument used has been calibrated and was operated according to the manufacturer's recommendations:

- SPER SCIENTIFIC Light Meter

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3.0 FINDINGS

Illumination

Illumination levels were recorded in administration offices, classroom, the drill hall and the supply room. Light measurements were below IES guidelines at the Supply Room office and the Drill Hall (One bulb out with parachute tops suspended from ceiling that block some of the light in the room). The other areas tested were within IES minimum standards although the following areas had light bulbs and/or fixtures out. The RDNCO office (One fixture out), the Classroom 1(Three fixtures with two bulbs out each), the Library (Two fixtures with two bulbs out each) and the Classroom 2 (Six light fixtures out). See Light Readings Table at the end of this section.

Administration

Personnel perform administrative duties that consist of reading, handling and generating paper work. Computer use comprises a large portion of the working day, four to five hours per day. This continuous use of computers can in the long run lead to eyestrain and hand/wrist soreness. Personnel reported no health problems associated with the job at this time.

Motor Pool

The motor pool is located behind the building. It is fenced and locked. PMCS are performed at the armory on weekend drills. There is a technician who drills with the unit and helps with the operator level maintenance at that time. When major repairs are needed the vehicles are taken to the OMS facility in Henderson or to the CSMS in Smyrna.

Drill Hall

The Drill Hall is located in the center of the building. It is used primarily for formation on weekend drills. The Drill Hall is used to clean weapons about four or five times a year. Air exhaust ventilation fans, located at the roof at one end of the room, are turned on. At the time of the survey both air exhaust ventilation fans were working. The louvers at the opposite side open when the fans are turned on. The fans are also turned on when it is hot in the Drill Hall and when a truck is brought in to load and unload equipment. Vehicles are never stored in the room. The tables that are used to clean the weapons are cleaned afterwards. Rags with CLP are used to clean the weapons. The used rags are collected and given to a technician in the unit who takes them to the OMS in Henderson for disposal. There are several parachute tops spread and suspended from the ceiling. Personnel reported that they placed them there to reduce the noise (See pictures). Some of the light bulbs in the middle are blocked by the parachutes. The Drill Hall is rented for wedding receptions, circus, parties, boys and girl scouts and DUI

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classes. Renters bring their own food. They very seldom use the kitchen. Somebody from the unit is always present to monitor and supervise the cleaning after the activity is finished.

Boiler Room

There is no boiler in the facility.

Deactivated Indoor Firing Range

An Indoor Firing Range (IFR) was built and tested when the building was constructed. Personnel reported that it was never used as an IFR because it was not approved to be used as such. It was cleared to be used as a storage area. There is no backstop. Six wipe samples were taken from the IFR. None of the six samples were above the clearance level of 200ug/ft2. See table 1 for results.

Table 1

Sample Number	Sample Location	Results
45	Where bullet backstop was located, right side	57ug
46	Where bullet backstop was located, left side	25ug
47	Floor in front of where bullet backstop was	BRL
48	Item stored, top of speaker	BRL
49	Item stored, top of wood frame	BRL
50	Wall next to entrance/exit door	BRL
56	Blank	BLR

Weapons Vault

The Bolivar Armory has a weapon storage vault located in the Supply Room. Personnel stated that accountability and issuing of weapons are performed in this area or at the field. Weapons are cleaned four or five times a year as stated in the Drill Hall section above. The dehumidifier in the weapons vault was working the day of the survey. It was reported that it is on all the time and the drainage water bucket is checked and emptied once a week. Four wipe samples were taken from the weapons vault racks. One of the samples was above the clearance level of 200ug/ft2. See table 2 for results.

Table 2

Sample Number	Sample Location	Results
51	Weapons Vault Racks (A)	156ug
52	Weapons Vault Racks (B)	79ug
53	Weapons Vault Racks (C)	335ug
54	Weapons Vault Racks (D)	132ug
56	Blank	BRL

A/C System

Central A/C units are used to cool the administration offices, the classrooms and the supply room. The unit that cools the offices and the classroom 2 (next to the main office) work well. It was also reported that the A/C unit that cools the Classroom 1 (Left side of building), was not working. It has been repaired more than once. It cools well for a while after it is repaired and quit working again. There was no filter in the units the day of the survey. Ten wipe samples were collected from the supply air outlet grills in the offices classrooms and library. All samples were below the clearance level of 200 ug/ft2.

Table 3

Sample Number	Sample Location	Results
35	Main (Administration) Office	BRL
36	Commander Office	36ug
37	1SG Office	35ug
38	RDNCO Office	35ug
39	Day Room	BLR
40	Classroom 1 (Left side)	BLR
41	Recruiter Office	BRL
42	Supply Sgt. Office	BRL
43	Library	BRL
44	Classroom 2 (Right side)	BRL
55	Blank	BLR

Material Safety Data Sheets

There is an MSDS Book in the armory. No sign was found anywhere in the armory to advise personnel and troops about the location of the MSDS book. There are two flammables cabinet located in the maintenance area. The yellow one contains antifreeze, CLP, grease, lubricating oil and WD 40. The red one contains aerosol paint cans, gallons paint containers and alcohol. No Hazardous Materials Inventory List was present in either of the cabinets

Light Readings

Light measurements were taken in various locations throughout the facility. The results were compared to guidelines recommended by the Illuminating Engineering Society (IES). The results of the survey are shown in Table 4.

Table 4

Location	Light Reading (footcandles)	IES Recommendation (footcandles)
ADO ReadinessNCO Office	50-65 (Avg. 60)	50-100
ADO AdministrationOffice(Main Office)	49-79 (Avg. 60)	50-100
ADO Supply Room Office	34-59 (Avg. 46)	50-100
ADO Supply Room (Storage)	24-34 (Avg. 30)	20
ADO Recruiter Office	83-104 (Avg. 96)	50-100
Classroom 1	44-121 (Avg. 77)	50-100
Classroom 2	33-96 (Avg. 60)	50-100
Library	50-70 (Avg. 60)	50-100
Commander Office	48-57 (Avg. 52)	50-100
1SG Office	49-62 (Avg. 56)	50-100
Drill Hall	4-36 (Avg. 26)	30

Light measurements were below IES guidelines at the Supply Room office and the Drill Hall (One bulb out with parachute tops suspended from ceiling that block some of the light in the room). The other areas tested were within IES minimum standards, although the following areas had light bulbs and/or fixtures out. The RDNCO office (One fixture out), the Classroom 1(Three fixtures with two bulbs out each), the Library (Two fixtures with two bulbs out each) and the Classroom 2 (Six light fixtures out). Consideration should be given to provide supplemental lighting in those areas that were below the recommended standard and to replace burned out bulbs. ANSI RP7-1991.

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4. REFERENCES

- Guide to Occupational Exposure 2000, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.
- American National Standards Institute (ANSI), /Illuminating Engineering Society (IES), Industrial Lighting 1991.
- Title 29, Code of Federal Regulations (CFR). 1999, revision, Part 1910. Occupational Safety and Health Standards
- AR 40-5, Preventative Medicine, 15 October 1990.
- AR 385-10, The Army Safety Program, 23 May 1988.
- National Safety Council, Fundamentals of Industrial Hygiene, 4th edition, 1996.
- AR 385-16, National Guard Pamphlet, Safety Guidelines for Converting Indoor Firing Ranges to Other uses.
- TB MED 503, The Army Industrial Hygiene Program, February 1985.
- Department of the Army Pamphlet (DA PAM) 40-501,27 August 1991, Hearing Conservation.
- Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.

Non-Responsive

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RECOMMENDATIONS

- Consideration should be given to provide supplemental lighting at locations that were below the recommended standards and to replace burned out bulbs in the offices, classrooms, library and drill hall. See Light Readings Section.

- Recommend that when using computers for extended periods of time, personnel should take occasional breaks and change position to minimize the possibility of eyes and/or hands/wrist injury.

- Continue to ensure that weapon maintenance and cleaning is done in a well-ventilated area. Continue to practice good personal hygiene by washing hands after handling and cleaning weapons and ammunition. Ensure that the weapons racks are well cleaned before placing them back in the vault.

- A request should be submitted to the appropriate state office to repair the roof leaks in the main (administration) office and possibly replace the stained ceiling tiles.

- A request should be submitted to the appropriate state office to repair the non working A/C unit.

- Recommend that A/C filter should be installed (and change regularly according to manufacturers recommendation) if it has not been done yet.

- Recommend that Hazardous Materials Inventory Lists should be made from the MSDS forms and be placed in the flammables cabinets.

- Ensure that personnel and troops have knowledge of the location of the MSDS book. And is enrolled hazardous materials safety training.

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ATTACHMENTS

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
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(For use of this form, see HHIM User's Instructions.)

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SECTION 1. DEMOGRAPHIC DATA

a. ARLOC _____ b. INSTALLATION Bolivar, TN Armory c. BLDG/RM NUMBER Adm. office

d. LOCATION/CODE AA / e. OPERATION/CODE ADO / f. DESCRIPTION Readiness NCO Computer work about 4-5 hrs/day

g. MACOM/CODE NG / [redacted] ODE / i. SUPERV[redacted]

j. TELEPHONE/AUTOVON NUMBER [redacted] k. RAC _____ l. FREQUENCY (Hrs Per Day) _____

m. NO CIV(S) _____ n. NO [redacted] o. NO CONTRACTOR(S) _____ p. NO LOC(S) _____ q. NO OTHER _____

SECTION 2. IH STAFFING DATA

a. LAB HOODS — b. VAPOR DEGREASERS — c. MAINTENANCE BAYS — d. SPRAY BOOTHS —

e. OPEN SURFACE TANKS — f. VENTILATION UNITS —

SECTION 3. SURVEY DATA

a. SURVEY DATE 9-21-05 b. EVALUATOR (INITIALS) [redacted]

c. CONTROLS PRESENT	d. EVALUATION	e. UNIT CODE	f. CONTROLS REQUIRED	g. STATUS
Lighting	49-79; Avg: 60	FC	50-100	Adgt

h. PERSONAL PROTECTIVE EQUIPMENT (R=REQUIRED; A=AVAILABLE)

1. RESPIRATOR	MANUFACTURER	NIOSH TC NO	R/A
DISPOSABLE			
¼ FACE AIR PURIFYING			
½ FACE AIR PURIFYING			
FULL FACE AIR PURIFYING			
POWERED AIR PURIFYING			
AIRLINE			
SELF-CONTAINED			
ABRASIVE BLASTING HOOD			

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	R/A
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	
OIL	/	SAFETY/IMPACT	/	EARPLUGS	/	COVERALLS	/	IMPERMEABLE BOOTS	
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/ HARNESS	/	SAFETY/NONCONDUCTIVE SHOES	
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/								

SECTION 4. HAZARD INVENTORY DATA

a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC or EPC	d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO)
POVDT	Computer use for long periods of time	3	

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a. HAZARD	b. SAMPLE TYPE	c. RESULTS	d. REMARKS

SECTION 6. PERSONNEL DATA

					CATEGORY
					AGR

Non-Responsive

SECTION 7. COMMENTS (Add blank sheet of paper if necessary)

① Readiness NCO
② Has been at this unit since April 2005
③ Was at Selmer unit as AGR for 6 yrs.
④ Computer work about 4-5 hrs/day
⑤ No health problems as of now.
⑥ Should take breaks when working with computers for long periods of time

* PRIVACY ACT STATEMENT

Title 5 U.S. Code, Section 301; Executive Order 9397 authorizes the use of your Social Security Number as a identification number. The purpose of this information is to identify and monitor data relating each DA civilian employee exposed to a hazardous workplace or operation. The use of this information is to provide histories of exposure for any given worker.

Disclosure of your Social Security Number is not mandatory; however, nondisclosure may result in untimely provision of proper medical monitor

Signature

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Page 103 of 2531

(... User's Instructions.)

SECTION 1. DEMOGRAPHIC DATA

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a. ARLOC _____ b. INSTALLATION Bolivar, TN Armory c. BLDG/RM NUMBER Supply Room Office

d. LOCATION/CODE AA, SA e. OPERATION/CODE ADO, SAH f. DESCRIPTION Supply Sgt NCO. Computer work about 3 hrs/day

g. MACOM/CODE NG / [redacted] Non-Responsive

j. TELEPHONE/AUTOVON NUMBER [redacted] / _____ i. SUPERVI[redacted] Non-Responsive

m. NO CIV(S) _____ n. NO M[redacted] RAC _____ l. FREQUENCY (H[redacted]

o. NO CONTRACTOR(S) _____ p. NO LOC(S) _____ q. NO OTHER _____

SECTION 2. IH STAFFING DATA

a. LAB HOODS _____ b. VAPOR DEGREASERS _____ c. MAINTENANCE BAYS _____ d. SPRAY BOOTHS _____

e. OPEN SURFACE TANKS _____ f. VENTILATION UNITS _____

SECTION 3. SURVEY DATA

a. SURVEY DATE 9-21-05 b. EVALUATOR (INITIALS) [redacted] Non-Responsive

c. CONTROLS PRESENT	d. EVALUATION	e. UNIT CODE	f. CONTROLS REQUIRED	g. STATUS
Lighting - Office	34-59; Avg. 46	FC	50-100	Inadqt
Lighting - Storage	24-34; Avg. 30	FC	20	Adqt

h. PERSONAL PROTECTIVE EQUIPMENT (R=REQUIRED; A=AVAILABLE)

1. RESPIRATOR	MANUFACTURER	NIOSH TC NO	R/A
DISPOSABLE			
¼ FACE AIR PURIFYING			
½ FACE AIR PURIFYING			
FULL FACE AIR PURIFYING			
POWERED AIR PURIFYING			
AIRLINE			
SELF-CONTAINED			
ABRASIVE BLASTING HOOD			

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	R/A
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	
OIL	/	SAFETY/IMPACT	/	EARPLUGS	/	COVERALLS	/	IMPERMEABLE BOOTS	
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/HARNESS	/	SAFETY/NONCONDUCTIVE SHOES	
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/								

SECTION 4. HAZARD INVENTORY DATA

a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC or EPC	d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO)
POVDT			

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a. HAZARD	b. SAMPLE TYPE	c. RESULTS	d. REMARKS

SECTION 6. PERSONNEL DATA

[redacted]					d. CATEGORY
					AGR

Non-Responsive

SECTION 7. COMMENTS (Add blank sheet of paper if necessary)

① Supply Sgt NCO
② Has been at this facility for 5 yrs
③ Was at Lexington before
④ Computer work about 3 hrs/day
⑤ No health problems.
⑥ Should take breaks when working with computer for long time

* PRIVACY ACT STATEMENT

Title 5 U.S. Code, Section 301; Executive Order 9397 authorizes the use of your Social Security Number as a identification number. The purpose of this information is to identify and monitor data relating each DA civilian employee exposed to a hazardous workplace or operation. The use of this information is to provide histories of exposure for any given worker.

Disclosure of your Social Security Number is not mandatory; however, nondisclosure may result in untimely provision of proper medical monitori

Signature

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 105 of 2531

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Analytical Environmental Services, Inc.

Date: 9/29/2005

TOTAL LEAD IN WIPE SAMPLES
N7082

CLIENT: Non-Responsive
Project: Bolivar, TN Armory
Delivery Order:
PO No:

Lab Order: 0509B12
Date Received: 9/22/2005 9:35 AM
Matrix: Wipe

Laboratory ID	Client Sample ID	Results	Units	Report Limit.	DF	Date Collected	Date Analyzed	Analyst
0509B12-002A	35	BRL	µg, Total	20	1	9/21/2005	9/28/2005	VA
0509B12-003A	36	36	µg, Total	20	1	9/21/2005	9/28/2005	VA
0509B12-004A	37	35	µg, Total	20	1	9/21/2005	9/28/2005	VA
0509B12-005A	38	35	µg, Total	20	1	9/21/2005	9/28/2005	VA
0509B12-006A	39	BRL	µg, Total	20	1	9/21/2005	9/28/2005	VA
0509B12-007A	40	BRL	µg, Total	20	1	9/21/2005	9/28/2005	VA
0509B12-008A	41	BRL	µg, Total	20	1	9/21/2005	9/28/2005	VA
0509B12-009A	42	BRL	µg, Total	20	1	9/21/2005	9/28/2005	VA
0509B12-010A	43	BRL	µg, Total	20	1	9/21/2005	9/28/2005	VA
0509B12-011A	44	BRL	µg, Total	20	1	9/21/2005	9/28/2005	VA
0509B12-012A	55	BRL	µg, Total	20	1	9/21/2005	9/28/2005	VA
0509B12-013A	45	57	µg, Total	20	1	9/21/2005	9/28/2005	VA
0509B12-014A	46	25	µg, Total	20	1	9/21/2005	9/28/2005	VA
0509B12-015A	47	BRL	µg, Total	20	1	9/21/2005	9/28/2005	VA
0509B12-016A	48	BRL	µg, Total	20	1	9/21/2005	9/28/2005	VA
0509B12-017A	49	BRL	µg, Total	20	1	9/21/2005	9/28/2005	VA
0509B12-018A	50	BRL	µg, Total	20	1	9/21/2005	9/28/2005	VA
0509B12-019A	51	156	µg, Total	20	1	9/21/2005	9/28/2005	VA
0509B12-020A	52	79	µg, Total	20	1	9/21/2005	9/28/2005	VA
0509B12-021A	53	335	µg, Total	20	1	9/21/2005	9/27/2005	VA
0509B12-022A	54	132	µg, Total	20	1	9/21/2005	9/27/2005	VA
0509B12-023A	56	BRL	µg, Total	20	1	9/21/2005	9/27/2005	VA

Qualifiers: BRL - Not Detected at the Reporting Limit DF - Dilution Factor

Results are blank corrected where applicable

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FOIA Requested Record #J-15-0085 (TN)
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Page 106 of 2531

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BOLIVAR, TN ARMORY

DRILL HALL (PARACHUTES AT CEILING)

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MAIN OFFICE, SAINED CEILING TILES

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IFR, FRONT VIEW

IFR, REAR VIEW

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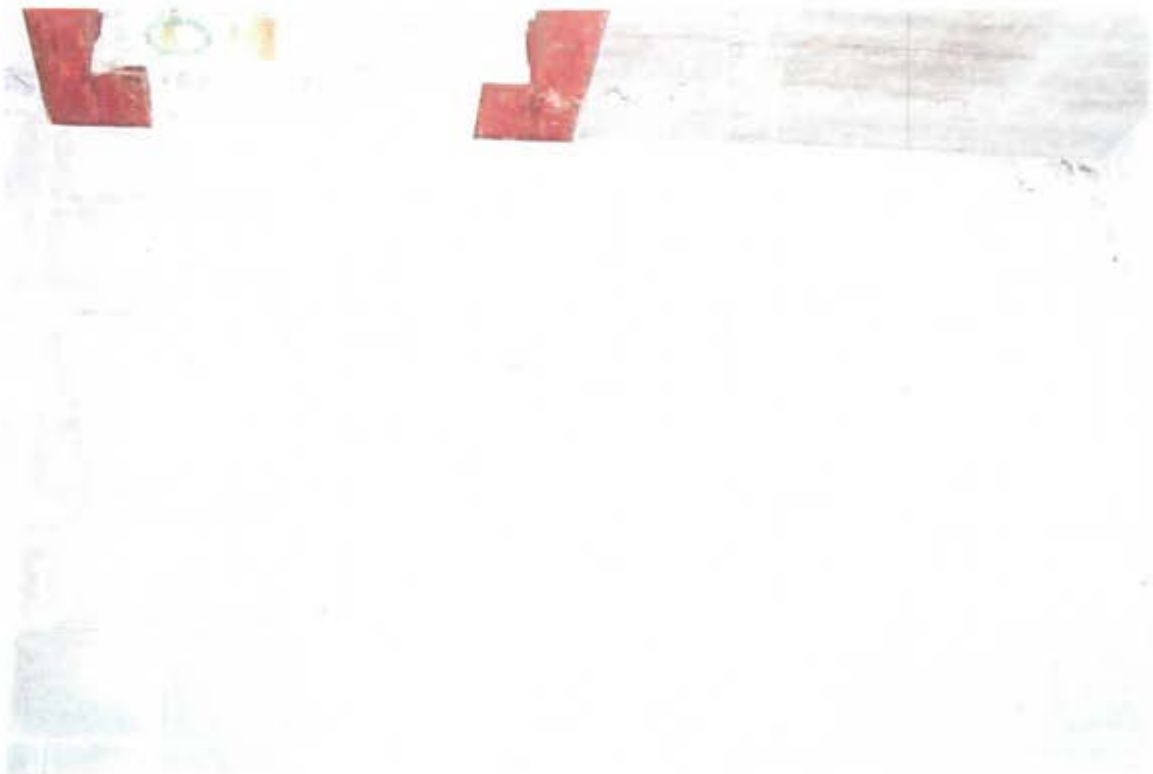
BEST AVAILABLE COPY

IFR, SAMPLE AREA
WHERE BACKSTOP WAS

IFR, SAMPLE AREA
WHERE BACKSTOP WAS



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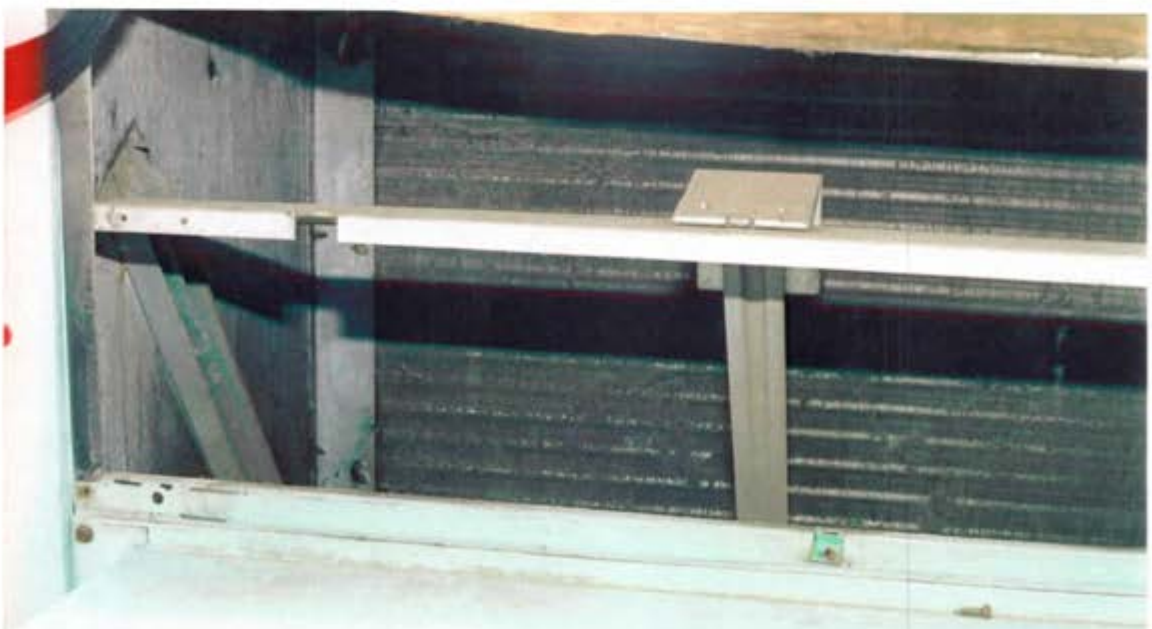
A/C-HEATING UNIT

A/C-HEATING UNIT,
MISSING FILTERS



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WATER HEATER

FLAMMABLES CABINETS

BEST AVAILABLE COPY

BEST AVAILABLE COPY

FLAMMABLES
CABINETS, INSIDE

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MOTOR POOL

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May, 2018

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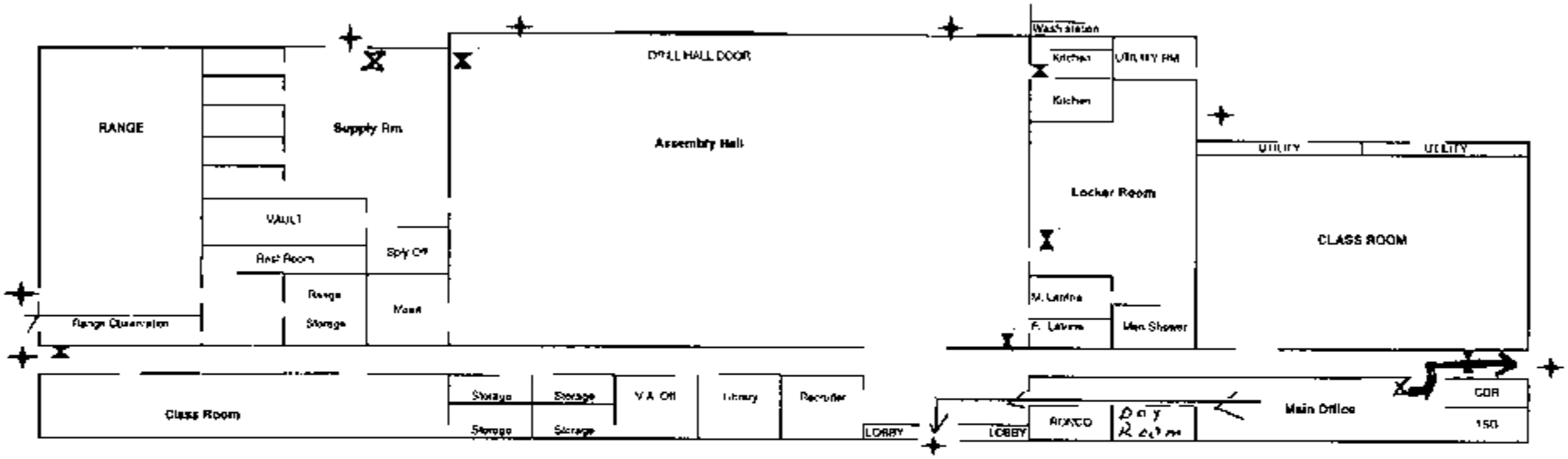
BOLIVAR NATIONAL GUARD ARMORY

FIRE ESCAPE ROUTE



Fire Extinguisher

EXIT(S)

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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-AVN-SI February 21, 2003

MEMORANDUM FOR: ADJUTANT GENERAL TN ARNG, ATTN.: Commander Centerville Army National Guard Armory, 150 Universal Drive, Centerville, TN 37033

SUBJECT: Transmittal of the Centerville Armory Survey Report.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, 30 August 1986, Medical Service, Preventive Medicine.

c. National Guard Regulation (NGR) 385-10, 1988, Army National Guard Safety and Occupational Health Program.

d. AR 11-34, The Army Respiratory Protection Program, 15 February 1990.

e. TB MED 502, Occupational and Environmental Health Respiratory Protection Program, February 1982.

f. DA PAM 40-501, 30 October 2000, The Army Industrial Hygiene Program. (Updates TB MED 503, 1 February 1985, The Army Industrial Hygiene Program).

g. DA PAM 40-501, 27 August 1991, Hearing Conservation (Updates TB MED 501, 15 March 1980, Hearing Conservation).

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2001, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

k. Title 29, Code of Federal Regulations (CFR), 2000 rev., part 1910, Occupational Safety and Health Standards..

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1. Report dated January 23, 2003, Industrial Hygiene Survey, Aiken Global Environmental Service, Atlanta, GA.

2. General.

a. At the request of TN ARNG Occupational Health Office, an Industrial Hygiene Service was put together to conduct Health Hazard Information module (HHIM) Field surveys and industrial hygiene sampling of the Centerville Armory, Centerville, TN.

b. Aiken Global Environmental Service, 1514 E. Cleveland Ave, Ste 107, Atlanta, GA 30344 conducted the survey.

3. Findings. All HHIM field survey forms and survey findings of the report. (See ENCL. 1)

4. Recommendations.

a. Follow all recommendations made in reference 1.1., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. The recommendations given in the comments section of the HHIM data sheets and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY03. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY04 IHIP.

c. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present survey, especially if this will help eliminate health hazards and reduce medical surveillance cost.

d. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

e. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

5. If additional information is needed about the industrial

Non-Responsive

CF: NBG-AVN-SH
State Occupational Health Office, P O Box 41502, Nashville, TN 37204-1502.
State Safety Manager, P O Box 41502, Nashville, TN 37204-1502.

ENCL.
As

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aiken
GLOBAL ENVIRONMENTAL SERVICES, L.L.C.

23 January 2003

MEMORANDUM FOR THE: Tennessee Army National Guard (TN ARNG), STARC, ATTN: Non-Responsive TC, Occupational Health Specialist, Nashville, TN 37204

SUBJECT: Industrial Hygiene Baseline Survey, National Guard Armory, 779th Maintenance Company, 150 Universal Drive, Centerville, TN 37033

REFERENCES.

a. OSHA Standard 29 CFR (Code of Federal Regulations), General Industry Standards, revised 1988.

b. AR 40-5, Preventive Medicine, October 1990.

c. AR 11-34, The Army Respiratory Protection Program, 15 February 1990.

d. AR 385-10, Army Safety Program, 23 May 1988.

e. Department of the Army Pamphlet (DA PAM) 40-501, Hearing Conservation, 27 August 1991.

f. TB MED 530, The Army Industrial Hygiene Program.

g. Title 29 CFR 1989, rev, Part 1910.94(c) (6) Table G-10, Ventilation.

h. Industrial Hygiene Ventilation, 21st Edition, 1992, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

i. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.

2. AUTHORITY. National Guard Region South Industrial Hygiene Office, NGB-AVN, 14 November 2002.

3. PURPOSE. To conduct an industrial hygiene baseline survey and walk-through evaluation of the National Guard Armory, 779th Maintenance Company (-), 150 Universal Drive, Centerville, TN 37033. The industrial hygiene baseline survey is the initial evaluation of an activity/workplace.

It is comprehensive in nature and includes the following:

- A documented description of the worksite, process, or operation surveyed and the workers involved.
- An initial assessment of the worksite/operations(s), including a determination of the potential for personnel exposures.
- Baseline sampling of employees; or a negative determination rational for each work operation.
- Documented identification of who performed the survey and when it was performed.

4. GENERAL.

a. Personnel Contacted. SFC Non-Responsive 931.729.3597, provided assistance during this survey.

b. Briefings. Entrance and exit briefings were provided to SFC Non-Responsive

c. Procedures. This survey consisted of baseline health hazard inventories, lead wipe and asbestos bulk sampling, and observation of work practices and employee interviews.

d. Survey Personnel. Non-Responsive Certified Industrial Hygienist (CIH), Aiken Global Environmental Services LLC, Atlanta, Georgia, conducted this survey.

e. Risk Assessment Codes. Risk Assessment Codes (RACs) are assigned recommendations to help qualify health risks to affected personnel and aid in establishing funding priorities for corrective actions. The RACs are determined by using the Department of Defense Instructions (DODI) 6055.1.

f. Analytical Results. Asbestos and lead wipe sampling results are in Enclosure 1.

g. Health Hazard Information Module (HHIM). The data accrued from the completed HHIM form will be provided to the Regional IH office and forwarded to the TNARNG.

5. FACILITIES DESCRIPTION. The National Guard Armory is a brick structure (Figure 1). The armory contains an assembly hall, and the basement has a kitchen, dining room, food storage areas, and administrative offices (Figure 2 and 3). The flooring inside the building is a combination of carpeted offices, exposed slab concrete, and three differently patterned 12-inch squared vinyl floor tiles (brown, white, and gray speckle patterns). The building has 2 feet long by 4 feet wide suspended ceiling tiles. A layout of the building is included in this report (Enclosure 2).

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 119 of 2531

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6. FINDINGS.

a. The 779th Maintenance C0 (-) is the only unit assigned to Centerville National Guard Armory. At the time of this baseline industrial hygiene survey, three (3) full-time National Guard personnel were assigned. One hundred and eleven (111) National Guard personnel are at the armory for weekend drills. A list of personnel and HHM is at Enclosure 3.

b. The outside buildings consisted of a track platoon work area (Figure 4), and an oil house (Figure 5).

c. The ceiling tiles in the men's bathroom exhibited signs of moisture intrusion and mold infestation (Figure 6). Mold infestation was also observed on the suspended ceiling tiles in room 28 in the immediate vicinity of the water heater.

d. The work areas inside the track platoon work area were observed to be clean and well kept. No flammables or petroleum hydrocarbon containers were stored in the area, and no odors indicative of the use volatile hydrocarbons were detected. The work areas had no local ventilation systems; however, a local exhaust fan was positioned on the floor (in the work area). Static vents were in the roof and along the sides of the building (Figures 7, 8, 9). The local exhaust fan, in conjunction with the roof and side mounted static vents, are used to capture and exhaust airborne substances emanating from the work-station (s). SFC [redacted] noted that engines and transmissions for wheel and track vehicles were repaired in the track platoon work area. The CIH was unable to judge the sufficiency of the ventilation system as observed, since the workstations were inactive during the inspection.

e. The maintenance shop occupies the area in the armory that was formerly the indoor firing range. [redacted] noted that the indoor firing range (Figure10) was retired and satisfactorily closed in 2002, per a 9/16/02 memorandum (Enclosure 5). An eyewash station and a floor-mounted fan were observed in the shop; however, local ventilation systems for individual workstations were lacking. [redacted] stated that the local ventilation was not necessary due to the nature of the activities conducted inside the maintenance shop. The general appearance of the area was satisfactory, and no health and/or safety concerns were noted, as was the case with the track platoon work area. The CIH was unable to judge the sufficiency of the ventilation system as observed since the workstations in the maintenance shop were inactive.

f. The oil house was inspected, and no potential health and safety concerns were observed (Figure 11). There was evidence of spills onto the concrete flooring but no odors were detectable in the closed room. (Figure12)

g. The basement areas appeared to be clean and well kept, but mold growth was observed on the suspended ceiling tiles in two areas (Figure 13).

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 120 of 2531

h. Non-Responsive [redacted] are the certified HazMat representative on site (Enclosure 6) Non-Responsive [redacted] indicated that petroleum oils, JP-8, and lubricants are stored on-site in very small quantities, because major vehicle maintenance is done off-site in Columbia at the OM shop, or Smyrna TN. CPL Non-Responsive [redacted] further noted that due to organizational vehicle maintenance only being accomplished on-site, the armory's inventory/materials was constantly changing, which required frequent updates. A copy of the posted current "Annual Workplace Chemical List" for the site is attached at Enclosure 6.

i. One lead wipe sample (sample pd-1-cnt) was obtained from the bullet stop surface in the retired rifle range (figure 10). That sample was obtained per the National Guard Region South, Industrial hygiene South protocol. Hygeia Laboratory reported a surface lead concentration of 83 $\mu g/ft^2$.

j. Three (3) samples of vinyl floor tiles (VT) were collected and submitted for Polarized Light Microscopic (PLM) analyses for asbestos content. The VTs sampled were representative of those observed throughout the armory, and are considered homogeneous materials as defined by the USEPA. The brown speckled floor tiles and the accompanying mastic obtained from the hallway and identified as FT-1-Cnt are asbestos containing materials (ACMs) by definition (Figure 14). The white speckled floor tiles and the accompanying mastic obtained from room 10B and identified as FT-2-Cnt are ACMs by definition. The gray speckled floor tiles and the accompanying mastic identified as FT-3-Cnt are ACMs by definition. Analytical laboratory results are presented in Enclosure 1.

7. RECOMMENDATIONS.

MOLD INFESTATION

The presence of mold infestation in the Centerville Armory (room 28 and men's bathroom) poses a high potential for the existence in the indoor air of biologically derived aerosols, gases, and vapors of a kind and concentration likely to cause disease or predispose persons to adverse health effects. It is strongly recommended that the entire building be investigated as to the extent and cause(s) of the observed mold infestation.

ASBESTOS

The vinyl floor tiles and accompanying mastic throughout the Centerville armory are ACMs. Removal and/or repairs to the ACM floor tiles should be accomplished by a State of Tennessee licensed asbestos abatement contractor only. Maintenance workers and building occupants should be advised of the presence of the ACMs. The following procedures should be followed during routine maintenance of the floor tiles and/or mastic.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 121 of 2531

GENERAL PROCEEDURES FOR WORKING WITH VINYL ASBESTOS FLOOR TILES

When working with asbestos based floor-covering materials, the work method should be such that no dust is released into the working environment. Removal should be carried out by state licensed qualified personnel, and the work should be accomplished using non-powered hand tools by scraping, chipping, or some other method that does not grind the material into a fine dust. Wetting down the floor tiles will assist in minimizing dust generation and this procedure should be adopted whenever practicable. Should the generation of dust be unavoidable, then a Competent Person, as defined by OSHA must be notified before work commences, so that the degree of protection, isolation, ventilation and other precautions that may be required can be assessed. The following information regarding occupant notification of the presence of ACMs may be applicable to the Centerville Armory.

Notifications

Rule 29 CFR 1910.1001(j)(2)(ii) requires building and facility owners to maintain records of information concerning the presence, location and quantity of asbestos-containing materials (ACMs) and presumed asbestos-containing materials (PACMs) installed in their building or facility. In OSHA's view, the information concerning the presence of ACM must identify the type of ACM present. It also must include data supporting any rebuttal of the presumption that a material contains asbestos. The information concerning the location and quantity of installed ACM and PACM must be kept current by documenting the work that is performed that changes the information and by providing the location and quantity of ACM or PACM remaining at the completion of the work.

GUIDELINES FOR MAINTENANCE OF FLOORS WITH ASBESTOS-CONTAINING VINYL TILES

Because the floor tiles in the Centerville Armory are ACMs, routine floor care must be performed very carefully so as not to cause asbestos fibers to be released into the environment. The following guidelines are recommended to reduce the chance of releasing asbestos during floor maintenance activities.

Stripping Vinyl Asbestos Floor Tiles

Strip the floor as few times as possible. Only strip the floors when the building is not occupied. First, apply a compatible floor finish remover or stripper with a mop. Allow enough time for the stripper to liquefy the finish. (safe handling of the different chemical products used in this activity is important. When in doubt, consult with the floor finish products manufacturer for advice.) Always strip the floor wet. Scrub the floor using the least abrasive pad or brush possible. Generally the black pads are the most abrasive, the white pad is the least abrasive. Run the machine at the lowest rate of speed (175-300 rpm's).

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 122 of 2531

Use a wet vacuum, preferably one equipped with a HEPA filtration system, to thoroughly clean the floor and remove the old wax and finish. If necessary, repeat this operation until all the existing finish is removed. Thoroughly rinse the floor after all existing finish is removed.

FINISHING FLOOR TILES

- **Applying a Sealer**

If possible, apply two or three layers of a good sealer to the tiles before applying the finishing coat. This helps to keep contact with the floor tiles to a minimum during future floor maintenance activities.

- **Applying the Finisher**

Again, apply several thin coats of a good finisher. Allow each coat enough time to cure and dry before applying the next coat.

- **Dry Buffing the Floor**

Make sure the floors are well sealed and /or finished before beginning this process. Run the machine used to buff the floor at the lowest rate of speed possible (300-1100 rpm's).

MAINTAINING FLOOR TILES

- **Routine Cleaning**

Use a wet mop for routine cleaning whenever possible. If you do dry mop, do not use a petroleum-based mop- it erodes the wax.

- **Spray Buffing**

Whenever the floor tiles are spray buffed with a polishing or rejuvenator liquid, use the least abrasive pad possible. Run the floor machine at the lowest rate of speed possible to get the job done (175-300 rpm's).

- **Wet Scrubbing**

Whenever the tiles are wet scrubbed with a neutral cleaner or water, use the least abrasive pad possible. Run the floor machine at the lowest rate of speed possible to get the job done (175-300 rpm's). Use a wet vacuum, preferably one equipped with a HEPA filtration system, to pick up the resulting liquid. After the floor is dry, re-coat it with a compatible finish.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 123 of 2531

The Four Main Points to Remember

- Use the least abrasive pads practical.
- Operate the floor machine at the lowest rate of speed possible.
- Use a wet vacuum equipped with a HEPA filter to pick up liquids resulting from floor maintenance activities.
- Be sure to follow the manufacturer's recommendations when using any floor cleaning and finishing products.

Lead Contaminated Dust

The USEPA "Residential Lead Hazard Standards" TSCA section 403 (January 5, 2003 Federal Register) considers lead a hazard if there are greater than 40 µg of lead in dust per ft² on floors, and 250 µg of lead in dust per ft² on interior window sills. It is reasonable to extrapolate EPA's "lead hazard floor concentration" of "40 µg of lead in dust per ft² on floors", to the lead concentration reported on the bullet stop inside the retired firing range. Given that extrapolation, a lead hazard exists at the bullet stop inside the retired firing range. Activities involving disturbances of the lead contaminated surface of the bullet stop are also subject to compliance with the regulatory requirements of OSHA's Lead In Construction standard-29 CFR 1926.62.

The unit must have comprehensive re-sampling of surfaces inside the retired firing range for the presence and concentrations of lead. Surface lead concentrations thus obtained will determine the extent to which the retired firing range would need to be remediated of residual lead. In the meantime, it is recommended that personnel conducting activities that disturb settled dust on any surface inside the retired firing range be equipped with level B protective ensembles.

8. **TECHNICAL ASSISTANCE.** For technical assistance regarding information found in [redacted] ast Regional Industrial

Non-Responsive

Enclosures
1. Analytical results
2. Armory building layout
3. Unit weekday and weekend personnel
4. Copy of firing range closure report
5. Copy of SSG James L. Clark's HazMat certificate
6. Copies of Hazmat lists posted on site

CF:
Tennessee Army National Guard (TN ARNG)
HQ STARC, ATTN: [redacted] TC
Occupational Health Specialist
Nashville, TN 37204

Non-Responsive

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FOIA Requested Record #J-15-0085 (TN)
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Page 124 of 2531

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ENCLOSURE 1

Analytical Laboratory Results

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 125 of 2531

HYGEIA LABORATORIES, INC.
1300 Williams Drive, Suite A - Marietta, Georgia 30066-6299 - (770) 514-6933, FAX (770) 514-6966

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Aiken Global Environmental Services, LLC
1514 East Cleveland Ave.
Suite 107
Atlanta, GA 30344

2/7/2003

Subject:

Hygeia Project Number: A0301060
Client Project Number/Name: /Centerville Armory

Dear Non-Responsive [redacted]

Enclosed are the analytical results of bulk samples submitted by you to this laboratory on 1/26/2003. All analyses were performed by polarized light microscopy (PLM) in accordance with the EPA method as defined in Perkins and Harvey, July 1993, "Methods for the Determination of Asbestos in Bulk Materials" 61pp. (EPA/600/R-93/116). The reported percentages are volume estimates obtained by calibrated visual estimation. The results in this report apply only to the items tested.

The EPA defines an asbestos containing material (ACM) as a material that is reported to contain greater than one percent asbestos. HYGEIA is only responsible for the accuracy of the analytical results provided in this report and cannot be held responsible for the errors resulting from improper sample collection techniques. This report may not be used to claim product endorsement by NVLAP or any other U.S. Government agency.

For nonhomogeneous samples, each layer was analyzed separately and the results combined to form the reported value except where otherwise noted. Vinyl floor tile samples with negative results by PLM should be submitted for confirmation by transmission electron microscopy (TEM). Friable samples containing less than 10% asbestos as determined by PLM may be resubmitted for point counting at your discretion.

Thank you for using our analytical services. HYGEIA Laboratories has been NVLAP accredited since 1988. Our current NVLAP code is 102087-0. We will keep a copy of this report on file for three years. We will dispose of your samples in 60 days unless you request that we return them. This report my be reproduced only in its entirety with the consent of Hygeia Laboratories, Inc. If you have any questions, please call us at (770) - 514-6933.

Sincerely,

Non-Responsive [redacted]

NVLAP#	102087-0
Texas Dept. of Health #	30-0232
Commonwealth of Virginia #	3333-000210

Hygeia Laboratories Inc.
1 Williams Drive, Suite A
Marietta, GA 30066
(770) 514-6933

PLM Analysis Summary

Hygeia Project Number: A0301060
Client Project Number/Name: / Centerville Armory

Analyzed: 1/27/2003 by CC

Sample ID		Sample Description			Asbestos Percent					Other Fibers			Non - Fibers	
Client #	Hygeia #	Color	Texture	Homog.	Chr.	Am.	Cro.	An.	T/A	Cell.	Glass	OF	B/F	ONF
FT-1-CNT	A0301060-01	Gray	Cons.	No	2%								98%	

Comment: Tile: 2% Chrysotile. Mastic: 3%Chrysotile. Asbestos Detected.

Client #	Hygeia #	Color	Texture	Homog.	Chr.	Am.	Cro.	An.	T/A	Cell.	Glass	OF	B/F	ONF
FT-2-CNT	A0301060-02	Gray	Cons.	No	3%								97%	

Comment: Tile: 3% Chrysotile. Mastic: 5%Chrysotile. Asbestos Detected.

Client #	Hygeia #	Color	Texture	Homog.	Chr.	Am.	Cro.	An.	T/A	Cell.	Glass	OF	B/F	ONF
FT-3-CNT	A0301060-03	Gray	Cons.	No	2%								98%	

Comment: Tile: 2% Chrysotile. Mastic: 5% Chrysotile. Asbestos Detected.

abbreviations:

Chr. = chrysotile
Am. = amosite
Cro. = crocidolite
An. = anthophyllite
T/A = tremolite/actinolite

cell = cellulose
glass = fibrous glass
syn = synthetic
sty = styrene foam
det = detected

per = perlite
ver = vermiculite
MF = Mineral filler
B/F = Binder / filler
NAD = No asbestos detected

OF = Other Fibers
ONF = Other Non-Fibers
Cons = Consolidated

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May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 127 of 2531
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 128 of 2531

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HYGEIA Laboratories Inc.
1300 Williams Drive, Marietta, GA 30066

Bulk Asbestos Worksheet

Project #:

Project Name: Aiken Global Env. Sus.* Centerville

Analyst: [redacted]

Date: 1/27/03

Laboratory Sample I.D.	Client Sample I.D.	Homogeneity	Texture	Color	Estimated % Asbestos	Morphology	Extinction Angle	Sign of Elongation	Birefringence	Transmitted Color	Pleochroism	R. I. Parallel	R. I. Perpendicular	D.S. Parallel	D.S. Perpendicular	Chrysotile	Amosite	(other)	Cellulose	Glass Fibers	Synthetic Fibers	(other)	Perlite	Vermiculite	Binder/Filler	(other)
	Ft-1-Cnt	No	Consol	Grey		C	OO	+	L	C	N			M	B	2									98	
tile 2% Chrys.																		Mastic 3% Chrys								
	Ft-2-CNt	No	Consol	Grey		C	OO	+	L	C	N			M	B	3									97	
tile 3% Chrys.																		Mastic 5% Chrysotile								
	Ft-3 CNt	No	Consol.	Grey		C	OO	+	L	C	N			M	B	2									98	
tile 2% Chrys.																		Mastic 5% chrysotile								

It is required that at least one optical property be recorded for non-asbestos fibers, which distinguishes them from asbestos:
M = Morphology I = Isotropic H = Melts when heated R> = RI is too high R< = RI is too low B = Birefringence A = Soluble in acid C = color

HYGEIA Laboratories Inc. 1300 Williams Drive, Marietta, GA 30066 [Phone-(770) 427-9456/ Fax-(770) 427-1907]

P. 02
FAX NO.

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HYGEIA LABORATORIES, INC.

1300 Williams Drive, Suite A - Marietta, Georgia 30066-6299 - (770) 514-6933, FAX (770) 514-6966

Lab Project No. M0301211 Report Date: 2/05/03

Client Name: **Aiken Global Environmental Services, LLC**
Contact: Non-Responsive
Address: [redacted]
Suite 107
Atlanta, GA 30344
Project Name: **Centerville Armory**
Project ID: none
Receipt Date: 1/27/2003

Case Narrative

1. The sample holding times were met for all analyses.
2. Where applicable, results & reporting limits are based on wet weight; dry weight calculations available.
3. The temperature of the sample cooler as received by the laboratory was room temperature.
4. Hygeia Labs assumes a sampling time of 12:00 PM unless otherwise specified on the Chain of Custody.

Reviewed By: Non-Responsive [redacted]

Respectfully Submitted, Non-Responsive [redacted]

Sample Identification

Lab Sample #	Client Sample ID	Sample Supply	Collected
M0301211-01	Pb-1-CNT	Other	1/15/03

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 129 of 2531

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Lab Project No. M0301211

Report Date: 2/05/03

Total Lead by Flame AA

Matrix: Wipe | Units: ug/ft2 | Method #: EPA_7420A(MOD)

Analysis Date: 2/3/2003 | Prep Date: 2/3/2003 | Analyst: VJ

Lab Sample #: M0301211-01 | Client ID: Pb-1-CNT

Analyte(s)	CAS #	Result	Report Limit	Flag Code
Total Lead	7439-92-1	83	20	

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 130 of 2531

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ENCLOSURE 2

Armory Building Layout

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 131 of 2531

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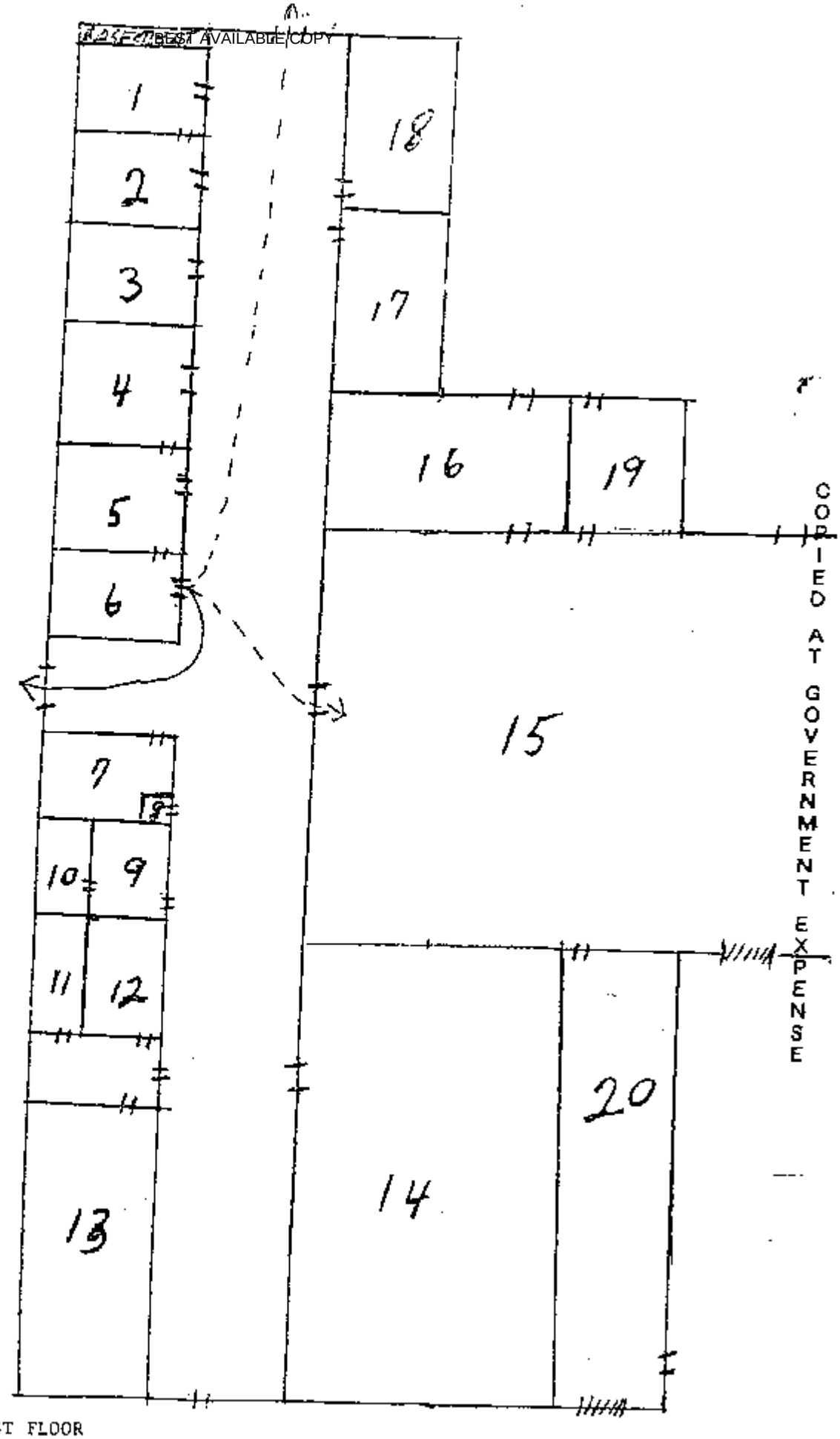
ROOM LOCATION

COMMANDER's Office
ecruiter;s Office
Training/Library
Supply Clerk's Office
Mail Room
lsg Officer
Female Latrine
Janitorial Room
Officer's Latrine
Officer's Showers
EM Latrine
EM Showers
Supply Room #2
Supply Room #1
Drill Hall
Boiler Room
Class Room #1
Class Room #2
Dispatcher's Office
Rifle Range

//// Overhead Doors



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ENCLOSURE 3

List of Personnel and HHEM

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 133 of 2531

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

SECTION 1: DEMOGRAPHIC DATA

ARLOC	INSTALLATION CENTERVILLE TN. NATIONAL GUARD ARMORY	BLDG/RM NO.
LOCATION CODE	OPERATION/CODE	
SURVEY DATE 15 JANUARY 2003	Non-Responsive	
MACOM/CODE	SUBMACOM/CODE	Non-Responsive
Non-Responsive		RAC 2

NO. CIV (S)	NO. MIL	NO. CONTRACTORS	NO. LOC (S)	NO. OTHER
0	3	0	0	0

SECTION 2: FACILITY DATA

LAB HOODS	VAPOR DEGREASERS	SPRAY BOOTHS
0	0	0
MAINTENANCE BAYS	OPEN SURFACE TANKS	VENTILATION UNITS
0	0	0

SECTION 3: SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS

PERSONAL PROTECTIVE EQUIPMENT (R= REQUIRED; U = UTILIZED)

GLOVES	R/U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R/U
ACID	/	AIR LINE			/
COLD SURFACES	/	ABRASIZE BLASTING HOOD			/
HOT SURFACES	/	DISPOSABLE	TC-84A-0006	3M (N-95)	X/X
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	1/2 FACE AIR PURIFYING			/
SOLVENTS	/	1/4 FACE AIR PURIFYING			/
SURGICAL GLOVES	U/	SELF CONTAINED			/

EYES/FACE	R/U	HEARING	R/U	BODY	R/U	HEAD/FIT	R/U
CHEMICAL SPLASH	/	CANAL CAPS	/	APRONS/LAB. COATS	/	COLD WEATHER BOOTS/HATS	/
FULL FACE SHEILD	/	EARPLUGS	/	COLD WEATHER CLOTHING	/	HARD HATS	/
CHEMICAL/SAFETY	/	HELMETS	/	COVERALLS (SCRUBS)	/	IMPERMEABLE BOOTS	/
SAFETY/IMPACT	/	MUFFS	/	FULL BODY SUIT	/	SAFETY/CONDUCTIVE SHOES	/
WELDING HELMET	/	MUFF/EARPLUG COMBO	/	HEAT REFELECTIVE VEST/SUIT	/	SAFETY/NON-CONDUCTIVE SHOES	/
LASER	/	MUFF/EARPLUG W/TIME LIMIT	/	SAFETY BELT/HARNESS	/		/

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SECTION 4: HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead contaminated dust, and mold infestation, Asbestos	0	A

SECTION 5: PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY
Non-Responsive					52X
					92A
					63H

SECTION 6: COMMENTS

☐ No comments ☐ X see attached sheet

PRIVACY ACT STATEMENT

Title 5 US Code, Section 301; Executive order 9397 authorizes the use of your Social Security Number as an identification number. The purpose of this information is to identify and monitor data relating to each DA civilian and military employee exposure to a hazardous workplace or operation. The use of this information is to provide histories of exposure for any given worker.

Disclosure of your Social Security Number is not mandatory; however, nondisclosures may result in untimely provision of proper medical monitoring

2

HHIM REPORT/COMMENT SECTION:

Lead Contaminated Dust
Hygeia reported a surface lead concentration of 83 µg/ft² on the bullet stop in the retired rifle range.

Activities involving disturbances of the lead contaminated surfaces in the firing range are also subject to compliance with the regulatory requirements of OSHA's Lead In Construction standard-29 CFR 1926.62. The supply/exhaust system inside the firing range should be evaluated with the objective of attaining laminar flow, such that airborne lead contaminated dust is effectively captured and transported to an appropriate dust abatement device prior to exhaust to the ambient air. All personnel conducting activities that will result in disturbance of settled dust on any surface inside the range should be equipped with level B protective ensemble.

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All cleaning procedures must be performed in accordance with the requirements of All States Memo and NG Pam 385-16, paragraph C-1 (reference j). This includes documentation of dates, names of personnel, and time on the range for all cleaning procedures. Personnel cleaning the range should also be provided appropriate medical surveillance for inorganic lead.

Mold Infestation

The ceiling tiles in the men's bathroom exhibited signs of moisture intrusion and mold infestation. Mold infestation was also observed on the suspended ceiling tiles in room 28 in the immediate vicinity of the water heater.

Conduct mold investigation studies and based upon results obtaioed, implement corrective measures in conjunction with appropriate remedial measures specific to mold infestation in buildings.

Asbestos

Hygeia reported the following as Asbestos Containing Materials (ACMs): the brown speckled floor tiles and the accompanying mastic in the hallway, the white speckled floor tiles and the accompanying mastic in room 10 B, and the gray speckled floor tiles and the accompanying mastic. All similar floor tiles and accompanying mastic throughout the armory, are considered to be homogeneous materials, and must be treated as ACMs until testing has indicate otherwise.

Maintenance workers and building occupants should be advised of the presence of the ACMs, and specified guidelines should be followed during routine maintenance of the floor tiles and/or mastic.

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ENCLOSURE 4

Copy of Firing Range Closure Report

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 137 of 2531

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DEPARTMENT OF THE ARMY
HEADQUARTERS, TENNESSEE ARMY NATIONAL GUARD (STARC)
HOUSTON BARRACKS, 3041 SIDCO DRIVE
NASHVILLE, TN 37204-1502

AGTN-CFMO-E

16 September 2002

MEMORANDUM FOR HQ STARC (-), ATTN: Safety, P. O. BOX 41502, NASHVILLE, TN 37204-1502

SUBJECT: Range Lead Contamination Results

1. In assisting your office with the testing of lead contamination at the ranges in our facilities, the enclosed 7 test reports on the following armories are provided for your attention:

a. Ripley
b. Athens
c. Centerville
d. Waynesboro
e. Rockwood
f. Murfreesboro
g. Savannah

2. **Please note that there are extremely high test results at the Rockwood and Ripley armories** that may pose a health threat to Full Time Support Personnel and other personnel utilizing these facilities.

3. We will continue to assist you with testing of the ranges and will provide you with the results.

Non-Responsive

[redacted]

CS
DCSOPS
DCSHRO
DCSENG

Non-Responsive

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CENTERVILLE I)OR RANGE LEAD TEST
TEST RESULT= CLEAN

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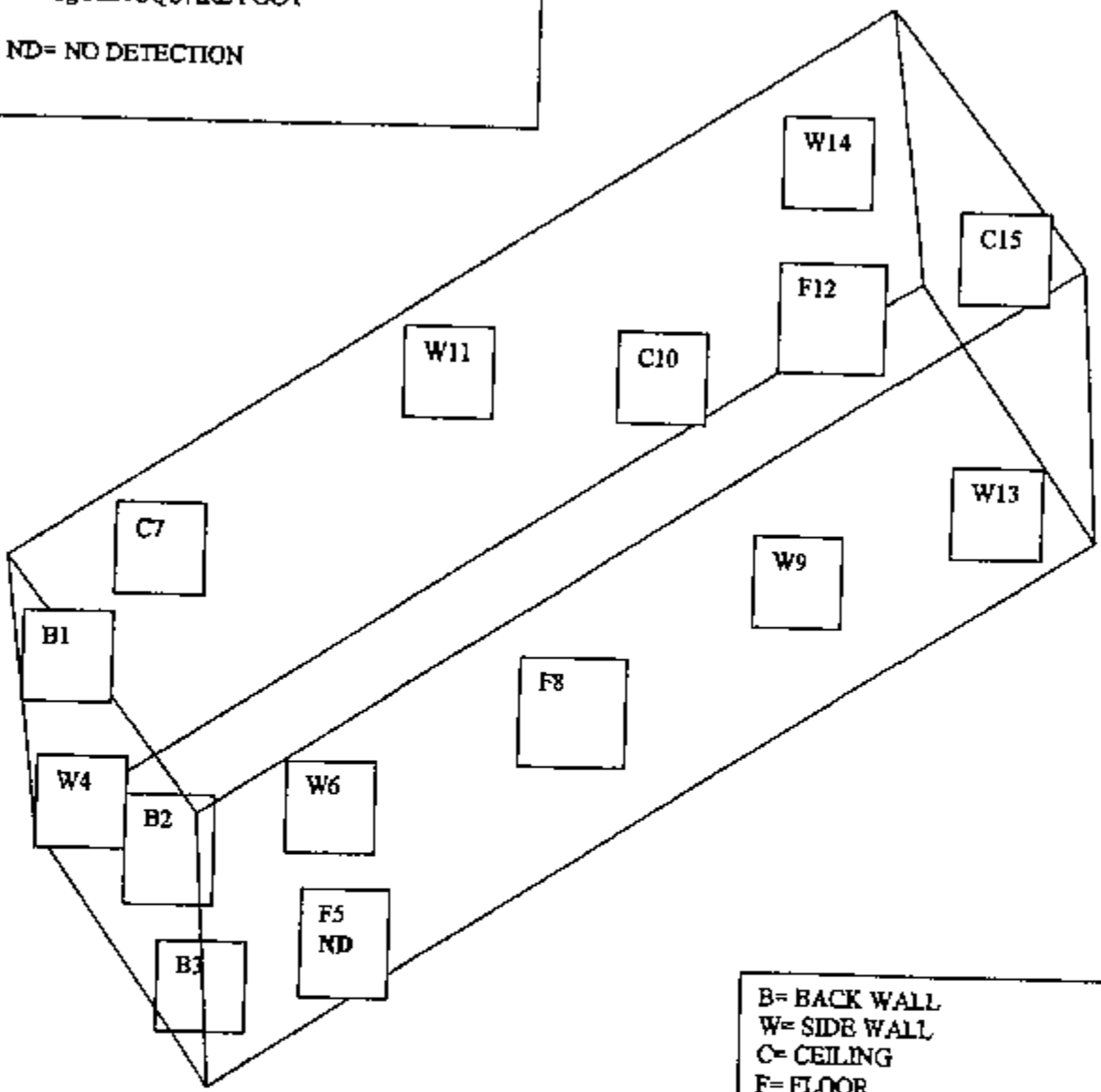
*NOT ALL AREAS TESTED TEST WAS A RETEST OF AREAS IDENTIFIED AS HOT FROM EARLIER TEST.

ACCEPTABLE LEVELS OF LEAD RESIDUE IS 200 ug PER SQUARE FOOT

ND= NO DETECTION



B= BACK WALL
W= SIDE WALL
C= CEILING
F= FLOOR

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TestAmerica
INCORPORATED

ANALYTICAL REPORT

H.Q. TN ARMY NATIONAL GUARD 5132
DFE-ENV
P.O. BOX 41502
NASHVILLE, TN 37204-1502

Lab Number: 02-A144896
Sample ID: CENTERVILLE F5
Sample Type: Wipe
Site ID:

Project: Non-Responsive
Project Name:
Sampler:

Date Collected: 8/16/02
Time Collected:
Date Received: 9/ 5/02
Time Received: 13:00

Analyte	Result	Units	PQL	Date	Time	Analyst	Method
Lead	ND	ug/wipe	2.50	9/ 9/02	12:20	Non-Responsive	10B

LABORATORY COMMENTS:

ND - Not detected at the report limit.
B - Analyte was detected in the method blank.
J - Estimated Value below Report Limit.
E - Estimated Value above the calibration limit of the instrument.
- Recovery outside Laboratory historical or method prescribed limits.

End of Sample Report.

2960 Foster Creighton Drive / Nashville,TN 37204 / 615-726-0177 / Fax: 615-726-0954 / 800-765-0980

BEST AVAILABLE COPY

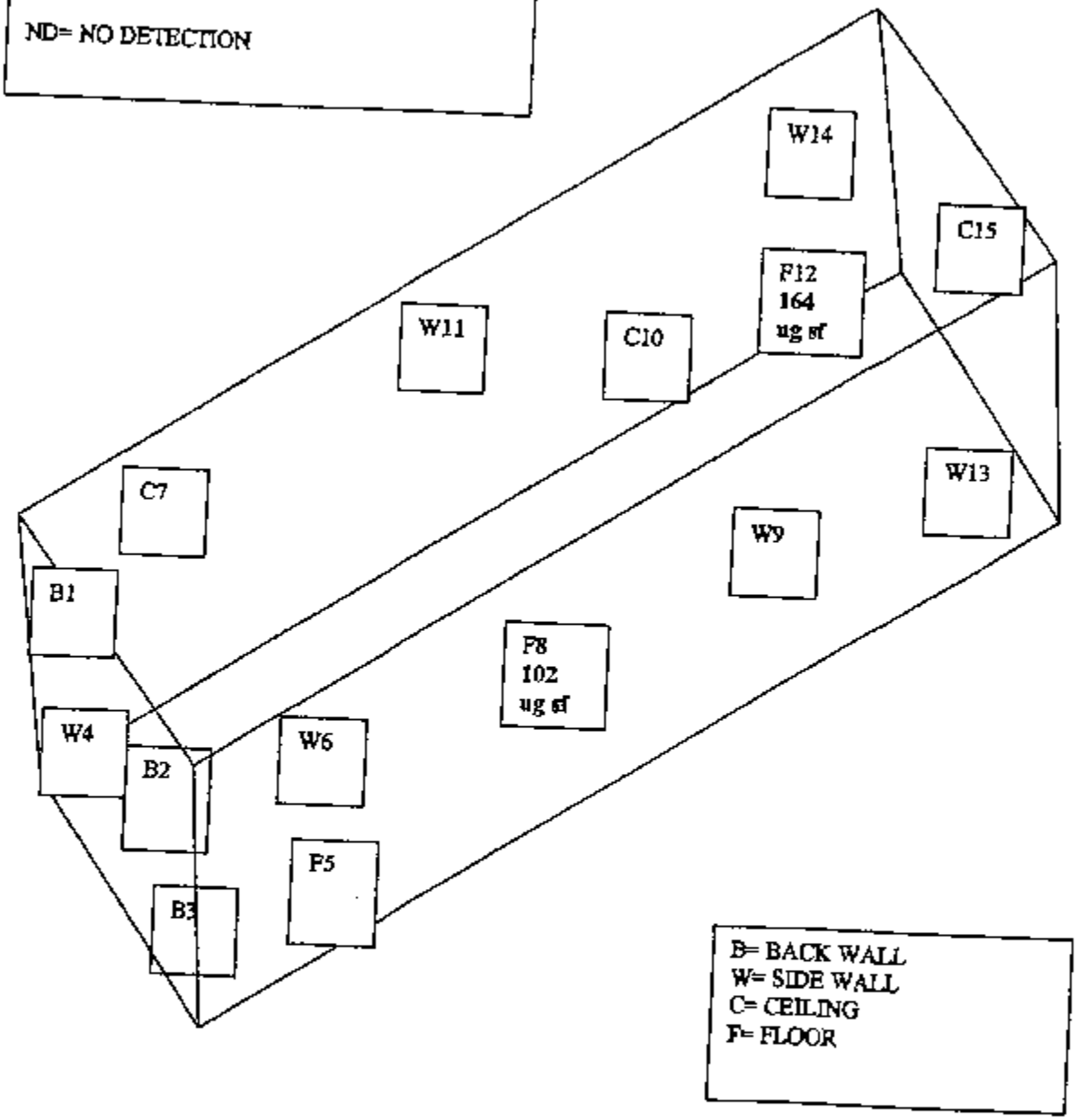
SAVANNAH INT R RANGE LEAD TEST
TEST RESULT= CLEAN

BEST AVAILABLE COPY

*NOT ALL AREAS TESTED, TEST WAS A RETEST OF AREAS IDENTIFIED AS HOT FROM EARLIER TEST.

ACCEPTABLE LEVELS OF LEAD RESIDUE IS 200 ug PER SQUARE FOOT

ND= NO DETECTION



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TestAmerica
INCORPORATED

ANALYTICAL REPORT

H.Q. TN ARMY NATIONAL GUARD 5132
DFE-ENV
P.O. BOX 41502
NASHVILLE, TN 37204-1502

Lab Number: 02-A144899
Sample ID: SAVANNAH F8
Sample Type: Wipe
Site ID:

Project: Non-Responsive
Project N [redacted]
Sampler:

Date Collected: 8/19/02
Time Collected:
Date Received: 9/ 5/02
Time Received: 13:00

Analyte	Result	Units	PQL	Date	Time	Analyst	Method
Lead	25.5	ug/wipe	2.50	9/ 9/02	12:20	Non-Responsive [redacted]	6010B

LABORATORY COMMENTS:

ND = Not detected at the report limit.
B = Analyte was detected in the method blank.
J = Estimated Value below Report Limit.
E = Estimated Value above the calibration limit of the instrument.
# = Recovery outside Laboratory historical or method prescribed limits.

End of Sample Report.

2960 Foster Creighton Drive / Nashville,TN 37204 / 615-726-0177 / Fax: 615-726-0954 / 800-765-0980

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TestAmerica
INCORPORATED

ANALYTICAL REPORT

H.Q. TN ARMY NATIONAL GUARD 5132
DFE-ENV
P.O. BOX 41502
NASHVILLE, TN 37204-1502

Lab Number: 02-A144898
Sample ID: SAVANNAH F12
Sample Type: Wipe
Site ID:

Project: Non-Responsive
Project [redacted]
Sampler: [redacted]

Date Collected: 8/19/02
Time Collected:
Date Received: 9/ 5/02
Time Received: 13:00

Analyte	Result	Units	PQL	Date	Time	Analyst	Method
Lead	41.0	ug/wipe	2.50	9/ 9/02	12:20	Non-Responsive [redacted]	6010B

LABORATORY COMMENTS:

ND - Not detected at the report limit.
B - Analyte was detected in the method blank.
J - Estimated Value below Report Limit
E - Estimated Value above the calibration limit of the instrument.
- Recovery outside Laboratory historical or method prescribed limits.

End of Sample Report.

2960 Foster Creighton Drive / Nashville,TN 37204 / 615-726-0177 / Fax: 615-726-0954 / 800-765-0980

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TestAmerica
INCORPORATED

ANALYTICAL REPORT

H.Q. TN ARMY NATIONAL GUARD 5132
DFE-ENV
P.O. BOX 41502
NASHVILLE, TN 37204-1502

Project: Non-Responsive
Project [redacted]
Sampler:

Lab Number: 02-A144897
Sample ID: WAYNESBORO F5
Sample Type: Wipe
Site ID:

Date Collected: 8/19/02
Time Collected:
Date Received: 9/ 5/02
Time Received: 13:00

Analyte	Result	Units	PQL	Date	Time	Analyst	Method
Lead	9.50	ug/wipe	2.50	9/ 9/02	12:20	Non-Responsive [redacted]	010B

LABORATORY COMMENTS:

ND - Not detected at the report limit.
B - Analyte was detected in the method blank.
J - Estimated Value below Report Limit.
E - Estimated Value above the calibration limit of the instrument.
- Recovery outside Laboratory historical or method prescribed limits.

End of Sample Report.

2960 Foster Creighton Drive / Nashville,TN 37204 / 615-726-0177 / Fax: 615-726-0954 / 800-765-0980

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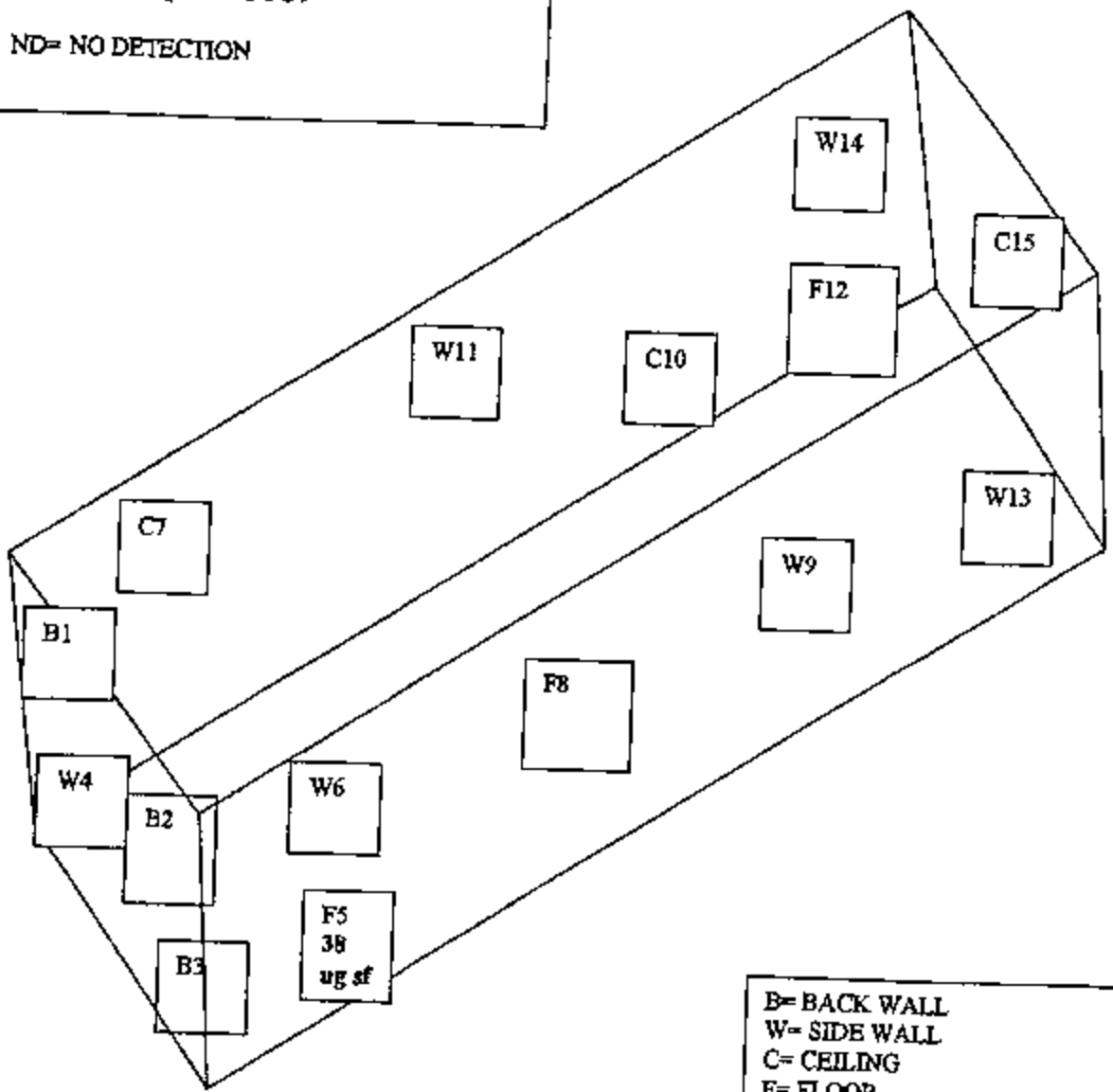
WAYNESBORO / DOOR RANGE LEAD TEST
TEST RESULT= CLEAN

BEST AVAILABLE COPY

*NOT ALL AREAS TESTED TEST WAS A RETEST OF AREAS IDENTIFIED AS HOT FROM EARLIER TEST.

ACCEPTABLE LEVELS OF LEAD RESIDUE IS 200 ug PER SQUARE FOOT

ND= NO DETECTION



B= BACK WALL
W= SIDE WALL
C= CEILING
F= FLOOR

ENCLOSURE 5

Copies of SSG Clark's HAZMAT Certificate

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 147 of 2531

DEPARTMENT OF THE ARMY

CERTIFICATE OF TRAINING

This is to certify that

[redacted] Non-Responsive

has successfully completed

Technical Transportation of Hazardous Materials

Class # LTC014-06-02 ** AMMO-62(LTC014) ** 80 Hours ** **03-May-02**

This training was conducted in accordance with 49 CFR 172.704, DOD 4500.9R Chapter 204,and AFJMAN 24-204

Given at **PEC-LTC, Camp Robinson, AR**

[redacted] Non-Responsive

DA FORM 87, 1 OCT 70

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Page 148 of 2531

DEPARTMENT OF THE ARMY
CERTIFICATE OF TRAINING

This is to certify that

[redacted] Non-Responsive

has successfully completed

Technical Transportation of Hazardous Materials

Class # LTC014-03-03 ** AMMO-62(LTC014) ** 80 Hours ** **20-Dec-02**

This training was conducted in accordance with 49 CFR 172.704, DOD 4500.9R Chapter 204,and AFJMAN 24-204

Given at **PEC-LTC, Camp Robinson, AR**

[redacted] Non-Responsive

DA FORM 87, 1 OCT 78

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 149 of 2531

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DEPARTMENT OF THE ARMY
CERTIFICATE OF TRAINING

This is to certify that

[redacted] Non-Responsive

has successfully completed

Technical Transportation of Hazardous Materials

Class # LTC014-03-03 ** AMMO-62(LTC014) ** 80 Hours ** **20-Dec-02**

This training was conducted in accordance with 49 CFR 172.704, DOD 4500.9R Chapter 204 and AEJMAN 24-204

Given at PEC-LTC, Camp Robinson, AR

[redacted] Non-Responsive

DA FORM 87, 1 OCT 78

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ENCLOSURE 6

Copies of HAZMAT List Posted On-Site

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 150 of 2531

ANNUAL WORKPLACE CHEMICAL LIST

WORKPLACE/UNIT NAME: 779th MAINTENANCE COMPANY
STREET ADDRESS: 150 UNIVERSAL DRIVE
CITY, STATE, ZIP CODE: CENTERVILLE, TN 37033
LOCAL POC (NAME & TEL#) Non-Responsive
DATE PREPARED: 3 JANUARY 2003

CHEMICAL NAME	COMMON Trade Name	NSN	*STORAGE LOCATION	AMT ON HAND
Cleaner Lubricant & Preservative	CLP	9150-01-053-6688	Flammable Cabinet	10 Gallons
MISC Paint			Flammable Cabinet Supply Room	10 Gallon
Oil 15-40W			Oil House/Maint. Bays	
Fuel JP-8			Tank and Pump Unit	600 Gallons
Transmission Fluid			Oil House/Maint. Bays	
Brake Fluid			Oil House/Maint. Bays	
Gear Oil 90W			Oil House/Maint. Bay	

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FIGURES

Centerville National Guard Armory

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 152 of 2531

Figure 1 – Front view of Centerville Armory

Figure 2 – Kitchen located the in basement

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 153 of 2531

Figure 3 Dining Room – In the basement

Figure 4 - Track Platoon Work Area (outside metal building)

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 154 of 2531

Figure 5 – The Oil House – Outside Building

Figure 6 – Mold infestation on ceiling tiles in men's bathroom

Figure –7 Exhaust fan on floor

Figure 8- View of static roof vent

Figure 9 – Full view of static side vents

Figure 10 – Retired Indoor Firing Range

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 157 of 2531

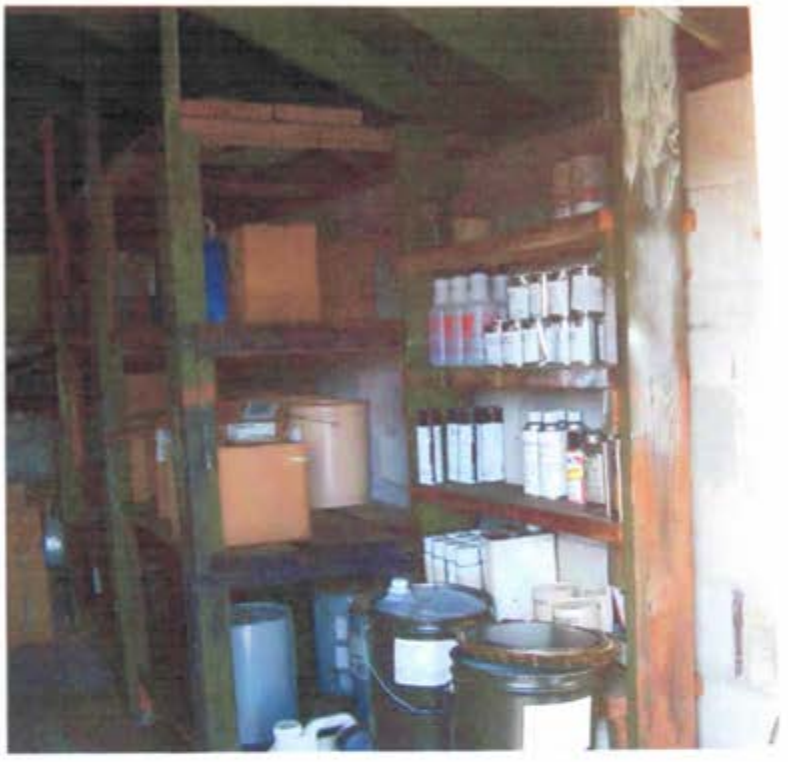

Figure 11 – Interior - Oil House

Figure – 12 Addition Figure - Inside the Oil house

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 158 of 2531

Figure 13 – View of basement hallway

Figure 14 – 12-inch x12-inch brown speckled vinyl floor tiles

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NATIONAL GUARD REGION SOUTH
INDUSTRIAL HYGIENE OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

NGB-ARS-SEIH

November 22, 2007

MEMORANDUM FOR: Non-Responsive RN, Occupational Health Nurse, Tennessee State Safety and Occupational Health Office, 250 8th Avenue, Smyrna, Tennessee 37167.

SUBJECT: Centerville National Guard Armory, Lead Sampling Survey, 150 Universal Drive, Centerville, Tennessee.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 22 July 2005.

c. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, October 1988.

d. AR 385-10, The Army Safety Program, 29 February 2000.

e. National Guard Pam 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006.

f. NGR 385-15, Policy and Responsibilities, Evaluation and Operation of Army National Guard Indoor Firing Ranges, 3 November 2006.

g. DA PAM 40-503, The Army Industrial Hygiene Program, 30 October 2000.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2003, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. Title 29, Code of Federal Regulations (CFR), 2001 rev., part 1910, Occupational Safety and Health Standards.

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2. General.

a. As requested by Non-Responsive Tennessee Occupational Health Office, personnel with the National Guard Region South Industrial Hygiene Office performed an inspection at the referenced site. The apparent objective of the inspection was to collect surface wipe samples from the former Indoor Firing Range (IFR) for analysis of total lead to confirm/deny the presence of lead dust.

b. Sergeant Non-Responsive with the National Guard Region South Industrial Hygiene Office in College Park Georgia performed the site visit.

3. Findings.

General Information

At the time of the sampling activity, the interior of the Centerville Armory IFR was emptied of all associated IFR equipment including the bullet trap and firing line. However, the area appeared to be in use as an automotive maintenance shop. A chain-link metal cage was observed surrounding the former bullet stop. Inside the metal cage were metal shelving use for storing maintenance parts, with work tables observed along the right and left walls of the former range.

There were acoustical sound boards observed on the right and left walls along with the ceiling. At the rear of the former IFR was an entrance observed as a roll-up metal door. The surface area observed in the former bullet stop area was constructed of cinder-block with the floor observed to be constructed of concrete. The former bullet trap location was identified along what was referred to as the front wall and the firing line was previously located at the rear wall.

Sampling Activities

Based on the number of surfaces observed, samples were collected in accordance with National Guard Bureau Pamphlet 420-15. Ghost Wipe™ is pre-moistened media made of non-woven polyvinyl alcohol fiber and approved by American Industrial Hygiene Association (AIHA) for lead sampling. The wipes also meet all American Standards Testing Materials (ASTM) Designation E1792-96E specifications for sampling materials for lead in surface dust.

The surface samples were collected by placing a 1 square foot sampling template on the surface area and wiping the outlined area with a Ghost Wipe™. After the area inside the template was wiped, each individual sampling media was placed into separate, labeled re-sealable plastic bags and sealed. After each sample collection, a new surface area template was used and new disposable gloves were donned. A total of 21 samples were collected, three from each surface area along with three samples from the surface of the metal shelving and work tables observed in the former IFR. In addition, two wipes were placed into re-sealable bags and submitted as blank samples for analysis. The samples were submitted to Analytical Environmental Services, Inc. (AES) in Atlanta, Georgia for subsequent analysis of total lead.

Photographs of the observation made during the inspection are attached for reference.

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 162 of 2531

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Laboratory Results

The results of the lead dust sampling activities are summarized in the following table.

Sample Number	Sample Location	Laboratory Results[1]
TNCV-01	Lower Front Wall	90
TNCV-02	Middle Front Wall	64
TNCV-03	Upper Front Wall	95
TNCV-04	**Lower Right Wall**	**60,900**
TNCV-05	Middle Right Wall	BRL
TNCV-06	Upper Right Wall	BRL
TNCV-07	Lower Rear Wall	BRL
TNCV-08	Middle Rear Wall	33
TNCV-09	Upper Rear Wall	BRL
TNCV-10	Lower Left Wall	BRL
TNCV-11	Middle Left Wall	BRL
TNCV-12	**Upper Left Wall**	**266**
TNCV-13	Ceiling at Front Wall	26
TNCV-14	Middle Ceiling	BRL
TNCV-15	Ceiling at Rear Wall	BRL
TNCV-16	**Floor Front Wall**	**419**
TNCV-17	Middle Floor	56
TNCV-18	Floor at Rear Wall	49
TNCV-19	Metal Shelving at Front Wall	126
TNCV-20	Work Table at Right Wall	123
TNCV-21	Work Table at Left Wall	98
TNCV-Blank-1	Field Blank	BRL
TNCV-Blank-2	Field Blank	BRL

[1] Results reported in micrograms per square feet ($\mu g/ft^2$)
[2] BRL = Below Reportable Limits

The laboratory results indicate lead concentrations detected above the IFR post cleaning standard. In accordance with the National Guard Bureau Pamphlet 420-15, the Centerville Armory IFR cannot be converted for other uses until the lead dust levels are reduced to $200\mu g/ft^2$ or lower depending on local requirements.

The laboratory results are attached for review.

4. Recommendations.

a. Prior to initiating decontamination activities and in accordance with 29 CFR 1910.1025, perform and conduct training for employees exposed to lead concentrations above the standard or who may suffer skin or eye irritation from exposure to lead.

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 164 of 2531

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b. Review NG Bureau Pamphlet 420-15 prior to conducting decontamination of the IFR and conduct cleaning activities in accordance with the regulatory document. Decontamination activities should also include items currently stored in the former IFR. Keep in mind that EPA (40 CFR 745 Subpart D) and your state may have lead reduction levels lower than the levels recommended in Pamphlet 420-15.

c. Ensure that appropriate personal protective equipment is worn during decontamination activities.

d. Consult with local Environmental Agency for guidance on proper disposal of materials used in decontaminating the IFR.

e. Upon completion of the decontamination activities, contact the Regional IH office for evaluation and collection of confirmatory lead dust samples.

5. If additional information is needed about the contractors report, please contact SGT

Non-Responsive

[redacted]

CC: Non-Responsive CFMO, 3041 Sidco Drive, Nashville, Tennessee 37204-1504

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 166 of 2531

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Photo 1: View of the former bullet stop area with metal storage shelves present.

Photo 2: View of the right wall of the former IFR with sound boards present.

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Photo 3: View of left wall with sound boards.

Photo 4: View of ceiling with sound boards present.

Project Name: Centerville Tennessee Armory

Date Photos Taken: 8 November 2007

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau

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Analytical Environmental Services, Inc.

Date: 11/21/2007

LEAD ON WIPES (N9100/7082)
N7082

CLIENT: National Guard Bureau Region-South IH
Project: Centerville Tenn Armory
Delivery Order:
PO No:

Lab Order: 0711805
Date Received: 11/14/2007 10:30 AM
Matrix: Wipe

Laboratory ID	Client Sample ID	Results	Units	Report Limit.	DF	Date Collected	Date Analyzed	Analyst
0711805-001A	TNCV-01	90	µg/ft²	20	1	11/8/2007	11/16/2007	JY
0711805-002A	TNCV-02	64	µg/ft²	20	1	11/8/2007	11/16/2007	JY
0711805-003A	TNCV-03	95	µg/ft²	20	1	11/8/2007	11/16/2007	JY
0711805-004A	TNCV-04	60900	µg/ft²	2350	117.5	11/8/2007	11/16/2007	JY
0711805-005A	TNCV-05	BRL	µg/ft²	20	1	11/8/2007	11/16/2007	JY
0711805-006A	TNCV-06	BRL	µg/ft²	20	1	11/8/2007	11/16/2007	JY
0711805-007A	TNCV-07	BRL	µg/ft²	20	1	11/8/2007	11/16/2007	JY
0711805-008A	TNCV-08	33	µg/ft²	20	1	11/8/2007	11/16/2007	JY
0711805-009A	TNCV-09	BRL	µg/ft²	20	1	11/8/2007	11/16/2007	JY
0711805-010A	TNCV-10	BRL	µg/ft²	20	1	11/8/2007	11/16/2007	JY
0711805-011A	TNCV-11	BRL	µg/ft²	20	1	11/8/2007	11/16/2007	JY
0711805-012A	TNCV-12	266	µg/ft²	20	1	11/8/2007	11/16/2007	JY
0711805-013A	TNCV-13	26	µg/ft²	20	1	11/8/2007	11/16/2007	JY
0711805-014A	TNCV-14	BRL	µg/ft²	20	1	11/8/2007	11/16/2007	JY
0711805-015A	TNCV-15	BRL	µg/ft²	20	1	11/8/2007	11/16/2007	JY
0711805-016A	TNCV-16	419	µg/ft²	20	1	11/8/2007	11/16/2007	JY
0711805-017A	TNCV-17	56	µg/ft²	20	1	11/8/2007	11/16/2007	JY
0711805-018A	TNCV-18	49	µg/ft²	20	1	11/8/2007	11/16/2007	JY
0711805-019A	TNCV-19	126	µg/ft²	20	1	11/8/2007	11/16/2007	JY
0711805-020A	TNCV-20	123	µg/ft²	20	1	11/8/2007	11/16/2007	JY
0711805-021A	TNCV-21	98	µg/ft²	20	1	11/8/2007	11/16/2007	JY
0711805-022A	TNCV-BLANK-1	BRL	µg, Total	20	1	11/8/2007	11/16/2007	JY
0711805-023A	TNCV-BLANK-2	BRL	µg, Total	20	1	11/8/2007	11/16/2007	JY

Qualifiers: BRL - Not Detected at the Reporting Limit DF - Dilution Factor

Results are blank corrected where applicable

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FOIA Requested Record #J-15-0085 (TN)
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Page 170 of 2531

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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-AVN-SI January 12, 2005

MEMORANDUM FOR: ADJUTANT GENERAL TN ARNG, ATTN.: State Safety and Occupational Health Office, P O Box 41502, Nashville, TN 37204-1502

SUBJECT: Transmittal of the Survey Reports for Clarksville Armory, Gallatin Armory, Lafayette Armory, Lebanon Armory, Springfield Armory, TN.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, 30 August 1986, Medical Service, Preventive Medicine.

c. National Guard Regulation (NGR) 385-10, 1988, Army National Guard Safety and Occupational Health Program.

d. AR 11-34, The Army Respiratory Protection Program, 15 February 1990.

e. TB MED 502, Occupational and Environmental Health Respiratory Protection Program, February 1982.

f. DA PAM 40-503, 30 October 2000, The Army Industrial Hygiene Program.

g. DA PAM 40-501, 10 December 1998, Hearing Conservation.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2001, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

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k. Title 29, Code of Federal Regulations (CFR), 2000 rev., part 1910, Occupational Safety and Health Standards.

l. Reports dated 21 October 2004 (Gallatin & Lebanon), 22 Oct 2004 (Clarksville & Springfield) and 12 November 2004 (Lafayette), Industrial Hygiene Survey, Environmental Management Solutions, Dallas, GA.

2. General.

a. At the request of the TN ARNG Safety and Occupational Health Office, an Industrial Hygiene Service was put together to conduct Health Hazard Information module (HHIM) Field surveys and industrial hygiene sampling of the Clarksville Armory, Gallatin Armory, Lafayette Armory, Lebanon Armory, Springfield Armory, TN.

b. Environmental Management Solutions, 247 Mary Lane, Dallas, GA conducted the survey.

3. Findings. All Health Hazard information collected are on the survey findings of the report. (See enclosure 1)

4. Recommendations.

a. Follow all recommendations made in reference 1.l., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Conduct an air sampling survey in the areas in and around those identified with elevated lead dust levels in page 4 in each report of reference 1.l, to ensure that the lead dust present is not airborne and that employees in these areas are not exposed above the action level where applicable.

c. Control water infiltration in the armory and/or replace or repair damaged surfaces or components (ceiling and floor tiles). Building conditions that present IAQ concerns or problems not only exacerbates normally minor health issues but also tend to promote or accelerate building deterioration.

d. The recommendations given in the comment section and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-05. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-06 IHIP.

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NGB-AVN-SI
SUBJECT: Transmittal of the Survey Reports for Clarksville Armory, Gallatin Armory, Lafayette Armory, Lebanon Armory, Springfield Armory, TN.

e. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present survey, especially if this will help eliminate health hazards and reduce medical surveillance cost.

f. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

g. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

5. If additional information is needed about the industrial hygiene survey or air sample

Non-Responsive

CF:
NBG-AVN-SH
State Occupational Health Office, P O Box 41502, Nashville, TN 37204-1502.

Encl
as

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ENVIRONMENTAL MANAGEMENT SOLUTIONS
INDUSTRIAL HYGIENE CONSULTING

TENNESSEE ARMY NATIONAL GUARD

CLARKSVILLE ARMORY
CLARKSVILLE, TENNESSEE

247 MARY LANE, DALLAS, GEORGIA 30157
PHONE: 404.425.3103 • FAX: 770.231.6297

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EXECUTIVE SUMMARY 1

SUBJECT 2

BACKGROUND 2

INTRODUCTION 2
SITE DESCRIPTION 2
SCOPE OF WORK 2
METHODOLOGY 3

FINDINGS AND DISCUSSION 4

LEAD WIPE SAMPLES 4
ASBESTOS SUSPECT BUILDING MATERIAL 5
NOISE SURVEY 5
ILLUMINATION SURVEY 5
BUILDING CONDITION 6
HAZARD COMMUNICATION 6
RADIATION PROTECTION PROGRAM 7
ERGONOMICS 7
PERSONAL PROTECTIVE EQUIPMENT 7

RECOMMENDATIONS 8

TECHNICAL ASSISTANCE 9

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 176 of 2531

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EXECUTIVE SUMMARY

An initial baseline industrial hygiene survey was conducted at the Clarksville Armory on 22 October 2004 as part of the Tennessee Army National Guard Occupational Health Program to identify potential health hazards in the workplace. The survey consisted of collecting lead wipe samples and bulk asbestos samples as needed, conducting a noise and illumination survey and an evaluation of the condition of the building as it related to indoor air quality. A review of the Hazard communication program, ergonomics, and personal protective equipment was also performed.

The following table summarizes the survey findings and recommendations for each topic surveyed.

TOPIC	SUMMARY OF FINDINGS	RECOMMENDATIONS
Lead Wipe Samples	0 to 245 micrograms. Lead results in the converted Indoor firing range area are close to but do not exceed requirements. Supply areas also show higher than recommended levels of lead contamination.	Clean surfaces in the supply areas, decontaminate all contaminated items, and follow good hygiene and housekeeping practices. Continued monitoring of the indoor firing range area should be conducted annually and in accordance with Army National Guard All States Log Number P01 0075, **Policies and Responsibilities for Inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges (IFR) and Guidelines for IFR Rehabilitation, Conversion, and Cleaning**
Asbestos Bulk Samples	No findings	No action
Noise Survey	Under 85 dBA	A noise survey should be performed on equipment used and maintained in the motor pool area.
Illumination Survey	3.2 to 83 foot-candles	Upgrade lighting to appropriate levels.
Building Condition	Building in poor condition, mold growing in several rooms.	Develop a housekeeping schedule to identify, repair, and prevent any leaks or standing water.
Hazard Communication	Material Safety Data Sheets are updated by SGT Winn	Material Safety Data Sheets should be updated for cleaning supplies used by facility.
Ergonomics	Poor workstations design in some offices	Complete ergonomics survey on all personnel and offer ergonomic training or awareness to employees who spend the majority of their time working on a computer terminal
Personal Protective Equipment	No findings	No action

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MEMORANDUM FOR

Tennessee Army National Guard
Clarksville Armory
1 Non-Responsive
Clark [redacted]

SUBJECT

Initial Baseline Industrial Hygiene Survey of the Clarksville Armory performed 22 October 2004 in Clarksville, Tennessee.

BACKGROUND

INTRODUCTION

At the request of Non-Responsive of the National Guard Bureau Region South Industrial Hygiene Office, an initial baseline industrial hygiene survey was performed at the Clarksville Armory in Clarksville, Tennessee. Environmental Management Solutions conducted the survey on 22 October 2004. The purpose of the survey was to perform an initial baseline industrial hygiene survey to evaluate potential health hazards present at the armory.

SITE DESCRIPTION

The facility houses the 278th ADA, Btry, ACR Rear Detachment. The single story building contains several administrative offices, a classroom, a drill hall, and a kitchen. A converted indoor firing range is present and is being used as storage space and mess hall. The range was reportedly never used for firing. Refer to Building layout in Appendix C. Soldiers perform weapons cleaning quarterly in the drill hall area. The armory is rented out to the city for private functions, including Boy Scout weekends, and senior ROTC.

SCOPE OF WORK

The work included collecting wipe samples for lead, bulk samples for suspect asbestos containing building material, noise readings, illumination levels, and an evaluation of the ventilation system as it pertains to indoor air quality. A list of occupational health programs and procedures were verbally covered with the armory personnel.

Posted to NGB FOIA Reading Room
May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 178 of 2531

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METHODOLOGY

Lead wipe samples were collected from surfaces that showed signs of lead contamination in armories that have a renovated, inactive, or closed indoor firing range (IFR), kitchen or mess hall storage areas, indoor drill halls, and storage rooms with weapons vaults. The samples were collected in accordance to instructions published by Region South National Guard Bureau, which required the use of unscented baby wipes to wipe one square foot of surface. Samples were then placed in a sealed plastic bag and sent to an American Industrial Hygiene Associations (AIHA) accredited laboratory for analysis. Asbestos bulk samples and lead paint chips were collected from suspect friable and damaged building material. Each bulk sample was placed in a sealed bag and sent to an AIHA laboratory for analysis. All instruments used for assessment were factory calibrated and calibrated prior to the survey as applicable. Illumination readings were taken on work surfaces and approximately four feet from the floor.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 179 of 2531

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FINDINGS AND DISCUSSION

LEAD WIPE SAMPLES

Twelve wipe samples were collected from areas of the kitchen, supply, drill hall, and converted indoor firing range areas as listed in the table below.

SAMPLE NUMBER	SAMPLE LOCATION	MICROGRAMS OF LEAD (µg) PER SQUARE FOOT
CV-01	Drill Hall Floor Near HVAC	BRL
CV-02	Converted IFR, Top of File Cabinet	37.0
CV-03	Converted IFR, Mess Area	BRL
CV-04	Converted IFR, Near roll up door	**170**
CV-05	Converted IFR, Bottom of stairs	104
CV-06	Converted IFR, Top of stairs	74.0
CV-07	Drill Hall, Floor Near Door	BRL
CV-08	Supply Floor	**98.0**
CV-09	Supply Area, Table near cages	30.0
CV-010	Supply Area, Desk	**100**
CV-011	Supply Area, Vault Floor	**76.0**

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 180 of 2531

BEST AVAILABLE COPY

CV-012	Supply Area, Countertop	**245**

The Army National Guard All States Log Number P01-0075, **Policies and Responsibilities for Inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges (IFR) and Guidelines for IFR Rehabilitation, Conversion, and Cleaning** requires a limit of 200 micrograms per square foot for surface contamination in and around indoor firing ranges closed or converted for other uses. Lead results in these areas were below required limit.

The Environmental Protection Agency standards (40 CFR 745) indicate lead in dust levels above 40 micrograms per square foot on bare and carpeted floors is considered dangerous for common areas. Lead results in the supply areas were above regulated standards.

ASBESTOS SUSPECT BUILDING MATERIAL

Sampling for asbestos was limited to damaged material or material that could pose an exposure risk. No friable suspect material was found.

NOISE SURVEY

Area noise levels are well within the Army National Guard limit of 85 dBA and the Occupational Safety and Health Administration (OSHA) regulated limit of 90 dBA over an eight-hour period. A noise survey should be performed on equipment used and maintained in the motor pool area.

ILLUMINATION SURVEY

Lighting levels throughout the armory ranged between 3.2 foot-candles to 83 foot-candles. Specific readings are listed in the table below.

AREA	AVERAGE FOOT CANDLES
Orderly Room	65
Conference Room	56
Classroom	51

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May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 181 of 2531

BEST AVAILABLE COPY

Drill Hall	83
ISG	75
CDR	51
RTD	57
Converted IFR	**3.2**
TA-50 Supply	**35**
Supply	24

Readings in bold-faced type are not within the Army Design Guide (DG 415-2) minimum illumination level of 50 foot-candles for office areas and 20 foot-candles for parts storage/supply. The American National Standard Institute/Industrial Engineering Society (ANSI/IES) recommends a minimum illumination of 50 to 100 foot-candles for administrative and kitchen areas, and 20 to 50 foot-candles for storage areas. Luminance of 50 to 100 foot-candles is recommended for performance of visual tasks of medium contrast or small size such as reading, pencil handwriting, and poorly printed, or reproduced material. Depending of the type of display, background luminance of 30 to 60 foot-candles is recommended for computer work.

BUILDING CONDITION

The building was constructed in 1971. The building is in good condition and housekeeping is very good. No leaks or standing water were seen. Personnel did not have specific complaints about the indoor air quality. A slight odor was observed and the armory's current central heating and cooling units are not working in the office areas. Construction on the facility will begin soon. Construction will include painting in the spring, removal of old asbestos, installation of a new cooling and heating system, and possibly a new roll up door. All construction should be complete in approximately six months.

A motor pool/maintenance area is present in the converted indoor firing range. A ventilation system was not present for maintenance activities. No eyewashes or showers were found in this area.

HAZARD COMMUNICATION

SGT Winn updates the Material Safety Data Sheets for this area.

Posted to NGB FOIA Reading Room
May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 182 of 2531

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RADIATION PROTECTION PROGRAM

There are no radioactive materials stored at this facility.

ERGONOMICS

The full time employees in the supply or office areas did not express any ergonomic concerns. However, many workstations were not set up to provide neutral postures and appropriate ergonomically correct positions. Consideration should be given to providing all full time employees that spend the majority of their working time at a computer terminal ergonomic training or awareness. Such awareness should emphasize the importance of proper posture and set-up of the workstation to fit the user.

PERSONAL PROTECTIVE EQUIPMENT

Normal duties of full time employees at the armory do not require the use of personal protective equipment (PPE). Gloves for use during maintenance activities were found in the motor pool area.

Posted to NGB FOIA Reading Room
May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 183 of 2531

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RECOMMENDATIONS

1) All items that are contaminated with lead should be thoroughly decontaminated with a detergent and water solution. Care should be taken to wipe down tables where weapons are issued and cleaned. Kitchen areas should be thoroughly cleaned on a regular basis and especially before serving personnel.

2) Personnel should be prohibited from eating, drinking, smoking, chewing tobacco or gum, or applying cosmetics in supply areas and should be instructed to clean hands with soap and water before doing any of these. Remove all refrigerators, cups, and other eating utensils from supply areas.

3) Annual monitoring of the converted indoor firing range should be performed to ensure that lead levels remain below 200 micrograms per square foot. Consult the Army National Guard All States Log Number P01-0075, Policies and Responsibilities for inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges (IFR) and Guidelines for IFR Rehabilitation, Conversion, and Cleaning on guidelines for monitoring, cleaning and converting Indoor Firing Range.

4) Upgrade lighting measurements as required. Lighting can be upgraded in the following ways:

   - Replace blown or broken lighting
   - Paint walls and floors white or similar light color
   - Clean existing light fixtures
   - Rearrange furniture to make better used of available light
   - Provide supplemental or task lighting

5) Develop a housekeeping schedule to identify, repair, and prevent any leaks or standing water. Proper and immediate repairs and maintenance of the building infrastructure and interior surfaces can prevent water damage and moisture buildup which may lead to further indoor air quality issues.

6) Material Safety Data Sheets (MSDS) are required to be kept at the primary workplace facility and to be easily accessible in case of emergency. Material Safety Data Sheets for cleaning materials should be kept by the facility. Personnel responsible for these items should receive annual training in the requirements of the Hazardous Communication Program and the appropriate keeping and storage of all MSDS.

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May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 184 of 2531

BEST AVAILABLE COPY

7) Complete noise dosimetry and a noise survey on all maintenance equipment and mark equipment and areas as noise hazardous, where appropriate.

8) Install a carbon monoxide monitor in the motor pool area to warn personnel about dangerous levels of carbon monoxide from vehicles idling in or around the area. The maintenance bay door should be left open while vehicles or running or left idling in order to provide adequate ventilation during these times.

9) An eyewash and shower should be acquired for the motor pool area, due to the types of chemicals commonly used in this area. An eye lavage should be made accessible within 10 seconds traveling distance of a possible eye hazard. Use portable eyewashes only if a plumbed eyewash cannot be installed.

10) Personal protective equipment should be provided, used, and maintained in a sanitary and reliable condition. Ensure that unit commanders provide appropriate personal protective equipment during maintenance procedures. If damaged or defective, PPE should be replaced immediately.

11) An ergonomics survey should be completed for all supply and administrative personnel as a preventative measure to document and address any and all ergonomic concerns or problems. Provide ergonomics training and awareness to all employees who spend the majority of their time working at a computer terminal.

TECHNICAL ASSISTANCE

Non-Responsive

[redacted]

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 185 of 2531

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APPENDICES

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May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau

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APPENDIX A

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 187 of 2531

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- American conference of Governmental Industrial Hygieist (ACGIH), Industrial Ventilation, A Manual of Recommended Practice, 23rd Edition, 1998.American National Standards Institute (ANSI), /Illuminating Engineering Society (IES), Industrial Lighting, 1991.
- Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 1990.
- Army Regulation (AR) 40-5, Preventative Medicine, 15 October 1990.
- Army Regulation (AR) 385-10, The Army Safety Program, 29 Feb 2000.
- NGR 385-10, Army National Guard Safety and Occupational Health Program, 7 October 1988.
- TB MED 503, The Army Industrial Hygiene Program, February 1985.
- Title 29, Code of Federal Regulations (CFR), 1999, revision, Part 1910, Occupational Safety and Health Standards.
- TG 022, US Army Environmental Hygiene Agency (YSAEHA), Industrial Hygiene Evaluation Guide, October 1975.
- TG 141, US Army for Health Promotion and Preventative Medicine (USACHPPM) Industrial Hygiene Air Sampling Guide, November 1997.

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 188 of 2531

BEST AVAILABLE COPY

APPENDIX B

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 199 of 2531

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HHIMS Industrial H[illegible]ene Survey Form

Fro[illegible] page

ARLOC

Installation: [illegible]

Building

Room Number

Location: A A

Operation: A D O

Survey Date: 04 month 10 day 22

Evaluator: [redacted]

Macom: N G

Submacom: X X

Unit / Organization (45)

Supervisor: Mr. [redacted] Ms. [redacted] Rank [redacted]

RAC

Supervisor, or Point of Contact Telephone Number

DSN [redacted] Commercial [redacted]

Frequency (hrs/day): 0 0 8

No. CIVs

No. MIL: 0 0

Contractors: 0 0

No. LOCs: 0 0

Lab Hoods: 0 0

Vapor Degreasers: 0 0

Spray Booths: 0 0

Open Surface Tanks: 0 0

Ventilation Units: 0 0

Controls Present (if >6, continue in comments)(25): OTH

Evaluation (25 characters max): 24-75

Unit code: F T C

Controls Required (25 characters max): 50-100 FTC

Manufacturer's Description (10 characters max)

NIOSH TC # or Foreign equivalent (10 characters max)

Gloves	e*	R	U
acid	[redacted]		
cold surfaces	[redacted]		
hot surfaces	[redacted]		
NBC agents	[redacted]		
oil	[redacted]		
solvents	[redacted]		
surgical gloves	[redacted]		
leather / cotton	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]

Respirator	e*	R	U
airline	[redacted]		
abrasive blasting hood	[redacted]		
disposable	[redacted]		
full face air purifying	[redacted]		
1/2 face air purifying	[redacted]		
powered air purifying	[redacted]		
1/4 face air purifying	[redacted]		
self-contained	[redacted]		
other	[redacted]	[redacted]	[redacted]

Eyes and Face	e*	R	U
chemical splash	[redacted]		
full face shield	[redacted]		
chem/safety impact	[redacted]		
safety impact	[redacted]		
welding helmet	[redacted]		
sunglasses	[redacted]		
welding goggles/glasses	[redacted]		
laser eye protection	[redacted]		
other	[redacted]	[redacted]	[redacted]

Hearing	e*	R	U
canal caps	[redacted]		
(>85-108 dBA steady) earplugs	[redacted]		
helmets w/ muffs	[redacted]		
muffs alone	[redacted]		
(108-118)muff/earplug comb	[redacted]		
muffs and earplugs			
(118 or >) with time limit	[redacted]		
other	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]

Body	e*	R	U
aprons	[redacted]		
cold weather clothing	[redacted]		
coveralls	[redacted]		
full body suit	[redacted]		
heat reflective			
vest/suit	[redacted]		
safety belt/harness	[redacted]		
special purp. clothing	[redacted]		
other	[redacted]	[redacted]	[redacted]

Head and Feet	e*	R	U
cold weather boots/hat	[redacted]		
hard hats	[redacted]		
impermeable boots	[redacted]		
safety shoes (conductive)	[redacted]		
safety (nonconductive)	[redacted]		
other	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]

e* = evaluator's recommendation or agreement

Reminders: ergonomics - dermatitis - physical agents - flammable storage
EYE (permanent) ____ - EYE (portable) ____ - SHW - GMV - LEV

ACD ADM DSA DSN LAB LCK
RAD FCB FPL RUS SPC [illegible]

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HHIMS Industrial Hygiene Survey Form

E Ex page

	CAS code	PAC	EFC	Hazard Description
PONOISECO	PDVDTXXXX	2	A	Computer use/video display Terminal
POFOOTHAZ	POSTRESSX	3	F	ergonomics/Physical stress
POFLYPROJ				
POEYEHAZA				
POFLAMHAZ				
POLIFTING				
POSHARPOB				
POHOTOBJE				
POELSHOCK				
COLUBEOIL				

Social Security Number or Unique Identifier	Last Name (20 characters max)	First Name (20 characters max)	MI	Sex	Category
	Rothamel	Jerry			

Personnel data provided by the facility is attached to this form

Insert Privacy Act Statement

Comments

Operation described is administrative operations to include typing, filing, phone and computer use.
Some workstations were not set up to allow employees to work with neutral postures.
Some workspaces cramped with little space.
Duties of administrative personnel varied, so that micrbreaks can be taken as needed.

(comments continued on attached

This operation was explained to the evaluators, but was not actually observed.

There is a noise data sheet attached to this form

There is a ventilation data sheet attached to this form

2/8/95 CHPMBACK.XLS

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 191 of 2531

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HHIMS Industrial Hygiene Survey Form

Front page

ARLOC

Installation: Clarksville Mon/

Building

Room Number

Location: SA

Operation: 421

Survey Date: 04 month 02 day

Evaluator: [redacted]

Macom: NG

Submacom: XX

Unit / Organization (45)

Supervisor: Mr. [redacted] Ms. [redacted] Rank [redacted]

RAC

Supervisor, or Point of Contact Telephone Number

DSN [redacted] Commercial [redacted]

Frequency (hrs/day): 008

No. CIVs

No. MIL: 00

Contractors: 00

No. LOCs: 00

Lab Hoods: 00

Vapor Degreasers: 00

Spray Booths: 00

Open Surface Tanks: 00

Ventilation Units: 00

Controls Present (if >6, continue in comments)(25)

OTH

Evaluation (25 characters max)

[redacted] 3.2-35

Unit code: FTC

Controls Required (25 characters max)

50-100 (Admin)
20-50 (Storage)

Gloves	e*	R	U
acid	[redacted]		
cold surfaces	[redacted]		
hot surfaces	[redacted]		
NBC agents	[redacted]		
oil	[redacted]		
solvents	[redacted]		
surgical gloves	[redacted]		
leather / cotton	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]

Respirator	e*	R	U
airline	[redacted]		
abrasive blasting hood	[redacted]		
disposable	[redacted]		
full face air purifying	[redacted]		
1/2 face air purifying	[redacted]		
powered air purifying	[redacted]		
1/4 face air purifying	[redacted]		
self-contained	[redacted]		
other	[redacted]	[redacted]	[redacted]

Manufacturer's Description (10 characters max)

NIOSH TC # or Foreign equivalent (10 characters max)

Eyes and Face	e*	R	U
chemical splash	[redacted]		
full face shield	[redacted]		
chem/safety impact	[redacted]		
safety impact	[redacted]		
welding helmet	[redacted]		
sunglasses	[redacted]		
welding goggles/glasses	[redacted]		
laser eye protection	[redacted]		
other	[redacted]	[redacted]	[redacted]

Hearing	e*	R	U
canal caps	[redacted]		
(>85-108 dBA steady) earplugs	[redacted]		
helmets w/ muffs	[redacted]		
muffs alone	[redacted]		
(108-118) muff/earplug comb	[redacted]		
muffs and earplugs			
(118 or >) with time limit	[redacted]		
other	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]

Body	e*	R	U
aprons	[redacted]		
cold weather clothing	[redacted]		
coveralls	[redacted]		
full body suit	[redacted]		
heat reflective			
vest/suit	[redacted]		
safety belt/harness	[redacted]		
special purp. clothing	[redacted]		
other	[redacted]	[redacted]	[redacted]

Head and Feet	e*	R	U
cold weather boots/hat	[redacted]		
hard hats	[redacted]		
impermeable boots	[redacted]		
safety shoes (conductive)	[redacted]		
safety (nonconductive)	[redacted]		
other	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]

e* = evaluator's recommendation or agreement

Reminders: ergonomics - dermatitis - physical agents - flammable storage
EYE (permanent) ____ - EYE (portable) ____ - SHW - GMV - LEV

ACO ADM DSA DSN LAB LCK
RAD FCR FSL PHC [illegible]

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
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HHIMS Industrial Hygiene Survey Form

Back page

	CAS code	PAC	EPC	Hazard Description
PONOISECO	POVDTXXXX	2	A	Computer use video display terminal
POFOOTHAZ	POSTRESSX	3	F	Ergonomics/Physical Stress
POFLYPROJ	POLIFTING	2	A	~~Heavy~~ lifting
POEYEHAZA	143 9-92-1	3	A	Lead
POFLAMHAZ				
POLIFTING				
POSHARPOB				
POHOTOBJE				
POELSHOCK				
COLUBEOIL				

Social Security Number or Unique Identifier	Last Name (20 characters max)	First Name (20 characters max)	MI	Sex	Category
	[redacted]	[redacted]			

☐ Personnel data provided by the facility is attached to this form

Insert Privacy Act Statement

Comments

Operation described is receive, inventory, issue critical unit items to include weapons and ammunition

☐ This operation was explained to the evaluators, but was not actually observed.

☐ (comments continued on attached)

There is a noise data sheet attached to this form ☐

There is a ventilation data sheet attached to this form ☐

2/8/95 CHPMBACK.XLS

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APPENDIX C

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Page 194 of 2531

Clarksville Armory

Administrative Area

HVAC

Administrative Area

Drill Hall

Clarksville Armory

Classroom

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Locker Room

Stairs leading to Storage Area/
Converted IFR

Converted IFR, Mess Area

Mess Area

Mess Area

Converted IFR

Converted IFR

Converted IFR

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Page 197 of 2531

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Converted IFR

Converted IFR

Converted IFR

Flammable Storage

Converted IFR

Converted IFR

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Page 198 of 2531

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HVAC

HVAC

HVAC

HVAC

HVAC

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Page 199 of 2531

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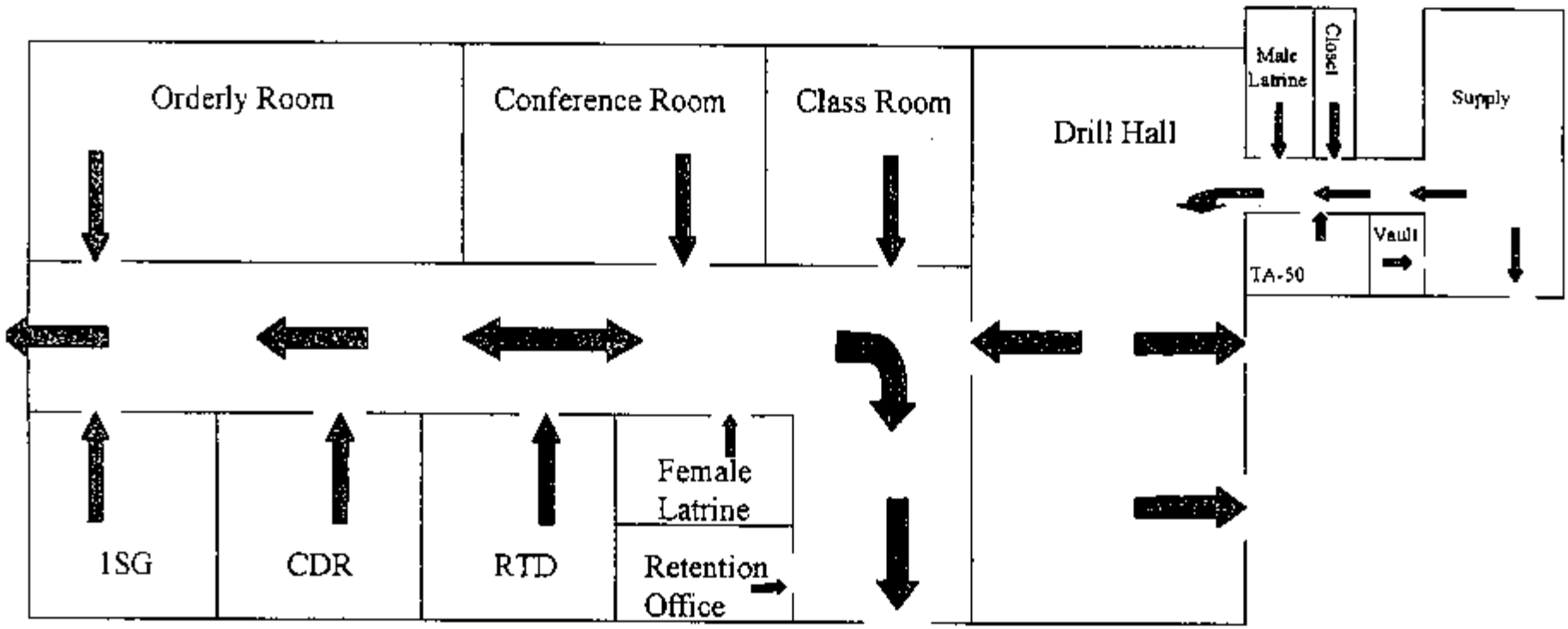
Fire Evacuation Plan



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APPENDIX D

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Page 201 of 2531

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Analytical Environmental Services, Inc.

Date: 12/1/2004

TOTAL LEAD IN WIPE SAMPLES
N7082

CLIENT: National Guard Bureau Region-South III
Project: TN01-102004
Delivery Order: TN01-102004
PO No:

Lab Order: 0410C03
Date Received: 10/27/2004 3:25
Matrix: Wipe

Laboratory ID	Client Sample ID	Results	Units	Report Limit	DF	Date Collected	Date Analyzed	Analyst
0410C03-001A	CV-01	BRL	ug. Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-002A	CV-02	37.0	ug. Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-003A	CV-03	BRL	ug. Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-004A	CV-04	170	ug. Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-005A	CV-05	104	ug. Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-006A	CV-06	74.0	ug. Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-007A	CV-07	BRL	ug. Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-008A	CV-08	98.0	ug. Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-009A	CV-09	[illegible]	ug. Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-010A	CV-010	100	ug. Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-011A	CV-011	[illegible]	ug. Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-012A	CV-012	245	ug. Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-013A	LB-01	BRL	ug. Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-014A	LB-02	285	ug. Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-015A	LB-03	BRL	ug. Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-016A	LB-04	57.4	ug. Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-017A	LB-05	62.0	ug. Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-018A	LB-06	307	ug. Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-019A	LB-07	30.0	ug. Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-020A	LB-08	23.0	ug. Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-021A	SF-01	BRL	ug. Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-022A	SF-02	BRL	ug. Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-023A	SF-03	[illegible]	ug. Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-024A	SF-04	101	ug. Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-025A	SF-05	38.0	ug. Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-026A	SF-06	BRL	ug. Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-027A	SF-07	BRL	ug. Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-028A	SF-08	BRL	ug. Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-029A	SF-09	BRL	ug. Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-030A	SF-010	316	ug. Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-031A	SF-011	BRL	ug. Total	20.0	1	10/22/2004	11/1/2004	EM

Qualifiers: NO - Not Detected at the Reporting Limit. E - Dilution Error

Results are blank corrected where applicable

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Page 202 of 2531

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Analytical Environmental Services, Inc.

Date: 12/1/2004

TOTAL LEAD IN WIPE SAMPLES
N7082

CLIENT: National Guard Bureau Region-South (1)
Project: TN01-102004
Delivery Order: TN01-102004
PO No.:

Lab Order: 0410C-03
Date Received: 10/27/2004 3:25
Matrix: Wipe

Laboratory ID	Client Sample ID	Results	Units	Report Limit	DF	Date Collected	Date Analyzed	Analyst
0410C03-033A	SF-012	BRL	ng Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-033A	SF-013	BRL	ng Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-034A	[illegible]	BRL	ng Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-035A	GE-02	49.0	ng Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-036A	GE-03	25.0	ng Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-037A	GE-04	BRL	ng Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-038A	GE-05	23.0	ng Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-039A	GE-06	88.0	ng Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-040A	GE-07	1510	ng Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-041A	GE-08	60.0	ng Total	20.0	1	10/21/2004	11/1/2004	EM

Qualifiers: ND - Not Detected at the Reporting Limit; DF - Dilution Factor

Results are blank corrected where applicable.

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FOIA Requested Record #J-15-0085 (TN)
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Page 203 of 2531

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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-AVS-SEIH 2 October 2006

MEMORANDUM THRU Non-Responsive Deputy State Surgeon, Tennessee National Guard, HQS, TNARNG STARC, Attn: AGTN-DCSPER-DSS, P.O. Box 41502, Houston Barracks, Nashville, Tennessee 37204-1501

TO: ATTN: Non-Responsive 30th TRP CMD, 1202 East Carroll, Tullahoma, TN 37388

SUBJECT: Industrial Hygiene sampling for Lead at the Indoor Firing Range of the Cleveland National Guard Armory

1. References.

a. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1996 rev.

b. AR 40-5, Preventive Medicine, 22 July 2005.

c. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.

d. AR 385-10, 29 February 2000, Army Safety Program.

e. TB MED 503, The Army Industrial Hygiene Program, 30 October 2000.

f. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.

g. Industrial Ventilation, 25th, 2004, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

h. Title 29 Code of Federal Regulation (CFR), Part 1910.1025 Lead.

2. General.

a. At the request of Col. Betty Moshea of the Tennessee National Safety and Occupational Health Office, a lead survey of the inactive Indoor Firing Range was conducted 8 September 2006.

b. Non-Responsive Industrial Hygiene Technician, of the Southeast Regional IH Office conducted the sampling with assistance from Non-Responsive Non-Responsive

3. Findings.

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SUBJECT: Industrial Hygiene sampling for Lead at the Indoor Firing Range of the Cleveland National Guard Armory

a. Samples were taken in the inactive Indoor Firing Range along the rear of the Armory. The Indoor Firing Range was deactivated many years ago. The range has a sign posted on the stating it was cleaned on July. Currently the Indoor Firing Range is being used for storage and the dispersing of uniforms to soldiers on drill weekends. This means that someone must work in the area to separate items out for the soldiers.

b. The backstop was removed and there is no visible evidence of the sand trap. A roll-up door is the rear wall of the Indoor Firing Range. A cage storage system has been installed in the range and bolted to the floor. None of the items stored were removed prior to the range being cleaned in July. These items were not cleaned as part of the cleaning process of the range. Some of the items found in the area were children's toys. All equipment stored in the range, if applicable, prior to the start of decontamination must be sampled, decontaminated, re-sampled and removed or turned in as lead contaminated material.

c. Twenty-one samples including two blank wipes were taken throughout the Indoor Firing Range. Results ranged from Below Reporting Limit (BRL) to 3600µg/ft².

d. There were six samples from the Indoor Firing Range that showed Lead levels above the limit of 200µg/ft². Included in the stored items were children's toys. These items should have a level below 40µg/ft². The item tested had a level of 177µg/ft².

Post decontamination samples of surface wipes must be less than 200µg/ft² (40µg/ft² in case of possible child exposure) before applying a lead encapsulating material. Otherwise the range cannot be considered decontaminated and can not be converted for other use.

e. Lead Wipe Sample Results:

Sample Number	Micrograms (µg) Of Lead per Square Foot	Sample Area
CLE01	BLR	Top left wall
CLE02	BLR	Middle left wall
CLE03	186	Bottom left wall
CLE04	51	Top left bullet stop end of wall
CLE05	23	Middle bullet stop end of wall
CLE06	251	Bottom right bullet stop end of wall
CLE07	46	Bottom right wall
CLE08	BLR	Middle right wall
CLE09	BLR	Top right wall
CLE10	396	Bottom rear wall
CLE11	BLR	BLANK
CLE12	100	Middle rear wall
CLE13	112	Floor right bullet stop end
CLE14	3600	Floor center

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SUBJECT: Industrial Hygiene sampling for Lead at the Indoor Firing Range of the Cleveland National Guard Armory

CLE15	668	Floor left rear wall
CLE16	118	Top rear wall
CLE17	537	Top of locker along right wall
CLE18	177	Top of child's toy in one cage
CLE19	734	Floor inside cage
CLE20	BLR	BLANK
CLE21	171	Floor outside door of entrance to range

f. Attached: Sample results, diagram of where samples were taken and pictures.

4. Recommendations.

a. Decontaminate converted Indoor Firing Range (Supply/Storage room) of lead following NG PAM 40-15. Keep in mind that EPA and your state may have lead reduction levels lower than the recommended levels in NG PAM 40-15.

b. Items stored in Indoor Firing Range must be cleaned prior to removal.

c. To execute your responsibilities in correcting all deficiencies, coordinate with the Occupational Health Nurse, the FMO Environmental Office and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed about this report, please contact [redacted]

[redacted]

[redacted]

CF: NBG-AVN-SH

CF: [redacted] Occupational Health Nurse, Tennessee State Safety and Occupational Health Office, ATTN: AGTN-SAHO, Houston Barracks, 3041 Sidco Drive, Nashville, Tennessee 37204-1502

CF: [redacted] Tennessee State Safety and Occupational Health Manager, 3041 Sidco Drive, Nashville, TN 37204-1504

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Appendices

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Appendix A

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Cleveland Indoor Firing Range

Cleveland Indoor Firing Range entrance

Children's toys in Indoor Firing Range

Cleveland general area

Ceiling of Cleveland Indoor Firing Range

Cleveland general area with uniforms ready for issue

CLE01- Bottom left wall

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CLE02- Middle left wall

CLE05 – Middle bullet stop end

CLE03 – Top left wall

CLE06 – Bottom right bullet stop end

CLE04 – Top left bullet stop end

CLE07 – Bottom right wall

CLE08 – Middle right wall

CLE12 – Middle rear wall

CLE09 – Top right wall

CLE13 – Floor right bullet stop

CLE10 – Bottom left rear wall

CLE14 – Floor center

CLE15 – Floor left rear wall

CLE16 –Top rear door/wall

CLE17 – Top of locker along right wall

CLE18 – Top of child's toy in one cage

CLE21 – Floor outside entrance door

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Appendix B

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SAMPLING DIAGRAM - CLEVELAND IFR

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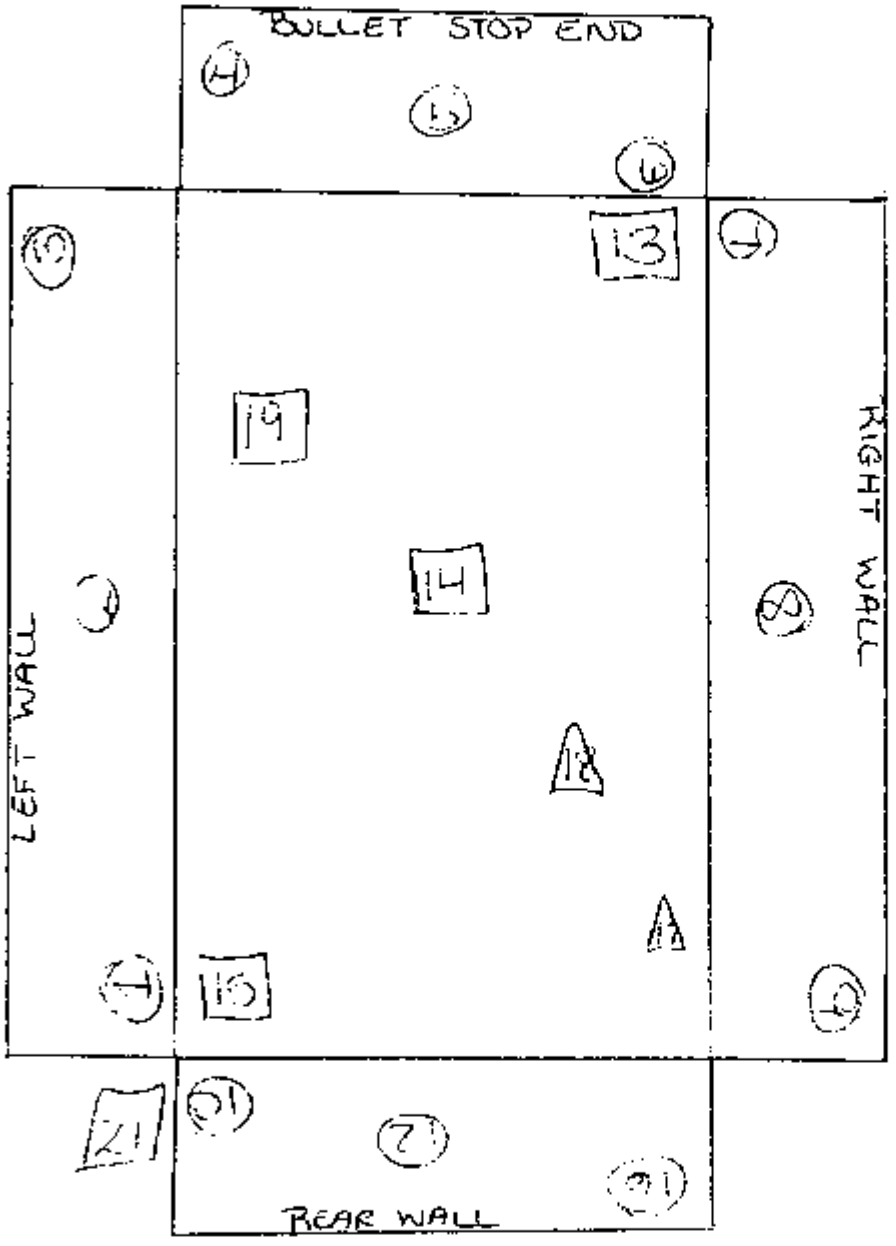

O - WALL
- CEILING
- FLOOR

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Analytical Environmental Services, Inc.

Date: 9/18/2006

TOTAL LEAD IN WIPE SAMPLES
N7082

CLIENT: National Guard Bureau Region-South IH
Project: Cleveland Armory
Delivery Order:
PO No:

Lab Order: 0609526
Date Received: 9/12/2006 12:00 PM
Matrix: Wipe

Laboratory ID	Client Sample ID	Results	Units	Report Limit.	DF	Date Collected	Date Analyzed	Analyst
0609526-001A	01	BRL	µg, Total	20	1	9/8/2006	9/14/2006	VA
0609526-002A	02	BRL	µg, Total	20	1	9/8/2006	9/14/2006	VA
0609526-003A	03	186	µg, Total	20	1	9/8/2006	9/14/2006	VA
0609526-004A	04	51	µg, Total	20	1	9/8/2006	9/14/2006	VA
0609526-005A	05	23	µg, Total	20	1	9/8/2006	9/14/2006	VA
0609526-006A	06	251	µg, Total	20	1	9/8/2006	9/14/2006	VA
0609526-007A	07	46	µg, Total	20	1	9/8/2006	9/14/2006	VA
0609526-008A	08	BRL	µg, Total	20	1	9/8/2006	9/14/2006	VA
0609526-009A	09	BRL	µg, Total	20	1	9/8/2006	9/14/2006	VA
0609526-010A	10	396	µg, Total	20	1	9/8/2006	9/14/2006	VA
0609526-011A	11	BRL	µg, Total	20	1	9/8/2006	9/14/2006	VA
0609526-012A	12	100	µg, Total	20	1	9/8/2006	9/14/2006	VA
0609526-013A	13	112	µg, Total	20	1	9/8/2006	9/14/2006	VA
0609526-014A	14	3600	µg, Total	83	4.14	9/8/2006	9/14/2006	VA
0609526-015A	15	668	µg, Total	20	1	9/8/2006	9/14/2006	VA
0609526-016A	16	118	µg, Total	20	1	9/8/2006	9/14/2006	VA
0609526-017A	17	537	µg, Total	20	1	9/8/2006	9/14/2006	VA
0609526-018A	18	177	µg, Total	20	1	9/8/2006	9/14/2006	VA
0609526-019A	19	734	µg, Total	20	1	9/8/2006	9/14/2006	VA
0609526-020A	20	BRL	µg, Total	20	1	9/8/2006	9/14/2006	VA
0609526-021A	21	171	µg, Total	20	1	9/8/2006	9/15/2006	VA

Qualifiers: BRL - Not Detected at the Reporting Limit DF - Dilution Factor

Results are blank corrected where applicable

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Released by National Guard Bureau
Page 215 of 2531

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Appendix C

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Department of the Army and the Air Force
National Guard Bureau
Arlington, Virginia 22202-3231
XX XXX XXXX

*NG Pamphlet 40-15

Preventive Medicine

GUIDELINES AND PROCEDURES FOR REHABILITATION AND CONVERSION OF INDOOR FIRING RANGES (IFRs)

By Order of the Secretaries of the Army and Air Force:

Non-Responsive

Official:

XXXX XXXX
XXX, XXXX
XXXX,XXX

History. This printing supersedes NG Pamphlet 385-16, 31 January 1994. Because the pamphlet has been extensively revised, the changed portions have not been highlighted.

Summary. This pamphlet prescribes policy for rehabilitation and conversion of National Guard IFRs.

Applicability. This guidance applies to all persons responsible for the operation of National Guard IFRs. As no regulation/guidance can foresee all situations that might arise, the following is written in a broad scope and is intended to be interpreted so as to ensure compliance with all applicable Federal and State laws and regulations.

Proponent. Office of the Joint Surgeon, National Guard Bureau.

Supplementation. Supplementation of this pamphlet requires the approval of the National Guard Bureau Office of the Joint Surgeon, NGB-SG-IH, 1411 Jefferson Davis Highway, Arlington, VA 22202-3231.

Interim Changes. Interim changes to this pamphlet are not official unless authenticated by, Chief Office of Policy and Liaison, National Guard Bureau. Interim changes will be destroyed on their expiration dates, unless sooner superseded or rescinded.

Suggested Improvements. Users of this pamphlet are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) to the National Guard Bureau, Office of the Joint Surgeon, ATTN: NGB-SG-IH, 1411 Jefferson Davis Highway, Arlington, VA 22202-3231.

Distribution. A.

*This regulation supersedes NG Pamphlet 385-16, dated 31 January 1994.

8 May 2006

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FOIA Requested Record #J-15-0085 (TN)
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Page 217 of 2531

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Table of Contents

Chapter 1
Introduction
1-1. Purpose

1-2. References
1-3. Explanation of abbreviations and terms
1-4. Policy and Procedures
1-5. Goal
1-6. Deviation

Chapter 2
Health and Medical Aspects
2-1. Health Effects
2-2. Medical Surveillance
2-3. Air Monitoring
2-4. Wipe Sampling Protocol and Media
2-5. Personal Protection Equipment

Chapter 3
Education, Maintenance, Cleaning and Conversion
3-1. Worker Education
3-2. Range Cleaning Instructions
3-3. Cleaning Stored Contaminated Equipment
3-4. Contaminated Sand and Lead Waste
3-5. Range Rehabilitation
3-6. Conversion of Indoor Firing Ranges

Appendices
A. References
B. Protocol for Collecting Wipe Samples
C. Sampling Strategy for Collection of Wipe Samples

Glossary

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 218 of 2531

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1-1. Purpose
This pamphlet establishes the policy and procedures for rehabilitation and conversion, of National Guard IFRs.

1-2. References
Required and related publications and referenced and prescribed forms are listed in appendix A.

1-3. Explanation of abbreviations and terms
Abbreviations and special terms used in this publication are listed in the glossary.

1-4. Policy and Procedures
Indoor firing ranges can be safely rehabilitated or converted for other uses, such as a storage area, classrooms or office space, provided the following –

a. Prior to conversion active ranges must be thoroughly decontaminated and cleaned to acceptable levels. *All ranges converted prior to the publication date of this pamphlet, must be inspected and evaluated to determine lead contamination.* This will be accomplished by a certified National Guard Industrial Hygienist or a person certified to perform inspections, evaluations, and determinations of IFRs IAW with OSHA standards, other nationally accepted standards, and accepted IH practices for maintenance, cleaning, conversion, ventilation, and air sampling of IFRs.

b. The level of cleanliness is to be determined by sampling. The Occupational Safety and Health Administration's (OSHA) Technical Manual, 5th Edition, provides guidance on the methods and techniques needed to collect wipe samples (appendix B).

(1) Wipe samples must be collected and analyzed prior to and after cleaning.

(2) Post-cleaning surface wipe sample results must be less than 200 micrograms per square foot ($\mu g/ft^2$) (40 micrograms in the case of child exposure). The sampling strategy, which is the amount and location of wipe samples to be collected, is provided in appendix C.

c. Equipment/Items previously stored in the range must be decontaminated and cleaned to acceptable levels as determined by a person certified to perform inspections, evaluations, and determinations of IFRs IAW with OSHA standards, other nationally accepted standards, and accepted IH practices for maintenance, cleaning, conversion, ventilation, and air sampling of IFRs.

(1) Samples must be collected from equipment/items stored in the range. Sample selection is critical, because the number of items stored, length of storage, and level of contamination differs from range to range. The amount and location of the samples should be representative of the areas where lead dust is most likely to accumulate. The more samples collected, the better the statistical comparison of the results.

(2) Samples must be collected from the smooth surfaces of the equipment/items, as much as possible. Results of samples collected from a rough surface will be inaccurate due to the minimal surface contact of the media. Further, the likelihood of tearing the media filter is greater on rough surfaces.

(3) Samples should also be collected on items stored the longest period of time, and which have not been disturbed. Items stored closest to the bullet trap and firing line are likely to have higher concentrations of lead dust.

1-5. Goal
To ensure every IFR is free of lead dust which means to test less than 200 micrograms and to reduce the number of unsafe National Guard IFRs.

1-6. Deviation
Deviations from this guidance will require a written exception to policy from your Regional Industrial Hygiene Office. Questions and/or comments regarding this subject should be directed to your Regional Industrial Hygiene Office or Chief, National Guard Bureau, Office of the Joint Surgeon, ATTN: NGB-SO-IH, 1411 Jefferson Davis Highway, Arlington, VA 22202-3231.

Chapter 2
Health and Medical Aspects

2-1. Health Effects

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Page 219 of 2531

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29 Code of Federal Regulations (CFR) 1910.1025, Appendix A, identifies lead as a highly toxic metal. Elemental lead is indestructible, and common in the environment. Lead can enter the body by inhalation (breathing) or ingestion (eating). In addition, lead is a cumulative poison. It accumulates in the blood, bones, and organs, including the kidneys, brain and liver. Effects include nervous and reproductive system disorders, delays in neurological and physical development, cognitive and behavioral changes, and hypertension. Symptoms include loss of appetite, difficulty sleeping, irritability, fatigue, headache, and inability to concentrate. It can stay in the bones for decades. Worker awareness and training are important to ensure that employees can recognize the symptoms of exposure and get prompt medical attention.

2-2. Medical Surveillance

All medical surveillance required by the standard must be performed by or under the supervision of a licensed physician. Medical surveillance is triggered by the results of individual air monitoring results. Medical surveillance must be made available to all employees who are exposed in excess of the action level for more than 30 days per year. IAW 29 CFR 1910.1025, appendix C, [illegible]

2-3. Air Monitoring

Worker breathing zone air samples must be collected to ensure personnel are not overexposed to airborne lead during the cleanup phase. Daily air samples will be collected on all personnel involved in the cleanup operation. These exposure levels will be used to evaluate work practices and medical surveillance requirements.

2-4. Wipe Sampling Protocol and Media

A template measuring 10 centimeters by 10 centimeters square, approximately 4 inches square, should be used to accurately measure and mark the area before collecting wipe samples. Samples should be staggered to different areas of the range. A grid system should be utilized. Samples should not be collected all on one section of a wall, or end of the building. OSHA Technical Manual provides the necessary guidance on the technique needed to collect wipe samples (appendix B). Only distilled or deionized water will be used to saturate dry sample media. At least one field blank must be submitted with every 10 samples. The field blank must be from the same lot, and labeled as a blank.

2-5. Personal Protective Equipment

29 CFR 1910.1025 (f) (2), for housekeeping and rehabilitation the employer shall select respirators from among those approved for protection against dust, fume, and mist by the National Institute for Occupational Safety and Health (NIOSH), under the provision of 42 CFR part 84. The employer shall institute a respiratory protection program in accordance with 29 CFR 1910.134 (b), (d), (e) and (f). As a minimum, personnel conducting the decontamination of the range will be provided with the following personal protective equipment.

a. Under 29 CFR 1910.1025 (g). For employees engaged in range rehabilitation and/or range conversion, the employer shall provide at no cost to the employee, and assure that the employee uses appropriate protective work clothing and equipment such as, but not limited to:

(1) Protective coveralls with hood and shoe covers or disposable Tyvek ™ full body suit.
(2) Disposable rubber gloves; and disposable shoe coverlets (if necessary).
(3) Full-face air purifying respirator with P-100 cartridges.

b. The employer shall provide the clothing required in a clean and dry condition at least daily to employees engaged in the conversion of IFRs.

c. The employer shall provide for the cleaning, laundering, or disposal of used or contaminated protective clothing and equipment.

d. The employer shall assure that all protective clothing is removed at the completion of a work shift only in areas designated for that purpose (Change Areas or Change Rooms).

e. The employer will ensure that contaminated protective clothing that is to be cleaned, laundered, or disposed of, is placed in a closed container in the change area that seals sufficiently enough to prevent dispersion of lead dust.

f. The employer will further inform in writing any person who cleans or launders protective clothing or equipment of the potentially harmful effects of exposure to lead.

g. The employer will ensure that the containers of contaminated protective clothing and equipment are labeled as follows: CAUTION: *CLOTHING CONTAMINATED WITH LEAD. DO NOT REMOVE DUST BY BLOWING OR SHAKING. DISPOSE OF LEAD CONTAMINATED WASH WATER IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, OR FEDERAL REGULATIONS.*

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 220 of 2531

BEST AVAILABLE COPY

Chapter 3
Education, Maintenance, Cleaning and Conversion

3-1. Worker Education

a. 29 CFR 1910.1025, Appendix B, requires an information and training program for all employees exposed to lead above the action level or who may suffer skin or eye irritation from lead. The program must inform the employees of the specific hazards associated with their work environment, protective measures which can be taken, the danger of lead to their bodies (including their reproductive systems), and their rights under the standard. In addition you must make readily available to all employees, including those exposed below the action level, a copy of this standard and its appendices. This training program will be repeated annually for personnel in range cleanup operations.

b. The commander/supervisor will ensure that each soldier or Army National Guard (ARNG) employee is informed of the following:

(1) The content of the standard and its appendices.

(2) The specific nature of operations that could result in exposure to lead above the action level.

(3) The purpose, proper selection, fitting, use and limitations of respirators.

(4) The purpose and a description of medical surveillance program.

(5) Eating and drinking are prohibited in lead contaminated areas.

(6) Smoking and smoking materials will not be permitted in contaminated areas.

(7) Soldiers and ARNG employees must wash their hands and other exposed skin whenever they leave the work area.

(8) The engineering controls and work practices associated with the individual's job assignment.

(9) The contents of any compliance plan in effect.

(10) Instructions to soldiers and ARNG employees that chelating agents should not routinely be used to remove lead from their bodies and should not be used at all except under the direction of a licensed physician.

3-2. Range Cleaning Instructions

a. Written procedures, such as a scope of work, or Standing Operating Procedure that complies with all federal, state and local regulations must be established prior to decontamination operations.

b. The range ventilation system will be in operation during range cleaning to ensure that a negative pressure environment is maintained. In the absence of mechanical ventilation system, all doors and windows will be sealed to eliminate fugitive emissions.

c. A High Efficiency Particulate Air (HEPA) filtered vacuum system, which is designed to collect loose surface lead dust particles, is the preferred method of cleanup. If a HEPA filtered vacuum is not available, the range can be cleaned using a wet method.

d. Prohibited methods include:

(1) Wet cleaning using high-pressure systems, since this method may embed the lead into the substratum and generate large quantities of hazardous waste.

(2) Dry sweeping is not permitted.

e. All surface areas of the range must be cleaned. In addition, areas outside of the IFR where lead can be tracked must be cleaned.

f. The preferred progression of cleaning is from top to bottom and from behind the steel bullet trap to the firing line.

(1) Clean the steel bullet trap, areas in front of and behind the bullet trap, and the steel bullet trap plate(s), after removing the sand (if applicable).

(2) Clean the ceiling, floors, lights, baffles, retrieval system, heating system(s), and ventilation duct(s).

(3) Vacuum and remove acoustical material. *Painting over this material is not recommended.*

(4) Clean the floor the last, starting at the bullet trap and ending behind the firing line.

g. When using a HEPA filtered vacuum, vacuum all surface areas until no dust or residue is visible.

h. Any general purpose cleaning solutions can be used for the wet method. However, Spic and Span™ has been found to be an effective cleaning solution by other Army organizations. Mix new solutions of cleaning solution frequently. Wet wiping will require dual containers of water; one container for wetting the applicator

Posted to NGB FOIA Reading Room May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 221 of 2531

(mops, rags, sponge, etc.) and the other container for rinsing the applicator after the dust has been wiped from the surfaces. After wet wiping all surfaces, permit the area to dry.

i. *Properly dispose of all hazardous waste. Do not place lead contaminated waste into the sewer system or onto the ground.*

(1) When placed in containers, wastewater should be left to evaporate.

(2) Mop-heads, sponges and rags will be discarded as hazardous waste following cleanup.

j. A thorough visual inspection to detect dust should be made following cleanup and prior to collecting post surface wipe samples.

k. Wood floors should receive a coat of deck enamel or urethane; concrete floors should be sealed with deck enamel.

l. As a variety of conditions exist in ranges, unique situation may arise and specific written guidance from your Regional Industrial Hygiene Office may be required.

m. Any cleaning activities must be under the supervision by a trained and competent personnel IAW with OSHA and other nationally accepted standards and the work shall be according to current industry engineering standards under the control of the State Construction and Facilities Management Officer. Cleaning must recognize that there likely will be "background" lead presence in the readiness center totally independent of the existence of an indoor range and that the method of cleaning is less important than achieving the goal of less than 200 micrograms (40 micrograms in the case of child exposure).

3-3. Cleaning Stored Contaminated Equipment

a. Equipment contaminated (sample result is higher than 200 ug/ft^2) with lead dust must be decontaminated before it is removed from the range.

b. Equipment located near the bullet trap and firing line should be cleaned first and then removed. The cleaning method depends on the size of the equipment and the material it is comprised of, i.e. metal, wood, concrete, porous, non-porous, smooth or rough finish etc. However, either HEPA vacuum or the wet wipe method will be used. Refer to paragraph 3-2 for additional guidance.

c. Every attempt should be made to clean and reclaim items since disposing of equipment, as hazardous waste is costly and wasteful. Only as a last resort will the item be discarded as hazardous waste. Porous items, such as office partitions and carpet that were present during firing should be considered grossly contaminated and be discarded unless analysis proves otherwise. Consult your State Environmental Office for the proper hazardous waste disposal methods.

3-4. Contaminated Sand and Lead Waste

Consult your State Environmental Office for specific disposal guidance to ensure compliance with local laws and regulations.

3-5. Range Rehabilitation

This chapter applies to all IFRs that have been identified as candidates for rehabilitation. It provides further guidance for cleaning and/or sampling that might be required prior to the start of rehabilitation.

a. The portion(s) of the range to under go rehabilitation must be sampled to determine the level of lead contamination. Wipe samples will be taken per the established sampling protocol. See appendix B.

b. All personnel involved in range rehabilitation will wear a NIOSH approved respirator (P-100) and proper personal protective equipment as prescribed in paragraph 2-5 above.

c. Prior to the start of rehabilitation, the environmental office must be notified to determine the disposition of any debris containing hazardous materials (lead).

d. Supervision shall be by a person who is certified to perform inspections, evaluations, and determinations of IFRs IAW with OSHA standards, other nationally accepted standards, and accepted IH practices for maintenance, cleaning, conversion, ventilation, and air sampling of IFRs. All work shall be according to current industry engineering standards under the control of the State Construction and Facilities Management Officer.

3-6. Conversion of Indoor Firing Ranges

Prior to the start of decontamination, employers must ensure that all procedures to be used comply with Federal, State, and local regulations. To ensure that all lead contamination is eradicated, the following procedure is established.

a. The State shall follow the project approval process as delineated in NGR 420-10 (or NGR 415-5 if the use of the military construction appropriation is required).

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 222 of 2531

b. All ranges slated for conversion will be inspected and evaluated NGB Regional Industrial Hygiene Office.

c. All equipment stored in the range, if applicable, prior to the start of decontamination must be sampled, decontaminated, re-sampled and removed or turned in as lead contaminated material.

d. All acoustical tiles and/or sound proofing material (if applicable) must be removed and turned in as lead contaminated material through the environmental office.

e. The bullet trap, target retrieval system and firing line stations must be removed and turned in as lead containing material through the environmental office.

f. Light fixtures and ventilation system grills must be removed and decontaminated.

g. Ventilation system ducts need to be decontaminated or removed and replaced.

h. The exhaust fans and/or the complete ventilation air-handling unit (if applicable) must be decontaminated or removed to include roof fans.

i. Cover all openings of any component previously decontaminated prior to start of interior decontamination of the firing range.

j. Prior to start of washing, the interior of the range should be vacuumed with a HEPA filtered vacuum. The range should be washed using a cleaning solution of hot water and Spic and Span in five gallons of hot water. A progression of cleaning from top to bottom, and from back to front should be used. All surface areas of the range must be cleaned. Mix new solutions of water frequently. Washing will require dual containers of water; one container for wetting the applicators (mops, rags, sponges, etc.), and the other container for rinsing the applicators. Waste water placed into containers can be left to evaporate. *Properly dispose of all hazardous waste and do not place any lead contaminated waste into the sewer system or onto the ground.* Mop heads, sponges and rags will be discarded as hazardous waste following decontamination of the range. After completion of decontamination, and prior to taking clearance samples, the ventilation system must be run for a period of 36 hours. Wipe clearance samples will be taken from ceiling, walls and floors. The range will be considered clean if no clearance sample is greater than 200 ug/ft^2, if any sample is above 200 ug/ft^2, the range is not considered clean, the range will need to be re-washed until clearance samples are below 200 ug/ft^2.

k. The regional industrial hygienist will do quality assurance sampling as needed.

l After obtaining clearance, the walls of the range will be coated with a sealant (Not Paint), which is smooth, wood floors will receive a coat of deck enamel or urethane, concrete floors will be sealed with deck enamel. After sealing, floors will be tiled or covered with linoleum.

m. As a variety of conditions exist in ranges, unique situations may arise and specific written guidance from the Regional Industrial Hygiene Office may be required.

n. All personnel involved in the decontamination/conversion of IFRs as a minimum will be provided with the following personal protective equipment.

(1). Full Face air purifying respirator with HEPA cartridges. The requirements outline in 29 CFR 1910.134, must be met prior to placing workers in respiratory protection.

(2). Individuals will be provided personal protective equipment as required per paragraph 2-5, this pamphlet.

o. Any conversion must be supervised by a person certified to perform inspections, evaluations, and determinations of IFRs IAW with OSHA standards, other nationally accepted standards, and accepted IH practices for maintenance, cleaning, conversion, ventilation, and air sampling of IFRs. All work shall be according to current industry engineering standards under the control of the State Construction and Facilities Management Officer. Cleaning must recognize that there likely will be "background" lead presence in the readiness center totally independent of the existence of an indoor range and that the method of cleaning is less important than achieving the goal of less than 200 micrograms (40 micrograms in the case of child exposure).

p. After conversion, lead testing shall continue on an annual basis to verify that no lead migration from the substrate is occurring.

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 223 of 2531

BEST AVAILABLE COPY

Appendix A
References

Section I
Required Publications

There are no entries in this section

Section II
Related Publications

ASTM E1792-03
Standard Specification for Wipe Sampling Materials for Lead in Surface Dust

AR 11-34
The Respiratory Protection Program

AR 40-5
Preventive Medicine

DODI 6055.5
Industrial Hygiene and Occupational Health

29 CFR, Part 1910
Occupational Safety and Health Administration, Department of Labor

National Institute for Occupational Safety and Health (NIOSH) 76-130
Lead Exposure and Design Considerations for Indoor Firing Ranges, Department of Health, Education and Welfare

NGR 385-15
Policy and Responsibilities for Inspection, Evaluation and Operation Army National Guard National Guard Indoor Firing Ranges (IFRs).

NGR 415-5
Army National Guard Military Construction Program Development and Execution

NGR 420-10
Construction and Facilities Management Office Operations

Technical Manual, 5th Edition
Occupational Safety and Health Administration, Department of Labor

Section III
Prescribed Forms

There are no entries in this section

Section IV
Referenced Forms

There are no entries in this section

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 224 of 2531

BEST AVAILABLE COPY

Appendix B
Protocol for Collecting Wipe Samples

B-1. If multiple samples are to be collected at the work site, prepare a rough sketch of the area(s) or room(s), which are to be wipe sampled.

B-2. A new set of clean, impervious gloves should be used for each sample to avoid contamination of the media by previous samples and to prevent contact with the substance.

B-3. Wipe Samples

a. If using Ghost Wipes™, tear open the individually sealed package. Remove the moistened wipe. Unfold the wipe.

b. If using a dry media such as MCE or Whatman™ filter, moisten the filter with distilled or deionized water prior to sampling.

B-4. Place a 10 centimeter by 10 centimeter template on the area to be wiped.

B-5. Apply uniform firm pressure while wiping the area inside the template.

B-6. To insure that all portions of the partitioned area are wiped, start at the outside edge and progress toward the center making concentric squares decreasing in size.

B-7. After collecting a sample, fold the filter or wipe inward and place into a container and number it. Note the number at the sample location on the sketch.

B-8. At least one blank filter treated in the same fashion but without wiping, should be submitted to the laboratory.

Appendix C
Sampling Strategy for Collection of Wipe Samples

C-1. Prior to cleaning the ranges, three samples must be collected and analyzed for total lead dust on each surface, i.e., floor, ceiling, bullet trap, and wall to include the plenum wall, if applicable. In addition, a total of three samples should be collected from areas which have been least disturbed by airflow. Established walkways should be avoided.

C-2. Samples should be collected from different areas of the range. A grid system should be utilized. Each range surface areas should be divided evenly into 3 by 3 sections. Samples should not be collected from only one section of a wall or end of the building.

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 225 of 2531

BEST AVAILABLE COPY

GLOSSARY

Section I
Abbreviations

ARNG
Army National Guard

CFR
Code of Federal Regulations

HEPA
High Efficiency Particulate Air

IFR
Indoor Firing Range

NIOSH
National Institute for Occupational Safety and Health

OSHA
Occupational Safety and Health Administration

ug/ft²
Micrograms per square foot

Section II
Terms

Air monitoring
The sampling for and measuring of pollutants in the atmosphere.

Breathing zone
The imaginary globe of two feet radius surrounding the head.

General area
Collection of and later analysis of airborne contaminants in a given work environment. As the sampling pump and collection media are not attached to a worker, the concentrations found represent average concentrations in that area but may not representative of the actual exposure of the worker.

HEPA
Refers to high efficiency particulate air filter systems capable of capturing up to 99.97 percent of particles 0.3 microns in size or larger.

Lead-Contaminated Range
It is assumed that all IFRs, which have been fired in, are lead-contaminated.

Respirator
A device designed to provide the wearer with respiratory protection against inhalation of airborne contaminants.

Wipe Sample
The terms wipe, swipe, or smear samples are used synonymously to describe the techniques utilized for assessing lead surface contamination.

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 226 of 2531

BEST AVAILABLE COPY

Section III
Special Abbreviations and Terms

This section contains no entries

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 227 of 2531

BEST AVAILABLE COPY

NATIONAL GUARD REGION SOUTH
INDUSTRIAL HYGIENE OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

NGB-ARS-SEIH

November 23, 2007

MEMORANDUM FOR: Non-Responsive RN, Occupational Health Nurse, Tennessee State Safety and Occupational Health Office, 250 8th Avenue, Smyrna, Tennessee 37167.

SUBJECT: Columbia National Guard Armory, Lead Sampling Survey, 844 North James Campbell Boulevard, Columbia, Tennessee.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 22 July 2005.

c. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, October 1988.

d. AR 385-10, The Army Safety Program, 29 February 2000.

e. National Guard Pam 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006.

f. NGR 385-15, Policy and Responsibilities, Evaluation and Operation of Army National Guard Indoor Firing Ranges, 3 November 2006.

g. DA PAM 40-503, The Army Industrial Hygiene Program, 30 October 2000.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2003, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. Title 29, Code of Federal Regulations (CFR), 2001 rev., part 1910, Occupational Safety and Health Standards.

2. General.

a. As requested by Non-Responsive Tennessee Occupational Health Office, personnel with the National Guard Region South Industrial Hygiene Office performed an inspection at the referenced site. The apparent objective of the inspection was to collect surface wipe samples from the former Indoor Firing Range (IFR) for analysis of total lead to confirm/deny the presence of lead dust.

b. Non-Responsive with the National Guard Region South Industrial Hygiene Office in College Park Georgia performed the site visit.

3. Findings.

General Information

At the time of the sampling activity, the interior of the Columbia Armory IFR was emptied of all associated IFR equipment including the bullet trap and firing line. However, the area appeared to be used for storing miscellaneous supplies and office furniture.

The walls of the former IFR were observed as cinder-block and the floors appeared to be constructed on concrete. The ceiling of the range was observed as corrugated metal. At the rear of the former IFR was an entrance observed as a roll-up metal door. The former bullet trap location was identified along what was referred to as the front wall and the firing line was previously located at the rear wall.

Sampling Activities

Based on the number of surfaces observed, samples were collected in accordance with National Guard Bureau Pamphlet 420-15. Ghost Wipe™ is pre-moistened media made of non-woven polyvinyl alcohol fiber and approved by American Industrial Hygiene Association (AIHA) for lead sampling. The wipes also meet all American Standards Testing Materials (ASTM) Designation E1792-96E specifications for sampling materials for lead in surface dust.

The surface samples were collected by placing a 1 square foot sampling template on the surface area and wiping the outlined area with a Ghost Wipe™. After the area inside the template was wiped, each individual sampling media was placed into separate, labeled re-sealable plastic bags and sealed. After each sample collection, a new surface area template was used and new disposable gloves were donned. A total of 20 samples were collected, three from each surface area along with two samples from the surface of the metal shelving and wall locker observed in the former IFR. In addition, two wipes were placed into re-sealable bags and submitted as blank samples for analysis. The samples were submitted to Analytical Environmental Services, Inc. (AES) in Atlanta, Georgia for subsequent analysis of total lead.

Photographs of the observation made during the inspection are attached for reference.

Posted to NGB FOIA Reading Room
May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 229 of 2531

Laboratory Results

The results of the lead dust sampling activities are summarized in the following table.

Sample Number	Sample Location	Laboratory Results[1]
TNC-01	Lower Front Wall	BRL
TNC-02	Middle Front Wall	BRL
TNC-03	Upper Front Wall	BRL
TNC-04	Lower Right Wall	BRL
TNC-05	Middle Right Wall	BRL
TNC-06	Upper Right Wall	BRL
TNC-07	Lower Rear Wall	BRL
TNC-08	Middle Rear Wall	BRL
TNC-09	Upper Rear Wall	BRL
TNC-10	Lower Left Wall	BRL
TNC-11	Middle Left Wall	BRL
TNC-12	Upper Left Wall	BRL
TNC-13	Ceiling at Front Wall	BRL
TNC-14	Middle Ceiling	BRL
TNC-15	Ceiling at Rear Wall	24
TNC-16	**Floor Front Wall**	**293**
TNC-17	Middle Floor	47
TNC-18	Floor at Rear Wall	85
TNC-19	Metal Shelving at Front Wall	BRL
TNC-20	4-drawer File Cabinet at Left Wall	23
TNC-Blank-1	Field Blank	BRL
TNC-Blank-2	Field Blank	BRL

[1] Results reported in micrograms per square feet ($\mu g/ft^2$)
[2] BRL = Below Reportable Limits

The laboratory results indicate lead concentrations detected above the IFR post cleaning standard. In accordance with the National Guard Bureau Pamphlet 420-15, the Columbia Armory IFR cannot be converted for other uses until the lead dust levels are reduced to $200\mu g/ft^2$ or lower depending on local requirements.

The laboratory results are attached for review.

4. Recommendations.

a. Prior to initiating decontamination activities and in accordance with 29 CFR 1910.1025, perform and conduct training for employees exposed to lead concentrations above the standard or who may suffer skin or eye irritation from exposure to lead.

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 230 of 2531

b. Review NG Bureau Pamphlet 420-15 prior to conducting decontamination of the IFR and conduct cleaning activities in accordance with the regulatory document. Decontamination activities should also include items currently stored in the former IFR. Keep in mind that EPA (40 CFR 745 Subpart D) and your state may have lead reduction levels lower than the levels recommended in Pamphlet 420-15.

c. Ensure that appropriate personal protective equipment is worn during decontamination activities.

d. Consult with local Environmental Agency for guidance on proper disposal of materials used in decontaminating the IFR.

e. Upon completion of the decontamination activities, contact the Regional IH office for evaluation and collection of confirmatory lead dust samples.

5. If additional information is needed about the contractors report, please contact SGT

Non-Responsive

[redacted]

CC: Non-Responsive CFMO, 3041 Sidco Drive, Nashville, Tennessee 37204-1504

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 231 of 2531

Posted to NGB FOIA Reading Room
May, 2018

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Photo 1: View of the former Indoor Fire Range (IFR) at the Columbia Tennessee Armory.

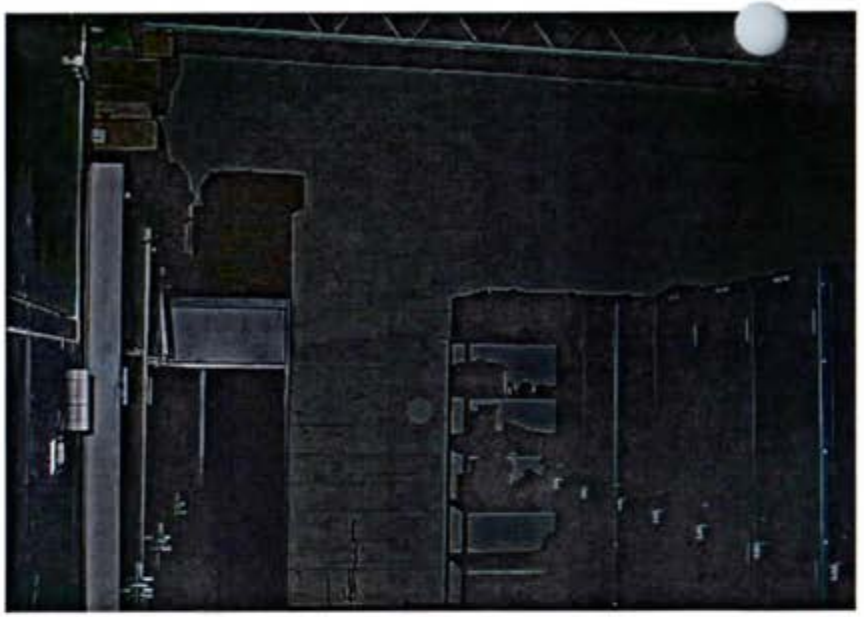

Photo 2: View of the former bullet stop and adjacent wall with miscellaneous materials stored.

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Photo 3: View of right wall of the former IFR.

Photo 4: View of the left wall of the former IFR.

Project Name: Columbia Tennessee Armory

Date Photos Taken: 8 November 2007

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau

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May, 2018

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Photo 5: View of the metal ceiling of the former IFR.

Photo 6: View of floor of the former IFR

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Released by National Guard Bureau

Project Name: Columbia Tennessee Armory

Date Photos Taken: 8 November 2007

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Analytical Environmental Services, Inc.

Date: 11/21/2007

LEAD ON WIPES (N9100/7082)
N7082

CLIENT: National Guard Bureau Region-South III
Project: Columbia Tenn Armory
Delivery Order:
PO No:

Lab Order: 0711804
Date Received: 11/14/2007 10:30 AM
Matrix: Wipe

Laboratory ID	Client Sample ID	Results	Units	Report Limit.	DF	Date Collected	Date Analyzed	Analyst
0711804-001A	TNC-01	BRL	µg/ft²	20	1	11/8/2007	11/15/2007	JY
0711804-002A	TNC-02	BRL	µg/ft²	20	1	11/8/2007	11/15/2007	JY
0711804-003A	TNC-03	BRL	µg/ft²	20	1	11/8/2007	11/15/2007	JY
0711804-004A	TNC-04	BRL	µg/ft²	20	1	11/8/2007	11/15/2007	JY
0711804-005A	TNC-05	BRL	µg/ft²	20	1	11/8/2007	11/15/2007	JY
0711804-006A	TNC-06	BRL	µg/ft²	20	1	11/8/2007	11/15/2007	JY
0711804-007A	TNC-07	BRL	µg/ft²	20	1	11/8/2007	11/15/2007	JY
0711804-008A	TNC-08	BRL	µg/ft²	20	1	11/8/2007	11/15/2007	JY
0711804-009A	TNC-09	BRL	µg/ft²	20	1	11/8/2007	11/15/2007	JY
0711804-010A	TNC-10	BRL	µg/ft²	20	1	11/8/2007	11/15/2007	JY
0711804-011A	TNC-11	BRL	µg/ft²	20	1	11/8/2007	11/15/2007	JY
0711804-012A	TNC-12	BRL	µg/ft²	20	1	11/8/2007	11/15/2007	JY
0711804-013A	TNC-13	BRL	µg/ft²	20	1	11/8/2007	11/15/2007	JY
0711804-014A	TNC-14	BRL	µg/ft²	20	1	11/8/2007	11/15/2007	JY
0711804-015A	TNC-15	24	µg/ft²	20	1	11/8/2007	11/15/2007	JY
0711804-016A	TNC-16	293	µg/ft²	20	1	11/8/2007	11/15/2007	JY
0711804-017A	TNC-17	47	µg/ft²	20	1	11/8/2007	11/15/2007	JY
0711804-018A	TNC-18	85	µg/ft²	20	1	11/8/2007	11/15/2007	JY
0711804-019A	TNC-19	BRL	µg/ft²	20	1	11/8/2007	11/15/2007	JY
0711804-020A	TNC-20	23	µg/ft²	20	1	11/8/2007	11/16/2007	JY
0711804-021A	TNC-BLANK-1	BRL	µg, Total	20	1	11/8/2007	11/16/2007	JY
0711804-022A	TNC-BLANK-2	BRL	µg, Total	20	1	11/8/2007	11/16/2007	JY

Qualifiers: BRL - Not Detected at the Reporting Limit DF - Dilution Factor

Results are blank corrected where applicable

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 234 of 2531

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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-AVN-SI 31 March 2003

MEMORANDUM FOR: The Adjutant General of Tennessee, ATTN: Non-Responsive
844 N. James W. Campbell Blvd, Columbia, Tennessee 38402-0300.

SUBJECT: Transmittal of the Columbia, Tennessee Armory Survey Report.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, 30 August 1986, Medical Service, Preventive Medicine.

c. National Guard Regulation (NGR) 385-10, 1988, Army National Guard Safety and Occupational Health Program.

d. AR 11-34, The Army Respiratory Protection Program, 15 February 1990.

e. TB MED 502, Occupational and Environmental Health Respiratory Protection Program, February 1982.

f. DA PAM 40-503, 30 October 2000, The Army Industrial Hygiene Program.

g. DA PAM 40-501, 10 December 1998, Hearing Conservation.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2001, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

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k. Title 29, Code of Federal Regulations (CFR), 2000 rev., part 1910, Occupational Safety and Health Standards.

l. Report dated 11 March 2003, Industrial Hygiene Survey, LAE Consulting, Severn, Maryland.

2. General.

a. At the request of the TNARNG Safety and Occupational Health Office, an Industrial Hygiene Service was put together to conduct Health Hazard Information module (HHIM) Field surveys and industrial hygiene sampling of the Columbia Armory, Columbia, Tennessee .

b. LAE Consulting, 1218 Scattered Pines Court, Severn, Maryland 21144 conducted the survey.

3. Findings. All HHIM field survey forms and survey findings of the report. (See enclosure 1)

4. Recommendations.

a. Follow all recommendations made in reference 1.l., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Control water infiltration in the armory and/or replace or repair damaged surfaces or components (ceiling and floor tiles). Building conditions that present IAQ concerns or problems not only exacerbates normally minor health issues but also tend to promote or accelerate building deterioration.

c. The recommendations given in the comment section of the HHIM data sheets and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-03. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-04 IHIP.

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present survey, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

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NGB-AVN-SI
SUBJECT: Transmittal of the Columbia Armory Survey Report.

f. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

5. If additional information is needed about the industrial hygiene survey or air sample

Non-Responsive

[redacted]

CF:
NBG-AVN-SH
State Occupational Health Office, P O Box 41502, Nashville, TN 37204-1502.
State Safety Manager, P O Box 41502, Nashville, TN 37204-1502.

Encl
as

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LAE CONSULTING
1218 Scattered Pines Court, Severn, MD, 21144
Tel: (410) 551-2717

9 March 2003

MEMORANDUM FOR: HQ 301st Troop Command, ATTN: Non-Responsive, 844 N. James W. Campbell Blvd, Columbia, Tennessee 38402-0300

SUBJECT: Industrial Hygiene Survey of Columbia National Guard Armory, Columbia, Tennessee

1. References.

a. Title 29, Code of Federal Regulations (CFR) Part 1910, Occupational Safety and Health Administration (OSHA).

b. AR 40-5, Preventive Medicine, 15 October 1990.

c. AR 385-10, 23 May 1988, Army Safety Program.

d. TB MED 503, The Army Industrial Hygiene Program.

e. Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.

f. Title 40, Code of Federal Regulations (CFR) Part 745, Lead, Identification of Dangerous Levels of Lead: Final rule.

g. National Institute for Occupational Safety and Health (NIOSH), (76-130) Technical Information, Lead Exposure and Design Considerations for Indoor Firing Ranges GPO, 1975.

h. IES Lighting Handbook, Application Volume 1981, Illumination Engineering Society of North America.

i. Occupational Safety and Health Administration (OSHA), 29 CFR, 1926.1101, Asbestos.

j. TG No. 142, Managing Health Hazards Associated with Bird and Bat Excrement, USACHPPM, December 1992.

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SUBJECT: Industrial Hygiene Survey of Columbia National Guard Armory, Columbia, Tennessee

2. Purpose. The purpose of this survey was to conduct a baseline Industrial Hygiene survey of the Columbia National Guard Armory. The facility was visually examined and the Building Custodian was interviewed for historical information related to the building and the operations performed. A diagram of the building can be found in Enclosure 1. Laboratory results of Asbestos and Lead wipe samples at Enclosure 2. Photographs of the facility can be found in Enclosure 3. Health Hazard Inventories can be found in Enclosure 4.

3. Background. At the request of Non-Responsive of the National Guard Bureau Region South Industrial Hygiene Office, [redacted]AE Consulting conducted an industrial hygiene survey at the Columbia National Guard Armory on January 13, 2003.

4. Facility Description. This facility houses the HQ 301st Troop Command. Information on the personnel may be obtained from the Tennessee National Guard Occupational Safety and Health office. The personnel perform administrative duties Monday through Friday between 0800 and1630. The Armory is utilized for drills on the weekend. The Armory was built around 1976. The facility houses administrative areas, a kitchen/mess hall, a Drill hall, Supply Room, and an Arms Room.

5. Findings.

a. Bird droppings were found on furniture in the administrative areas of the Armory. The birds are entering the building from the loading dock area and are roosting above the drop ceiling throughout the Armory. A large amount of nesting material was seen above the drop ceilings in the Data Processing area that is located off the loading dock. Armory personnel complain that they clean bird droppings from there desk and other office furniture almost on a daily basis. The birds' disorientation causes them to break through ceiling tiles and enter offices during the workday. The type of bird is unknown but they are described as a large black bird. Personnel stated that a self-help project of sealing possible bird entrances on the loading dock has not limited the amount of birds intruding the building. Armory personnel used an expandable foam type caulking to seal the areas at the loading dock. Armory personnel are concerned with the health affects that the bird droppings may pose.

b. The filters on the supply side of the Air Handling units (AHU) were heavily soiled. It was stated that the filters have not changed in several years. Air filters are located in the supply air units that are located in the hallways of the Armory. The building has three air handling units (AHUs) located on the roof. The roof units have been serviced in the past year, but maintenance of the filters was not included in the contract.

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 239 of 2531

SUBJECT: Industrial Hygiene Survey of Columbia National Guard Armory, Columbia, Tennessee

c. Eight (8) Lead wipe samples were taken from the Armory. Five (5) wipe samples from the Deactivated indoor firing range and three (3) wipe samples from other areas throughout the Armory. The deactivated range has been converted into a storage area. The backstop and all other items that define it as a range have been removed. Four of the eight samples were above the EPA standard of 40 ug /ft^2 indicated in reference f.

Table 1.

Sample Number	Sample Location	Results
1	Right wall 6ft up	<12 ug/ ft^2
2	Top of 1st open shelf from the left	120 ug/ ft^2
3	Former range pit floor	92 ug/ft^2
4	Right wall 5 ft up	<12 ug/ ft^2
5	Middle of floor	35 ug/ ft^2
6	Underneath food prep table in the kitchen	<12 ug/ ft^2
7	On top of Sun Drop Soda machine	<12 ug/ ft^2
8	Supply side of AHU filter in the Admin. Hallway	92 ug/ ft^2

d. The Arms room is located within the Supply room. A dehumidifier was present. Personnel stated that a small amount of weapons repair is being performed in the room. There is no ventilation system located within the Arms room. Personnel were educated about ensuring that they maintain good personal hygiene after handling weapons and about the risk of performing weapons repair in a non-ventilated area.

e. Possible Asbestos Containing Material (PACM) was found on the floor in the deactivated indoor firing range. The material had come from a water pipe that was leaking. The material was collected and analyzed for Asbestos. Analyzes found No Asbestos detected. A work order has been submitted for the pipe.

f. The Drill Hall is used primarily for drills. Visual examination and interview with personnel indicated no apparent vehicle maintenance being performed in this area. A Lead wipe sample was taken in the Drill Hall (Table 1). Results were below the reporting limit.

g. Material Safety Data Sheets were not available for chemicals utilized by the Armory personnel. Personnel have not received Hazard Communication Training.

LAE Consulting
1218 Scattered Pines Court, Severn, Maryland 21144
Telephone: (410) 551-2717

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 240 of 2531

BEST AVAILABLE COPY

6. Recommendations.

a. Recommend removal of birds and clean up of bird droppings. Bird droppings can pose a health hazard. Dry dropping can carry *Histoplasma capsulatum*, a mold that if is inhaled can cause *Histoplasmosis*. It is important to understand that this type remediation cannot be performed as an Armory self-help project. Improper disturbances of the roosting area can produce significant releases of mold spores. Remediation should only be performed by personnel who are trained and medically qualified to remove bird droppings. Contact the Tennessee Safety and Occupational Health office for recommendations on contractors who are qualified in bird and bird dropping removal. Continue to clean up fresh bird droppings as they occur on office furniture and floors. Fresh droppings have not had the opportunity to grow mold.

b. All filters in the facility should be changed at least once a month. Changing the filters frequently will assist in reducing the concentration of airborne particles. Infrequent filter changes reduce the effectiveness of the Air Handling Units and can become a reservoir for microorganisms.

c. Recommended that the Tennessee Safety and Occupational Health office review the lead wipe sample results. If sample results are greater than or equal to 40 ug/ft^2 consider decontamination of the range.

d. Ensure that weapons maintenance is not performed inside the Arms room. Practice good personal hygiene by washing hands thoroughly after handling weapons and ammunition.

e. Any material containing more than one percent Asbestos is considered an Asbestos Containing Material [OSHA 29 CFR, 1910.1101]. The material collected was not an Asbestos Containing Material.

f. Continue to discourage the use of the Drill Hall as a motor vehicle maintenance bay.

g. Recommend producing a Chemical Inventory for the chemicals that are used and stored in the Armory. The Chemical inventory must contain at a minimum the name of the product, quantity, and the location of the product. MSDSs may be obtained and/or generated from the Tennessee Occupational Safety and Health office or from the product manufacturer. Place MSDSs with chemical inventory in a location that is accessible to all Armory personnel. Suggest all Armory personnel obtain education on Hazard Communication. Contact the Tennessee Occupational Safety and Health Office for assistance with Hazard Communication training.

LAE Consulting
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Telephone: (410) 551-2717

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FOIA Requested Record #J-15-0085 (TN)
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Page 241 of 2531

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SUBJECT: Industrial Hygiene Survey of Columbia National Guard Armory, Columbia, Tennessee

7. Technical Assistance. For technical assistance, regarding information found in this

Non-Responsive

[redacted]

2. Sample Results
3. Photos of Facility
4. HHIM

CF: Safety Occupational Health Office, Houston Barracks
ATTN: AGTN-SAHO, 3041 Sidco Drive, Nashville, TN 37204-1501

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 242 of 2531

Posted to NGB FOIA Reading Room
May, 2018

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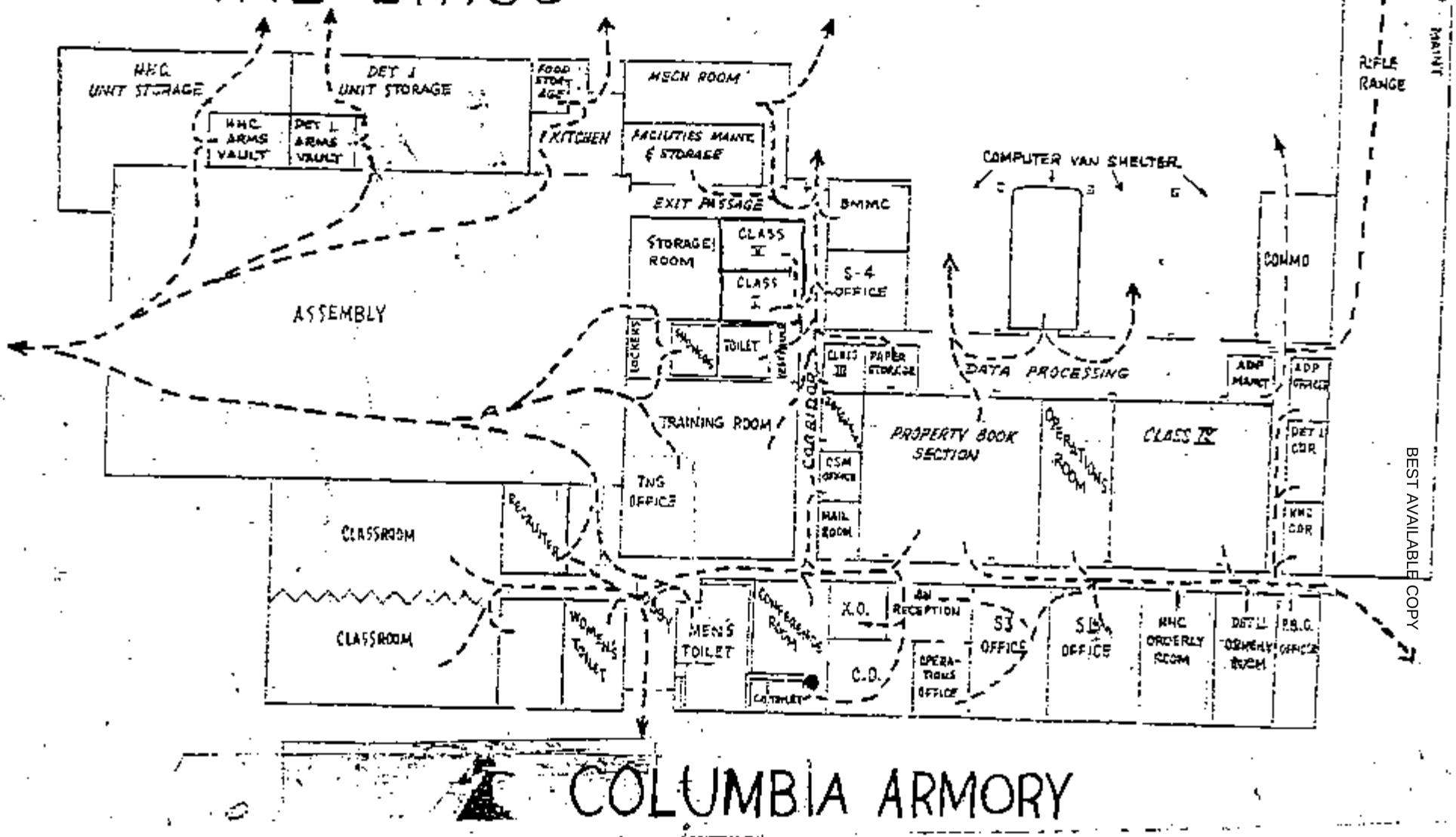
FIRE EVACUATION PLAN



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AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client:	LAB Consulting	**Job Name:**	Columbia TN, NG Armory	**Chain Of Custody:**	109647
Address:	1218 Scattered Pine Court Severn, Maryland 21144	**Job Location:**	Not Provided	**Date Analyzed:**	02/21/2003
		Job Number:	Not Provided	**Person Submitting:**	[redacted]
		P.O. Number:	Not Provided	**Report Date:**	05-Mar-03
Attention:	[redacted]				

Page 1 of 1

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit		Final Result			Comments
0326980	1	Flame	Wipe	****	1.000	12.00	ug/ft²	<	12	ug/ft²	
0326981	2	Flame	Wipe	****	1.000	12.00	ug/ft²		120	ug/ft²	
0326982	3	Flame	Wipe	****	1.000	12.00	ug/ft²		92	ug/ft²	
0326983	4	Flame	Wipe	****	1.000	12.00	ug/ft²	<	12	ug/ft²	
0326984	5	Flame	Wipe	****	1.000	12.00	ug/ft²		35	ug/ft²	
0326985	6	Flame	Wipe	****	1.000	12.00	ug/ft²	<	12	ug/ft²	
0326986	7	Flame	Wipe	****	1.000	12.00	ug/ft²	<	12	ug/ft²	
0326987	8	Flame	Wipe	****	1.000	12.00	ug/ft²		92	ug/ft²	

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7420; Water: SM-3111B

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7421; Water: SM-3113B

N/A = Not Applicable mg/Kg = parts per million (ppm) by weight mg/L = parts per million (ppm)

%Pb = percent lead by weight ug = micrograms ug/L = parts per billion (ppb)

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

[redacted]

Technical Manager: [redacted]

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples.

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An AIHA (#8863), NVLAP (# 101143), & New York ELAP (#10920) Accredited Laboratory
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FOIA Requested Record #J-15-0056
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Columbia NG Armory, TN

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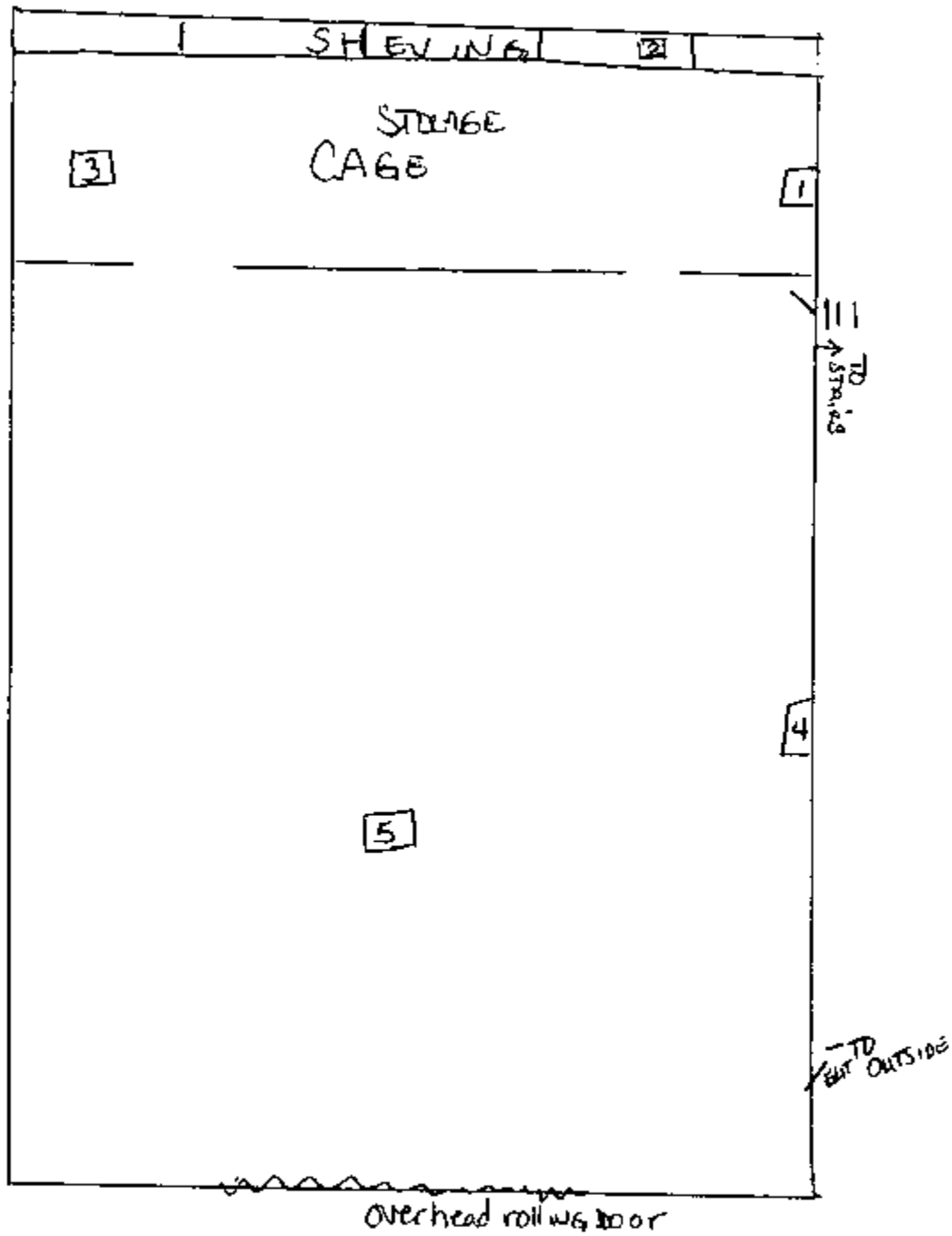
LEAD Wipe Sample Locations

Converted INDOOR Firing RANGE



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AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client:	LAE Consulting	**Job Name:**	Columbia NG Armory	**Chain Of Custody:**	109646
Address:	1218 Scattered Pine Court	**Job Location:**	Columbia, TN	**Date Analyzed:**	02/25/2003
	Severn, Maryland 21144	**Job Number:**	Not Provided	**Person Submitting:**	[redacted] Non-Responsive
		P.O. Number:	Not Provided		

Attention: [redacted] Non-Responsive

Page 1 of 1

Summary of Polarized Light Microscopy

AMA Sample Number	Client Sample #	Total Asbestos	Chrysotile Percent	Amosite Percent	Crocidolite Percent	Other Asbestos Percent	Mineral Wool Percent	Fiberglass Percent	Organic Percent	Synthetic Percent	Other Percent	Particulate Percent	Sample Color	Analyst ID	Comments
0326988	1	NAD	--	--	--	--	20	--	TR	--	--	80	Gray	CK	

The following footnotes only apply to those samples which the total asbestos result is flagged with a note number.

1 TEM RECOMMENDATION - Please note, due to resolution limitations with optical microscopy and/or interference from matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos. It is recommended that the additional analytical technique of TEM be used to check for asbestos fibers below the resolution limits of optical microscopy.

2 MATRIX REDUCTION RECOMMENDATION - Please note, due to interference from the matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos which is obscured from view. It is recommended that the additional preparation technique of gravimetric reduction be performed on this sample to minimize the obscuring effects of matrix components, followed by reanalysis by PLM and/or TEM.

Analysis Method - EPA/600/R-93/116 dated July 1993

NAD = "No Asbestos Detected" TR = "Trace equals less than 1% of this component"

[redacted] Non-Responsive

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples. All rights reserved. AMA Analytical Services, Inc.

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FOIA Requested Record #J-15-0085
Released by National Guard Bureau
Page 246 of 2531

Columbia, Tn National Guard Armory
HQ 301st Troop Command

Views of the Data Processing Room (doors lead to loading dock)

Interior and exterior views of the loading dock area (doors inside data processing room)

Bird dropping on a file cabinet in the Data Processing room

Bird Dropping on CDs in SGT Lemay's office

View of nesting material (below black beam) and bird droppings on the exterior wall of loading dock

View of nesting material and bird droppings on interior wall (opposite the wall pictured above)

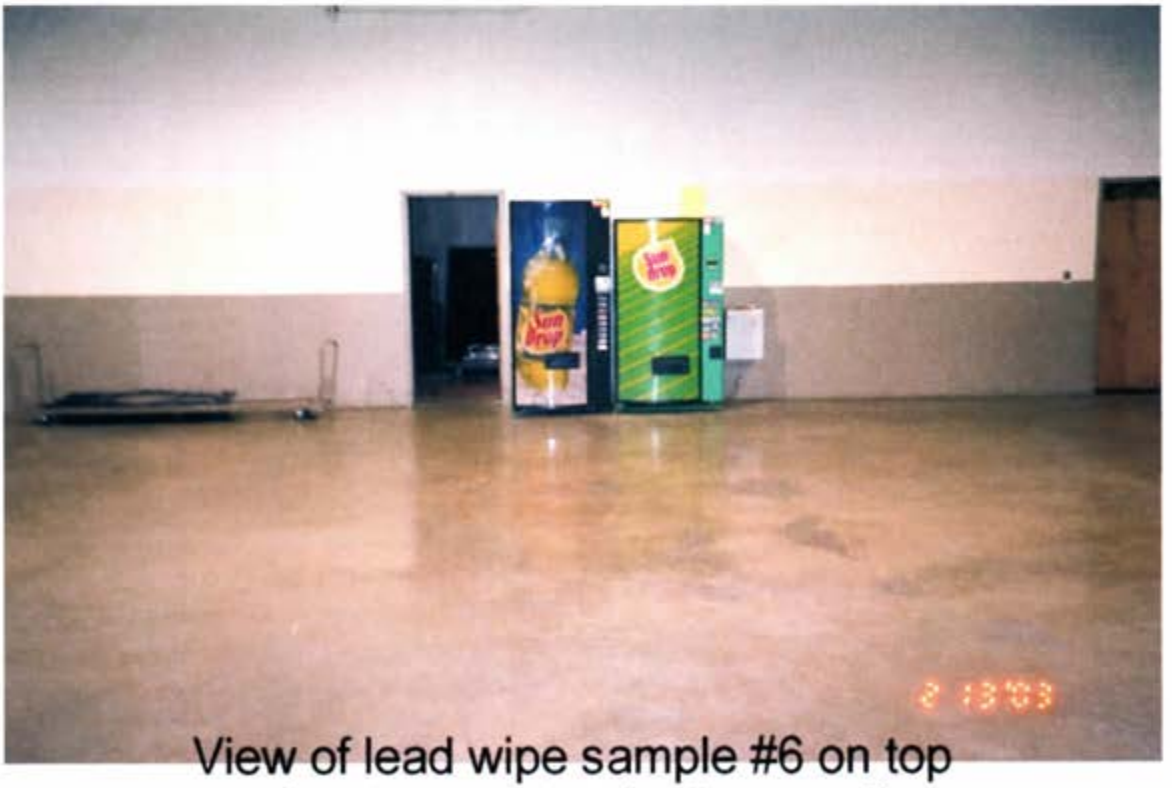
Views of bird entrance areas (under black metal beam)
orange area is were self- help caulking was performed

Views of drop ceiling damage in offices
from birds roosting and flying through rooms

Views of Lead wipe samples #2 and #3 location in the Converted Indoor Firing range

View of lead wipe sample #4 location in the Converted Indoor Firing range

View of Deactivted Indoor Firing range
and Lead wipe sample #5



View of lead wipe sample #6 on top
of soda machine (yellow card)

View of lead wipe sample #7 location,
on top of the cbinet in the mess

View of lead wipe sample #8 location
on the air filter housed in this unit

Views of the remanants (pic below) of a pipe (pic above) leak.
White material on the floor was analyzed

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HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

[redacted]

ARLOC	INSTALLATION: Columbia, TN NG Armory	BLDG/RM NO.: 844 N. James W. Campbell Blvd Columbia, TN 38402-0300
LOCATION/CODE: AA	OPERATION/CODE: ADO	
SURVEY DATE: 13 Feb 03	EVALUATOR: LAE CONSULTING	
MACOM/CODE	SUBMACOM/CODE	SUPERVISOR: Non-Responsive
TELEPHONE/DSN NO.: Non-Responsive	UNIT/ORGANIZATION: HQ 301st Troop Command	RAC: [redacted]
	NO. CONTRACTORS	NO. LOC(S)
		NO. OTHER

SECTION 2: FACILITY DATA

LAB HOODS	VAPOR DEGREASERS	SPRAY BOOTHS
MAINTENANCE BAYS	OPEN SURFACE TANKS	VENTILATION UNITS

SECTION 3: SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS

PERSONAL PROTECTIVE EQUIPMENT (R= REQUIRED; U = UTILIZED)

GLOVES	R/U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R/U
ACID	/	AIR LINE			/
COLD SURFACES	/	ABRASIZE BLASTING HOOD			/
HOT SURFACES	/	DISPOSABLE			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	1/2 FACE AIR PURIFYING			/
SOLVENTS	/	1/4 FACE AIR PURIFYING			/
SURGICAL GLOVES	/	SELF CONTAINED			/

EYES/FACE	R/U	HEARING	R/U	BODY	R/U	HEAD/FIT	R/U
CHEMICAL SPLASH	/	CANAL CAPS	/	APRONS	/	COLD WEATHER BOOTS/HATS	/
FULL FACE SHEILD	/	EARPLUGS	/	COLD WEATHER CLOTHING	/	HARD HATS	/
CHEMICAL/SAFETY	/	HELMETS	/	COVERALLS	/	IMPERMEABLE BOOTS	/
SAFETY/IMPACT	/	MUFFS		FULL BODY SUIT	/	SAFETY/CONDUCTIVE SHOES	/
WELDING HELMET	/	MUFF/EARPLUG COMBO	/	HEAT REFELECTIVE VEST/SUIT	/	SAFETY/NON-CONDUCTIVE SHOES	/
		MUFF/EARPLUG W/TIME LIMIT	/	SAFETY BELT/HARNESS	/		/

SECTION 4: HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead, Inorganic, Dust, + Fumes		

SECTION 5: PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

SECTION 6: COMMENTS

☐ No comments ☐ See attached sheet

TN Safety + Occupational Health office has Personnel Data

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Non-Responsive

October 7, 2005

Non-Responsive

RE: Baseline Industrial Hygiene Survey

Posted to NGB FOIA Reading Room
May, 2018

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FINAL REPORT

FOR

BASELINE INDUSTRIAL HYGIENE SURVEY

TENNESSEE ARMY NATIONAL GUARD

COOKEVILLE ARMORY

COOKEVILLE, TN

DATE:

SEPTEMBER 20, 2005

PREPARED BY

Non-Responsive

[redacted]

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CONTENTS

1.0 INTRODUCTION

2.0 INSTRUMENTATION

3.0 FINDINGS

4.0 REFERENCES

Attachment 1 HHJM Forms

Attachment 2 Laboratory Reports: A/C-Heating System, Weapons Vault Racks

Attachment 3 Photographs of the Facility

Attachment 4 Schematic Drawing of Facility

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1.0 INTRODUCTION

At the request of the National Guard Bureau South Region Industrial Hygiene Office, Non-Responsive performed a Baseline Industrial Hygiene Survey at the TN ARNG Cookeville Armory. The purpose of the survey was to perform a baseline survey to evaluate health hazards, controls present in the work site, collect lead swipe samples from renovated/inactive or closed Indoor Firing Ranges, Weapons Vault, A/C-Heating System, illumination survey and to make recommendations regarding health hazards associated with the work at the Cookeville Armory.

The building was completed in 1974. The roof has been replaced and the ceiling in offices was remodeled. The facility houses the HHT 3/278th ACR. The armory is used by the troops of the HHT 3/278th ACR for their monthly weekend drills.

The HHT 3/278th ACR was deployed on June 2004 and was still overseas at the time of the survey. There were two personnel working at the facility at the time of the survey. Non-Responsive have been in charged of running the affairs of the armory since the unit was deployed. They will be at this position until the end of January, 2006. The troops are schedule to return sometime in November. The employees are assigned to perform administrative duties Monday-Friday 7:00am-3: 30pm. The facility houses administrative areas, classroom, a supply room, a weapons vault, a conference room, a kitchen and a drill hall. Personnel reported that there is a problem with the roof in front of the building that may cause water leaks. It is not a widespread problem. Personnel have the materials and will repair it in the near future. There was a stained ceiling tile and light fixture in the S-1office which is next to where the roof problem is. The kitchen has not been used to cook since the troops were deployed. It was clean but quite warm the day of the survey. It is relatively small. A schematic drawing of the facility can be found in Attachment 4.

The facility was visually examined and personnel consulted to assess potential hazards present. Health Hazard Information Modules were completed. Illumination survey was performed throughout the facility.

2.0 INSTRUMENTATION/CALIBRATION

The following instrumentation was used to obtain light measurements. The instrument used has been calibrated and was operated according to the manufacturer's recommendations:

- SPER SCIENTIFIC Light Meter

3.0 FINDINGS

Illumination

Illumination levels were recorded in administration offices, classroom, the drill hall and the supply room. Light measurements were below IES guidelines at the S-2 office (Six light fixtures were out in the office), the HHT Commander office (One fixture out and one with two bulbs out) and the Conference room (Three fixtures out of four in the room with two bulbs out each). The other areas tested were within IES minimum standards, although, the following areas had light bulbs and/or fixtures out. The Classroom (Eight light fixtures out), the Orderly room (Two fixtures with two bulbs out each), the S-1office (One fixture out), the X-O office (One fixture out) and the Drill Hall (Two bulbs out). See Light Readings Table at the end of this section.

Administration

Personnel perform administrative duties that consist of reading, handling and generating paper work. Computer use comprises a large portion of the working day, four to five hours per day. This continuous use of computers can in the long run lead to eyestrain and hand/wrist soreness.

Motor Pool

The motor pool is located behind the building. It is fenced and locked. Some vehicles were left at the facility when the troops left. Most of them are fuel trucks and a few regular trucks that were not needed overseas. PMCS would be performed at the armory on weekend drills. There are technicians that are member of the unit. When major repairs are needed the vehicles are taken to the OMS # 4.

Drill Hall

There Drill Hall is located at the center of the facility. Personnel reported that when the troops are home, the Drill Hall is used to clean weapons. Weapons are distributed from the vault in the Supply Room. Rags with CLP are used to clean the weapons on tables set up on the Drill Hall floor. Personnel do not know how the used rags are disposed off. There are no exhaust ventilation fans in the room. Weather permitting; the roll up door should be kept open when the weapons are cleaned in the Drill Hall. The roll up door should be open, weather permitting when weapons are cleaned. There are four large heaters at the roof of the room. The system uses circulating hot water and a blower to push hot air into the area. A pair of louvers, located at the roof, automatically opens when the heaters are turned on. Personnel reported that the heaters work well, only one or two of them are enough to keep the room warm. All the pipe wrappings that circulate the water to the heaters have a yellow caution sign indicating they contain asbestos. All the wrappings were checked and none of them were peeling or broken at the time of

the survey. The Drill Hall is rented out for parties, wrestling matches and wedding receptions about twenty times a year. The renters bring their own food. One staff person is present during these activities to ensure the cleaning of the area after the end of the activity.

Boiler Room

The facility has a metal boiler that uses natural gas to heat the facility. It is a newer boiler that was installed in 2001 when the old boiler was removed. All the pipe wrappings in the boiler room were removed and new asbestos free wrappings were used to re wrap the pipes. No broken pipe wrappings were found the day of the survey. The A/C unit and the water heater are also located in this room. See pictures.

Deactivated Indoor Firing Range

There is no deactivated Indoor Firing Range (IFR) at this facility. A space for one was in the plans but an indoor firing range was never installed in the building. The area is now used as section cages (See pictures).

Weapons Vault

The Cookeville Armory has a weapon storage vault located in the supply room. Personnel stated that accountability and issuing of weapons are performed in this area. There were three weapons racks with just a few weapons in the vault the day of the survey. Personnel reported that the rest of the weapons went with the troops since deployment. The dehumidifier in the weapons vault was no working the day of the survey. It has not worked or was turned off since the troops left. Three wipe samples were taken from the weapons vault racks present. One of the samples was above the clearance level of 200ug/ft2. See table 1 for results.

Table 1

Sample Number	Sample Location	Results
30	Weapons Vault Racks (A)	306ug
31	Weapons Vault Racks (B)	181ug
32	Weapons Vault Racks (C)	BRL
33	Blank	BRL

A/C System

Central A/C-Heating system is used to cool the administration offices, the classroom and the conference room. Personnel reported that system works well in the summer and winter and they regularly change the filters (There were new filters stored next to the unit). The unit is located in the boiler room. This is a new unit installed in 2001 when the new boiler was also installed. The supply room has only a window A/C unit. Twelve wipe samples were collected from the supply air outlet grills throughout the facility used by personnel of the armory and filter. All samples were below the clearance level of 200 ug/ft2.

Table 2

Sample Number	Sample Location	Results
18	Conference Room	BRL
19	Classroom	BRL
20	OPNS	BLR
21	S-3 (2)	BLR
22	HHT Commander Office	22ug
23	Orderly Room	25ug
24	S-2 Office	BRL
25	Administration Office	BRL
26	S-1 Office	BRL
27	S-4 Office	BRL
28	A/C Filter, Supply Side	BRL
29	A/C Filter, Fan Side	BRL

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33	Blank	BLR

Material Safety Data Sheets

There was no MSDS Book found in the armory the day of the survey. There is a flammables cabinet located inside the supply room. Inside the cabinet, spray paint cans, larger paint containers and lubricating oil were stored. There was a Hazardous Materials Inventory List found attached to the outside of the door of the cabinet at the time of the survey. The supply room is mostly empty now that the troops are away. The room was hot the day of the survey since it is closed must of the time. A large floor fan is used when needed. The A/C window unit in the room only cools a small area.

Light Readings

Light measurements were taken in various locations throughout the facility The results were compared to guidelines recommended by the Illuminating Engineering Society (IES). The results of the survey are shown in Table 3.

Table 3

Location	Light Reading (footcandles)	IES Recommendation (footcandles)
ADO Administration Office	68-92 (Avg. 80)	50-100
ADO Orderly Room	49-92 (Avg. 59)	50-100
ADO S-1 Office	42-115 (Avg. 79)	50-100
ADO S-2 Office	8-64 (Avg. 40)	50-100
ADO S-3 Office	51-109 (Avg. 65)	50-100
ADO S-4 Office	46-80 (Avg. 63)	50-100
HHT Commander Office	8-37 (Avg. 24)	50-100
X-O Office	36-80 (Avg. 61)	50-100
HQ CO Office	96-122 (Avg. 115)	50-100
Classroom	9-103 (Avg. 56)	50-100

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Conference Room	**35-66 (Avg. 45)**	**50-100**
HHT Supply Room (Storage)	**24-60 (Avg. 47)**	**20**
Drill Hall	**13-172 (Avg. 83)**	**30**

Light measurements were below IES guidelines at the S-2 office (Six light fixtures were out in the office), the HHT Commander office (One fixture out and one with two bulbs out) and the Conference room (Three fixtures out of four in the room with two bulbs out each). The other areas tested were within IES minimum standards, although, the following areas had light bulbs and/or fixtures out. The Classroom (Eight light fixtures out), the Orderly room (Two fixtures with two bulbs out each), the S-1office (One fixture out), the X-O office (One fixture out) and the Drill Hall (Two bulbs out). ANSI RP7-1991.

4. REFERENCES

- Guide to Occupational Exposure 2000, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.
- American National Standards Institute (ANSI), /Illuminating Engineering Society (IES), Industrial Lighting 1991.
- Title 29, Code of Federal Regulations (CFR). 1999, revision, Part 1910. Occupational Safety and Health Standards
- AR 40-5, Preventative Medicine, 15 October 1990.
- AR 385-10, The Army Safety Program, 23 May 1988.
- National Safety Council, Fundamentals of Industrial Hygiene, 4th edition, 1996.
- AR 385-16, National Guard Pamphlet, Safety Guidelines for Converting Indoor Firing Ranges to Other uses.
- TB MED 503, The Army Industrial Hygiene Program, February 1985.
- Department of the Army Pamphlet (DA PAM) 40-501,27 August 1991, Hearing Conservation.
- Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.

Non-Responsive

[redacted]

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RECOMMENDATIONS

- Consideration should be given to provide supplemental lighting at locations that were below the recommended standards and to replace burned out bulbs in the offices as reported and in the Drill Hall. See Light Readings Section.

- Recommend that when using computers for extended periods of time, personnel should take occasional breaks and change position to minimize the possibility of eyes and/or hands/wrist injury.

- Continue to ensure that weapon maintenance and cleaning is done in a well-ventilated area. Continue to practice good personal hygiene by washing hands after handling and cleaning weapons and ammunition. Ensure that the weapons racks are well cleaned before placing them back in the vault.

- Recommend that after weapons are cleaned, the used rags are properly disposed of through an independent contractor or an OMS facility.

- Recommend that the dehumidifier should be installed and turned on inside the weapons vault.

- Recommend that the pipe wrappings in the drill hall be checked periodically and if any of them break it should reported as soon as possible to the appropriate state agency.

- Ensure that if an MSDS book is not present when the troops return, one should be developed from the MSDS forms.

- Ensure that personnel and troops have knowledge of the location of the MSDS book. And is enrolled hazardous materials safety training.

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ATTACHMENTS

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(For use of this form, see HHIM User's Instructions.)

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SECTION 1. DEMOGRAPHIC DATA

a. ARLOC _____ b. INSTALLATION Cookeville, TN Armory c. BLDG/RM NUMBER Admin. Office

d. LOCATION/CODE Administrative Offices e. OPERATION/CODE _____ / _____ f. DESCRIPTION _____

g. MACOM/CODE NG / [redacted] Non-Responsive [redacted] DE _____ / _____ i. SUPERV [redacted] Non-Responsive

j. TELEPHONE/AUTOVON NUMBER [redacted] RAC _____ l. FREQUENCY (Hrs Per Day) _____

m. NO CIV(S) _____ n. NO M[redacted] o. NO CONTRACTOR(S) _____ p. NO LOC(S) _____ q. NO OTHER _____

SECTION 2. IH STAFFING DATA

a. LAB HOODS _____ b. VAPOR DEGREASERS _____ c. MAINTENANCE BAYS _____ d. SPRAY BOOTHS _____

e. OPEN SURFACE TANKS _____ f. VENTILATION UNITS _____

SECTION 3. SURVEY DATA

a. SURVEY DATE 9-20-05 b. EVALUATOR (INITIAL [redacted] Non-Responsive

c. CONTROLS PRESENT	d. EVALUATION	e. UNIT CODE	f. CONTROLS REQUIRED	g. STATUS
Lighting	68-92; Avg: 80	FC	50-100	Adqt

h. PERSONAL PROTECTIVE EQUIPMENT (R=REQUIRED; A=AVAILABLE)

1. RESPIRATOR	MANUFACTURER	NIOSH TC NO	R/A
DISPOSABLE			
¼ FACE AIR PURIFYING			
½ FACE AIR PURIFYING			/
FULL FACE AIR PURIFYING			/
POWERED AIR PURIFYING			/
AIRLINE			/
SELF-CONTAINED			/
ABRASIVE BLASTING HOOD			/

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	R/A
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	
OIL	/	SAFETY/IMPACT	/	EARPLUGS	/	COVERALLS	/	IMPERMEABLE BOOTS	
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/ HARNESS	/	SAFETY/NONCONDUCTIVE SHOES	
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/								

SECTION 4. HAZARD INVENTORY DATA

a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC or EPC	d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO)
POVDT	Computer use for long periods of time	3	

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Page 271 of 2531

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a. HAZARD	b. SAMPLE TYPE	c. RESULTS	d. REMARKS

SECTION 6. **PERSONNEL DATA**

					d. CATEGORY
[redacted]					CIV

SECTION 7. **COMMENTS** *(Add blank sheet of paper if necessary)*

① Administrative Officer
② Was at guard for 26 yrs before retiring
③ Came to Army when troops were deployed. Retired
④ Computer work 4-5 hrs/day
⑤ Should take breaks when working with computers

PRIVACY ACT STATEMENT

Title 5 U.S. Code, Section 301; Executive Order 9397 authorizes the use of your Social Security Number as a identification number. The purpose of this information is to identify and monitor data relating each DA civilian employee exposed to a hazardous workplace or operation. The use of this information is to provide histories of exposure for any given worker.

Disclosure of your Social Security Number is not mandatory; however, nondisclosure may result in untimely provision of proper medical monitor

Signature

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Page 272 of 2531

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SECTION 1. DEMOGRAPHIC DATA

a. ARLOC _____ b. INSTALLATION Cookeville TN Armory c. BLDG/RM NUMBER Orderly Room

d. LOCATION/CODE _____ / e. OPERATION/CODE _____ / f. DESCRIPTION

Readiness Technician, Adm. some supply work. Computer work about 4 hrs/day

g. MACOM/CODE NG / [redacted] / [redacted] i. SUPERVIS[redacted]

j. TELEPHONE/AUTOVON NUMBE[redacted] AC _____ l. FREQUENCY (H[redacted]) _____

m. NO CIV(S) _____ n. NO[redacted] o. NO CONTRACTOR(S) _____ p. NO LOC(S) _____ q. NO OTHE[redacted]

SECTION 2. IH STAFFING DATA

a. LAB HOODS _____ b. VAPOR DEGREASERS _____ c. MAINTENANCE BAYS _____ d. SPRAY BOOTHS _____

e. OPEN SURFACE TANKS _____ f. VENTILATION UNITS [redacted]

SECTION 3. SURVEY DATA

a. SURVEY DATE 9-20-05 b. EVALUATOR (INITIALS) [redacted]

c. CONTROLS PRESENT	d. EVALUATION	e. UNIT CODE	f. CONTROLS REQUIRED	g. STATUS
Lighting	49-92; Avg. 59	FC	50-100	Adq'T

h. PERSONAL PROTECTIVE EQUIPMENT (R=REQUIRED; A=AVAILABLE)

1. RESPIRATOR	MANUFACTURER	NIOSH TC NO	R/A
DISPOSABLE			
½ FACE AIR PURIFYING			
⅓ FACE AIR PURIFYING			
FULL FACE AIR PURIFYING			
POWERED AIR PURIFYING			
AIRLINE			
SELF-CONTAINED			
ABRASIVE BLASTING HOOD			

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	R/A
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	
OIL	/	SAFETY/IMPACT	/	EARPLUGS	/	COVERALLS	/	IMPERMEABLE BOOTS	
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/ HARNESS	/	SAFETY/NONCONDUCTIVE SHOES	
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/								

SECTION 4. HAZARD INVENTORY DATA

a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC or EPC	d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO)
POVDT	Computer use for long periods of time	3	

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a. HAZARD	b. SAMPLE TYPE	c. RESULTS	d. REMARKS

SECTION 6. **PERSONNEL DATA**

[redacted]					ATEGORY
					IV

Non-Responsive

SECTION 7. **COMMENTS** *(Add blank sheet of paper if necessary)*

1. Readiness Technician; Admin work
2. Has been at facility since deployment -
3. Before ret. was 26 yrs in guard.
4. Computer work 4 hrs/DAY
5. No health problems - sore knees + shoulders.

PRIVACY ACT STATEMENT

Title 6 U.S. Code, Section 301; Executive Order 9397 authorizes the use of your Social Security Number as a identification number. The purpose of this information is to identify and monitor data relating each DA civilian employee exposed to a hazardous workplace or operation. The use of this information is to provide histories of exposure for any given worker.

Disclosure of your Social Security Number is not mandatory; however, nondisclosure may result in untimely provision of proper medical monitor

Signature

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Page 274 of 2531

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Analytical Environmental Services, Inc.

Date: 9/28/2005

TOTAL LEAD IN WIPE SAMPLES
N7082

CLIENT: Non-Responsive
Project: Cookeville, Tn Armory
Delivery Order:
PO No:

Lab Order: 0509B10
Date Received: 9/22/2005 9:35 AM
Matrix: Wipe

Laboratory ID	Client Sample ID	Results	Units	Report Limit.	DF	Date Collected	Date Analyzed	Analyst
0509B10-001A	18	BRL	µg, Total	20	1	9/20/2005	9/26/2005	VA
0509B10-002A	19	BRL	µg, Total	20	1	9/20/2005	9/26/2005	VA
0509B10-003A	20	BRL	µg, Total	20	1	9/20/2005	9/26/2005	VA
0509B10-004A	21	BRL	µg, Total	20	1	9/20/2005	9/26/2005	VA
0509B10-005A	22	22	µg, Total	20	1	9/20/2005	9/26/2005	VA
0509B10-006A	23	25	µg, Total	20	1	9/20/2005	9/27/2005	VA
0509B10-007A	24	BRL	µg, Total	20	1	9/20/2005	9/27/2005	VA
0509B10-008A	25	BRL	µg, Total	20	1	9/20/2005	9/27/2005	VA
0509B10-009A	26	BRL	µg, Total	20	1	9/20/2005	9/27/2005	VA
0509B10-010A	27	BRL	µg, Total	20	1	9/20/2005	9/27/2005	VA
0509B10-011A	28	BRL	µg, Total	20	1	9/20/2005	9/27/2005	VA
0509B10-012A	29	BRL	µg, Total	20	1	9/20/2005	9/27/2005	VA
0509B10-013A	30	306	µg, Total	20	1	9/20/2005	9/27/2005	VA
0509B10-014A	31	181	µg, Total	20	1	9/20/2005	9/27/2005	VA
0509B10-015A	32	BRL	µg, Total	20	1	9/20/2005	9/27/2005	VA
0509B10-016A	33	BRL	µg, Total	20	1	9/20/2005	9/27/2005	VA

Qualifiers: BRL - Not Detected at the Reporting Limit DF - Dilution Factor

Results are blank corrected where applicable

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Page 275 of 2531

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COOKEVILLE, TN
ARMORY

DRILL HALL,(HEATERS ON CEILING)

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DRILL HALL, SHOWING PIPES TO HEATERS

DRILL HALL, WARNING SIGN ON PIPES

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DRILL HALL, WARNING SIGN ON PIPES

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SECTION STORAGE CAGES, FRONT VIEW

SECTION STORAGE CAGES, REAR VIEW

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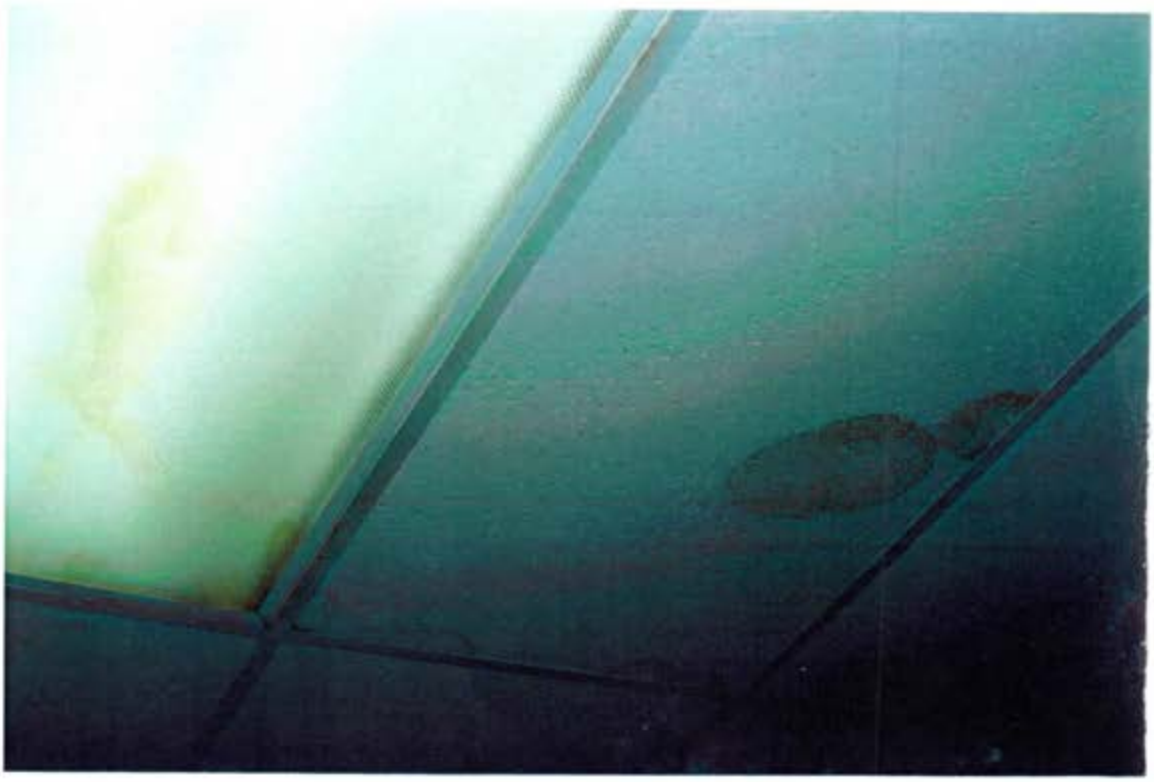
A/C OUTLET GRILL

S-1 OFFICE, STAINED CEILING TILES & FIXTURE



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BOILER

BOLIER ROOM PIPES

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BEST AVAILABLE COPY

A/C-HEATING UNIT

A/C-HEATING UNIT FILTERS

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FLAMMABLES CABINET

FLAMMABLES CABINET, INSIDE

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S-2 OFFICE, LIGHT FIXTURES OUT

MOTOR POOL

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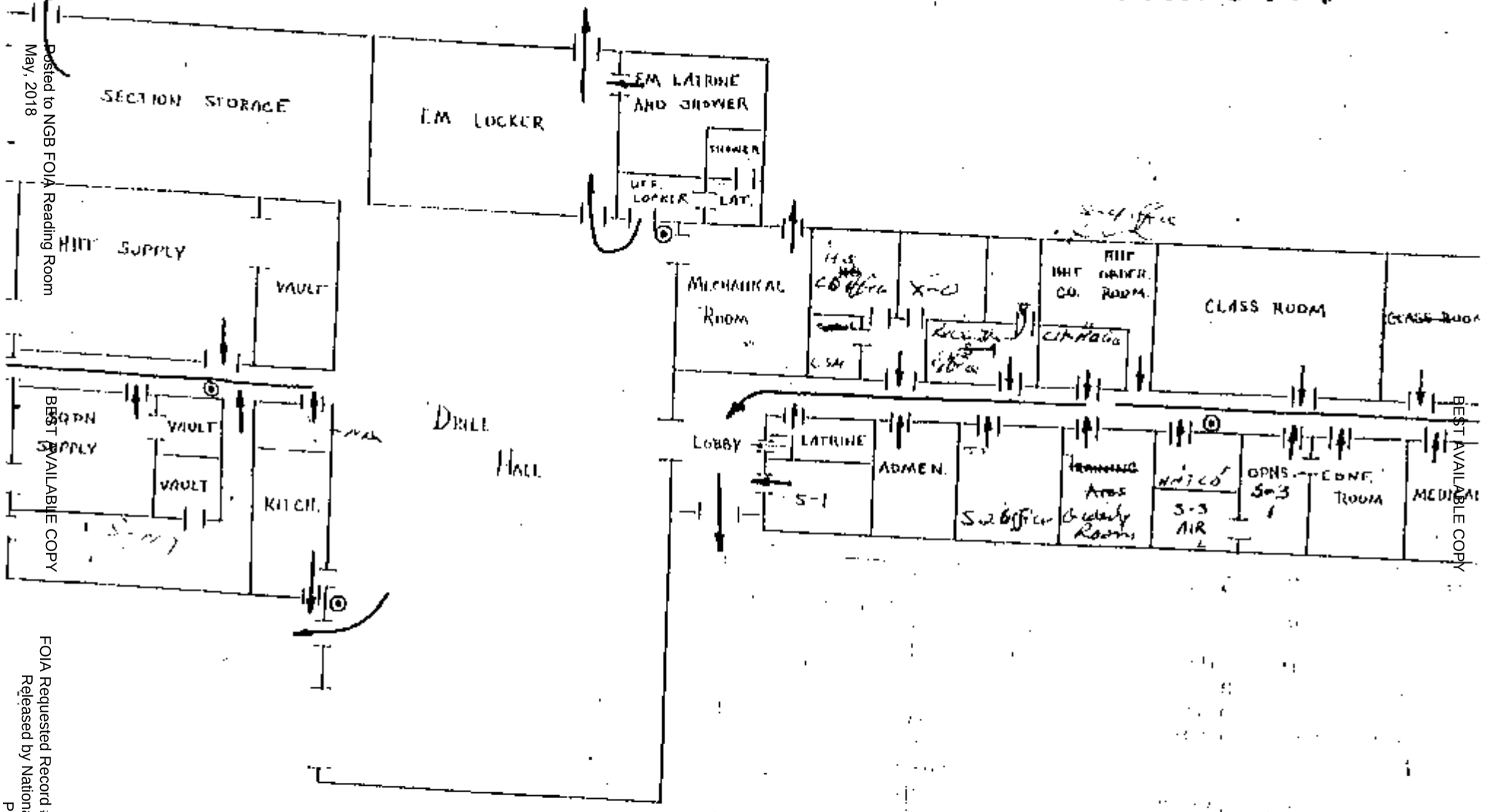
COOKEVILLE ARMORY



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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-ARS-IHSE (40-5f) October 25, 2005

MEMORANDUM FOR: The Adjutant General of Tennessee, ATTN: State Occupational Health Office, P O Box 41502, Nashville, TN 37204-1502.

SUBJECT: Transmittal of the Survey Reports for Dayton, TN Armory, Cookeville, TN Armory, and Bolivar, TN Armory.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, 22 July 2005, Medical Service, Preventive Medicine.

c. National Guard Regulation (NGR) 385-10, 29 February 2000, Army National Guard Safety and Occupational Health Program.

d. AR 11-34, The Army Respiratory Protection Program, 15 February 1990.

e. TB MED 502, Occupational and Environmental Health Respiratory Protection Program, February 1982.

f. DA PAM 40-503, 30 October 2000, The Army Industrial Hygiene Program.

g. DA PAM 40-501, 10 December 1998, Hearing Conservation.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2001, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

k. Title 29, Code of Federal Regulations (CFR), 2005 rev., part 1910, Occupational Safety and Health Standards.

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NGB-ARS-IHSE (40-5f) October 25, 2005

SUBJECT: Transmittal of the Survey Reports for Dayton, TN Armory, Cookeville, TN Armory, and Bolivar, TN Armory.

1. Report dated November 17, 2003, Industrial Hygiene Survey, Non-Responsive Fayetteville, GA.

2. General.

a. At the request of the IL ARNG Safety and Occupational Health Office, an Industrial Hygiene Service was put together to conduct Health Hazard Information module (HHIM) Field surveys and industrial hygiene sampling of the Dayton, TN Armory, Cookeville, TN Armory, and Bolivar, TN Armory.

b. Non-Responsive 583 Ginger Cake Rd., Fayetteville, GA, conducted the surveys.

3. Findings. All Health Hazard information is on the survey findings of the report. (See enclosure 1)

4. Recommendations.

a. Follow all recommendations made in reference 1.l., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Control water infiltration in the armory and/or replace or repair damaged surfaces or components (ceiling and floor tiles). Building conditions that present IAQ concerns or problems not only exacerbates normally minor health issues but also tend to promote or accelerate building deterioration.

c. The recommendations given in the comment section and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-06. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-07 IHIP.

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present survey, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

f. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

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NGB-ARS-IHSE (40-5f) October 25, 2005

SUBJECT: Transmittal of the Survey Reports for Dayton, TN Armory, Cookeville, TN Armory, and Bolivar, TN Armory.

5. If additional information is needed about the industrial hygiene survey or air sample

Non-Responsive

[redacted]

CF:
NBG-IH
State Safety Office, P O Box 41502, Nashville, TN 37204-1502.
Encl
as

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Non-Responsive

October 7, 2005

Non-Responsive

RE: Baseline Industrial Hygiene Survey

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FINAL REPORT

FOR

BASELINE INDUSTRIAL HYGIENE SURVEY

TENNESSEE ARMY NATIONAL GUARD

DAYTON ARMORY

DAYTON, TN

DATE:

SEPTEMBER 19, 2005

PREPARED BY

Non-Responsive

[redacted]

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CONTENTS

1.0 INTRODUCTION

2.0 INSTRUMENTATION

3.0 FINDINGS

4.0 REFERENCES

Attachment 1 HHIM Forms

Attachment 2 Laboratory Reports: Deactivated Indoor Firing Range
A/C-Heating System Outlet Grills & Filter
Drill Hall

Attachment 3 Memorandum on: Conversion of Indoor Range

Attachment 4 Photographs of the Facility

Attachment 4 Schematic Drawing of Facility

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1.0 INTRODUCTION

At the request of the National Guard Bureau South Region Industrial Hygiene Office, Non-Responsive performed a Baseline Industrial Hygiene Survey at the TN ARNG Dayton Armory. The purpose of the survey was to perform a baseline survey to evaluate health hazards, controls present in the work site, collect lead swipe samples from renovated/inactive or closed Indoor Firing Ranges, Weapons Vault, A/C-Heating System, illumination survey and to make recommendations regarding health hazards associated with the work at the Dayton Armory.

The building was finish in 1986. The facility houses the Det. 1 HOW BTTRY 1/278th ACR. The armory is used by the troops of the Det. 1 HOW BTTRY 1/278th ACR for their monthly weekend drills.

The Det. 1 HOW BTTRY 1/278th ACR was deployed on June 2004 and was still overseas at the time of the survey. There was one personnel working at the facility. Retired SGM Jackie Reavely is in charged of running the affairs of the armory while the unit is away. He will be at this position until the troops return and a new AGR is in charge. The employee is assigned to perform administrative duties Monday-Friday 8:00am-4:30pm. The facility houses administrative areas, a drill hall, a classroom, a supply room, a weapons vault, a library, a kitchen, and an Indoor Firing Range. The kitchen is not used to cook for the troops now or when the troops were home. Personnel reported that the troops traveled to Maryville on drill days and ate there. Personnel reported that there are stained ceiling tiles at the entrance hall, the classroom and the 1SG office. Non-Responsive has not seen water leaking down since he has been at the facility. A person came from Nashville (Facilities Engineer Office) and checked the roof. The only thing ha found were leaves blocking water drainage holes that may have made the water rise. That may have caused water to rise above the flashing between the drill hall wall and the administration offices, resulting in the water leak. (See pictures). The supply room is almost empty. There are only a few pieces of clothing and empty boxes. A schematic drawing of the facility can be found in Attachment 5.

The facility was visually examined and personnel consulted to assess potential hazards present. Health Hazard Information Modules were completed. Illumination survey was performed throughout the facility.

2.0 INSTRUMENTATION/CALIBRATION

The following instrumentation was used to obtain light measurements. The instrument used has been calibrated and was operated according to the manufacturer's recommendations:

- SPER SCIENTIFIC Light Meter

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3.0 FINDINGS

Illumination

Illumination levels were recorded in administration offices, classroom, the drill hall and the supply room. Light measurements were below IES guidelines at the Clerk-Administration Office (One light fixture out and two other with two bulbs out each), the Recruiter office (One fixture out and three others with two bulbs out each), and the Supply Room storage (With six fixtures out). The 1SG Office had two fixtures with two bulbs out each. The other areas tested were within IES minimum standards. See Light Readings Table at the end of this section.

Administration

Personnel perform administrative duties that consist of reading, handling and generating paper work. Computer use comprises a large portion of the working day, four to five hours per day. This continuous use of computers can in the long run lead to eyestrain and hand/wrist soreness. Personnel reported no health problems associated with the job at this time.

Motor Pool

The motor pool is located behind the building. It is fenced and locked. There are no vehicles in the motor pool. All the vehicles went with the troops when they were deployed. PMCS would normally be performed at the armory on weekend drills when the troops are home. Personnel reported that when major repairs are needed the vehicles are taken to either Maryville or Athens but he is not sure.

Drill Hall

The Drill Hall is located in the center of the building. It was not been used at the time of the survey while the troops are away. The Drill Hall is rented about eight times a year for wrestling matches and parties. Renters bring their own food. There are two exhaust ventilation fans located at one end of the room. They are turned on to provide some cooling on hot days. The fans were working well the day of the survey. The intake and exhaust louvers open when the switch is turned on.

Boiler Room

There is no boiler at the facility. Two natural gas water heaters are located in the utility room. The wrappings at the water heaters and elsewhere in the room are not broken. Personnel reported that the heaters in the facility work well during the winter months.

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Deactivated Indoor Firing Range

There is an Indoor Firing Range (IFR) in the building. Personnel reported that it is closed and not used for anything now. There is sign attached to the outside of the door, dated 10 July 1992, explaining why the firing range can not be used unless it is cleaned and certify safe (lead free). A copy of the memorandum is included in the attachments. The room is empty except for the backstop area. The backstop is still present. There are receptacles filled with bullet remnants on the floor in front of the backstop (See pictures). Six wipe samples were taken from the IFR. Five of the six samples were above the clearance level of 200ug/ft2. See table 1 for results.

Table 1

Sample Number	Sample Location	Results
8	Bullet backstop, right side	191000ug
9	Bullet backstop, left side	114000ug
10	Floor in front of bullet backstop, wood frame floor	4450ug
11	Bottom of receptacle with bullet fragments	475000ug
12	Metal plates covering receptacles	110000ug
13	Wall next to entrance/exit door	57ug
16	Blank	BLR

Weapons Vault

The Dayton Armory has a weapon storage vault located in the Supply Room. The vault was empty the day of the survey. All the weapons and weapons racks went with the unit when it was deployed. There was no dehumidifier present at the time of the survey. A dehumidifier should be installed when the weapons are returned to the vault after the troops return.

A/C System

Two central A/C-Heating units are used to cool the administration offices and the classroom, one unit for the offices and the other for the classroom. The units are located on the roof. The filters were missing in the unit that cools the offices. The other unit had filters. Personnel reported that a contractor was supposed to change the filters. Seven wipe samples were collected from the supply air outlet grills in the offices, the classroom and the filter area. All samples were below the clearance level of 200ug/ft2. Two wipe sample results from the Drill hall are included on Table 2 below. Both were below the clearance level.

Table 2

Sample Number	Sample Location	Results
1	Clerk-Adm. Office (SGM Reavely)	BRL
2	1SG Office	BRL
3	Recruiter Office	43ug
4	Library	BLR
5	Classroom	BLR
6	A/C filter Supply side	BLR
7	A/C filter Fan side	BRL
14	Drill Hall, Top of Water Cooler	78ug
15	Drill Hall, Top of Wood Cabinet	BRL
16	Blank	BLR

Material Safety Data Sheets

There was no MSDS Book found in the armory the day of the survey. Personnel reported that if there was one, it may have been taken by the troops to Iraq. There is a POL shed attached to the building with an outside entrance. There is a no smoking sign outside the door. It has oil stored in two or three of the shelves. Two tires are also stored inside. No Hazardous Materials Inventory was found in the shed.

Light Readings

Light measurements were taken in various locations throughout the facility. The results were compared to guidelines recommended by the Illuminating Engineering Society (IES). The results of the survey are shown in Table 3.

Table 3

Location	Light Reading (footcandles)	IES Recommendation (footcandles)
ADO Clerk Office (Adm.)	12-87 (Avg. 42)	50-100
ADO Supply Room (Storage)	4-28 (Avg. 13)	20
ADO Recruiter Office	15-304 (Avg. 22)	50-100
Classroom	69-120 (Avg. 93)	50-100
Library	46-75 (Avg. 56)	50-100
1SG Office	33-72 (Avg. 53)	50-100
Drill Hall	39-86 (Avg. 63)	30

Light measurements were below IES guidelines at the Clerk-Administration Office (One light fixture out and two other with two bulbs out each), the Recruiter office (One fixture out and three others with two bulbs out each), and the Supply Room storage (With six fixtures out). The 1SG Office had two fixtures with two bulbs out each. The other areas tested were within IES minimum standards. Consideration should be given to provide supplemental lighting in those areas that were below the recommended standard and to replace burned out bulbs. ANSI RP7-1991.

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4. REFERENCES

- Guide to Occupational Exposure 2000, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.
- American National Standards Institute (ANSI), /Illuminating Engineering Society (IES), Industrial Lighting 1991.
- Title 29, Code of Federal Regulations (CFR). 1999, revision, Part 1910. Occupational Safety and Health Standards
- AR 40-5, Preventative Medicine, 15 October 1990.
- AR 385-10, The Army Safety Program, 23 May 1988.
- National Safety Council, Fundamentals of Industrial Hygiene, 4th edition, 1996.
- AR 385-16, National Guard Pamphlet, Safety Guidelines for Converting Indoor Firing Ranges to Other uses.
- TB MED 503, The Army Industrial Hygiene Program, February 1985.
- Department of the Army Pamphlet (DA PAM) 40-501,27 August 1991, Hearing Conservation.
- Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.

Non-Responsive

[redacted]

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RECOMMENDATIONS

- Provide supplemental lighting in those areas where light measurements were below the recommended standard (as represented in Table 3). Replace burned out bulbs in light fixtures at the Supply Room storage area, the Clerk-Adm. Office, the Recruiter Office and the 1SG Office.

- Recommend that when using computers for extended periods of time, personnel should take occasional breaks and change position to minimize the possibility of eyes and/or hands/wrist injury.

- Continue to ensure that when the troops return, weapon maintenance and cleaning is done in a well-ventilated area. Continue to practice good personal hygiene by washing hands after handling and cleaning weapons and ammunition. Ensure that the weapons racks are well cleaned before placing them back in the vault.

- Recommend the installation of filters in the unit which had them missing the day of the survey if it has not been done yet.

- Ensure that when the weapons are returned to the vault, a dehumidifier should be installed and turned on.

- A request should be submitted to the appropriate state office for the possibility of replacing the ceiling tiles that have mold and stains.

- An MSDS book should be present or developed from the MSDS forms when the troops return to the facility. A Hazardous Materials Inventory List should be placed in the POL shed.

- Ensure that personnel and troops have knowledge of the location of the MSDS book. And is enrolled hazardous materials safety training.

- Ensure that the Indoor Firing Range (IFR) continue to be closed and not used at all until such a time that it has been cleaned and certified lead free.

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ATTACHMENTS

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(For use of this form, see HHIM User's Instructions.)

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SECTION 1. DEMOGRAPHIC DATA

a. ARLOC _____ b. INSTALLATION Dayton, TN Armory c. BLDG/RM NUMBER Adm office

d. LOCATION/CODE AA / e. OPERATION/CODE ADO f. DESCRIPTION

In charge of Armory while troops as active, Helps with family support groups Help two people that dull at Armory

g. MACOM/CODE NG 1775 1903 h. SUBMACOM/CODE / i. SUPERVI[redacted]

j. TELEPHONE/AUTOVON NUMBER 423 / k. RAC l. FREQUENCY (H[redacted])

m. NO CIV(S) n. NO MIL o. NO CONTRACTOR(S) p. NO LOC(S) q. NO OTHER

SECTION 2. IH STAFFING DATA

a. LAB HOODS b. VAPOR DEGREASERS c. MAINTENANCE BAYS d. SPRAY BOOTHS

e. OPEN SURFACE TANKS f. VENTILATION UNITS

SECTION 3. SURVEY DATA

a. SURVEY DATE 9-19-05 b. EVALUATOR (INITIALS) [redacted]

c. CONTROLS PRESENT	d. EVALUATION	e. UNIT CODE	f. CONTROLS REQUIRED	g. STATUS
Lighting	12-87; Avg 42	FC	50-100	Inadqt

h. PERSONAL PROTECTIVE EQUIPMENT (R=REQUIRED; A=AVAILABLE)

1. RESPIRATOR	MANUFACTURER	NIOSH TC NO	R/A
DISPOSABLE			
¼ FACE AIR PURIFYING			
½ FACE AIR PURIFYING			/
FULL FACE AIR PURIFYING			/
POWERED AIR PURIFYING			/
AIRLINE			/
SELF-CONTAINED			/
ABRASIVE BLASTING HOOD			/

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	R/A
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	
OIL	/	SAFETY/IMPACT	/	EARPLUGS	/	COVERALLS	/	IMPERMEABLE BOOTS	
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/ HARNESS	/	SAFETY/NONCONDUCTIVE SHOES	
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/								

SECTION 4. HAZARD INVENTORY DATA

a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC or EPC	d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO)
POVDT	Computer work for long periods of time	3	

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 300 of 2531

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Analytical Environmental Services, Inc.

Date: 9/29/2005

TOTAL LEAD IN WIPE SAMPLES
N7082

CLIENT: Non-Responsive
Project: Dayton, TN Armory
Delivery Order:
PO No:

Lab Order: 0509B13
Date Received: 9/22/2005 9:35 AM
Matrix: Wipe

Laboratory ID	Client Sample ID	Results	Units	Report Limit.	DF	Date Collected	Date Analyzed	Analyst
0509B13-001A	1	BRL	µg, Total	20	1	9/19/2005	9/27/2005	VA
0509B13-002A	2	BRL	µg, Total	20	1	9/19/2005	9/27/2005	VA
0509B13-003A	3	43	µg, Total	20	1	9/19/2005	9/27/2005	VA
0509B13-004A	4	BRL	µg, Total	20	1	9/19/2005	9/27/2005	VA
0509B13-005A	5	BRL	µg, Total	20	1	9/19/2005	9/27/2005	VA
0509B13-006A	6	BRL	µg, Total	20	1	9/19/2005	9/27/2005	VA
0509B13-007A	7	BRL	µg, Total	20	1	9/19/2005	9/27/2005	VA
0509B13-008A	14	78	µg, Total	20	1	9/19/2005	9/28/2005	VA
0509B13-009A	15	BRL	µg, Total	20	1	9/19/2005	9/27/2005	VA
0509B13-010A	8	191000	µg, Total	2000	100	9/19/2005	9/27/2005	VA
0509B13-011A	9	114000	µg, Total	2000	100	9/19/2005	9/27/2005	VA
0509B13-012A	10	4450	µg, Total	85	4.23	9/19/2005	9/28/2005	VA
0509B13-013A	11	475000	µg, Total	6940	347	9/19/2005	9/27/2005	VA
0509B13-014A	12	110000	µg, Total	2000	100	9/19/2005	9/27/2005	VA
0509B13-015A	13	57	µg, Total	20	1	9/19/2005	9/27/2005	VA
0509B13-016A	16	BRL	µg, Total	20	1	9/19/2005	9/27/2005	VA

Qualifiers: BRL - Not Detected at the Reporting Limit DF - Dilution Factor

Results are blank corrected where applicable

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FOIA Requested Record #J-15-0085 (TN)
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Page 301 of 2531

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DEPARTMENT OF THE ARMY
HEADQUARTERS, TENNESSEE ARMY NATIONAL GUARD (STARC)
HOUSTON BARRACKS, 3041 SIDCO DRIVE
NASHVILLE, TENNESSEE 37204-1502

AGTN-SAHO (385) 10 JULY 1992

MEMORANDUM FOR COMMANDER, HEADQUARTERS, SERVICE BATTERY, 1-181st FA BN, 2039 MANUFACTURES ROAD, DAYTON TENNESSEE 37321-1124

SUBJECT: Conversion of Indoor Range

1. Your request for conversion of your indoor range has been approved by DPO&T and DFE. Please see enclosure.

2. Until such time as the indoor range has been cleaned (IAW NGR 385-15) and certified safe (lead free), you are not authorized to utilize it, for any purpose.

3. Mike Ferrell, DCM is the point of contact for all work orders. I suggest you give him a call concerning your work order to get your indoor range cleaned.

4. If I can be of assistance please contact me at [redacted] Non-Responsive

FOR THE ADJUTANT GENERAL:

[redacted] Non-Responsive

ENCL
as

CF:
DPO&T
DFE
DCM
COMMANDER, 1-181st FA BN

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DAYTON, TN ARMORY

DRILL HALL

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**STAINED CEILING TILE,
ENTRANCE HALL**

**STAINED CEILING TILES,
CLASSROOM**

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IFR, FRONT VIEW

IFR, REAR VIEW

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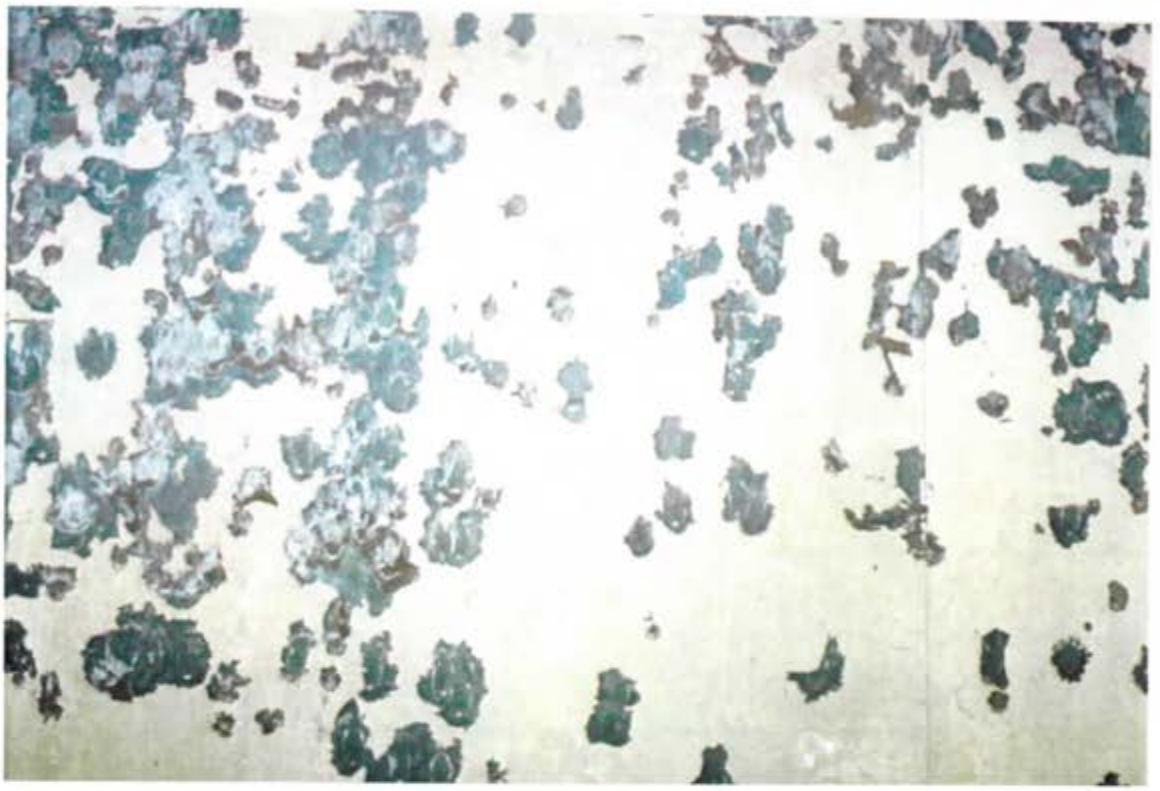

IFR, BACKSTOP SAMPLE AREA

IFR, FLOOR IN FRONT OF BACKSTOP SAMPLE AREA

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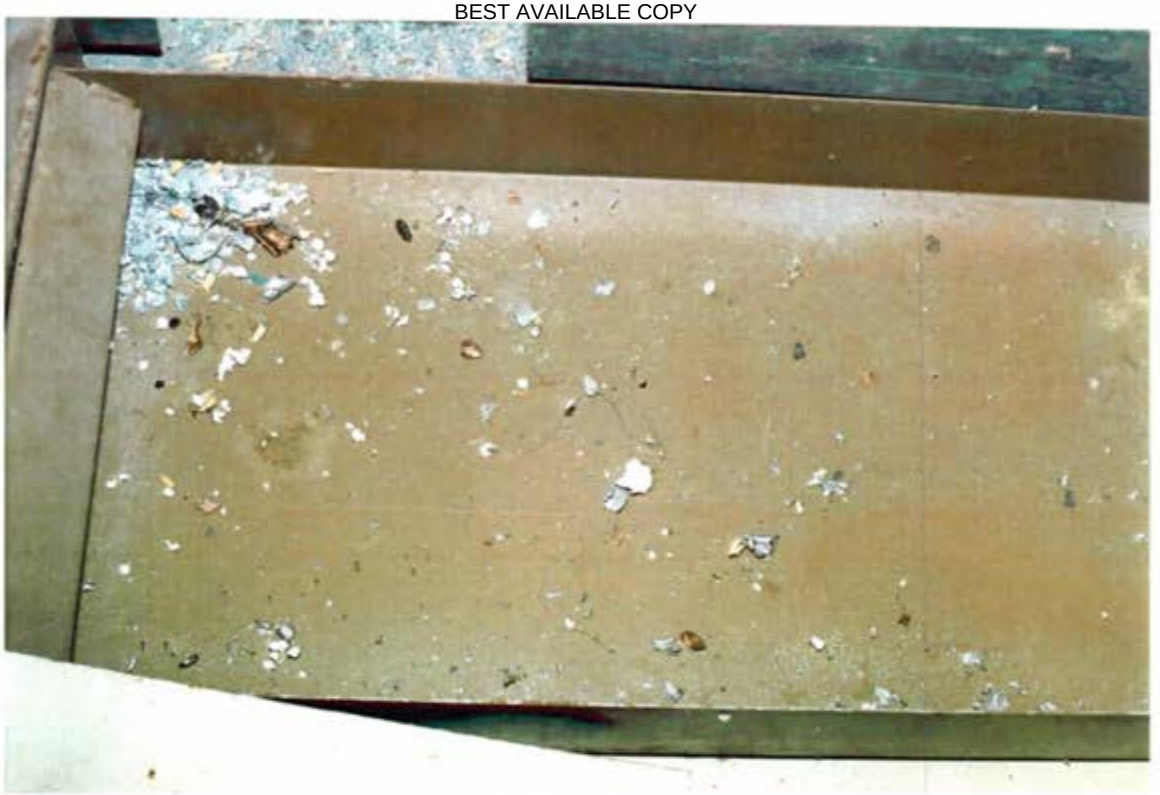

IFR, RECEPTACLE IN FRONT OF BACKSTOP SAMPLE AREA

IFR, METAL COVER IN FRONT OF BACKSTOP SAMPLE AREA

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ROOF DRAINAGE

ROOF, FLASHING BETWEEN D.H. WALL AND ADM. OFFICES

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WATER HEATERS

A/C-HEATING UNIT

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A/C-HEATING UNIT WITH FILTERS

A/C-Heating Unit, With Missing Filters

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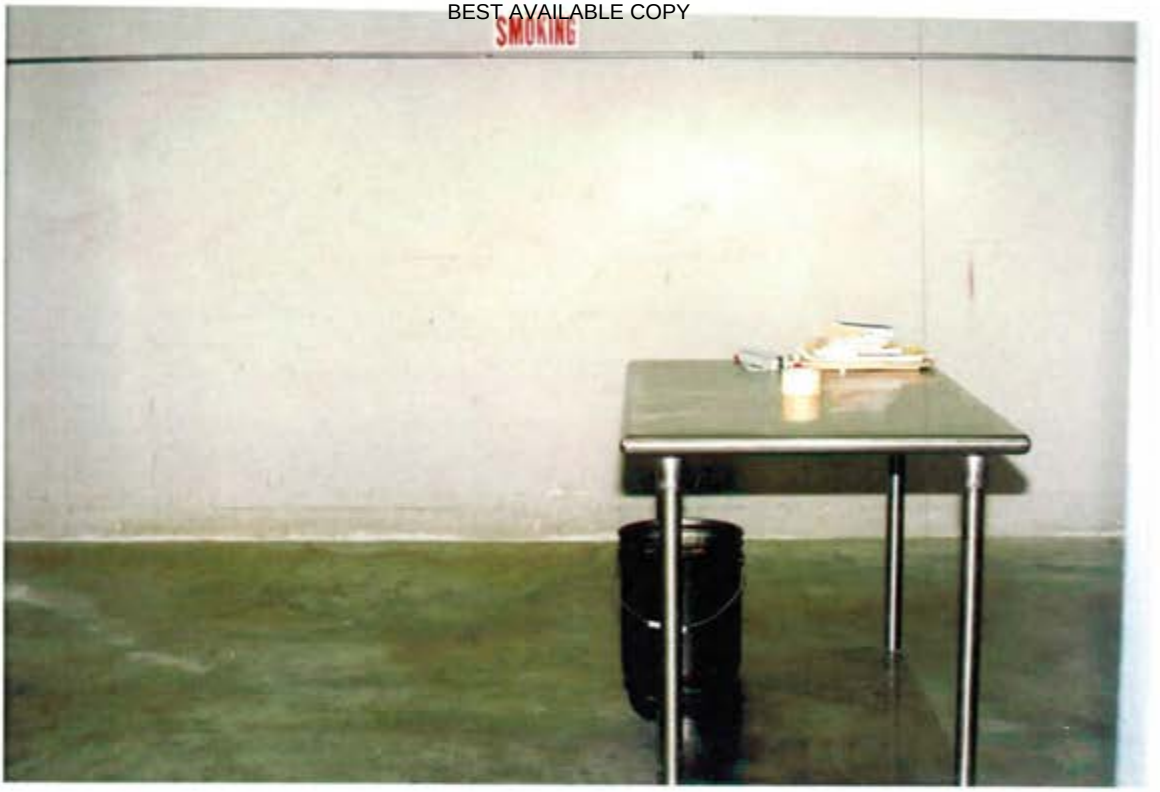

EMPTY WEAPONS VAULT

SUPPLY ROOM, LIGHT FIXTURES OUT

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POL SHED

POL SHED, INSIDE

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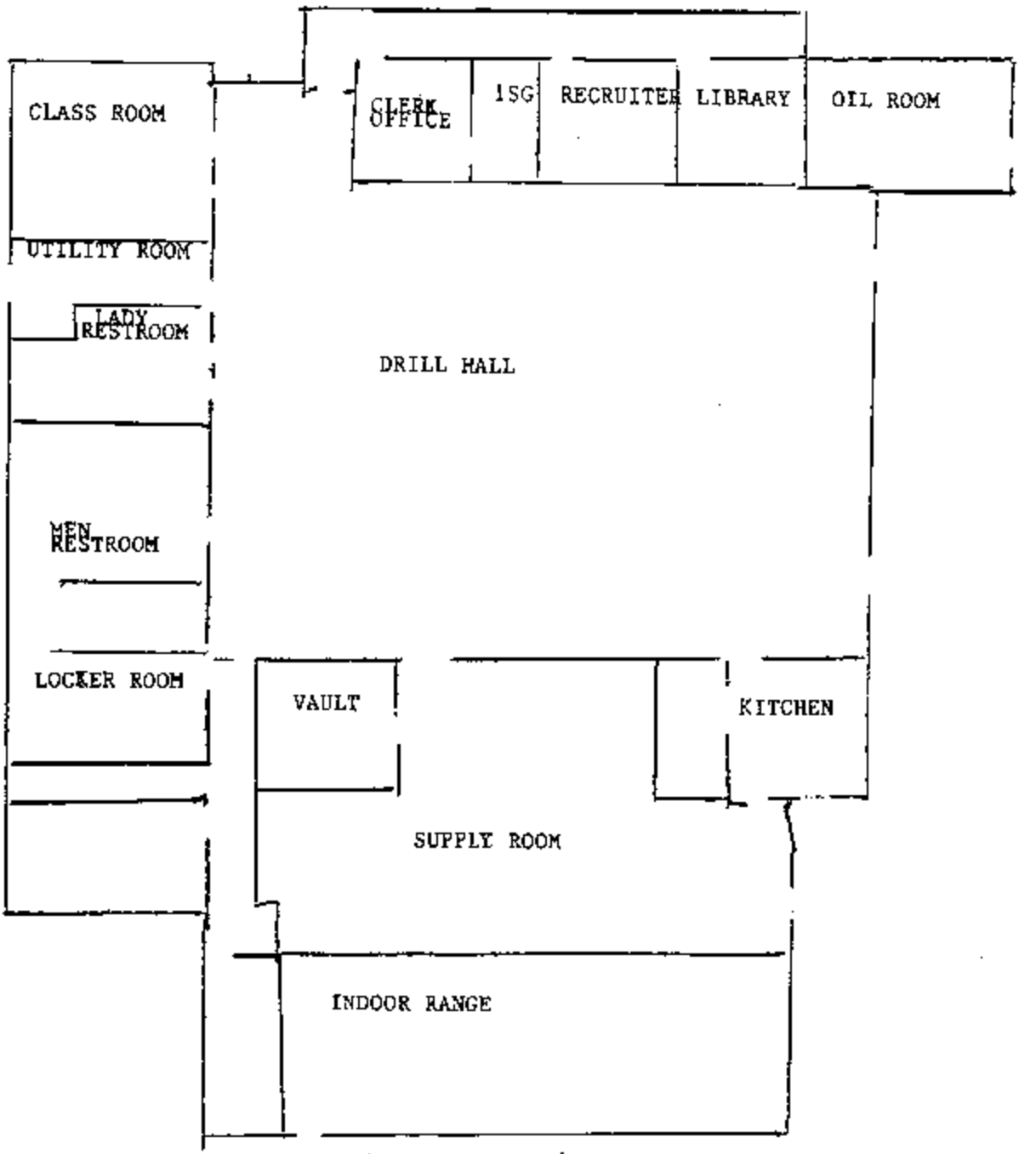
Roof



Dayton, TN Armory

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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-ARS-IHSE (40-5f)

April 6, 2005

MEMORANDUM FOR: The Adjutant General of Texas, ATTN Non-Responsive State Occupational Health Office, P. O. BOX 5218, Austin, TX 78763-5218.

SUBJECT: Transmittal of Industrial Hygiene Bulk Sampling Results, Denison Armory, Denton Armory, Decatur Armory, Weatherford Armory, Stephenville Armory, Mineral Wells Armory, TX.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, 30 August 1986, Medical Service, Preventive Medicine.

c. National Guard Regulation (NGR) 385-10, 1988, Army National Guard Safety and Occupational Health Program.

d. AR 11-34, The Army Respiratory Protection Program, 15 February 1990.

e. TB MED 502, Occupational and Environmental Health Respiratory Protection Program, February 1982.

f. DA PAM 40-501, 30 October 2000, The Army Industrial Hygiene Program. (Updates TB MED 503, 1 February 1985, The Army Industrial Hygiene Program).

g. DA PAM 40-501, 27 August 1991, Hearing Conservation (Updates TB MED 501, 15 March 1980, Hearing Conservation).

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2003, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

k. Title 29, Code of Federal Regulations (CFR), 2003 rev., part 1910, Occupational Safety and Health Standards.

2. General. The sample results from samples taken by SGT. Louis Scott are enclosed.

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NGB-ARS-IHSE (40-5f) April 6, 2005

SUBJECT: Transmittal of Industrial Hygiene Bulk Sampling Results, Denison Armory, Denton Armory, Decatur Armory, Weatherford Armory, Stephenville Armory, Mineral Wells Armory, TX.

3. Calculate and tabulate the results in terms of ug/ft^2 for lead samples and material content for the asbestos samples. Also ensure in the future that a chain of custody form is generatred for each sample type per location per day.

4. Recommendations.

a. . Continue to monitor the operation during the yearly HHIM update of the facility.

b. Provide results to the State Asbestos Manager and/or State Facility Manager as required.

c. Provide notification to workers as required.

5. If additional information is needed about the industrial hygiene survey or lead wipe sample results, please

Non-Responsive

[redacted]

CF: NGB-IH

ENCL.
as

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DATA CHEM LABORATORIES, INC.

Submitted To: Non-Responsive

510 Plaza Dr., Ste. 1530
College Park, GA 30349

Reference Data:	**Lead**
Client Sample No.:	DSN33
P.O. No.:	W912JM-04-A-0007
Sample Location:	Project Number: 11-04-75020, Denison, TX
Sample Type:	Paint Chip
Method Reference:	3050B/6010B
DCL Set ID No.:	04-S-6276
DCL Sample ID No.:	04-35323
Sample Receipt Date:	12/6/2004
Preparation Date:	12/8/2004
Analysis Date:	12/9/2004

The samples were prepared in accordance with EPA method 3050B. Sample condition was acceptable upon receipt except where noted. The samples were then analyzed in accordance with EPA method 6010B using a Jarrell Ash Trace ICP.

The results are provided in the enclosed data table. Results relate only to the items tested and are not blank corrected unless indicated in the data table.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Non-Responsive

CINCINNATI, OHIO 45242-3706
513 733-5336, FAX 513 733-5347

NOVATO, CALIFORNIA 94945
800 280-8071, FAX 415 893-9469

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Page 316 of 2531

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Results
Lead

Client #	DCL #	mg/Kg (ppm)	% by weight
DSN01	04-35323	1600.	0.16
	Prep Blank	ND	
% Recovery	LCS	93.	
% Recovery	35230MS	96.	
% Recovery	35230MSD	96.	
RPL		25.	0.0025

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.
MS/MSD = matrix spike/matrix spike duplicate.

Non-Responsive

[redacted]

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04A52-6276

BULK SAMPLE DATA

For use of this form see USAEHA TG 141; the proponent is HSHB-LO.

Return Address (complete address including Zip Code)	Point of Contact (name/AUTOVON)
NATIONAL GUARD BUREAU REGION SOUTH IH OFFICE 510 PLAZA DRIVE, SUITE 1530 COLLEGE PARK, GA 30349	

Sampled Installation	Project Number	ARLOC
DENISON, TX	11-04-75020	

Samples Collected By	Date Collected	Date Shipped
Non-Responsive	16 NOV 04	

Description of Operation	Location (BLDG/AREA)
ARMORY W/IFR (INSIDE)	

Associated Complaints (be specific)

Associated Air Samples ☐ Yes ☒ No — If yes, list sample numbers

Label Information

Trade Name	NSN	Manufacturer

Address	MSDS Attached
	☐ Yes ☐ No

Analysis Desired: LEAD

Lab Use Only	Sample No.	Constituents	Results	Remarks
35303	DSN 01	LEFT Back Bottom Wall		
35304	DSN 02	LEFT Middle mid. WALL		
35305	DSN 03	L UPPER FRONT WALL		
35306	DSN 04	UPPER LEFT BULLET STOP		
35307	DSN 05	mid CENTER BULLET STOP		
35308	DSN 06	LOWER RT. BULLET STOP		
35309	DSN 07	RT UPPER FRONT WALL		

Comments to Lab:

Lab Use Only

Analyst (initials)	Reviewed By (initials)	Date Received	Date Reported

Procedures Performed	Comments:

AEHA Form 8-R 1 Oct 94 Replaces AEHA Form 8-R, Oct 88 which is obsolete

Non-Responsive

Posted to NGB FOIA Reading Room
May, 2018

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BEST AVAILABLE COPY 04-AS2-6876

BULK SAMPLE DATA

For use of this form see USAEHA TG 141; the proponent is HSHB-LO.

Return Address (complete address including Zip Code)	Point of Contact (name/AUTOVON)
NATIONAL GUARD BUREAU REGION SOUTH IH OFFICE 510 PLAZA DRIVE, SUITE 1530 COLLEGE PARK, GA 30349	

Sampled Installation	Project Number	ARLOC
DENISON, TX	11-04-75020	

Samples Collected By	Date Collected	Date Shipped
Non-Responsive [redacted]	16 NOV 04	

Description of Operation	Location (BLDG/AREA)
ARMORY W/IFR (INSIDE)	

Associated Complaints (be specific)

Associated Air Samples ☐ Yes ☒ No — If yes, list sample numbers

Label Information

Trade Name	NSN	Manufacturer

Address	MSDS Attached
	☐ Yes ☐ No

Analysis Desired

LEAD

Lab Use Only	Sample No.	Constituents	Results	Remarks
35310	DSN 08	RT Middle Mid Wall		
35311	DSN 09	RT Back Bottom Wall		
35312	DSN 10	REAR Bottom LEFT WALL		
35313	DSN 11	REAR Middle Mid WALL		
35314	DSN 12	REAR UPPER RT WALL		
35315	DSN 13	FLOOR, RT FRONT		
35316	DSN 14	FLOOR Middle Mid		

Comments to Lab:

Lab Use Only

Analyst (initials)	Reviewed By (initials)	Date Received	Date Reported

Procedures Performed	Comments:

AEHA Form 8-R 1 Oct 84 Replaces AEHA Form 8-R 1 Oct 80 which is obsolete.

Posted to NGB FOIA Reading Room
May, 2018

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Non-Responsive [redacted]

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04-ASB-6276

BULK SAMPLE DATA

For use of this form see USAEHA TG 141; the proponent is HSHB-LO.

Return Address (complete address including Zip Code)

NATIONAL GUARD BUREAU REGION SOUTH IH OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

Point of Contact (name/AUTOVON)

Sampled Installation: DENISON, TX

Project Number: 1-04-75020

ARLOC

Sam[redacted] Non-Responsive

Date Collected: 6NOV04

Date Shipped

Des[redacted] ARMORY w/ IFR (INSIDE)

Location (BLDG/AREA)

Associated Complaints (be specific)

Associated Air Samples ☐ Yes ☒ No

If yes, list sample numbers

Label Information

Trade Name

NSN

Manufacturer

Address

MSDS Attached ☐ Yes ☐ No

Analysis Desired: LEAD

Lab Use Only	Sample No.	Constituents	Results	Remarks
35317	DSN 15	Floor Left Rear		
35318	DSN 16	Ceiling Left Front		
35319	DSN 17	Ceiling Middle Mid		
35320	DSN 18	Ceiling RT Rear		
35321	DSN 19	Inside IFR (Blank		
35322	DSN 20	Middle POS Fire Lane		
35323	DSN 33	Class Room Paint Chips (outside IFR)		

Comments to Lab:

Lab Use Only

Invst (initials) | Reviewed By (initials) | Date Received | Date Reported

Tests Performed | Comments:

Form 8-R 1 Oct 84

Replaces AEHA Form 8-1 Oct 84

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
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BULK SAMPLE DATA

For use of this form see USAEHA TG 141; the proponent is HSHB-LO.

Return Address (complete address including Zip Code)	Point of Contact (name/AUTOVON)
NATIONAL GUARD BUREAU REGION SOUTH IH OFFICE 510 PLAZA DRIVE, SUITE 1530 COLLEGE PARK, GA 30349	

Sampled Installation	Project Number	ARLOC
DENISON, TX	11-04-75020	

Samples Collected By	Date Collected	Date Shipped
Non-Responsive [redacted]	16NOV04	

	Location (BLDG/AREA)
ARMORY W/IFR	

Associated Complaints (be specific)

Associated Air Samples — If yes, list sample numbers

☐ Yes ☒ No

Label Information

Trade Name	NSN	Manufacturer

Address	MSDS Attached
	☐ Yes ☐ No

Analysis Desired

LEAD

Lab Use Only	Sample No.	Constituents	Results	Remarks
35324	DSN 21	Kitchen Serving Counter		
35325	DSN 22	Kitchen, Top ~~Bar~~ Refrig.		
35326	DSN 23	Classroom, Desk		
35327	DSN 24	Recruiter, Supply		
35328	DSN 25	Recruiter Return		
35329	DSN 26	Drill Hall Floor, Supply		
35330	DSN 27	Drill Hall Floor, Garage Door		

Comments to Lab:

Lab Use Only

Analyst (initials)	Reviewed By (initials)	Date Received	Date Reported

Procedures Performed	Comments:

AEHA Form 8-R Oct 84 Replaces AEHA Form 8 Dec 81 Obsolete.

Non-Responsive [redacted]

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May, 2018

Description of Operation

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04-ASD-6276

BULK SAMPLE DATA

For use of this form see USAEHA TG 141; the proponent is HSHB-LO.

Return Address (complete address including Zip Code)	Point of Contact (name/AUTOVCN)
NATIONAL GUARD BUREAU REGION SOUTH IH OFFICE 510 PLAZA DRIVE, SUITE 1530 COLLEGE PARK, GA 30349	

Sampled Installation	Project Number	ARLOC
DENISON, TX	11-04-75020	

Samples Collected By	Date Collected	Date Shipped
Non-Responsive [redacted]	16NOV04	

	Location (BLDG/AREA)
ARMORY w/IFR	

Associated Complaints (be specific)

Associated Air Samples ☐ Yes ☒ No — If yes, list sample numbers

Label Information

Trade Name	NSN	Manufacturer

Address	MSDS Attached
	☐ Yes ☐ No

Analysis Desired: LEAD

Lab Use Only	Sample No.	Constituents	Results	Remarks
35331	DSN 28	Drill Hall Floor MIDDLE		
35332	DSN 29	File TOP Cabinet Supply Room		
35333	DSN 30	Soda Machine		
35334	DSN 36	Denison (Blank)		
	DSN			
	DSN			
	DSN			

Comments to Lab:

Lab Use Only

Analyst (initials)	Reviewed By (initials)	Date Received	Date Reported

Procedures Performed	Comments:

AEHA Form 8-R, Oct 94

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Replaces AEHA Form 8-R, 1 Oct 90 which is obsolete.

Non-Responsive [redacted]

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04-A52-6276

BULK SAMPLE DATA

For use of this form see USAEHA TG 141; the proponent is HSHB-LO.

Return Address *(complete address including Zip Code)*

NATIONAL GUARD BUREAU REGION SOUTH IH OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

Point of Contact *(name/AUTOVOI)*

Sampled Installation	Project Number	ARLOC
DENISON, TX	11-04-75020	

Samples Collected By	Date Collected	Date Shipped
Non-Responsive [redacted]	16NOV04	

	Location *(BLDG/AREA)*
ARMORY W/IFR	

Associated Complaints *(be specific)*

Associated Air Samples If yes, list sample numbers

☐ Yes ☐ No

Label Information

Trade Name	NSN	Manufacturer

Address	MSDS Attached
	☐ Yes ☐ No

Analysis Desired

ASBESTOS - PLM

Lab Use Only	Sample No.	Constituents	Results	Remarks
35335	DSN 31	12X12 (IFR) WALL TILE LEFT		
35336	DSN 32	12X12 (IFR) WALL TILE RT		
35337	DSN 34	BASE BOARD MASTIC CLASSROOM		
35338	DSN 35	12X12 FLOOR TILE CLASSROOM		
	DSN			
	DSN			
	DSN			

Comments to Lab:

Lab Use Only

Analyst *(initials)*	Reviewed By *(initials)*	Date Received	Date Reported

Procedures Performed	Comments:

AEHA Form 8-R 1 Oct 84 Replaces AEHA Form 8-R 1 Oct 84 which is obsolete.

Non-Responsive [redacted]

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May, 2018

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DATA CHEM LABORATORIES, INC.

SUBMITTED TO:

Non-Responsive

510 Plaza Dr., Ste. 1530
College Park, GA 30349

REFERENCE DATA:

Client Sample No.:	DSN31 through DSN35
P.O. No.:	W912JM-04-A-0007
Sample Location:	Project Number: 11-04-75020, Denison, TX
Sample Type:	Bulk
Method Reference:	EPA-600/R-93/116
DCL Set ID No.:	04-A-6276
DCL Sample ID No.:	04-35335 through 04-35338
Sample Receipt Date:	12/6/04
Analysis Date:	12/7/04

We certify that the following samples were prepared and analyzed by Polarized Light Microscopy for asbestos and other fibrous constituents using EPA-600/R-93/116. The samples were acceptable upon receipt except where noted. The samples were examined under a stereomicroscope in a laboratory fume hood for general composition and phase separation. If needed, portions of the sample were removed and ground with a mortar and pestle before being mounted on a glass microscope slide. Mountings of representative portions of the material are prepared in one or more appropriate refractive index liquids (1.550, 1.605, 1.680) and examined by Polarized Light Microscopy*. Estimates of concentration are made on an area basis. The results of the analysis apply only to the materials analyzed and are summarized on the attached bulk asbestos analysis data sheets. DataChem Laboratories will dispose of all bulk samples after 60 days unless other arrangements are made.

Non-Responsive

*Floor tiles, decorative paints, joint compounds, and cement materials require additional treatment in order to evaluate the concentration of small asbestos fibers bound in the material. Some samples may contain fibers that are not visible by PLM and can only be detected by electron microscopy techniques. Floor tiles are analyzed as homogeneous materials if insufficient mastic is present or if phases have been cross contaminated.

DataChem Laboratories NVLAP Lab ID: 101917. Laboratory accreditation by the National Institute of Standards and Technology does not in any way constitute approval or endorsement by NIST.

CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3706
513 733-5336, FAX 513 733-5347

WEST COAST OFFICE
11 SANTA YORMA COURT
NOVATO, CALIFORNIA 94945
800 280-8071, FAX 415 893-9469

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12/7/04

DataChem Laboratories
Polarized Light Microscopy
Asbestos Analytical Report

Client: NGB South
Location: Project Number: 11-04-75020, Denison, TX
Set ID: 04-A-6276

Client Sample ID:	DSN31	DSN32	DSN34	DSN35	DSN35
DCL Sample ID:	04-35335	04-35336	04-35337	04-35338A	04-35338B
Macroscopic Examination					
Accepted/Rejected:	Accepted	Accepted	Accepted	Accepted	Accepted
Homogeneity:	Homog.	Homog.	Homog.	Layered	Layered
Color:	Grey	Tan	Tan	Grey	Black
Texture:	Fibrous	Fibrous	Crumbly	Compact	Resinous
Description:	Ceiling Tile	Ceiling Tile	Mastic	Tile	Mastic
Analysis:	PLM	PLM	PLM	PLM	PLM
Asbestiform Minerals					
% Chrysotile:					>1 ≤ 3
% Amosite:					
% Crocidolite:					
% Tremolite - Actinolite:					
% Anthophyllite:					
% Total Asbestos:	**ND**	**ND**	**ND**	**ND**	**>1 ≤ 3**
Other Materials					
% Cellulose:	>60 ≤ 70	>60 ≤ 70			>1 ≤ 3
% Fiberglass:					
% Other Fibers:					
% Resin/Binder:			>50 ≤ 60	>10 ≤ 20	>70 ≤ 80
% Non Fibrous:	>20 ≤ 30	>20 ≤ 30	>30 ≤ 40	>70 ≤ 80	>10 ≤ 20

ND = None Detected Trace = <1%

Special Prep Procedures: None.

*Notes: P. O. #: W912JM-04-A-0007.

Non-Responsive

All values are in area percent by visual estimate. The Federal Register Vol. 55 No. 224 Tuesday Nov. 20 1990 Rules and Regulations states "... If the asbestos content is estimated to be less than 10% by a method other than point counting,... (the analysis) be repeated using the point counting technique by PLM." Any of the above samples can be reanalyzed by point counting at the client's request.
Wherever possible, separate phases are analyzed and reported individually.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
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Page 325 of 2531

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04-A52-6276

BULK SAMPLE DATA

For use of this form see USAEHA TG 141; the proponent is HSHB-LO.

Return Address (complete address including Zip Code)

NATIONAL GUARD BUREAU REGION SOUTH IH OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

Point of Contact (name/AUTOVON)

Sampled Installation: DENISON, TX

Project Number: 11-04-75020

ARLOC:

Samples Collected: Non-Responsive [redacted]

Date Collected: 16 NOV 04

Date Shipped:

Location: ARMORY W/IFR

Location (BLDG/AREA):

Associated Complaints (be specific):

Associated Air Samples: ☐ Yes ☐ No

If yes, list sample numbers:

Label Information

Trade Name	NSN	Manufacturer

Address:

MSDS Attached: ☐ Yes ☐ No

Analysis Desired: ASBESTOS - PLM

Lab Use Only	Sample No.	Constituents	Results	Remarks
35335	DSN 31	12X12 (IFR) WALL TILE LEFT	ND	
35336	DSN 32	12X12 (IFR) WALL TILE RT	ND	
35337	DSN 34	BASE BOARD MASTIC CLASSROOM	ND	
35338	DSN 35	12X12 FLOOR TILE CLASSROOM	TILE: ND MASTIC: >1≤3% chrysotile	
	DSN			
	DSN			
	DSN			

Comments to Lab:

Lab Use Only

Analyst (initials)	Reviewed By (initials)	Date Received	Date Reported
SS	RK	12/6/04	12/9/04

Procedures Performed: PLM EPA/600/R-93/116 asbestos analysis

Comments:

AEHA Form 8-R Oct 94

Replaces AEHA Form 8-R, Oct 90, which is obsolete.

Non-Responsive [redacted]

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May, 2018

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04-A52-6576

BULK SAMPLE DATA

For use of this form see USAEHA TG 141; the proponent is HSHB-LO.

Return Address (complete address including Zip Code)

NATIONAL GUARD BUREAU REGION SOUTH IH OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

Point of Contact (name/AUTOVON)

Sampled Installation: DENISON TX

Project Number: 11-04-75020

ARLOC

Sa[redacted] Non-Responsive

Date Collected: 16NOV04

Date Shipped

Des[redacted] W/IFR

Location (BLDG/AREA)

Associated Complaints (be specific)

Associated Air Samples

☐ Yes ☒ No

If yes, list sample numbers

Label Information

Trade Name

NSN

Manufacturer

Address

MSDS Attached

☐ Yes ☐ No

Analysis Desired

LEAD

Lab Use Only	Sample No.	Constituents	Results	Remarks
5324	DSN 21	Kitchen Serving Counter		
5325	DSN 22	Kitchen, Top ~~Bar~~ Refrig.		
5326	DSN 23	Classroom, Desk		
327	DSN 24	Recruiter, Supply		
328	DSN 25	Recruiter Return		
29	DSN 26	Drill Hall Floor, Supply		
30	DSN 27	Drill Hall Floor, Garage Door		

Comments to Lab:

Lab Use Only

VST (initials) | Reviewed By (initials) | Date Received | Date Reported

Tests Performed | Comments:

Form 8-R Oct 94

Replaces AEHA Form

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04-A52-6276

BULK SAMPLE DATA

For use of this form see: USAEHA TG 141; the proponent is HSHB-LO.

Return Address (complete address including Zip Code)	Point of Contact (name/AUTOVON)
NATIONAL GUARD BUREAU REGION SOUTH IH OFFICE 510 PLAZA DRIVE, SUITE 1530 COLLEGE PARK, GA 30349	

Sampled Installation	Project Number	ARLOC
DENISON, TX	11-04-75020	

Samples Collected By	Date Collected	Date Shipped
Non-Responsive	16 NOV 04	

Description of Operation	Location (BLDG/AREA)
ARMORY W/IFR (INSIDE)	

Associated Complaints (be specific)

Associated Air Samples — If yes, list sample numbers

☐ Yes ☒ No

Label Information

Trade Name	NSN	Manufacturer

Address	MSDS Attached
	☐ Yes ☐ No

Analysis Desired

LEAD

Lab Use Only	Sample No.	Constituents	Results	Remarks
35303	DSN 01	LEFT Back Bottom WALL		
35304	DSN 02	LEFT Middle mid. WALL		
35305	DSN 03	L UPPER FRONT WALL		
35306	DSN 04	UPPER LEFT Bullet Stop		
35307	DSN 05	mid CENTER Bullet Stop		
35308	DSN 06	LOWER RT. Bullet Stop		
35309	DSN 07	RT UPPER FRONT WALL		

Comments to Lab:

Lab Use Only

Analyst (initials)	Reviewed By (initials)	Date Received	Date Reported

Procedures Performed	Comments:

AEHA Form 8-R 1 Oct 84 Replaces AEHA Form 8 1 Oct 84 and is obsolete.

Non-Responsive

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May, 2018

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04-ASD-6276

BULK SAMPLE DATA

For use of this form see USAEHA TG 141; the proponent is HSHB-LO.

Return Address (complete address including Zip Code)	Point of Contact (name/AUTOVCI)
NATIONAL GUARD BUREAU REGION SOUTH IH OFFICE 510 PLAZA DRIVE, SUITE 1530 COLLEGE PARK, GA 30349	

Sampled Installation	Project Number	ARLOC
DENISON, TX	11-04-75020	

Samples Collected By	Date Collected	Date Shipped
Non-Responsive [redacted]	16NOV04	

D[redacted]	Location (BLDG/AREA)
ARMORY w/ IFR (INSIDE)	

Associated Complaints (be specific)

Associated Air Samples — If yes, list sample numbers

☐ Yes ☒ No

Label Information

Trade Name	NSN	Manufacturer

Address	MSDS Attached
	☐ Yes ☐ No

Analysis Desired

LEAD

Lab Use Only	Sample No.	Constituents	Results	Remarks
35317	DSN 15	Floor Left Rear		
35318	DSN 16	Ceiling Left Front		
35319	DSN 17	Ceiling Middle Mid		
35320	DSN 18	Ceiling Rt Rear		
35321	DSN 19	Inside IFR (Blank		
35322	DSN 20	Middle POS Fire Lane		
35323	DSN 33	Class Room, Paint Chips (outside IFR)		

Comments to Lab:

Lab Use Only

Analyst (initials)	Reviewed By (initials)	Date Received	Date Reported

Procedures Performed	Comments:

AEHA Form 8-R 1 Oct 84 Replaces AEHA Form 8-R 1 Oct 80 which is obsolete.

Non-Responsive [redacted]

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Description of Operation

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04-ASJ-6276

BULK SAMPLE DATA

For use of this form see USAEHA TG 141; the proponent is HSHB-LO.

Return Address (complete address including Zip Code)	Point of Contact (name/AUTOVON)
NATIONAL GUARD BUREAU REGION SOUTH IH OFFICE 510 PLAZA DRIVE, SUITE 1530 COLLEGE PARK, GA 30349	

Sampled Installation	Project Number	ARLOC
DENISON, TX	11-04-75020	

Sampled Subject	Date Collected	Date Shipped
Non-Responsive [redacted]	16NOV04	

Description of Operation	Location (BLDG/AREA)
ARMORY w/IFR	

Associated Complaints (be specific)

Associated Air Samples ☐ Yes ☒ No — If yes, list sample numbers

Label Information

Trade Name	MSN	Manufacturer

Address	MSDS Attached
	☐ Yes ☐ No

Analysis Desired: LEAD

Lab Use Only	Sample No.	Constituents	Results	Remarks
35531	DSN 28	Drill Hall Floor MIDDLE		
35332	DSN 29	File Top Cabinet Supply Room		
35333	DSN 30	Soda Machine		
35334	DSN 36	Denison (Blank)		
	DSN			
	DSN			
	DSN			

Comments to Lab:

Lab Use Only

Analyst (initials)	Reviewed By (initials)	Date Received	Date Reported

Procedures Performed	Comments:

AEHA Form 8-6 Oct 94

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May, 2018

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Replaces AEHA Form 8, 1 Oct 88 which is obsolete.

FOI Non-Responsive [redacted]

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DATA CHEM LABORATORIES, INC.

Submitted To: Non-Responsive
NGB South
510 Plaza Dr., Ste. 1530
College Park, GA 30349

Reference Data:	**Lead**
Client Sample No.:	DSN01 through DSN36
P.O. No.:	W912JM-04-A-0007
Sample Location:	Project Number: 11-04-75020, Denison, TX
Sample Type:	Ghost Wipe
Method Reference:	3050B/6010B
DCL Set ID No.:	04-S-6276
DCL Sample ID No.:	04-35303 through 04-35334
Sample Receipt Date:	12/6/2004
Preparation Date:	12/7,8/2004
Analysis Date:	12/9,10/2004

The samples were prepared in accordance with EPA method 3050B. Sample condition was acceptable upon receipt except where noted. The samples were then analyzed in accordance with EPA method 6010B using a Jarrell Ash Trace (ICP) purged spectrometer.

The results are provided in the enclosed data table. Results relate only to the items tested and are not blank corrected unless indicated in the data table.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Non-Responsive

CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3706
513 733-5336, FAX 513 733-5347

WEST COAST OFFICE
11 SANTA YORMA COURT
NOVATO, CALIFORNIA 94945
800 280-8071, FAX 415 893-9469

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Results
Lead

Client #	DCL #	µg/Wipe
DSN01	04-35303	430.
DSN02	04-35304	1000.
DSN03	04-35305	1900.
DSN04	04-35306	310000.
DSN05	04-35307	1000000.
DSN06	04-35308	32000.
DSN07	04-35309	660.
DSN08	04-35310	290.
DSN09	04-35311	560.
DSN10	04-35312	1900.
DSN11	04-35313	220.
DSN12	04-35314	4100.
DSN13	04-35315	16000.
DSN14	04-35316	4600.
DSN15	04-35317	3200.
DSN16	04-35318	4200.
DSN17	04-35319	230.
DSN18	04-35320	260.
DSN19	04-35321	ND
DSN20	04-35322	3200.
	Prep Blank	ND
% Recovery	LCS 1	83.
% Recovery	LCS 2	90.
RPL		10.

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

[redacted]

Analyst

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Results
Lead

Client #	DCL #	µg/Wipe
DSN21	04-35324	ND
DSN22	04-35325	990.
DSN23	04-35326	ND
DSN24	04-35327	ND
DSN25	04-35328	13.
DSN26	04-35329	ND
DSN27	04-35330	ND
DSN28	04-35331	ND
DSN29	04-35332	12.
DSN30	04-35333	68.
DSN36	04-35334	ND
	Prep Blank	ND
% Recovery	LCS 3	85.
% Recovery	LCS 4	86.
RPL		10.

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

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04-A52-6276

BULK SAMPLE DATA

For use of this form see USAEHA TG 141; the proponent is HSHB-LO.

Return Address (complete address including Zip Code)	Point of Contact (name/AUTOVON)
NATIONAL GUARD BUREAU REGION SOUTH IH OFFICE 510 PLAZA DRIVE 1530 COLLEGE PARK	

Sampled Location	Project Number	ARLOC
Denton, Tx	11-04-75020	
Samples Rec'd By	**Date Collected**	**Date Shipped**
Non-Responsive	16 NOV 04	
Description/Operation		**Location (BLDG/AREA)**
ARMORY W/IFR (INSIDE)		

Associated Complaints (be specific)

Associated Samples — If yes, list sample numbers

☐ Yes ☒ No

Label Information

Trade Name	NSN	Manufacturer

Address	MSDS Attached
	☐ Yes ☐ No

Analysis Desired

LEAD

Lab Use Only	Sample No.	Constituents	Results	Remarks
35303	DSN01	LEFT Back Bottom Wall		
35304	DSN02	LEFT Middle mid. WALL		
35305	DSN03	L UPPER FRONT WALL		
35306	DSN04	UPPER LEFT BULLET STOP		
35307	DSN05	mid CENTER BULLET STOP		
35308	DSN06	LOWER RT. BULLET STOP		
35309	DSN07	RT UPPER FRONT WALL		

Comments to Lab:

Lab Use Only

Analyst (initials)	Reviewed By (initials)	Date Received	Date Reported

Procedures Performed	Comments:

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May, 2018

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Replaces AEHA Form 8, 1 Oct 80 which is obsolete.

Non-Responsive

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BULK SAMPLE DATA

For use of this form see USAEHA TG 141; the proponent is HSHB-LO.

Return Address (complete address including Zip Code)	Point of Contact (name/AUTOVON)
NATIONAL GUARD BUREAU REGION SOUTH IH OFFICE 510 PLAZA DRIVE, SUITE 1530 COLLEGE PARK, GA 30349	

Sampled Installation	Project Number	ARLOC
DENISON, TX	11-04-75020	

Samples Collected By	Date Collected	Date Shipped
Non-Responsive	16 NOV 04	

Description of Operation	Location (BLDG/AREA)
ARMORY W/IFR (INSIDE)	

Associated Complaints (be specific)

Associated Air Samples ☐ Yes ☒ No — If yes, list sample numbers

Label Information

Trade Name	NSN	Manufacturer

Address	MSDS Attached
	☐ Yes ☐ No

Analysis Desired: LEAD

Lab Use Only	Sample No.	Constituents	Results	Remarks
35310	DSN 08	RT Middle Mid Wall		
35311	DSN 09	RT Back Bottom Wall		
35312	DSN 10	REAR Bottom LEFT WALL		
35313	DSN 11	REAR Middle Mid WALL		
35314	DSN 12	REAR UPPER RT WALL		
35315	DSN 13	Floor, RT FRONT		
35316	DSN 14	FLOOR Middle Mid		

Comments to Lab:

Lab Use Only

Analyst (initials)	Reviewed By (initials)	Date Received	Date Reported

Procedures Performed	Comments:

AEHA Form 8-R, Oct 94 — Replaces AEHA Form 8, 1 Oct 90 which is obsolete. FO Non-Responsive

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May, 2018

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04-ASD-6276

BULK SAMPLE DATA

For use of this form see USAEHA TG 141; the proponent is HSHB-LO.

Return Address (complete address including Zip Code)

NATIONAL GUARD BUREAU REGION SOUTH IH OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

Point of Contact (name/AUTOVON)

Sampled Installation	Project Number	ARLOC
DENISON, TX	11-04-75020	

Samples Collected By	Date Collected	Date Shipped
Non-Responsive	16NOV04	

Description of Operation	Location (BLDG/AREA)
ARMORY w/ IFR (INSIDE)	

Associated Complaints (be specific)

Associated Air Samples ☐ Yes ☒ No — If yes, list sample numbers

Label Information

Trade Name	NSN	Manufacturer

Address	MSDS Attached
	☐ Yes ☐ No

Analysis Desired

LEAD

Lab Use Only	Sample No.	Constituents	Results	Remarks
35317	DSN 15	Floor Left Rear		
35318	DSN 16	Ceiling Left Front		
35319	DSN 17	Ceiling middle Mid		
35320	DSN 18	Ceiling RT Rear		
35321	DSN 19	Inside IFR (Blank		
35322	DSN 20	Middle POS Fire Lane		
35323	DSN 33	Class Room, Paint Chips (outside IFR)		

Comments to Lab:

Lab Use Only

Analyst (initials)	Reviewed By (initials)	Date Received	Date Reported

Procedures Performed	Comments:

AEHA Form 6-1 Oct 84 — Replaces AEHA Form 6-1 Oct 80 which is obsolete.

FOI Non-Responsive

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BULK SAMPLE DATA

For use of this form see USAEHA TG 141; the proponent is HSHB-LO.

Return Address (complete address including Zip Code)	Point of Contact (name/AUTOVOX)
NATIONAL GUARD BUREAU REGION SOUTH IH OFFICE 510 PLAZA DRIVE, SUITE 1530 COLLEGE PARK, GA 30349	

Sampled Installation	Project Number	ARLOC
DENISON, TX	11-04-75020	

Samples Collected By	Date Collected	Date Shipped
Non-Responsive [redacted]	16NOV04	

De[redacted]	Location (BLDG/AREA)
ARMORY W/IFR	

Associated Complaints (be specific)

Associated Air Samples — If yes, list sample numbers

☐ Yes ☒ No

Label Information

Trade Name	NSN	Manufacturer

Address	MSDS Attached
	☐ Yes ☐ No

Analysis Desired

LEAD

Lab Use Only	Sample No.	Constituents	Results	Remarks
35324	DSN 21	Kitchen Serving Counter		
35325	DSN 22	Kitchen, Top ~~Bar~~ Refrig.		
35326	DSN 23	Classroom, Desk		
35327	DSN 24	Recruiter, Supply		
35328	DSN 25	Recruiter Return		
35329	DSN 26	Drill Hall Floor, Supply		
35330	DSN 27	Drill Hall Floor, Garage Door		

Comments to Lab:

Lab Use Only

Analyst (initials)	Reviewed By (initials)	Date Received	Date Reported

Procedures Performed	Comments:

AEHA Form 8-1 Oct 94

Replaces AEHA Form 8, 1 Oct 90 which is obsolete

Non-Responsive [redacted]

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BULK SAMPLE DATA

For use of this form see USAEHA TG 141; the proponent is HSHB-LO.

Return Address (complete address including Zip Code)	Point of Contact (name/AUTOVON)
NATIONAL GUARD BUREAU REGION SOUTH IH OFFICE 510 PLAZA DRIVE, SUITE 1530 COLLEGE PARK, GA 30349	

Sampled Installation	Project Number	ARLOC
DENISON, TX	11-04-75020	

Samples Collected By	Date Collected	Date Shipped
Non-Responsive [redacted]	16NOV04	

	Location (BLDG/AREA)
ARMORY w/IFR	

Associated Complaints (be specific)

Associated Air Samples ☐ Yes ☒ No — If yes, list sample numbers

Label Information

Trade Name	MSN	Manufacturer

Address	MSDS Attached
	☐ Yes ☐ No

Analysis Desired: LEAD

Lab Use 04-Only	Sample No.	Constituents	Results	Remarks
35331	DSN 28	Drill Hall Floor MIDDLE		
35332	DSN 29	File Top Cabinet Supply Room		
35333	DSN 30	Soda Machine		
35334	DSN 36	Denison (Blank)		
	DSN			
	DSN			
	DSN			

Comments to Lab:

Lab Use Only

Analyst (initials)	Reviewed By (initials)	Date Received	Date Reported

Procedures Performed	Comments:

AEHA Form 8-8 Oct 94

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R

Non-Responsive [redacted]

04-ASD-6276

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BULK SAMPLE DATA

For use of this form see USAEHA TG 141; the proponent is HSHB-LO.

Return Address (complete address including Zip Code)	Point of Contact (name/AUTOVON)
NATIONAL GUARD BUREAU REGION SOUTH 1H OFFICE 510 PLAZA DRIVE, SUITE 1530 COLLEGE PARK, GA 30349	

Sampled Installation	Project Number	ARLOC
Denison, TX	11-04-75020	

Samples Collected By	Date Collected	Date Shipped
Non-Responsive [redacted]	16 NOV 04	

	Location (BLDG/AREA)
ARMORY W/IFR	

Associated Complaints (be specific)

Associated Air Samples ☐ Yes ☐ No — If yes, list sample numbers

Label Information

Trade Name	NSN	Manufacturer

Address	MSDS Attached
	☐ Yes ☐ No

Analysis Desired: ASBESTOS - PLM

Lab Use Only	Sample No.	Constituents	Results	Remarks
35335	DSN 31	12X12 (IFR) WALL TILE LEFT		
35336	DSN 32	12X12 (IFR) WALL TILE RT		
35337	DSN 34	BASE BOARD MASTIC CLASSROOM		
35338	DSN 35	12X12 FLOOR TILE CLASSROOM		
	DSN			
	DSN			
	DSN			

Comments to Lab:

Lab Use Only

Analyst (initials)	Reviewed By (initials)	Date Received	Date Reported

Procedures Performed	Comments:

AEHA Form 8-A Oct 94 — Replaces AEHA Form 8-A Oct 90 which is obsolete. — F Non-Responsive [redacted]

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DATA CHEM LABORATORIES, INC.

Submitted To: Non-Responsive
510 Plaza Dr., Ste. 1530
College Park, GA 30349

Reference Data:	**Lead**
Client Sample No.:	DENT01 through DENT11
P.O. No.:	W912JM-04-A-0007
Sample Location:	Project Number: 011-04-76205, Denton, TX
Sample Type:	Ghost Wipe
Method Reference:	3050B/6010B
DCL Set ID No.:	04-S-6277
DCL Sample ID No.:	04-35339 through 04-35349
Sample Receipt Date:	12/6/2004
Preparation Date:	12/7,8/2004
Analysis Date:	12/9,10/2004

The samples were prepared in accordance with EPA method 3050B. Sample condition was acceptable upon receipt except where noted. The samples were then analyzed in accordance with EPA method 6010B using a Jarrell Ash Trace (ICP) purged spectrometer.

The results are provided in the enclosed data table. Results relate only to the items tested and are not blank corrected unless indicated in the data table.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Non-Responsive

CINCINNATI OFFICE
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WEST COAST OFFICE
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NOVATO, CALIFORNIA 94945
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Results
Lead

Client #	DCL #	µg/Wipe
DENT01	04-35339	ND
DENT02	04-35340	ND
DENT03	04-35341	ND
DENT04	04-35342	ND
DENT05	04-35343	ND
DENT06	04-35344	ND
DENT07	04-35345	ND
DENT08	04-35346	ND
DENT09	04-35347	ND
DENT10	04-35348	ND
DENT11	04-35349	ND
	Prep Blank	ND
% Recovery	LCS 1	85.
% Recovery	LCS 2	86.
RPL		**10.**

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

[redacted]

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Results
Lead

Client #	DCL #	µg/Wipe
DENT11	04-35349	ND
	Prep Blank	ND
% Recovery	LCS 1	85.
% Recovery	LCS 2	84.
RPL		**10.**

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

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04-S-1077

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BULK SAMPLE DATA

For use of this form see USAEHA TG 141; the proponent is HSHB-LO.

Return Address (complete address including Zip Code)	Point of Contact (name/AUTOVON)
NATIONAL GUARD BUREAU REGION SOUTH IH OFFICE 510 PLAZA DRIVE, SUITE 1530 COLLEGE PARK, GA 30349	

Sampled Installation	Project Number	ARLOC
DENTON, TX	11 010-04-7620S	

Samples Collected By	Date Collected	Date Shipped
Non-Responsive [redacted]	16 NOV 04	

	Location (BLDG/AREA)
ARMORY W/O IFR	

Associated Complaints (be specific)

Associated Air Samples ☐ Yes ☒ No — If yes, list sample numbers

Label Information

Trade Name	NSN	Manufacturer

Address	MSDS Attached
	☐ Yes ☐ No

Analysis Desired

LEAD

Lab Use Only	Sample No.	Constituents	Results	Remarks
35339	DENT 01	KITCHEN SERVING COUNTER		
35340	DENT 02	KITCHEN, TOP REFRIG.		
35341	DENT 03	RETURN AIR, Admin		
35342	DENT 04	TOP, WALL LOCKER, Admin		
35343	DENT 05	DRILL HALL FLOOR, Supply		
35344	DENT 06	DRILL HALL FLOOR, Middle		
35345	DENT 07	DRILL HALL FLOOR, Diag. Supply		

Comments to Lab:

Lab Use Only

Analyst (initials)	Reviewed By (initials)	Date Received	Date Reported

Procedures Performed	Comments:

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Replaces AEHA Form 6, 1 Oct 90 which is obsolete

Non-Responsive [redacted]

04-S-0377

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BULK SAMPLE DATA

For use of this form see USAEHA TG 141; the proponent is HSHB-CO.

Return Address (complete address including Zip Code)	Point of Contact (name/AUTOVON)
NATIONAL GUARD BUREAU REGION SOUTH IH OFFICE 510 PLAZA DRIVE, SUITE 1530 COLLEGE PARK, GA 30349	

Sampled Installation	Project Number	ARLOC
DENTON, TX	11-04-76205	
Samples Collected By	**Date Collected**	**Date Shipped**
[redacted]	16 NOV 04	
Description of Operation		**Location (BLDG/AREA)**
ARMORY W/O IFR		

Associated Complaints (be specific)

Associated Air Samples — If yes, list sample numbers

☐ Yes ☒ No

Label Information

Trade Name	NSN	Manufacturer

Address	MSDS Attached
	☐ Yes ☐ No

Analysis Desired

LEAD

Lab Use Only	Sample No.	Constituents	Results	Remarks
35346	DENT 08	DRILL HALL, Top, Vend Machine		
35347	DENT 09	Admin, Supply AIR		
35348	DENT 10	Supply, TABLE TOP		
35349	DENT 11	DENTON BLANK		
	DENT			
	DENT			
	DENT			

Comments to Lab:

Lab Use Only

Analyst (initials)	Reviewed By (initials)	Date Received	Date Reported

Procedures Performed	Comments:

[redacted]

AEHA Form 6, 1 Oct 80 Replaces AEHA Form 6, 1 Oct 80 which is obsolete

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DATA CHEM LABORATORIES, INC.

SUBMITTED TO:

Non-Responsive

510 Plaza Dr., Ste. 1530
College Park, GA 30349

REFERENCE DATA:

Client Sample No.:	DENT12 through DENT14
P.O. No.:	W912JM-04-A-0007
Sample Location:	Project Number: 11-04-76205, Denton, TX
Sample Type:	Bulk
Method Reference:	EPA-600/R-93/116
DCL Set ID No.:	04-A-6279
DCL Sample ID No.:	04-35354 through 04-35356
Sample Receipt Date:	12/6/04
Analysis Date:	12/7/04

We certify that the following samples were prepared and analyzed by Polarized Light Microscopy for asbestos and other fibrous constituents using EPA-600/R-93/116. The samples were acceptable upon receipt except where noted. The samples were examined under a stereomicroscope in a laboratory fume hood for general composition and phase separation. If needed, portions of the sample were removed and ground with a mortar and pestle before being mounted on a glass microscope slide. Mountings of representative portions of the material are prepared in one or more appropriate refractive index liquids (1.550, 1.605, 1.680) and examined by Polarized Light Microscopy*. Estimates of concentration are made on an area basis. The results of the analysis apply only to the materials analyzed and are summarized on the attached bulk asbestos analysis data sheets. DataChem Laboratories will dispose of all bulk samples after 60 days unless other arrangements are made.

Non-Responsive

*Floor tiles, decorative paints, joint compounds, and cement materials require additional treatment in order to evaluate the concentration of small asbestos fibers bound in the material. Some samples may contain fibers that are not visible by PLM and can only be detected by electron microscopy techniques. Floor tiles are analyzed as homogeneous materials if insufficient mastic is present or if phases have been cross contaminated.

DataChem Laboratories NVLAP Lab ID: 101917. Laboratory accreditation by the National Institute of Standards and Technology does not in any way constitute approval or endorsement by NIST.

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Page 345 of 2531

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12/7/04

DataChem Laboratories
Polarized Light Microscopy
Asbestos Analytical Report

Client: NGB South
Location: Project Number: 11-04-76205, Denton, TX
Set ID: 04-A-6279

Client Sample ID:	DENT12	DENT12	DENT13	DENT14	DENT14
DCL Sample ID:	04-35354A	04-35354B	04-35355	04-35356A	04-35356B
Macroscopic Examination					
Accepted/Rejected:	Accepted	Accepted	Accepted	Accepted	Accepted
Homogeneity:	Layered	Layered	Homog.	Layered	Layered
Color:	Grey	Tan	Grey	Grey	Yellow/Tan
Texture:	Compact	Resinous	Fbrs/Crmby	Flexible	Resns/Fbrs
Description:	Tile	Mastic	Ceiling Tile	Covebase	Mastic
Analysis:	PLM	PLM	PLM	PLM	PLM
Asbestiform Minerals					
% Chrysotile:					
% Amosite:					
% Crocidolite:					
% Tremolite - Actinolite:					
% Anthophyllite:					
% Total Asbestos:	**ND**	**ND**	**ND**	**ND**	**ND**
Other Materials					
% Cellulose:		>1 ≤ 3	>40 ≤ 50		>10 ≤ 20
% Fiberglass:			>20 ≤ 30		
% Other Fibers:					
% Resin/Binder:	>10 ≤ 20	>70 ≤ 80		>20 ≤ 30	>40 ≤ 50
% Non Fibrous:	>70 ≤ 80	>10 ≤ 20	>10 ≤ 20	>60 ≤ 70	>20 ≤ 30

ND = None Detected Trace = <1%

Special Prep Procedures: None.

*Notes: P. O. #: W912JM-04-A-0007.

Non-Responsive

All values are in area percent by visual estimate. The Federal Register Vol. 55 No. 224 Tuesday Nov. 20 1990 Rules and Regulations states "... If the asbestos content is estimated to be less than 10% by a method other than point counting,... (the analysis) be repeated using the point counting technique by PLM." Any of the above samples can be reanalyzed by point counting at the client's request.
Wherever possible, separate phases are analyzed and reported individually.

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Page 346 of 2531

04-A-6879

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BULK SAMPLE DATA

For use of this form see USAEHA TG 141; the proponent is HSHB-CO.

Return Address (complete address including Zip Code)

NATIONAL GUARD BUREAU REGION SOUTH IH OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

Point of Contact (name/AUTOVON)

Sampled Installation	Project Number	ARLOC
DENTON, TEXAS	11-04-76205	

Samples Collected By	Date Collected	Date Shipped
Non-Responsive	16NOV04	

Description of Operation	Location (BLDG/AREA)
ARMORY W/O IFR	

Associated Complaints (be specific)

Associated Air Samples If yes, list sample numbers

☐ Yes ☒ No

Label Information

Trade Name	NSN	Manufacturer

Address	MSDS Attached
	☐ Yes ☐ No

Analysis Desired

ASBESTOS -PLM

Lab Use Only	Sample No.	Constituents	Results	Remarks
35354	DENT 12	12X12 FLOOR TILE	TILE: ND MASTIC: ND	
35355	DENT 13	2X4 CEILING TILE	ND	
35356	DENT 14	BASE BOARD	COVEBASE: ND MASTIC: ND	
	DENT			
	DENT			
	DENT			
	DENT			

Comments to Lab:

Lab Use Only

Analyst (initials)	Reviewed By (initials)	Date Received	Date Reported
SS	RK	12/6/04	12/9/04

Procedures Performed	Comments:
PLM Asbestos Analysis EPA/600/R93/116	

AEHA Form 4-R, 1 Jan 94 Replaces AEHA Form 4-R, Oct 90 which is obsolete.

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DATA CHEM LABORATORIES, INC.

Submitted To: Non-Responsive
NGB South
510 Plaza Dr., Ste. 1530
College Park, GA 30349

Reference Data:	**Lead**
Client Sample No.:	DECA31
P.O. No.:	W912JM-04-A-0007
Sample Location:	Project Number: 11-04-76234, Decatur, TX
Sample Type:	Paint Chip
Method Reference:	3050B/6010B
DCL Set ID No.:	04-S-6283
DCL Sample ID No.:	04-35411
Sample Receipt Date:	12/6/2004
Preparation Date:	12/8/2004
Analysis Date:	12/9/2004

The samples were prepared in accordance with EPA method 3050B. Sample condition was acceptable upon receipt except where noted. The samples were then analyzed in accordance with EPA method 6010B using a Jarrell Ash Trace ICP.

The results are provided in the enclosed data table. Results relate only to the items tested and are not blank corrected unless indicated in the data table.

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Non-Responsive

Analyst

CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3706
513 733-5336, FAX 513 733-5347

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Results
Lead

Client #	DCL #	mg/Kg (ppm)	% by weight
DECA31	04-35411	41.	0.0041
	Prep Blank	ND	
% Recovery	LCS	93.	
% Recovery	35230MS	96.	
% Recovery	35230MSD	96.	
RPL		25.	0.0025

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.
MS/MSD = matrix spike/matrix spike duplicate.

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BULK SAMPLE DATA

04-AS-083

For use of this form see USAEHA TG 141; the proponent is HSHB-CO.

Return Address (complete address including Zip Code)

NATIONAL GUARD BUREAU REGION SOUTH IH OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

Point of Contact (name/AUTOVOT)

Sampled Installation: DECATUR, TX

Project Number: 11-04-76234 ~~11-04-76205~~

ARLOC:

Samples Collected By: Non-Responsive

Date Collected: 17 NOV 04

Date Shipped:

Description of Operation: ARMORY W/ IFR

Location (BLDG/AREA)

Associated Complaints (be specific)

Associated Air Samples: ☐ Yes ☒ No — If yes, list sample numbers

Label Information

Trade Name | NSN | Manufacturer

Address | MSDS Attached ☐ Yes ☐ No

Analysis Desired: LEAD* DECA 31, ASBESTOS PLM DECA 32 - DECA 37

Lab Use Only	Sample No.	Constituents	Results	Remarks
35411	DECA31	LEAD PAINTCHIP WINDOW CLASSROOM	Lead	
35412	DECA32	2X4 CEILING TILE	PLM	
35413	DECA33	PIPE INSULATION H2O HEATER		
35414	DECA34	PIPE INSULATION MENS SHOWER		
35415	DECA35	BASEBOARD CLASSROOM		
35416	DECA36	L 12X12 INSUL TILE (IFR)		
35417	DECA37	R 12X12 INSUL TILE (IFR)		

Comments to Lab:

Lab Use Only

Analyst (initials) | Reviewed By (initials) | Date Received | Date Reported

Procedures Performed | Comments:

Non-Responsive

AEHA Form 8-R, Oct 94 — Replaces AEHA Form 8, Oct 90, which is obsolete.

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DATA CHEM LABORATORIES, INC.

SUBMITTED TO:

Non-Responsive

510 Plaza Dr., Ste. 1530
College Park, GA 30349

REFERENCE DATA:

Client Sample No.:	DECA32 through DECA37
P.O. No.:	W912JM-04-A-0007
Sample Location:	Project Number: 11-04-76234, Decatur, TX
Sample Type:	Bulk
Method Reference:	EPA-600/R-93/116
DCL Set ID No.:	04-A-6283
DCL Sample ID No.:	04-35412 through 04-35417
Sample Receipt Date:	12/6/04
Analysis Date:	12/8/04

We certify that the following samples were prepared and analyzed by Polarized Light Microscopy for asbestos and other fibrous constituents using EPA-600/R-93/116. The samples were acceptable upon receipt except where noted. The samples were examined under a stereomicroscope in a laboratory fume hood for general composition and phase separation. If needed, portions of the sample were removed and ground with a mortar and pestle before being mounted on a glass microscope slide. Mountings of representative portions of the material are prepared in one or more appropriate refractive index liquids (1.550, 1.605, 1.680) and examined by Polarized Light Microscopy*. Estimates of concentration are made on an area basis. The results of the analysis apply only to the materials analyzed and are summarized on the attached bulk asbestos analysis data sheets. DataChem Laboratories will dispose of all bulk samples after 60 days unless other arrangements are made.

Non-Responsive

*Floor tiles, decorative paints, joint compounds, and cement materials require additional treatment in order to evaluate the concentration of small asbestos fibers bound in the material. Some samples may contain fibers that are not visible by PLM and can only be detected by electron microscopy techniques. Floor tiles are analyzed as homogeneous materials if insufficient mastic is present or if phases have been cross contaminated.

DataChem Laboratories NVLAP Lab ID: 101917. Laboratory accreditation by the National Institute of Standards and Technology does not in any way constitute approval or endorsement by NIST.

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Page 351 of 2531

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12/8/04

DataChem Laboratories
Polarized Light Microscopy
Asbestos Analytical Report

Client: NGB South
Location: Project Number: 11-04-76234, Decatur, TX
Set ID: 04-A-6283

Client Sample ID:	DECA32	DECA33	DECA34	DECA35	DECA36
DCL Sample ID:	04-35412	04-35413	04-35414	04-35415	04-35416
Macroscopic Examination					
Accepted/Rejected:	Accepted	Accepted	Accepted	Accepted	Accepted
Homogeneity:	Homog.	Layered Inseparable	Layered Inseparable	Homog.	Homog.
Color:	Grey	Yellow/Grey	Yellow/Grey	Brown	Grey
Texture:	Fbrs/Crmby	Fibrous	Fibrous	Flexible	Fbrs/Crmby
Description:	Ceiling Tile	Insulation	Insulation	Covebase	Ceiling Tile
Analysis:	PLM	PLM	PLM	PLM	PLM
Asbestiform Minerals					
% Chrysotile:					
% Amosite:					
% Crocidolite:					
% Tremolite - Actinolite:					
% Anthophyllite:					
% Total Asbestos:	**ND**	**ND**	**ND**	**ND**	**ND**
Other Materials					
% Cellulose:	>40 ≤ 50	>5 ≤ 10	>5 ≤ 10		>40 ≤ 50
% Fiberglass:	>20 ≤ 30	>80 ≤ 90	>80 ≤ 90		>20 ≤ 30
% Other Fibers:					
% Resin/Binder:				>20 ≤ 30	
% Non Fibrous:	>10 ≤ 20	>3 ≤ 5	>3 ≤ 5	>60 ≤ 70	>10 ≤ 20

ND = None Detected Trace = <1%

Special Prep Procedures: None.

*Notes: P. O. #: W912JM-04-A-0007.

Non-Responsive

All values are in area percent by visual estimate. The Federal Register Vol. 55 No. 224 Tuesday Nov. 20 1990 Rules and Regulations states "... If the asbestos content is estimated to be less than 10% by a method other than point counting,... (the analysis) be repeated using the point counting technique by PLM." Any of the above samples can be reanalyzed by point counting at the client's request.
Wherever possible, separate phases are analyzed and reported individually.

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FOIA Requested Record #J-15-0085 (TN)
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Page 352 of 2531

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12/8/04

DataChem Laboratories
Polarized Light Microscopy
Asbestos Analytical Report

Client: NGB South
Location: Project Number: 11-04-76234, Decatur, TX
Set ID: 04-A-6283

Client Sample ID:	DECA37
DCL Sample ID:	04-35417
Macroscopic Examination	
Accepted/Rejected:	Accepted
Homogeneity:	Homog.
Color:	Grey
Texture:	Fbrs/Crmby
Description:	Ceiling Tile
Analysis:	PLM
Asbestiform Minerals	
% Chrysotile:	
% Amosite:	
% Crocidolite:	
% Tremolite - Actinolite:	
% Anthophyllite:	
% Total Asbestos:	**ND**
Other Materials	
% Cellulose:	>40 ≤ 50
% Fiberglass:	>20 ≤ 30
% Other Fibers:	
% Resin/Binder:	
% Non Fibrous:	>10 ≤ 20

ND = None Detected Trace = <1%

Special Prep Procedures: None.

*Notes: P. O. #: W912JM-04-A-0007.

Non-Responsive

All values are in area percent by visual estimate. The Federal Register Vol. 55 No. 224 Tuesday Nov. 20 1990 Rules and Regulations states "... If the asbestos content is estimated to be less than 10% by a method other than point counting,... (the analysis) be repeated using the point counting technique by PLM." Any of the above samples can be reanalyzed by point counting at the client's request.
Wherever possible, separate phases are analyzed and reported individually.

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FOIA Requested Record #J-15-0085 (TN)
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Page 353 of 2531

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BULK SAMPLE DATA

04-AS-6283

For use of this form see USAEHA TG 141; the proponent is HSHB-LO.

Return Address (complete address including Zip Code)	Point of Contact (name/AUTOVON)
NATIONAL GUARD BUREAU REGION SOUTH IH OFFICE 510 PLAZA DRIVE, SUITE 1530 COLLEGE PARK, GA 30349	

Sampled Installation	Project Number	ARLOC
DECATUR, TX	11-04-76234 ~~11-04-76205~~	

Samples Collected By	Date Collected	Date Shipped
Non-Responsive [redacted]	17 NOV 04	

Description of Operation	Location (BLDG/AREA)
ARMORY W/IFR	

Associated Complaints (be specific)

Associated Air Samples — If yes, list sample numbers

☐ Yes ☒ No

Label Information

Trade Name	NSN	Manufacturer

Address	MSDS Attached
	☐ Yes ☐ No

Analysis Desired

LEAD # DECA 31, ASBESTOS PLM DECA 32 - ~~[illegible]~~ CS DECA 37

Lab Use Only	Sample No.	Constituents	Results	Remarks
35411	DECA31	Lead Paintchip window Classroom	Lead	
35412	DECA32	2x4 Ceiling Tile	PLM ND	
35413	DECA33	Pipe Insulation H2O Heater	ND	
35414	DECA34	Pipe Insulation Mens Shower	ND	
35415	DECA35	Baseboard Classroom	ND	
35416	DECA36	L 12x12 Insul Tile (IFR)	ND	
35417	DECA37	R 12x12 Insul Tile (IFR)	ND	

Comments to Lab:

Lab Use Only

Analyst (initials)	Reviewed By (initials)	Date Received	Date Reported
SS	RK	12/6/04	12/9/04

Procedures Performed	Comments:
LM Asbestos Analysis EPA/600/R93/116	

AEHA Form 6-R 1 Oct 94

Replaces AEHA Form 6, 1 Oct 90 which is obsolete.

Non-Responsive [redacted]

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May, 2018

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DATA CHEM LABORATORIES, INC.

Submitted To: Non-Responsive
NGB South
510 Plaza Dr., Ste. 1530
College Park, GA 30349

Reference Data:	**Lead**
Client Sample No.:	WEAT01 through WEAT11
P.O. No.:	W912JM-04-A-0007
Sample Location:	Project Number: 011-04-76086, Weatherford, TX
Sample Type:	Ghost Wipe
Method Reference:	3050B/6010B
DCL Set ID No.:	04-S-6285
DCL Sample ID No.:	04-35421 through 04-35431
Sample Receipt Date:	12/6/2004
Preparation Date:	12/7,8/2004
Analysis Date:	12/10/2004

The samples were prepared in accordance with EPA method 3050B. Sample condition was acceptable upon receipt except where noted. The samples were then analyzed in accordance with EPA method 6010B using a Jarrell Ash Trace (ICP) purged spectrometer.

The results are provided in the enclosed data table. Results relate only to the items tested and are not blank corrected unless indicated in the data table.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Non-Responsive

CINCINNATI OFFICE
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513 733-5336, FAX 513 733-5347

WEST COAST OFFICE
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Results
Lead

Client #	DCL #	µg/Wipe
WEAT01	04-35421	ND
WEAT02	04-35422	ND
WEAT03	04-35423	**190.**
WEAT04	04-35424	**14.**
WEAT05	04-35425	ND
WEAT06	04-35426	ND
WEAT07	04-35427	ND
WEAT08	04-35428	**52.**
	Prep Blank	ND
% Recovery	LCS 1	80.
% Recovery	LCS 2	86.
RPL		**10.**

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

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Results
Lead

Client #	DCL #	µg/Wipe
WEAT09	04-35429	22.
WEAT10	04-35430	14.
WEAT11	04-35431	ND
	Prep Blank	ND
% Recovery	LCS 1	82.
% Recovery	LCS 2	86.
RPL		10.

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

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04-S-6885

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BULK SAMPLE DATA

For use of this form see: USAEHA TG 141; the proponent is HSHB-CO.

Return Address (complete address including Zip Code)	Point of Contact (name/AUTOVON)
NATIONAL GUARD BUREAU REGION SOUTH IH OFFICE 510 PLAZA DRIVE, SUITE 1530 COLLEGE PARK, GA 30349	

Sampled Installation	Project Number	ARLOC
WEATHERFORD, TEXAS	11 948-04-76086	
Samples Collected By	**Date Collected**	**Date Shipped**
Non-Responsive [redacted]	18NOV04	
ARMORY W/O IFR		**Location** (BLDG/AREA)

Associated Complaints (be specific)

Associated Air Samples — If yes, list sample numbers

☐ Yes ☒ No

Label Information

Trade Name	NSN	Manufacturer
Address		**MSDS Attached** ☐ Yes ☐ No

Analysis Desired

LEAD

Lab Use Only	Sample No.	Constituents	Results	Remarks
35431	WEAT 01	KITCHEN SERVING COUNTER		
35432	WEAT 02	KITCHEN TOP, ICE MAKER		
35433	WEAT 03	ADMIN RTN AIR		
35434	WEAT 04	ADMIN TOP, WALL LOCKER		
35435	WEAT 05	DRILL HALL FLOOR, SUPPLY		
35436	WEAT 06	DRILL HALL FLOOR, MIDDLE		
35437	WEAT 07	DRILL HALL FLOOR, DIAG SUPPLY		

Comments to Lab:

Lab Use Only

Analyst (initials)	Reviewed By (initials)	Date Received	Date Reported
Procedures Performed	**Comments:**		

AEHA Form 4 [illegible] Replaces AEHA Form 2, Oct 80 which is obsolete.

Non-Responsive [redacted]

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04-S-6885

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BULK SAMPLE DATA

For use of this form see USAEHA TG 141; the proponent is HSHB-LO.

Return Address (complete address including Zip Code)	Point of Contact (name/AUTOVON)
NATIONAL GUARD BUREAU REGION SOUTH IH OFFICE 510 PLAZA DRIVE, SUITE 1530 COLLEGE PARK, GA 30349	

Sampled Installation	Project Number	ARLOC
WEATHERFORD, TX	10-04-76086	

Samples Collected By	Date Collected	Date Shipped
Non-Responsive [redacted]	18NOV04	

[redacted]	Location (BLDG/AREA)
ARMORY W/O IFR	

Associated Complaints (be specific)

Associated Air Samples — If yes, list sample numbers

☐ Yes ☒ No

Label Information

Trade Name	NSN	Manufacturer

Address	MSDS Attached
	☐ Yes ☐ No

Analysis Desired

LEAD

Lab Use Only	Sample No.	Constituents	Results	Remarks
35428	WEAT 08	DRILL HALL, TOP COKE MACHINE		
35429	WEAT 09	ADMIN, SUPPLY AIR		
35430	WEAT 10	SUPPLY ROOM, TABLE TOP		
35431	WEAT 11	WEATHERFORD BLANK		
	WEAT			
	WEAT			
	WEAT			

Comments to Lab:

Lab Use Only

Analyst (initials)	Reviewed By (initials)	Date Received	Date Reported

Procedures Performed	Comments:

AEHA Form 8-R, 1 Oct 94 — Replaces AEHA Form 8-R, 1 Oct 90 which is obsolete. FO

Non-Responsive [redacted]

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DATA CHEM LABORATORIES, INC.

SUBMITTED TO:

Non-Responsive

510 Plaza Dr., Ste. 1530
College Park, GA 30349

REFERENCE DATA:

Client Sample No.:	WEAT12 through WEAT15
P.O. No.:	W912JM-04-A-0007
Sample Location:	Project Number: 11-04-76086, Weatherford, TX
Sample Type:	Bulk
Method Reference:	EPA-600/R-93/116
DCL Set ID No.:	04-A-6286
DCL Sample ID No.:	04-35432 through 04-35435
Sample Receipt Date:	12/6/04
Analysis Date:	12/7/04

We certify that the following samples were prepared and analyzed by Polarized Light Microscopy for asbestos and other fibrous constituents using EPA-600/R-93/116. The samples were acceptable upon receipt except where noted. The samples were examined under a stereomicroscope in a laboratory fume hood for general composition and phase separation. If needed, portions of the sample were removed and ground with a mortar and pestle before being mounted on a glass microscope slide. Mountings of representative portions of the material are prepared in one or more appropriate refractive index liquids (1.550, 1.605, 1.680) and examined by Polarized Light Microscopy*. Estimates of concentration are made on an area basis. The results of the analysis apply only to the materials analyzed and are summarized on the attached bulk asbestos analysis data sheets. DataChem Laboratories will dispose of all bulk samples after 60 days unless other arrangements are made.

Non-Responsive

*Floor tiles, decorative paints, joint compounds, and cement materials require additional treatment in order to evaluate the concentration of small asbestos fibers bound in the material. Some samples may contain fibers that are not visible by PLM and can only be detected by electron microscopy techniques. Floor tiles are analyzed as homogeneous materials if insufficient mastic is present or if phases have been cross contaminated.

DataChem Laboratories NVLAP Lab ID: 101917. Laboratory accreditation by the National Institute of Standards and Technology does not in any way constitute approval or endorsement by NIST.

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12/9/04

DataChem Laboratories
Polarized Light Microscopy
Asbestos Analytical Report

Client: NGB South
Location: Project Number: 11-04-76086, Weatherford, TX
Set ID: 04-A-6286

Client Sample ID:	WEAT12	WEAT12	WEAT13	WEAT14	WEAT14
DCL Sample ID:	04-35432A	04-35432B	04-35433	04-35434A	04-35434B
Macroscopic Examination					
Accepted/Rejected:	Accepted	Accepted	Accepted	Accepted	Accepted
Homogeneity:	Layered	Layered	Homog.	Layered	Layered
Color:	Grey	Tan	Grey	Brown	Grey
Texture:	Compact	Resinous	Fbrs/Crmby	Flexible	Flexible
Description:	Tile	Mastic	Ceiling Tile	Covebase	Mastic
Analysis:	PLM	PLM	PLM	PLM	PLM
Asbestiform Minerals					
% Chrysotile:					
% Amosite:					
% Crocidolite:					
% Tremolite - Actinolite:					
% Anthophyllite:					
% Total Asbestos:	**ND**	**ND**	**ND**	**ND**	**ND**
Other Materials					
% Cellulose:			>40 ≤ 50		
% Fiberglass:			>10 ≤ 20		
% Other Fibers:					
% Resin/Binder:	>10 ≤ 20	>70 ≤ 80		>20 ≤ 30	>50 ≤ 60
% Non Fibrous:	>70 ≤ 80	>10 ≤ 20	>20 ≤ 30	>60 ≤ 70	>30 ≤ 40

ND = None Detected Trace = <1%

Special Prep Procedures: None.

*Notes: P. O. #: W912JM-04-A-0007.

Non-Responsive

All values are in area percent by visual estimate. The Federal Register Vol. 55 No. 224 Tuesday Nov. 20 1990 Rules and Regulations states "... If the asbestos content is estimated to be less than 10% by a method other than point counting,... (the analysis) be repeated using the point counting technique by PLM." Any of the above samples can be reanalyzed by point counting at the client's request.
Wherever possible, separate phases are analyzed and reported individually.

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12/9/04

DataChem Laboratories
Polarized Light Microscopy
Asbestos Analytical Report

Client: NGB South
Location: Project Number: 11-04-76086, Weatherford, TX
Set ID: 04-A-6286

Client Sample ID:	WEAT15
DCL Sample ID:	04-35435
Macroscopic Examination	
Accepted/Rejected:	Accepted
Homogeneity:	Layered Inseparable
Color:	Yellow/Grey
Texture:	Fibrous
Description:	Insulation
Analysis:	PLM
Asbestiform Minerals	
% Chrysotile:	
% Amosite:	
% Crocidolite:	
% Tremolite - Actinolite:	
% Anthophyllite:	
% Total Asbestos:	**ND**
Other Materials	
% Cellulose:	>5 ≤ 10
% Fiberglass:	>80 ≤ 90
% Other Fibers:	
% Resin/Binder:	
% Non Fibrous:	>3 ≤ 5

ND = None Detected Trace = <1%

Special Prep Procedures: None.

*Notes: P. O. #: W912JM-04-A-0007.

Non-Responsive

All values are in area percent by visual estimate. The Federal Register Vol. 55 No. 224 Tuesday Nov. 20 1990 Rules and Regulations states "... If the asbestos content is estimated to be less than 10% by a method other than point counting,... (the analysis) be repeated using the point counting technique by PLM." Any of the above samples can be reanalyzed by point counting at the client's request.
Wherever possible, separate phases are analyzed and reported individually.

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Page 362 of 2531

04-A-6286

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BULK SAMPLE DATA

For use of this form see USAEHA TG 147; the proponent is HSHB-LO.

Return Address *(complete address including Zip Code)*

NATIONAL GUARD BUREAU REGION SOUTH IH OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

Point of Contact *(name/AUTOVON)*

Sampled Installation	Project Number	ARLOC
WEATHERFORD, TX	11 ~~10~~-04-76086	

Samples Collected By	Date Collected	Date Shipped
Non-Responsive [redacted]	18NOV04	

[redacted]	Location *(BLDG/AREA)*
ARMORY w/O IFR	

Associated Complaints *(be specific)*

Associated Air Samples ☐ Yes ☒ No — If yes, list sample numbers

Label Information

Trade Name	NSN	Manufacturer

Address	MSDS Attached
	☐ Yes ☐ No

Analysis Desired

ASBESTOS PLM

Lab Use Only	Sample No.	Constituents	Results	Remarks
35432	WEAT 12	12X12 FLOOR TILE	Tile: ND mastic: ND	
35433	WEAT 13	2X4 CEILING TILE	ND	
35434	WEAT 14	BASEBOARD	covebase: ND mastic: ND	
35435	WEAT 15	INSULATION, H_2O HEATER PIPES	ND	
	WEAT			
	WEAT			
	WEAT			

Comments to Lab:

Lab Use Only

Analyst (initials)	Reviewed By (initials)	Date Received	Date Reported
SS	AMR	12/06/04	12/13/04

Procedures Performed	Comments:
PLM Asbestos Analysis EPA/600/R-93/116	

AEHA Form [illegible] Replaces AEHA Form [illegible] Oct 80 which is obsolete. FOI Non-Responsive

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DATA CHEM LABORATORIES, INC.

Submitted To: Non-Responsive
510 Plaza Dr., Ste. 1530
College Park, GA 30349

Reference Data:	**Lead**
Client Sample No.:	STEPH01 through STEPH14
P.O. No.:	W912JM-04-A-0007
Sample Location:	Project Number: 11-04-76401, Stephenville, TX
Sample Type:	Ghost Wipe
Method Reference:	3050B/6010B
DCL Set ID No.:	04-S-6287
DCL Sample ID No.:	04-35436 through 04-35449
Sample Receipt Date:	12/6/2004
Preparation Date:	12/7,8/2004
Analysis Date:	12/10/2004

The samples were prepared in accordance with EPA method 3050B. Sample condition was acceptable upon receipt except where noted. The samples were then analyzed in accordance with EPA method 6010B using a Jarrell Ash Trace (ICP) purged spectrometer.

The results are provided in the enclosed data table. Results relate only to the items tested and are not blank corrected unless indicated in the data table.

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Non-Responsive

Analyst

CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3706
513 733-5336, FAX 513 733-5347

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Results
Lead

Client #	DCL #	µg/Wipe
STEPH01	04-35436	ND
STEPH02	04-35437	ND
STEPH03	04-35438	**11.**
STEPH04	04-35439	ND
STEPH05	04-35440	ND
STEPH06	04-35441	ND
STEPH07	04-35442	ND
STEPH08	04-35443	ND
STEPH09	04-35444	ND
STEPH10	04-35445	ND
STEPH11	04-35446	ND
STEPH12	04-35447	ND
STEPH13	04-35448	ND
STEPH14	04-35449	ND
	Prep Blank	ND
% Recovery	LCS 1	82.
% Recovery	LCS 2	86.
RPL		**10.**

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

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04-S-6287

BULK SAMPLE DATA

For use of this form see USAEHA TG 141; the proponent is HSHB-LO.

Return Address (complete address including Zip Code)	Point of Contact (name/AUTOVON)
NATIONAL GUARD BUREAU REGION SOUTH IH OFFICE 510 PLAZA DRIVE, SUITE 1530 COLLEGE PARK, GA 30349	

Sampled Installation	Project Number	ARLOC
Stephenville, TX	11-04-76401	

Samples Collected By	Date Collected	Date Shipped
Non-Responsive	18 Nov 04	

Description of Operation	Location (BLDG/AREA)
Armory w/o IFR	

Associated Complaints (be specific)

Associated Air Samples — If yes, list sample numbers

☐ Yes ☒ No

Label Information

Trade Name	NSN	Manufacturer

Address	MSDS Attached
	☐ Yes ☐ No

Analysis Desired

LEAD

Lab Use Only	Sample No.	Constituents	Results	Remarks
35436	STEPH 01	Kitchen, Serving Counter		
35437	STEPH 02	Kitchen, Pantry Shelf		
35438	STEPH 03	Admin #1, RTN Air		
35439	STEPH 04	Admin #1, Supply Air		
35440	STEPH 05	Admin #2, RTN Air		
35441	STEPH 06	Admin #2, Supply Air		
35442	STEPH 07	Drill Hall Floor, Admin #1		

Comments to Lab:

Lab Use Only

Analyst (initials)	Reviewed By (initials)	Date Received	Date Reported

Procedures Performed	Comments:

AEHA Form 6-R 1 Oct 84 Replaces AEHA Form 6-R, 1 Oct 84 which is obsolete.

Non-Responsive

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04-S-6887

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BULK SAMPLE DATA

For use of this form see USAEHA TG 141; the proponent is HSHB-ED.

Return Address *(complete address including Zip Code)*

NATIONAL GUARD BUREAU REGION SOUTH IH OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

Point of Contact *(name/AUTOVON)*

Sampled Installation	Project Number	ARLOC
STEPHENVILLE, TX	11-04-76401	

Samples Collected By	Date Collected	Date Shipped
Non-Responsive [redacted]	18NOV 04	

	Location *(BLDG/AREA)*
ARMORY W/O IFR	

Associated Complaints *(be specific)*

Associated Air Samples If yes, list sample numbers

☐ Yes ☒ No

Label Information

Trade Name	NSN	Manufacturer

Address	MSDS Attached
	☐ Yes ☐ No

Analysis Desired

LEAD

Lab Use Only	Sample No.	Constituents	Results	Remarks
35443	STEPH 08	Drill Hall Floor, Middle		
35444	STEPH 09	Drill Hall Floor, Kitchen		
35445	STEPH 10	Drill Hall, Top Coke Machine		
35446	STEPH 11	Classroom #1, Desk		
35447	STEPH 12	Classroom #2, Desk		
35448	STEPH 13	Supply, Table Top		
35449	STEPH 14	Stephenville, Blank		

Comments to Lab:

Lab Use Only

Analyst (initials)	Reviewed By (initials)	Date Received	Date Reported

Procedures Performed	Comments:

AEHA Form 6-R Oct 94 Replaces AEHA Form 6-R, Oct 90 which is obsolete.

Non-Responsive [redacted]

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DATA CHEM LABORATORIES, INC.

SUBMITTED TO:

Non-Responsive

510 Plaza Dr., Ste. 1530
College Park, GA 30349

REFERENCE DATA:

Client Sample No.:	STEPH15 through STEPH18
P.O. No.:	W912JM-04-A-0007
Sample Location:	Project Number: 11-04-76401, Stephenville, TX
Sample Type:	Bulk
Method Reference:	EPA-600/R-93/116
DCL Set ID No.:	04-A-6288
DCL Sample ID No.:	04-35450 through 04-35453
Sample Receipt Date:	12/6/04
Analysis Date:	12/8/04

We certify that the following samples were prepared and analyzed by Polarized Light Microscopy for asbestos and other fibrous constituents using EPA-600/R-93/116. The samples were acceptable upon receipt except where noted. The samples were examined under a stereomicroscope in a laboratory fume hood for general composition and phase separation. If needed, portions of the sample were removed and ground with a mortar and pestle before being mounted on a glass microscope slide. Mountings of representative portions of the material are prepared in one or more appropriate refractive index liquids (1.550, 1.605, 1.680) and examined by Polarized Light Microscopy*. Estimates of concentration are made on an area basis. The results of the analysis apply only to the materials analyzed and are summarized on the attached bulk asbestos analysis data sheets. DataChem Laboratories will dispose of all bulk samples after 60 days unless other arrangements are made.

Non-Responsive

*Floor tiles, decorative paints, joint compounds, and cement materials require additional treatment in order to evaluate the concentration of small asbestos fibers bound in the material. Some samples may contain fibers that are not visible by PLM and can only be detected by electron microscopy techniques. Floor tiles are analyzed as homogeneous materials if insufficient mastic is present or if phases have been cross contaminated.

DataChem Laboratories NVLAP Lab ID: 101917. Laboratory accreditation by the National Institute of Standards and Technology does not in any way constitute approval or endorsement by NIST.

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12/8/04

DataChem Laboratories
Polarized Light Microscopy
Asbestos Analytical Report

Client: NGB South
Location: Project Number: 11-04-76401, Stephenville, TX
Set ID: 04-A-6288

Client Sample ID:	STEPH15	STEPH15	STEPH16	STEPH17	STEPH17
DCL Sample ID:	04-35450A	04-35450B	04-35451	04-35452A	04-35452B
Macroscopic Examination					
Accepted/Rejected:	Accepted	Accepted	Accepted	Accepted	Accepted
Homogeneity:	Layered	Layered	Homog.	Layered	Layered
Color:	Grey	Tan	Grey	Brown	Grey
Texture:	Compact	Resinous	Fbrs/Crmby	Flexible	Flexible
Description:	Tile	Mastic	Ceiling Tile	Covebase	Mastic
Analysis:	PLM	PLM	PLM	PLM	PLM
Asbestiform Minerals					
% Chrysotile:					
% Amosite:					
% Crocidolite:					
% Tremolite - Actinolite:					
% Anthophyllite:					
% Total Asbestos:	**ND**	**ND**	**ND**	**ND**	**ND**
Other Materials					
% Cellulose:			>50 ≤ 60		
% Fiberglass:					
% Other Fibers:					
% Resin/Binder:	>10 ≤ 20	>70 ≤ 80		>20 ≤ 30	>50 ≤ 60
% Non Fibrous:	>70 ≤ 80	>10 ≤ 20	>30 ≤ 40	>60 ≤ 70	>30 ≤ 40

ND = None Detected Trace = <1%

Special Prep Procedures: None.

*Notes: P. O. #: W912JM-04-A-0007.

Non-Responsive

Microscopist

All values are in area percent by visual estimate. The Federal Register Vol. 55 No. 224 Tuesday Nov. 20 1990 Rules and Regulations states "... If the asbestos content is estimated to be less than 10% by a method other than point counting,... (the analysis) be repeated using the point counting technique by PLM." Any of the above samples can be reanalyzed by point counting at the client's request.
Wherever possible, separate phases are analyzed and reported individually.

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Page 369 of 2531

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12/8/04

DataChem Laboratories
Polarized Light Microscopy
Asbestos Analytical Report

Client: NGB South
Location: Project Number: 11-04-76401, Stephenville, TX
Set ID: 04-A-6288

Client Sample ID:	STEPH18
DCL Sample ID:	04-35453
Macroscopic Examination	
Accepted/Rejected:	Accepted
Homogeneity:	Layered Inseparable
Color:	Yellow/Grey
Texture:	Fibrous
Description:	Insulation
Analysis:	PLM
Asbestiform Minerals	
% Chrysotile:	
% Amosite:	
% Crocidolite:	
% Tremolite - Actinolite:	
% Anthophyllite:	
% Total Asbestos:	**ND**
Other Materials	
% Cellulose:	>5 ≤ 10
% Fiberglass:	>80 ≤ 90
% Other Fibers:	
% Resin/Binder:	
% Non Fibrous:	>3 ≤ 5

ND = None Detected Trace = <1%

Special Prep Procedures: None.

*Notes: P. O. #: W912JM-04-A-0007.

Non-Responsive

All values are in area percent by visual estimate. The Federal Register Vol. 55 No. 224 Tuesday Nov. 20 1990 Rules and Regulations states "... If the asbestos content is estimated to be less than 10% by a method other than point counting,... (the analysis) be repeated using the point counting technique by PLM." Any of the above samples can be reanalyzed by point counting at the client's request.
Wherever possible, separate phases are analyzed and reported individually.

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Page 370 of 2531

04-A-6388

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BULK SAMPLE DATA

For use of this form see USAEHA TG 141; the proponent is HSHB-ID.

Return Address (complete address including Zip Code)
NATIONAL GUARD BUREAU REGION SOUTH IH OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

Point of Contact (name/AUTOVON)

Sampled Installation: STEPHENVILLE, TX

Project Number: 11-04-76401

ARLOC:

Samples Collected By: Non-Responsive

Date Collected: 18 NOV 04

Date Shipped:

Description of Operation: ARMORY W/O IFR

Location (BLDG/AREA):

Associated Complaints (be specific):

Associated Air Samples: ☐ Yes ☒ No — If yes, list sample numbers

Label Information

Trade Name | NSN | Manufacturer

Address | MSDS Attached ☐ Yes ☐ No

Analysis Desired: ASBESTOS - PLM

Lab Use Only	Sample No.	Constituents	Results	Remarks
354 50	STEPH 15	12X12 FLOOR TILE	TILE: ND MASTIC: ND	
354 51	STEPH 16	2X4 CEILING TILE	ND	
354 52	STEPH 17	BASEBOARD	COVERBASE = ND MASTIC = ND	
354 53	STEPH 18	HVAC #2 H.O. HEATER PIPE INSULATION	ND	
	STEPH			
	STEPH			
	STEPH			

Comments to Lab:

Lab Use Only

Analyst (initials)	Reviewed By (initials)	Date Received	Date Reported
SS	RK	12/6/04	12/9/04

Procedures Performed: PLM Asbestos Analysis EPA/600/R93/116

Comments:

Non-Responsive

AEHA Form 3-R, 1 Jan 84 — Replaces AEHA Form 3, 1 Oct 80 which is obsolete.

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DATA CHEM LABORATORIES, INC.

Submitted To: Non-Responsive

510 Plaza Dr., Ste. 1530
College Park, GA 30349

Reference Data:	**Lead**
Client Sample No.:	MW18
P.O. No.:	W912JM-04-A-0007
Sample Location:	Project Number: 11-04-76067, Mineral Wells, TX
Sample Type:	Paint Chip
Method Reference:	3050B/6010B
DCL Set ID No.:	04-S-6289
DCL Sample ID No.:	04-35471
Sample Receipt Date:	12/6/2004
Preparation Date:	12/8/2004
Analysis Date:	12/9/2004

The samples were prepared in accordance with EPA method 3050B. Sample condition was acceptable upon receipt except where noted. The samples were then analyzed in accordance with EPA method 6010B using a Jarrell Ash Trace ICP.

The results are provided in the enclosed data table. Results relate only to the items tested and are not blank corrected unless indicated in the data table.

This report shall not be reproduced except in full, without the written approval of the laboratory.

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CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
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513 733-5336, FAX 513 733-5347

WEST COAST OFFICE
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Page 372 of 2531

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Results
Lead

Client #	DCL #	mg/Kg (ppm)	% by weight
MW18	04-35471	190.	0.019
	Prep Blank	ND	
% Recovery	LCS	93.	
% Recovery	35230MS	96.	
% Recovery	35230MSD	96.	
RPL		25.	0.0025

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.
MS/MSD = matrix spike/matrix spike duplicate.

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04-ASB-6289

BULK SAMPLE DATA

For use of this form see USAEHA TG 141; the proponent is HSHB-LO.

Return Address (complete address including Zip Code)	Point of Contact (name/AUTOVOT)
NATIONAL GUARD BUREAU REGION SOUTH IH OFFICE 510 PLAZA DRIVE, SUITE 1530 COLLEGE PARK, GA 30349	

Sampled Installation	Project Number	ARLOC
Mineral Wells, TX	11-04-76067	
Samples Collected By	**Date Collected**	**Date Shipped**
Non-Responsive	19NOV04	
Description of Operation		**Location (BLDG/AREA)**
Armory w/o IFR		

Associated Complaints (be specific)

Associated Air Samples — If yes, list sample numbers

☐ Yes ☒ No

Label Information

Trade Name	NSN	Manufacturer

Address	MSDS Attached
	☐ Yes ☐ No

Analysis Desired

LEAD

Lab Use Only	Sample No.	Constituents	Results	Remarks
35454	MW 01	Kitchen, Serving Counter		
35455	MW 02	Kitchen, Top Refrig		
35456	MW 03	Admin Orderly Room, Desk		
35457	MW 04	1Sg Room, Top Wall Locker		
35458	MW 05	Admin Orderly Room, Window Unit		
35459	MW 06	Training Room, Wall		
35460	MW 07	Drill Hall Floor, Supply Room		

Comments to Lab:

Lab Use Only

Analyst (initials)	Reviewed By (initials)	Date Received	Date Reported

Procedures Performed	Comments:

AEHA Form 8-R, 1-94 Replaces AEHA Form 8-R, Oct 93 which is obsolete.

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BULK SAMPLE DATA

For use of this form see USAEHA TG 141; the proponent is HSHB-LO.

Return Address (complete address including Zip Code)	Point of Contact (name/AUTOVON)
NATIONAL GUARD BUREAU REGION SOUTH IH OFFICE 510 PLAZA DRIVE, SUITE 1530 COLLEGE PARK, GA 30349	

Sampled Installation	Project Number	ARLOC
MINERAL WELLS, TX	11-04-76067	
Samples Collected By	**Date Collected**	**Date Shipped**
Non-Responsive	19NOV04	

Description of Operation	Location (BLDG/AREA)
ARMORY W/O IFR	

Associated Complaints (be specific)

Associated Air Samples ☐ Yes ☒ No — If yes, list sample numbers

Label Information

Trade Name	NSN	Manufacturer

Address	MSDS Attached
	☐ Yes ☐ No

Analysis Desired: LEAD

Lab Use Only	Sample No.	Constituents	Results	Remarks
35461	MW 08	DRILL HALL FLOOR, MIDDLE		
35462	MW 09	DRILL HALL FLOOR, EXIT DOOR		
35463	MW 10	DRILL HALL, TOP COKE MACHINE		
35464	MW 11	DRILL HALL WALL, GARAGE DOOR		
35465	MW 12	PLT #3 ROOM, WALL		
35466	MW 13	CLASSROOM #2 WINDOW UNIT		
35467	MW 14	SUPPLY ROOM, TABLE TOP		

Comments to Lab:

Lab Use Only

Analyst (initials)	Reviewed By (initials)	Date Received	Date Reported

Procedures Performed	Comments:

Non-Responsive

AEHA Form 8 [illegible] Replaces AEHA Form [illegible] which is obsolete

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BULK SAMPLE DATA

For use of this form see USAEHA TG 141; the proponent is HSHB-LO.

Return Address (complete address including Zip Code)	Point of Contact (name/AUTOVON)
NATIONAL GUARD BUREAU REGION SOUTH IH OFFICE 510 PLAZA DRIVE, SUITE 1530 COLLEGE PARK, GA 30349	

Sampled Installation	Project Number	ARLOC
MINERAL WELLS, TX	11-04-76067	
Samples Collected By	**Date Collected**	**Date Shipped**
Non-Responsive [redacted]	19NOV04	
Description of Operation		**Location (BLDG/AREA)**
ARMORY W/O IFR		

Associated Complaints (be specific)

Associated Air Samples If yes, list sample numbers

☐ Yes ☒ No

Label Information

Trade Name	NSN	Manufacturer

Address	MSDS Attached
	☐ Yes ☐ No

Analysis Desired

LEAD

Lab Use Only	Sample No.	Constituents	Results	Remarks
35468	MW 15	MINERAL WELLS, BLANK		
	MW			
	MW			
	MW			
	MW			
	MW			
	MW			

Comments to Lab:

Lab Use Only

Analyst (initials)	Reviewed By (initials)	Date Received	Date Reported

Procedures Performed	Comments:

AEHA Form 8-R 1 Oct 84 Replaces AEHA Form 8-R 1 Oct 80 which is obsolete.

Non-Responsive [redacted]

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BULK SAMPLE DATA

For use of this form see USAEHA TG 141; the proponent is HSHB-LO.

Return Address (complete address including Zip Code)	Point of Contact (name/AUTOVON)
NATIONAL GUARD BUREAU REGION SOUTH IH OFFICE 510 PLAZA DRIVE, SUITE 1530 COLLEGE PARK, GA 30349	

Sampled Installation	Project Number	ARLOC
MINERAL WELLS, TX	11-04-76067	

Samples Collected By	Date Collected	Date Shipped
Non-Responsive	19NOV04	

Description of Operation	Location (BLDG/AREA)
ARMORY W/O IFR	

Associated Complaints (be specific)

Associated Air Samples — If yes, list sample numbers

☐ Yes ☒ No

Label Information

Trade Name	NSN	Manufacturer

Address	MSDS Attached
	☐ Yes ☐ No

Analysis Desired

LEAD MW18 / ASBESTOS PLM MW 16+MW17, MW 19+20

Lab Use Only	Sample No.	Constituents	Results	Remarks
35469	MW 16	12"x12" CEILTILE		
35470	MW 17	BASEBOARD MASTIC		
35471	MW 18	PAINT CHIP Admin DOOR	Lead	
35472	MW 19	INSULATION, H2O HEATER PIPE (H2O)		
35473	MW 20	CLASSROOM #2, DOOR CAULK		
	MW			
	MW			

Comments to Lab:

Lab Use Only

Analyst (initials)	Reviewed By (initials)	Date Received	Date Reported

Procedures Performed	Comments:

AEHA Form 8-R 1 Oct 94 Replaces AEHA Form 8-R, 1 Oct 90, which is obsolete.

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DATA CHEM LABORATORIES, INC.

SUBMITTED TO:

Non-Responsive

510 Plaza Dr., Ste. 1530
College Park, GA 30349

REFERENCE DATA:

Client Sample No.:	MW16 through MW20
P.O. No.:	W912JM-04-A-0007
Sample Location:	Project Number: 11-04-76067, Mineral Wells, TX
Sample Type:	Bulk
Method Reference:	EPA-600/R-93/116
DCL Set ID No.:	04-A-6289
DCL Sample ID No.:	04-35469 through 04-35473
Sample Receipt Date:	12/6/04
Analysis Date:	12/7/04

We certify that the following samples were prepared and analyzed by Polarized Light Microscopy for asbestos and other fibrous constituents using EPA-600/R-93/116. The samples were acceptable upon receipt except where noted. The samples were examined under a stereomicroscope in a laboratory fume hood for general composition and phase separation. If needed, portions of the sample were removed and ground with a mortar and pestle before being mounted on a glass microscope slide. Mountings of representative portions of the material are prepared in one or more appropriate refractive index liquids (1.550, 1.605, 1.680) and examined by Polarized Light Microscopy*. Estimates of concentration are made on an area basis. The results of the analysis apply only to the materials analyzed and are summarized on the attached bulk asbestos analysis data sheets. DataChem Laboratories will dispose of all bulk samples after 60 days unless other arrangements are made.

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*Floor tiles, decorative paints, joint compounds, and cement materials require additional treatment in order to evaluate the concentration of small asbestos fibers bound in the material. Some samples may contain fibers that are not visible by PLM and can only be detected by electron microscopy techniques. Floor tiles are analyzed as homogeneous materials if insufficient mastic is present or if phases have been cross contaminated.

DataChem Laboratories NVLAP Lab ID: 101917. Laboratory accreditation by the National Institute of Standards and Technology does not in any way constitute approval or endorsement by NIST.

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Page 378 of 2531

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12/7/04

DataChem Laboratories
Polarized Light Microscopy
Asbestos Analytical Report

Client: NGB South
Location: Project Number: 11-04-76067, Mineral Wells, TX
Set ID: 04-A-6289

Client Sample ID:	MW16	MW17	MW19	MW20
DCL Sample ID:	04-35469	04-35470	04-35472	04-35473
Macroscopic Examination				
Accepted/Rejected:	Accepted	Accepted	Accepted	Accepted
Homogeneity:	Homog.	Homog.	Homog.	Homog.
Color:	Tan	Tan	Grey	Grey
Texture:	Fibrous	Crumbly	Fibrous	Crumbly
Description:	Ceiling Tile	Mastic	Material	Caulk
Analysis:	PLM	PLM	PLM	PLM
Asbestiform Minerals				
% Chrysotile:		>1 ≤ 3	>40 ≤ 50	>1 ≤ 3
% Amosite:				
% Crocidolite:				
% Tremolite - Actinolite:				
% Anthophyllite:				
% Total Asbestos:	**ND**	**>1 ≤ 3**	**>40 ≤ 50**	**>1 ≤ 3**
Other Materials				
% Cellulose:	>60 ≤ 70	Trace	>20 ≤ 30	
% Fiberglass:				
% Other Fibers:				
% Resin/Binder:		>50 ≤ 60		
% Non Fibrous:	>20 ≤ 30	>30 ≤ 40	>10 ≤ 20	>90 ≤ 100

ND = None Detected Trace = <1%

Special Prep Procedures: None.

*Notes: P. O. #: W912JM-04-A-0007.

Non-Responsive

All values are in area percent by visual estimate. The Federal Register Vol. 55 No. 224 Tuesday Nov. 20 1990 Rules and Regulations states "... If the asbestos content is estimated to be less than 10% by a method other than point counting,... (the analysis) be repeated using the point counting technique by PLM." Any of the above samples can be reanalyzed by point counting at the client's request.
Wherever possible, separate phases are analyzed and reported individually.

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Page 379 of 2531

04-ASJ-6389

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BULK SAMPLE DATA

For use of this form see USAEPA TC 141; the proponent is HSHB-LO.

Return Address (complete address including Zip Code)	Point of Contact (name/AUTOVON)
NATIONAL GUARD BUREAU REGION SOUTH IH OFFICE 510 PLAZA DRIVE, SUITE 1530 COLLEGE PARK, GA 30349	

Sampled Installation	Project Number	ARLOC
MINERAL WELLS, TX	11-04-76067	
Samples Collected By	**Date Collected**	**Date Shipped**
Non-Responsive	19NOV04	

Description of Operation	Location (BLDG/AREA)
ARMORY W/O IFR	

Associated Complaints (be specific)

Associated Air Samples — If yes, list sample numbers

☐ Yes ☒ No

Label Information

Trade Name	NSN	Manufacturer

Address	MSDS Attached
	☐ Yes ☐ No

Analysis Desired

LEAD MW18 / PLM ASBESTOS MW 16+MW17, MW 19+20

Lab Use Only	Sample No.	Constituents	Results	Remarks
35469	MW 16	12"X12" CEILING TILE	ND	
35470	MW 17	BASEBOARD MASTIC	>1≤3% chrysotile	
35471	MW 18	PAINT CHIP Admin DOOR	Lead	
35472	MW 19	INSULATION, H2O HEATER PIPE	>40≤50% chrysotile	
35473	MW 20	CLASSROOM #2, DOOR CAULK	>1≤3% chrysotile	
	MW			
	MW			

Comments to Lab:

Lab Use Only

Analyst (initials)	Reviewed By (initials)	Date Received	Date Reported
SS	RK	12/6/04	12/9/04

Procedures Performed	Comments:
PLM Asbestos Analysis EPA/600/R93/116	

AEHA Form 8-R Dec 94 Replaces AEHA Form 8-R, Oct 90 which is obsolete.

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BULK SAMPLE DATA

For use of this form see USAEHA TG 141; the proponent is HSHB-LO.

Return Address (complete address including Zip Code)	Point of Contact (name/AUTOVON)
NATIONAL GUARD BUREAU REGION SOUTH IH OFFICE 510 PLAZA DRIVE, SUITE 1530 COLLEGE PARK, GA 30349	

Sampled Installation	Project Number	ARLOC
MINERAL WELLS, TX	11-04-76067	

Samples Collected By	Date Collected	Date Shipped
Non-Responsive	19NOV04	

Description of Operation	Location (BLDG/AREA)
ARMORY W/O IFR	

Associated Complaints (be specific)

Associated Air Samples — If yes, list sample numbers

☐ Yes ☒ No

Label Information

Trade Name	NSN	Manufacturer

Address	MSDS Attached
	☐ Yes ☐ No

Analysis Desired

LEAD

Lab Use Only	Sample No.	Constituents	Results	Remarks
35454	MW 01	KITCHEN, SERVING COUNTER		
35455	MW 02	KITCHEN, TOP REFRIG		
35456	MW 03	Admin ORDERLY ROOM, DESK		
35457	MW 04	1SG ROOM, TOP WALL LOCKER		
35458	MW 05	Admin ORDERLY ROOM, WINDOW UNIT		
35459	MW 06	TRAINING ROOM, WALL		
35460	MW 07	DRILL HALL FLOOR, SUPPLY ROOM		

Comments to Lab:

Lab Use Only

Analyst (initials)	Reviewed By (initials)	Date Received	Date Reported

Procedures Performed	Comments:

AEHA Form 8-R [illegible] Replaces AEHA Form [illegible] which is obsolete.

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BULK SAMPLE DATA

For use of this form see USAEHA TG 141; the proponent is HSHB-LO.

Return Address (complete address including Zip Code)	Point of Contact (name/AUTOVON)
NATIONAL GUARD BUREAU REGION SOUTH IH OFFICE 510 PLAZA DRIVE, SUITE 1530 COLLEGE PARK, GA 30349	

Sampled Installation	Project Number	ARLOC
MINERAL WELLS, TX	11-04-76067	
Samples Collected By	**Date Collected**	**Date Shipped**
Non-Responsive [redacted]	19NOV04	
ARMORY W/O IFR		**Location** (BLDG/AREA)

Associated Complaints (be specific)

Associated Air Samples ☐ Yes ☒ No — If yes, list sample numbers

Label Information

Trade Name	NSN	Manufacturer

Address	MSDS Attached
	☐ Yes ☐ No

Analysis Desired

LEAD

Lab Use Only	Sample No.	Constituents	Results	Remarks
35461	MW 08	DRILL HALL FLOOR, MIDDLE		
35462	MW 09	DRILL HALL FLOOR, EXIT DOOR		
35463	MW 10	DRILL HALL, TOP COKE MACHINE		
35464	MW 11	DRILL HALL WALL, GARAGE DOOR		
35465	MW 12	PLT #3 ROOM, WALL		
35466	MW 13	CLASSROOM #2 WINDOW UNIT		
35467	MW 14	SUPPLY ROOM, TABLE TOP		

Comments to Lab:

Lab Use Only

Analyst (initials)	Reviewed By (initials)	Date Received	Date Reported

Procedures Performed	Comments:

Non-Responsive [redacted]

AEHA Form 8-R Oct 84 Replaces AEHA Form 8 Oct 80 which is obsolete.

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BULK SAMPLE DATA

For use of this form see USAEHA TG 141; the proponent is HSHB-LO.

Return Address (complete address including Zip Code)	Point of Contact (name/AUTOVON)
NATIONAL GUARD BUREAU REGION SOUTH IH OFFICE 510 PLAZA DRIVE, SUITE 1530 COLLEGE PARK, GA 30349	

Sampled Installation	Project Number	ARLOC
MINERAL WELLS, TX	11-04-76067	

Samples Collected By	Date Collected	Date Shipped
Non-Responsive [redacted]	19NOV04	

	Location (BLDG/AREA)
ARMORY W/O IFR	

Associated Complaints (be specific)

Associated Air Samples ☐ Yes ☒ No — If yes, list sample numbers

Label Information

Trade Name	NSN	Manufacturer

Address	MSDS Attached
	☐ Yes ☐ No

Analysis Desired: LEAD

Lab Use Only	Sample No.	Constituents	Results	Remarks
35468	MW 15	MINERAL WELLS, BLANK		
	MW			
	MW			
	MW			
	MW			
	MW			
	MW			

Comments to Lab:

Lab Use Only

Analyst (initials)	Reviewed By (initials)	Date Received	Date Reported

Procedures Performed	Comments:

AEHA Form 6-R Oct 84 — Replaces AEHA Form 6, Oct 80, which is obsolete.

Non-Responsive [redacted]

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DATA CHEM LABORATORIES, INC.

Submitted To: Non-Responsive
510 Plaza Dr., Ste. 1530
College Park, GA 30349

Reference Data:	**Lead**
Client Sample No.:	MW01 through MW15
P.O. No.:	W912JM-04-A-0007
Sample Location:	Project Number: 11-04-76067, Mineral Wells, TX
Sample Type:	Ghost Wipe
Method Reference:	3050B/6010B
DCL Set ID No.:	04-S-6289
DCL Sample ID No.:	04-35454 through 04-35468
Sample Receipt Date:	12/6/2004
Preparation Date:	12/7,8/2004
Analysis Date:	12/10/2004

The samples were prepared in accordance with EPA method 3050B. Sample condition was acceptable upon receipt except where noted. The samples were then analyzed in accordance with EPA method 6010B using a Jarrell Ash Trace (ICP) purged spectrometer.

The results are provided in the enclosed data table. Results relate only to the items tested and are not blank corrected unless indicated in the data table.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Non-Responsive

CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3706
513 733-5336, FAX 513 733-5347

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Results
Lead

Client #	DCL #	µg/Wipe
MW01	04-35454	ND
MW02	04-35455	15.
MW03	04-35456	ND
MW04	04-35457	46.
MW05	04-35458	35.
MW06	04-35459	13.
MW07	04-35460	ND
MW08	04-35461	ND
MW09	04-35462	ND
MW10	04-35463	55.
MW11	04-35464	ND
MW12	04-35465	47.
MW13	04-35466	25.
MW14	04-35467	18.
MW15	04-35468	ND
	Prep Blank	ND
% Recovery	LCS 1	83.
% Recovery	LCS 2	83.
RPL		**10.**

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

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FOIA Requested Record #J-15-0085 (TN)
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Page 385 of 2531

04-AS2-6289

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BULK SAMPLE DATA

For use of this form see USAEHA TG 141; the proponent is HSHB-LO.

Return Address *(complete address including Zip Code)*

NATIONAL GUARD BUREAU REGION SOUTH IH OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

Point of Contact *(name/AUTOVON)*

Sampled Installation	Project Number	ARLOC
Mineral Wells, TX	11-04-76067	

Samples Collected By	Date Collected	Date Shipped
Non-Responsive [redacted]	19Nov04	

[redacted]	Location *(BLDG/AREA)*
Armory w/o IFR	

Associated Complaints *(be specific)*

Associated Air Samples ☐ Yes ☒ No — If yes, list sample numbers

Label Information

Trade Name	NSN	Manufacturer

Address	MSDS Attached
	☐ Yes ☐ No

Analysis Desired

LEAD

Lab Use Only	Sample No.	Constituents	Results	Remarks
35454	MW 01	Kitchen, Serving Counter		
35455	MW 02	Kitchen, Top Refrig		
35456	MW 03	Admin Orderly Room, Desk		
35457	MW 04	1Sg Room, Top Wall Locker		
35458	MW 05	Admin Orderly Room, Window Unit		
35459	MW 06	Training Room, Wall		
35460	MW 07	Drill Hall Floor, Supply Room		

Comments to Lab:

Lab Use Only

Analyst *(initials)*	Reviewed By *(initials)*	Date Received	Date Reported

Procedures Performed	Comments:

AEHA Form 8-6 [illegible] 94

Replaces AEHA Form 8-1 Oct 90 which is obsolete.

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04-152-6289

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BULK SAMPLE DATA

For use of this form see USAEHA TG 141; the proponent is HSHB-LO.

Return Address (complete address including Zip Code)	Point of Contact (name/AUTOVON)
NATIONAL GUARD BUREAU REGION SOUTH IH OFFICE 510 PLAZA DRIVE, SUITE 1530 COLLEGE PARK, GA 30349	

Sampled Installation	Project Number	ARLOC
MINERAL WELLS, TX	11-04-76067	

Samples Collected By	Date Collected	Date Shipped
Non-Responsive	19NOV04	

Description of Operation	Location (BLDG/AREA)
ARMORY W/O IFR	

Associated Complaints (be specific)

Associated Air Samples ☐ Yes ☒ No — If yes, list sample numbers

Label Information

Trade Name	NSN	Manufacturer

Address	MSDS Attached
	☐ Yes ☐ No

Analysis Desired: LEAD

Lab Use Only	Sample No.	Constituents	Results	Remarks
35461	MW 08	DRILL HALL FLOOR, MIDDLE		
35462	MW 09	DRILL HALL FLOOR, EXIT DOOR		
35463	MW 10	DRILL HALL, TOP COKE MACHINE		
35464	MW 11	DRILL HALL WALL, GARAGE DOOR		
35465	MW 12	PLT #3 ROOM, WALL		
35466	MW 13	CLASSROOM #2 WINDOW UNIT		
35467	MW 14	SUPPLY ROOM, TABLE TOP		

Comments to Lab:

Lab Use Only

Analyst (initials)	Reviewed By (initials)	Date Received	Date Reported

Procedures Performed	Comments:

AEHA Form 8-R

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Replaces AEHA Form 8-R, Oct 85 which is obsolete.

04-AS2-6289

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BULK SAMPLE DATA

For use of this form see USAEHA TG 141; the proponent is HSHB-LO.

Return Address (complete address including Zip Code)	Point of Contact (name/AUTOVON)
NATIONAL GUARD BUREAU REGION SOUTH IH OFFICE 510 PLAZA DRIVE, SUITE 1530 COLLEGE PARK, GA 30349	

Sampled Installation	Project Number	ARLOC
MINERAL WELLS, TX	11-04-76067	

Samples Collected By	Date Collected	Date Shipped
Non-Responsive [redacted]	19NOV04	

Description of Operation	Location (BLDG/AREA)
ARMORY W/O IFR	

Associated Complaints (be specific)

Associated Air Samples ☐ Yes ☒ No — If yes, list sample numbers

Label Information

Trade Name	NSN	Manufacturer

Address	MSDS Attached
	☐ Yes ☐ No

Analysis Desired: LEAD

Lab Use Only	Sample No.	Constituents	Results	Remarks
35468	MW 15	MINERAL WELLS, BLANK		
	MW			
	MW			
	MW			
	MW			
	MW			
	MW			

Comments to Lab:

Lab Use Only

Analyst (initials)	Reviewed By (initials)	Date Received	Date Reported

Procedures Performed	Comments:

AEHA Form 8-R 1 Oct 84 Replaces AEHA Form 8-R, 1 Oct 83 which is obsolete.

Non-Responsive [redacted]

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May, 2018

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04-ASJ-6389

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BULK SAMPLE DATA

For use of this form see USAEHA TG 141; the proponent is HSHB-LO.

Return Address (complete address including Zip Code)	Point of Contact (name/AUTOVON)
NATIONAL GUARD BUREAU REGION SOUTH IH OFFICE 510 PLAZA DRIVE, SUITE 1530 COLLEGE PARK, GA 30349	

Sampled Installation	Project Number	ARLOC
MINERAL WELLS, TX	11-04-76067	
Samples Collected By	**Date Collected**	**Date Shipped**
Non-Responsive	19NOV04	
Description of Operation		**Location (BLDG/AREA)**
ARMORY W/O IFR		

Associated Complaints (be specific)

Associated Air Samples ☐ Yes ☒ No — If yes, list sample numbers

Label Information

Trade Name	NSN	Manufacturer
Address		**MSDS Attached** ☐ Yes ☐ No

Analysis Desired: LEAD MW18 / ASBESTOS MW 16+MW17, MW 19+20 (PLM)

Lab Use Only	Sample No.	Constituents	Results	Remarks
35469	MW 16	12"X12" CEILING TILE		
35470	MW 17	BASEBOARD MASTIC		
35471	MW 18	PAINT CHIP Admin DOOR	Lead	
35472	MW 19	INSULATION, H_2O HEATER PIPE		
35473	MW 20	CLASSROOM #2, DOOR CAULK		
	MW			
	MW			

Comments to Lab:

Lab Use Only

Analyst (initials)	Reviewed By (initials)	Date Received	Date Reported

Procedures Performed	Comments:

Non-Responsive

AEHA Form 3 Oct 80 which is obsolete. Replaces AEHA Form 3, 1 Oct 80 which is obsolete.

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NATIONAL GUARD REGION SOUTH
INDUSTRIAL HYGIENE OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

NGB-ARS-IHSE (40-5f) January 12, 20010

MEMORANDUM FOR The Adjutant General of Tennessee, ATTN: Non-Responsive TN Army National Guard Armory Dresden Armory, P.O. Box 260, Hwy 22 S. Industrial Park, Dresden, TN 38225-0260

THRU Non-Responsive, Deputy State Surgeon, Tennessee National Guard, HQS, AGTN-DCSPER-DSS, P.O. Box 41502, Houston Barracks, Nashville, Tennessee 37204-1501.

SUBJECT: Transmittal of IH Survey of TN ARNG Dresden Armory, Dresden, TN.

1. References.

   a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 19 August 1998.

   b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1996 rev.

   c. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 25 May 2007

   d. AR 385-10, The Army Safety Program, 23 August 2007.

   e. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.

   f. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, 23 May 2008.

   g. TB MED 503, The Army Industrial Hygiene Program, 30 October 2000.

   h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2008, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

   i. Industrial Ventilation, 26th rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

   j. Title 29, Code of Federal Regulations (CFR), 2001 rev., part 1910, Occupational Safety and Health Standards.

   k. Reports of Dresden Armory Industrial Hygiene Survey, Non-Responsive Fayetteville, GA.

2. General.

   a. At the request of Non-Responsive RN, of the Tennessee National Occupational Health Office, an Industrial Hygiene Survey was put together to conduct Health Hazard

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Information module (HHIM) Field survey of the s and industrial hygiene sampling of the TN ARNG Dresden Armory, Dresden,, TN.

b. The survey was conducted by Non-Responsive, 583 Ginger Cake Rd, Fayetteville, GA 30214

3. Findings: The information that follows is based on the findings of the survey performed. All HHIM field survey forms, industrial hygiene sampling and survey findings of the report are enclosed (See ENCL 1). Operations of very short duration were not sampled due to the requirements of the sampling method. If the operation changes or if the length of the operation is increased, contact this office to schedule sampling if it is deemed needed then.

4. Recommendations. Understand that all findings documented in the enclosed report have been reviewed by the Regional Industrial Hygienist and the following recommendations are the ones to be followed.

a. Use the guidance given in the enclosed report as good IH practices, requesting industrial hygiene (IH) services where needed. The recommendations that follow are based on the survey findings as reported for the areas surveyed:

i Ensure personnel using computers for extended periods of time take occasional breaks and change position to minimize the possibility of eyes and/or hands/wrist injury. (RAC 2)

ii Continue to ensure that weapon maintenance and cleaning is done in a well-ventilated area. Continue to practice good personal hygiene by washing hands after handling and cleaning weapons and ammunition. Ensure that the weapons racks are well cleaned before placing them back in the vault. Also, consider the use of disposable plastic table cloth to cover the tables while the weapons are cleaned to prevent contamination of the tables. (RAC 2)

iii Do not use or allow any personnel and/or troops to enter the deactivated indoor firing range until the area is cleared to be used for other purposes. (RAC 2)

iv Place the MSDS book at a visible location in an easy to access area of the armory. Ensure that personnel and troops have knowledge of the location of the MSDS book, and are take the hazardous materials safety training. Also a Hazardous Materials Inventory List should be made from the MSDS forms and be placed in the POL storage. (RAC 3)

b. The recommendations given in the comments section of the HHIM data sheets and data collected will serve as an update of the baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY2009. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY2010 IHIP.

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c. Have all HHIM data entered into the HHIM computer module.

d. Use the report to help in correcting all deficiencies noted.

e. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present visits, especially if this will help eliminate health hazards and reduce medical surveillance cost.

f. Contact the State Occupational Health Office for any medical Surveillance that may be needed.

g. To execute your responsibilities in correcting all deficiencies, coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed about the industrial hygiene survey or air sample [redacted]B-

Non-Responsive

CF:
[redacted]nnessee State Safety and Occupational Health Manager, 3041 Sidco Drive, [redacted]504
[redacted]N, Occupational Health Nurse, Tennessee State Safety and Occupational Health Office, Smyrna, TN 37167

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FINAL REPORT

FOR

BASELINE INDUSTRIAL HYGIENE SURVEY

TENNESSEE ARMY NATIONAL GUARD

DRESDEN ARMORY

DRESDEN, TN

DATE:

NOVEMBER 19, 2009

PREPARED BY

Non-Responsive

[redacted]

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
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CONTENTS

1.0 INTRODUCTION

2.0 INSTRUMENTATION

3.0 FINDINGS

4.0 REFERENCES

Attachment 1 HHIM Forms

Attachment 2 Laboratory Reports: A/C-Heating System Outlet Grills & Filters
Weapons Vault

Attachment 3 Weapons Vault Sampling Areas

Attachment 4 Photographs of the Facility

Attachment 5 Schematic Drawing of Facility

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1.0 INTRODUCTION

At the request of the National Guard Bureau South Region Industrial Hygiene Office, Non-Responsive performed a Baseline Industrial Hygiene Survey at the TN ARNG Dresden Armory. The purpose of the survey was to perform a baseline survey to evaluate health hazards, controls present in the work site, collect lead swipe samples from renovated/inactive or closed Indoor Firing Ranges, Weapons Vault, A/C-Heating System, illumination survey and to make recommendations regarding health hazards associated with the work at the Dresden Armory.

The facility was built in 1989. Personnel reported that no major remodeling has been done to the building. The facility houses the 1171st Transportation Company. The armory is used by the troops of the above mentioned unit for their monthly weekend drills.

The 1171st Transportation Company with about 140 troops had 3 full time AGR personnel at the time of the survey. The AGR employees are assigned to perform administrative duties Monday-Friday 8:00am-4:30pm. The facility houses administrative areas, a drill hall, classrooms, a supply room, a weapons vault, a kitchen, and a deactivated Indoor Firing Range. The troops are schedule to be deployed sometime in early December. On the day of the survey there was a lot of activity at the armory, the AGR and others were very busy. There were a lot of people moving in and out of the facility throughout the day. Personnel reported that there is a water leak at the roof in the Drill Hall. A request to repair the leak was sent and they are waiting for the work to be done. A schematic drawing of the facility can be found in Attachment 5.

The facility was visually examined and personnel consulted to assess potential hazards present. Health Hazard Information Modules were completed. Illumination survey was performed throughout the facility.

2.0 INSTRUMENTATION/CALIBRATION

The following instrumentation was used to obtain light measurements. The instrument used has been calibrated and was operated according to the manufacturer's recommendations:

- SPER SCIENTIFIC Light Meter
- GHOST WIPES, Lead Wipes

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3.0 FINDINGS

Illumination

Illumination levels were recorded in administration offices, classrooms, the conference room, the drill hall and the supply room. Light measurements were within IES minimum standards throughout the facility. See Light Readings Table at the end of this section.

Administration

Personnel perform administrative duties that consist of reading, handling and generating paper work. Computer use comprises a large portion of the working day, four to five hours per day. This continuous use of computers can in the long run lead to eyestrain and hand/wrist soreness. Personnel reported no health problems associated with the job at this time. One reported a history of a knee injury dated back to high school which was treated at the time it happened. Another had suffered a wrist tear in the past.

Motor Pool

The motor pool is located behind the building. A large number of vehicles are kept in the area, mainly trucks and some Humvees. It is fenced and locked. Operator level PMCS are performed at the armory on weekend drills with road testing. When major repairs are needed the vehicles are taken to the maintenance shop facility located in Union City.

Drill Hall

The Drill Hall is located towards the rear of the building. It is used primarily for formation on weekend drills. Vehicles are not stored in the room. The Drill Hall is used to clean weapons at least once a year. There are air exhaust ventilation fans, located close to the roof on left and right of the front wall of the DH. There are two air intake grills at the opposite side of the fans. At the time of the survey both air exhaust ventilation fans were working and the intake grills opened when the fans were turned on. The weapons are cleaned by platoons on tables at the Drill Hall in an area close to the supply Room. The roll-up door and the two side doors are opened while cleaning the weapons. The tables are not covered. Rags with CLP are used to clean the weapons. The used rags are collected and later taken to the shop for their disposal. At least two times a year the weapons are cleaned in the field. One of the light bulbs in the room was out the day of the survey. The Drill Hall is rented about 4 or 5 times a year for weddings or retirement. No cooking is allowed. The renters may use the kitchen to warm food.

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Kitchen

The facility has a kitchen that is used to cook on weekend drills. The unit has a mess section in charge of the kitchen. the cooking and the cleaning. Lunches are provided on Saturday and Sunday on weekend drills. They eat on tables in the Drill Hall. The kitchen looked somewhat disorganized, may be due to all the commotion related to the deployment. A wipe sample was taken from the left side top a movable metal counter that was very dusty. No lead was found in the sample.See Laboratory results.

Boiler Room

There is no boiler in the facility.

Deactivated Indoor Firing Range

There is a deactivated Indoor Firing Range (IFR) at the facility. Personnel reported that it has been closed for a while. It was also reported that crews from Nashville have come several times to clean it. They had done an initial cleaning. The last time they came was on August 2009. When they left the door was closed and sealed with plastic and duct tape with instructions that nobody is allowed in the IFR until the area is cleared to be used for other purposes. A walk to the IFR confirmed the fact that the door was closed and sealed with a plastic and duct tape. No wipe samples were taken from this area.

Weapons Vault

The Dresden Armory has a weapon storage vault located in the Supply Room. Personnel stated that accountability and issuing of weapons are performed in this area when the weapons are cleaned in the Drill Hall. When the unit goes to the field, all the racks are taken to the field for distribution. Weapons are cleaned about two times a year in the Drill Hall as stated in the Drill Hall section above. The dehumidifier in the weapons vault was working the day of the survey. All lead samples were taken using a 10 inch by 10 inch template. Four wipe samples were taken from the weapons vault racks. None of the samples was above the clearance level of 200ug/ft2. See table 1 for results. See attachments 3 and 4 for sampling locations and pictures.

Table I

Sample Number	Sample Location	Results

66	Weapons Vault. Floor in front and Rack bottom, 1st rack on left side	211ug	301ug/ft2
67	Weapons Vault, Left side. Floor in front of 3rd rack (See Attach. 3 & 4)	84ug	120ug/ft2
68	Weapons Vault, Floor in front and Rack bottom, 5th rack on left side	66ug	94ug/ft2
69	Weapons Vault, Floor in front of rack, left side of rear center rack	81ug	115ug/ft2
77	Blank	BRL	BRL

A/C System

Central A/C units are used to cool the administration offices, and classrooms. The A/C-Heating units are still the ones installed when the armory was built. The units work well in both winter and summer. The filters will need to be changed in the very near future. All lead samples were taken using a 10 inch by 10 inch template. The US environmental Protection Agency (EPA), under a new standard issued in 2000, considers lead dust as a hazard if levels are greater than 40 micrograms of lead in dust per square foot on floors. The National Guard Bureau recommends a limit of 200 micrograms per square foot for surface contamination. Ten wipe samples were collected from the supply air outlet grills in the offices classrooms and library. All samples were below the clearance level of 200 ug/ft2.

Table 2

Sample Number	Sample Location	Results
61	A/C-Heating Outlet, Training NCO Office	BRL
62	A/C-Heating Outlet Classroom 1/Weight Room (left side)	BRL
63	A/C-Heating Outlet Classroom 2 (Room 130)	BRL

64	A/C-Heating Outlet Classroom 3 (Room131)	BRL
65	A/C-Heating Outlet, Orderly Room	BLR
70	A/C-Heating Outlet, RNCO Office	BLR
71	A/C-Heating Unit Filter, Fan Side (GF1A unit)	BRL
72	A/C-Heating Unit Filter, Supply Side (GF1A unit)	BRL
73	A/C-Heating Outlet, 1 SG Office	BRL
74	C-Heating Unit Filter, Fan Side (GF1B unit)	BRL
75	A/C-Heating Unit Filter, Supply Side (GF1B unit)	BRL
77	Blank	BLR

Material Safety Data Sheets

Personnel reported that they are getting ready to place an MSDS Book on the wall of the Drill Hall No sign was found anywhere in the armory to advise personnel and troops about the location of the MSDS book. There is a POL shed and a flammables cabinet both located outside the building. The POL was locked. Inside there are oil lubricants, brake fluid, hydraulic fluid, and antifreeze. No Hazardous Materials Inventory List was found in the POL. In the flammables cabinet only aerosol paint cans were stored. There was a Hazardous Materials Inventory List inside this cabinet.

Light Readings

Light measurements were taken in various locations throughout the facility. The results were compared to guidelines recommended by the Illuminating Engineering Society (IES). The results of the survey are shown in Table 3

Table 3

Location	Light Reading (footcandles)	IES Recommendation (footcandles)
ADO Orderly Room	**71-101 (Avg. 89)**	**50-100**
ADO RNCO Office	**66-96 (Avg. 75)**	**50-100**
ADO 1 SG Office	**71-85 (Avg. 77)**	**50-100**
ADO ADMIN TRNG Office	**65-117 (Avg. 89)**	**50-100**
Classroom 1/Weight Room	**73-104 (Avg. 90)**	**50-100**
Classroom 2 (Room 130)	**91-102 (Avg. 96)**	**50-100**
Classroom 3 (Room 131)	**88-103 (Avg. 97)**	**50-100**
Kitchen	**61-87 (Avg. 72**	**50-100**
ADO Supply Room Office	**77-94 (Avg. 82)**	**50-100**
ADO Supply Room (Storage # 17)	**22-33 (Avg. 25)**	**20**
Drill Hall	**28-53 (Avg. 35)**	**30**

Light measurements were within IES minimum standards throughout the facility. ANSI RP7-1991.

4. REFERENCES

- Guide to Occupational Exposure 2000, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.
- American National Standards Institute (ANSI), /Illuminating Engineering Society (IES), Industrial Lighting 1991.
- Title 29, Code of Federal Regulations (CFR). 1999, revision, Part 1910. Occupational Safety and Health Standards
- AR 40-5, Preventative Medicine, 15 October 1990.
- AR 385-10, The Army Safety Program, 23 May 1988.
- National Safety Council, Fundamentals of Industrial Hygiene, 4th edition, 1996.

- AR 385-16, National Guard Pamphlet, Safety Guidelines for Converting Indoor Firing Ranges to Other uses.
- TB MED 503, The Army Industrial Hygiene Program, February 1985.
- Department of the Army Pamphlet (DA PAM) 40-501,27 August 1991, Hearing Conservation.
- Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.

Non-Responsive

[redacted]

RECOMMENDATIONS

- Recommend that when using computers for extended periods of time, personnel should take occasional breaks and change position to minimize the possibility of eyes and/or hands/wrist injury.

- Continue to ensure that weapon maintenance and cleaning is done in a well-ventilated area. Continue to practice good personal hygiene by washing hands after handling and cleaning weapons and ammunition. Ensure that the weapons racks are well cleaned before placing them back in the vault.

- Recommend the use of disposable plastic table cloth to cover the tables while the weapons are cleaned to prevent contamination of the tables.

- A request should be submitted to the appropriate state office to repair the roof leaks in the Drill Hall if it has not been done yet.

- Recommend that personnel and troops do not enter the deactivated indoor firing range until the area is cleared to be used for other purposes.

- Recommend that A/C filters should be change regularly according to manufacturers' recommendation).

- Recommend that a MSDS book be placed at a visible area of the armory as soon as is possible.

- Recommend that Hazardous Materials Inventory Lists should be made from the MSDS forms and be placed in the POL storage.

- Ensure that personnel and troops have knowledge of the location of the MSDS book. And is enrolled hazardous materials safety training.

(For use of this form, see FIHEM User's Instructions.)

SECTION 1. DEMOGRAPHIC DATA

BEST AVAILABLE COPY

a. ARLOC 47000 b. INSTALLATION Dyersburg TN Armory c. BLDG/RM NUMBER RNCO Office

d. LOCATION/CODE 100 e. OPERATION/CODE ADD f. DESCRIPTION Readiness NCO, Admin Man,

g. MACOM/CODE NG /

j. TELEPHONE/AUTOVON NUMBER [redacted] DE / i. SUPERVISOR

m. NO CIV(S) n. NO MIL [redacted] RAC l. FREQUENCY (Hrs Per Day)

o. NO CONTRACTOR(S) p. NO LOC(S) q. NO OTHER

SECTION 2. IH STAFFING DATA

a. LAB HOODS b. VAPOR DEGREASERS c. MAINTENANCE BAYS d. SPRAY BOOTHS

e. OPEN SURFACE TANKS f. VENTILATION UNITS

SECTION 3. SURVEY DATA

a. SURVEY DATE 1079-09 b. EVALUATOR (INITIALS) [redacted]

c. CONTROLS PRESENT	d. EVALUATION	e. UNIT CODE	f. CONTROLS REQUIRED	g. STATUS
Lighting	66-96 Avg: 75	FC	50-100	Light

h. PERSONAL PROTECTIVE EQUIPMENT (R=REQUIRED; A=AVAILABLE)

1. RESPIRATOR

DISPOSABLE	MANUFACTURER	NIOSH TC NO	R/A
½ FACE AIR PURIFYING			
⅓ FACE AIR PURIFYING			
FULL FACE AIR PURIFYING			
POWERED AIR PURIFYING			
AIRLINE			
SELF-CONTAINED			
ABRASIVE BLASTING HOOD			

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	R/A
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	
OIL	/	SAFETY/IMPACT	/	EARPLUGS	/	COVERALLS	/	IMPERMEABLE BOOTS	
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/ HARNESS	/	SAFETY/NONCONDUCTIVE SHOES	
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/								

SECTION 4. HAZARD INVENTORY DATA

a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC or EPC	d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO)
POVDT	eye/head strain Computer work for long periods of time	3	

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a. HAZARD	b. SAMPLE TYPE	c. RESULTS	d. REMARKS

SECTION 6. PERSONNEL DATA

[redacted]				SSN	d. CATEGORY
[redacted]					ASR

SECTION 7. COMMENTS (Add blank sheet of paper if necessary)

① Readiness NCO
② Has been at this facility about 6 mo
- Was at Memphis
computer work about 7 hrs/day
No health problems.

PRIVACY ACT STATEMENT

Title 5 U.S. Code, Section 301; Executive Order 9397 authorizes the use of your Social Security Number as a identification number. The purpose of this information is to identify and monitor data relating each DA civilian employee exposed to a hazardous workplace or operation. The use of this information is to provide histories of exposure for any given worker.

Disclosure of your Social Security Number is not mandatory; however, nondisclosure may result in untimely provision of proper medical monitoring.

Signature

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Page 404 of 2531

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SECTION 1. DEMOGRAPHIC DATA

a. ARLOC 47000 b. INSTALLATION Dresden, TN Armory c. BLDG/RM NUMBER Adm/TNG

d. LOCATION/CODE AA, e. OPERATION/CODE NDO f. DESCRIPTION Training NCO, Project Manager (Armory) Payroll Setting School Schedule for Troops

g. MACOM/CODE NG 364-3691 h. [redacted] i. SUPERV [redacted]

j. TELEPHONE/AUTOVON NUMBE [redacted] k. FREQUENCY (Hrs Per Day)

m. NO CIV(S) n. NO MIL o. NO CONTRACTOR(S) p. NO LOC(S) q. NO OTHER

SECTION 2. IH STAFFING DATA

a. LAB HOODS — b. VAPOR DEGREASERS — c. MAINTENANCE BAYS — d. SPRAY BOOTHS —

e. OPEN SURFACE TANKS — f. VENTILATION UNITS —

SECTION 3. SURVEY DATA

a. SURVEY DATE 11-19-09 b. EVALUATOR (INITIALS) [redacted]

c. CONTROLS PRESENT	d. EVALUATION	e. UNIT CODE	f. CONTROLS REQUIRED	g. STATUS
Lighting	65-117, Aug. 89	FC	50-100	Adqt

h. PERSONAL PROTECTIVE EQUIPMENT (R=REQUIRED; A=AVAILABLE)

1. RESPIRATOR	MANUFACTURER	NIOSH TC NO	R/A
DISPOSABLE			
¼ FACE AIR PURIFYING			
½ FACE AIR PURIFYING			
FULL FACE AIR PURIFYING			
POWERED AIR PURIFYING			
AIRLINE			
SELF-CONTAINED			
ABRASIVE BLASTING HOOD			

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	R/A
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	
OIL	/	SAFETY/IMPACT	/	EARPLUGS	/	COVERALLS	/	IMPERMEABLE BOOTS	
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/HARNESS	/	SAFETY/NONCONDUCTIVE SHOES	
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/								

SECTION 4. HAZARD INVENTORY DATA

a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC or EPC	d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO)
POUDT	eye/hand strain. Computer work for long periods of time	3	

BEST AVAILABLE COPY

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a. HAZARD	b. SAMPLE TYPE	c. RESULTS	d. REMARKS

SECTION 6. PERSONNEL DATA

a. LAST NAME	b. FIRST NAME	c. MI	d. SEX	e. SSN	f. CATEGORY
[redacted]					AGR

Non-Responsive

SECTION 7. COMMENTS (Add blank sheet of paper if necessary)

1. Training NCO
2. Has been at this army for 1 yrs
3. Was at Tiptonville before 2 yrs
4. Computer work - about 4 hr/day
5. No health problem except for a (knee problem (Torn ACL when he was in High school)

PRIVACY ACT STATEMENT

Title 5 U.S. Code, Section 301; Executive Order 9397 authorizes the use of your Social Security Number as a identification number. The purpose of this information is to identify and monitor data relating each DA civilian employee exposed to a hazardous workplace or operation. The use of this information is to provide histories of exposure for any given worker.

Disclosure of your Social Security Number is not mandatory; however, nondisclosure may result in untimely provision of proper medical monitoring.

Signature

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Page 406 of 2531

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SECTION 1. DEMOGRAPHIC DATA

BEST AVAILABLE COPY

a. ARLOC 47000 b. INSTALLATION Dresden, TN Armory c. BLDG/RM NUMBER Supply Room

d. LOCATION/CODE AA e. OPERATION/CODE ADI SAH f. DESCRIPTION Supply NCO, Facility Maintenance, Purchase Card Holder, Haz Mat certified official

g. MACOM/CODE NG

Non-Responsive

Non-Responsive

j. TELEPHONE/AUTOVON NUMBER [redacted] i. SUPERVIS[redacted]

m. NO CIV(S) n. NO MIL o. NO CONTRACTOR(S) p. NO LOC(S) q. NO OTHER

SECTION 2. IH STAFFING DATA

a. LAB HOODS b. VAPOR DEGREASERS c. MAINTENANCE BAYS d. SPRAY BOOTHS

e. OPEN SURFACE TANKS f. VENTILATION UNITS

SECTION 3. SURVEY DATA

Non-Responsive

a. SURVEY DATE 11-19-09 b. EVALUATOR (INITIALS) [redacted]

c. CONTROLS PRESENT	d. EVALUATION	e. UNIT CODE	f. CONTROLS REQUIRED	g. STATUS
Lighting - Office	77-94; Avg: 82	FC	50-100	Adqt
Lighting - Storage area	22-33; Avg 25	FC	20	Adqt

h. PERSONAL PROTECTIVE EQUIPMENT (R=REQUIRED; A=AVAILABLE)

1. RESPIRATOR	MANUFACTURER	NIOSH TC NO	R/A
DISPOSABLE			
¼ FACE AIR PURIFYING			
½ FACE AIR PURIFYING			
FULL FACE AIR PURIFYING			
POWERED AIR PURIFYING			
AIRLINE			
SELF-CONTAINED			
ABRASIVE BLASTING HOOD			

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	R/A
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	
OIL	/	SAFETY/IMPACT	/	EARPLUGS	/	COVERALLS	/	IMPERMEABLE BOOTS	
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/ HARNESS	/	SAFETY/NONCONDUCTIVE SHOES	
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/								

SECTION 4. HAZARD INVENTORY DATA

a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC or EPC	d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO)
POVDT	eye/hand strain - Computer work for long periods of time	3	
FOOT HAZ	Falling objects	3	
POLIFTING	Heavy lifting	3	

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a. HAZARD	b. SAMPLE TYPE	c. RESULTS	d. REMARKS

SECTION 6. PERSONNEL DATA

Non-Responsive

					d. CATEGORY
					AGR

SECTION 7. COMMENTS (Add blank sheet of paper if necessary)

(1) Supply NCO
(2) Has been here for 3 yrs.
(3) Was before Millington
+ Computer work about 5 hr/day
(5) No health problem except - ~~[illegible]~~ a[illegible] ligament tear at wrist - no operable

* PRIVACY ACT STATEMENT

Title & U.S. Code, Section 301; Executive Order 9397 authorizes the use of your Social Security Number as a identification number. The purpose of this information is to identify and monitor data relating each DA civilian employee exposed to a hazardous workplace or operation. The use of this information is to provide histories of exposure for any given worker.

Disclosure of your Social Security Number is not mandatory; however, nondisclosure may result in untimely provision of proper medical monitoring.

Signature

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 408 of 2531

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Analytical Environmental Services, Inc.

Date: 12/3/2009

LEAD ON WIPES (N9100/7082)
N7082

CLIENT: Non-Responsive
Project: Dresden, TN Armory
Delivery Order:
PO No:

Lab Order: 0911I98
Date Received: 11/23/2009 2:45 PM
Matrix: Wipe

Laboratory ID	Client Sample ID	Results	Units	Report Limit.	DF	Date Collected	Date Analyzed	Analyst
0911I98-001A	61	BRL	ug, Total	20	1	11/19/2009	11/30/2009	MAW
0911I98-002A	62	BRL	ug, Total	20	1	11/19/2009	11/30/2009	MAW
0911I98-003A	63	BRL	ug, Total	20	1	11/19/2009	11/30/2009	MAW
0911I98-004A	64	BRL	ug, Total	20	1	11/19/2009	11/30/2009	MAW
0911I98-005A	65	BRL	ug, Total	20	1	11/19/2009	11/30/2009	MAW
0911I98-006A	66	211	ug, Total	20	1	11/19/2009	11/30/2009	MAW
0911I98-007A	67	84	ug, Total	20	1	11/19/2009	11/30/2009	MAW
0911I98-008A	68	66	ug, Total	20	1	11/19/2009	11/30/2009	MAW
0911I98-009A	69	81	ug, Total	20	1	11/19/2009	11/30/2009	MAW
0911I98-010A	70	BRL	ug, Total	20	1	11/19/2009	11/30/2009	MAW
0911I98-011A	71	BRL	ug, Total	20	1	11/19/2009	11/30/2009	MAW
0911I98-012A	72	BRL	ug, Total	20	1	11/19/2009	11/30/2009	MAW
0911I98-013A	73	BRL	ug, Total	20	1	11/19/2009	11/30/2009	MAW
0911I98-014A	74	BRL	ug, Total	20	1	11/19/2009	11/30/2009	MAW
0911I98-015A	75	BRL	ug, Total	20	1	11/19/2009	11/30/2009	MAW
0911I98-016A	76	BRL	ug, Total	20	1	11/19/2009	11/30/2009	MAW
0911I98-017A	77	BRL	ug, Total	20	1	11/19/2009	11/30/2009	MAW

Qualifiers: BRL - Not Detected at the Reporting Limit DF - Dilution Factor

Results are blank corrected where applicable

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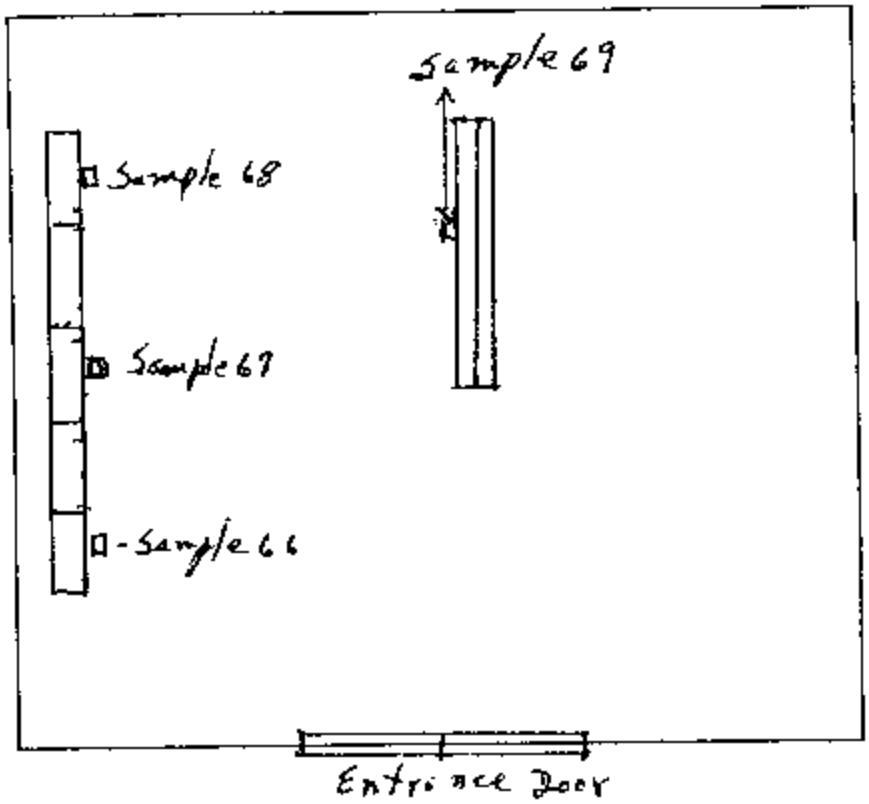
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 409 of 2531



Weapons Vault Sampling Areas

Dresden, TN Armory

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DRESDEN, TN
ARMORY

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DRILL HALL, AIR EXHAUST FANS

DRILL HALL, AIR INTAKE GRILLS

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WEAPONS VAULT,
SAMPLES 66 & 67

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WEAPONS VAULT,
SAMPLES 68 & 69

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POL STORAGE

FLAMMABLES CABINET

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**A/C-HEATING FILTER,
GF1A UNIT, SAMPLE 72**

**A/C-HEATING FILTER,
GF1B UNIT, SAMPLE 75**

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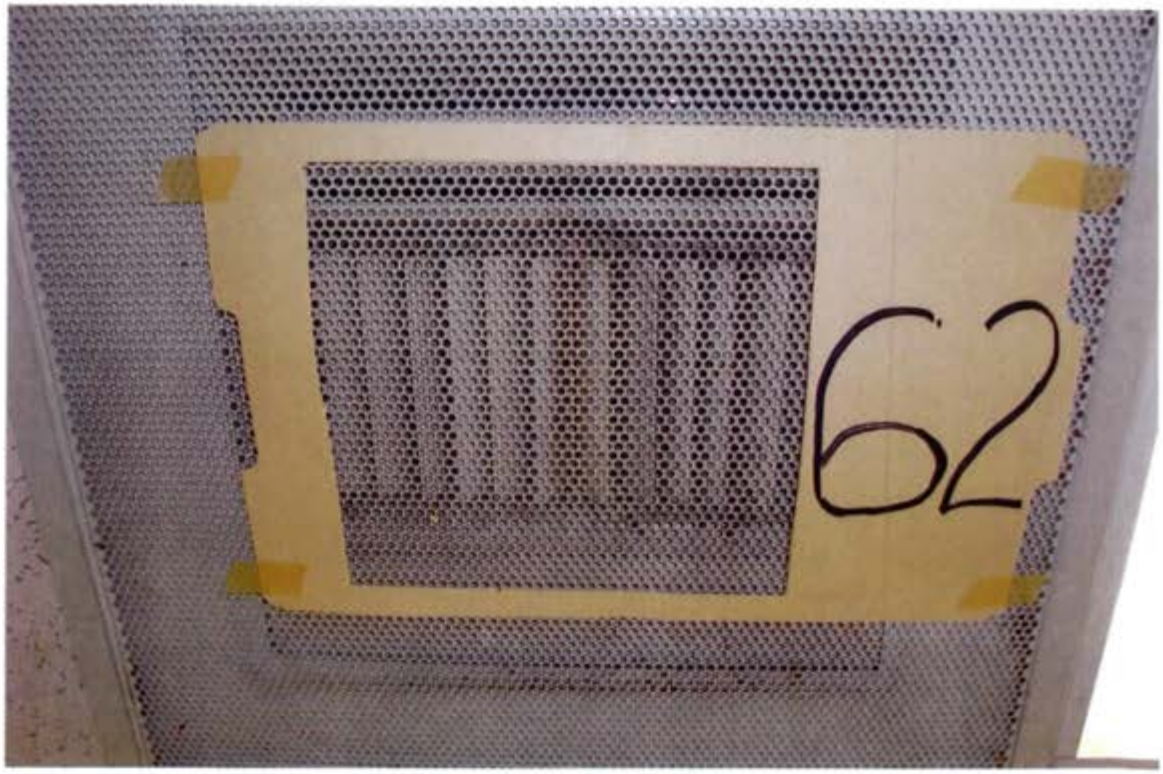
A/C-HEATING OUTLET, TRAINING NCO OFFICE, SAMPLE 61

A/C-HEATING OUTLET CLASSROOM 1, SAMPLE 62



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A/C-HEATING OUTLET CLASSROOM 3, SAMPLE 64

A/C-HEATING OUTLET ORDERLY ROOM, SAMPLE 65

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KITCHEN, SAMPLE 76

MOTOR POOL

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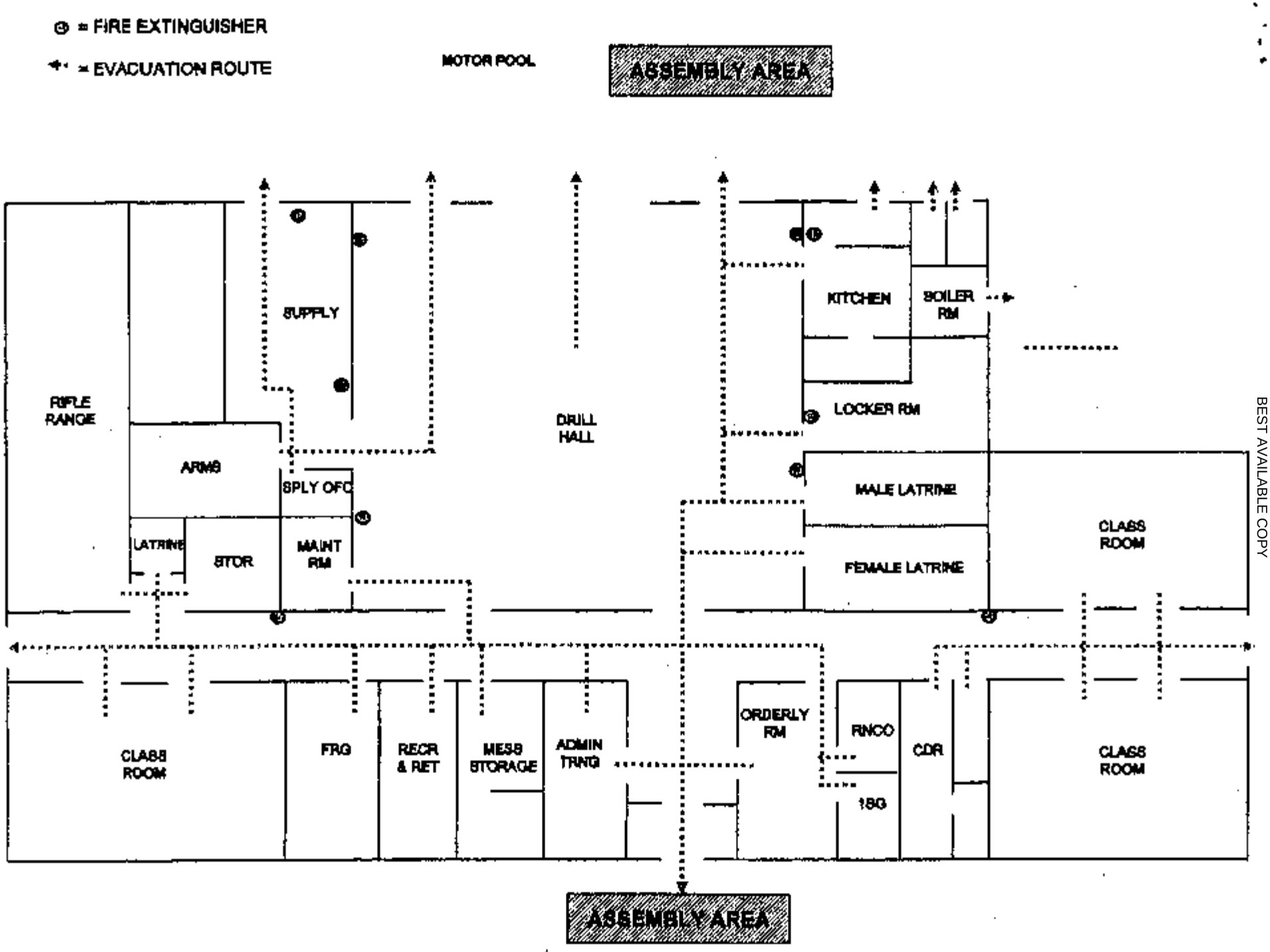

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Dresde TN Armory

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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-AVN-SI

July 21, 2003

MEMORANDUM FOR: The Adjutant General of Tennessee, ATTN: Non-Responsive [redacted] State Occupational Health Office, P O Box 41502, Nashville, TN 37204-1502.

SUBJECT: Transmittal Dresden Armory Survey Report.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, 30 August 1986, Medical Service, Preventive Medicine.

c. National Guard Regulation (NGR) 385-10, 1988, Army National Guard Safety and Occupational Health Program.

d. AR 11-34, The Army Respiratory Protection Program, 15 February 1990.

e. TB MED 502, Occupational and Environmental Health Respiratory Protection Program, February 1982.

f. DA PAM 40-503, 30 October 2000, The Army Industrial Hygiene Program.

g. DA PAM 40-501, 10 December 1998, Hearing Conservation.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2001, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

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k. Title 29, Code of Federal Regulations (CFR), 2000 rev., part 1910, Occupational Safety and Health Standards.

l. Report dated 30 May 2003, Industrial Hygiene Survey, Environmental Mgmt. Solutions, Atlanta, GA.

2. General.

a. At the request of the TNARNG Safety and Occupational Health Office, an Industrial Hygiene Service was put together to conduct Health Hazard Information module (HHIM) Field surveys and industrial hygiene sampling of the Dresden Armory, Dresden, TN.

b. Environmental Mgmt. Solutions, 247 Mary Lane, Dallas, GA. 30132 conducted the surveys.

3. Findings. All HHIM field survey forms and survey findings of the reports. (See enclosure 1)

4. Recommendations.

a. Follow all recommendations made in reference 1.l., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Control water infiltration in the armory and/or replace or repair damaged surfaces or components (ceiling and floor tiles). Building conditions that present IAQ concerns or problems not only exacerbates normally minor health issues but also tend to promote or accelerate building deterioration.

c. The recommendations given in the comment section of the HHIM data sheets and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-03. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-04 IHIP.

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present survey, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

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NGB-AVN-SI
SUBJECT: Transmittal Dresden Armory Survey Report.

f. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

5. If additional information is needed about the industrial hygiene survey or air sample

Non-Responsive

[redacted]

CF:
NBG-AVN-SH

Encl
as

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TENNESSEE ARMY NATIONAL GUARD

DRESDEN ARMORY
DRESDEN, TENNESSEE

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EXECUTIVE SUMMARY

An initial baseline industrial hygiene survey was conducted at the Dresden Armory on April 28, 2003 as part of the Tennessee Army National Guard Occupational Health Program to identify potential health hazards at the workplace. The survey consisted of collecting lead wipe samples and bulk asbestos samples as needed, conducting a noise and illumination survey and an evaluation of the condition of the building as it related to indoor air quality. A review of the Hazard communication program, ergonomics, and personal protective equipment was also performed.

The following table summarizes the survey findings and recommendations for each topic surveyed.

TOPIC	SUMMARY OF FINDINGS	RECOMMENDATIONS
Lead Wipe Samples	20 to 182 micrograms	Follow good hygiene and housekeeping practices
Asbestos Bulk Samples	No findings	No action
Noise Survey	Under 85 dBA	No action
Illumination Survey	6 to 65 foot-candles	Upgrade lighting to appropriate levels.
Building Condition	Water damage to ceiling and floor tiles, no maintenance schedule for HVAC system present. Building contains an HFR that has been sealed with tape lock since 2002/no access.	Clean damaged surfaces, control sources of water infiltration, and create a maintenance schedule for HVAC units
Hazard Communication	MSDS are available for chemicals used but are not current.	Personnel responsible for these items should receive annual training in HAZCOM requirements
Ergonomics	Poor workstations design in some offices	Complete ergonomics survey on all personnel and offer ergonomic training or awareness to employees who spend the majority of their time working on a computer terminal
Personal Protective Equipment	No findings	No action

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SUBJECT

Initial Baseline Industrial Hygiene Survey of the Dresden Armory performed April 28, 2003 in Dresden, Tennessee.

BACKGROUND

INTRODUCTION

At the request of Non-Responsive of the National Guard Bureau Region South Industrial Hygiene Office, an initial baseline industrial hygiene survey was performed at the Dresden Armory in Dresden, Tennessee. Environmental Management Solutions conducted the survey on 28 April 2003. The purpose of the survey was to perform an initial baseline industrial hygiene survey to evaluate potential health hazards present at the armory.

SITE DESCRIPTION

The facility houses the 1174th Transportation Company, whose personnel have been deployed. The one story building contains several administrative offices, three classrooms, a drill hall, kitchen, and sealed Indoor Firing Range (no access). Refer to Building layout in Appendix C.

SCOPE OF WORK

The work included collecting wipe samples for lead, bulk samples for suspect asbestos containing building material, noise readings, illumination levels, and an evaluation of the ventilation system as it pertains to indoor air quality. A list of occupational health programs and procedures were verbally covered with the armory personnel.

METHODOLOGY

Lead wipe samples were collected from surfaces that showed signs of lead contamination in armories that have a renovated, inactive, or closed indoor firing range (IFR), kitchen or mess hall storage areas, indoor drill halls, and storage rooms with weapons vaults. The samples were collected in accordance to instructions published by Region South National Guard Bureau, which required the use of unscented baby wipes to wipe one square foot of surface. Samples were then placed in a sealed plastic bag and sent to an American Industrial Hygiene Associations (AIHA) accredited laboratory for analysis. Asbestos bulk samples and lead paint chips were collected from suspect friable and damaged building material. Each bulk sample was placed in a sealed bag and sent to an AIHA laboratory for analysis. All instruments used for assessment were factory calibrated and calibrated prior to the survey as applicable. Illumination readings were taken on work surfaces and approximately four feet from the floor.

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 426 of 2531

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FINDINGS AND DISCUSSION

LEAD WIPE SAMPLES

Eleven wipe samples were collected from the areas supply, drill hall, kitchen, and administrative areas as listed in the table below.

SAMPLE NUMBER	SAMPLE LOCATION	MICROGRAMS OF LEAD (µg) PER SQUARE FOOT
DR-01	HVAC-Intake	BRL
DR-02	HVAC Room Flat Shelf	BRL
DR-03	Kitchen Shelf	BRL
DR-04	Drill Hall Center Floor	BRL
DR-05	Supply Administrative Area Desk	182
DR-06	Supply Office	BRL
DR-07	Supply Secured Area	BRL
DR-08	Drill Floor Near Exit	BRL
DR-09	HVAC Unit Return Admin Orderly Room	33.0
DR-10	HVAC Unit Vent	20.0
DR-11	Sgt Office Desk	BRL

*Below Reporting Limit

The Environmental Protection Agency standards (40 CFR 745) indicate lead in dust levels above 40 micrograms per square foot on bare and carpeted floors is considered dangerous for common areas. One sample taken in the supply administrative area was above recommended limits.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 427 of 2531

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ASBESTOS SUSPECT BUILDING MATERIAL

Sampling for asbestos was limited to damaged material or material that could pose an exposure risk. No friable suspect material was found.

NOISE SURVEY

Area noise levels are well within the Army National Guard limit of 85 dBA and the Occupational Safety and Health Administration (OSHA) regulated limit of 90 dBA over an eight-hour period.

AREA	dBA Range
Drill Hall	71.0 to 74.3

ILLUMINATION SURVEY

Lighting levels throughout the armory ranged between 6 foot-candles to 65 foot-candles. Specific readings are listed in the table below.

AREA	AVERAGE FOOT-CANDLES
Drill Hall	20.9
Scullery	32.9
Kitchen	32.2
Kitchen Office	22.1
Duffle Bag Storage	5.8
Class Room 130	36.5
Class Room 131	64.1
Disk Room	46
[illegible] Office	64.7

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May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 428 of 2531

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CDR Office	22.7
Orderly Room	41.5
Mess Storage	26.9
THP Office	61.8
REP ENG/Retention Office	47.8
Class Room 108	46.1
Supply Room	13.3

These readings are not within the Army Design Guide (DG 415-2) minimum illumination level of 30 foot-candles for office areas and 20 foot-candles for parts storage/supply. The American National Standard Institute/Industrial Engineering Society (ANSI/IES) recommends a minimum illumination of 50 to 100 foot-candles for administrative and kitchen areas, and 20 to 50 foot candles for storage areas. Luminance of 50 to 100 foot-candles is recommended for performance of visual tasks of medium contrast or small size such as reading, pencil handwriting, and poorly printed, or reproduced material. Depending of the type of display, background luminance of 30 to 60 foot candles is recommended for VDT work. Some areas had lighting that was burned out.

BUILDING CONDITION

Several areas of the armory have damaged ceiling or floor tiles due to water damage. Water damage could be seen in Class Room 108, THP Office, Men's Latrine, Kitchen, and in the Main Hallway. Several supply registers were found with dirt in them. The armory is cooled with a central heating, ventilating, and air conditioning (HVAC) system. Personnel did not have any specific complaints about the indoor air quality. There is a sealed indoor firing range that has been closed since 2002.

HAZARD COMMUNICATION

Material Safety Data Sheets were available, however, they were not current. The readiness NCO was deployed in November 2002.

RADIATION PROTECTION PROGRAM

Several pieces of equipment stored at the facility contain radioactive materials. Radiac meters [illegible] are among stored equipment. An inventory and designated safety officer are present.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 429 of 2531

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ERGONOMICS

The full time employees in the supply or office areas did not express any ergonomic related injuries or concerns. Many workstations were not set up to provide neutral postures and appropriate ergonomically correct positions. Consideration should be given to providing all full time employees that spend the majority of their working time at a computer terminal ergonomic training or awareness. Such awareness should emphasize the importance of proper posture and set-up of the workstation to fit the user.

PERSONAL PROTECTIVE EQUIPMENT

Normal duties of full time employees at the armory do not require the use of personal protective equipment (PPE).

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 430 of 2531

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RECOMMENDATIONS

1) All items that are contaminated with lead should be thoroughly decontaminated with a detergent and water solution. Care should be taken to wipe down tables where weapons are issued and cleaned. Kitchen areas should be thoroughly cleaned on a regular basis and especially before serving personnel.

2) Personnel should be prohibited from eating, drinking, smoking, chewing tobacco or gum, or applying cosmetics in supply areas and should be instructed to clean hands with soap and water before doing any of these. Remove all refrigerators, cups, and other eating utensils from supply areas.

3) Upgrade lighting measurements as required. Lighting can be upgraded in the following ways:

- Replace blown or broken lighting
- Paint wall a light color
- Clean existing light fixtures
- Rearrange furniture to make better used of available light
- Provide supplemental or task lighting

4) Develop a maintenance schedule for monitoring, inspecting and cleaning HVAC components such as outside air intakes, outside air dampers, air filters, drain pans, heating and cooling coils, the interiors of air handling units, fan motors ad belts, air humidification, controls and cooling towers. The schedule should also ensure that any leaks or standing water are identified, repaired, and prevented. Proper repairs and maintenance of the building infrastructure and interior surfaces can prevent water damage and moisture buildup which may lead to further indoor air quality issues.

5) Non-porous (e.g., metals, glass, and hard plastics) and semi-porous (e.g., wood, and concrete) materials that are structurally sound and are visibly moldy can be cleaned and reused. Cleaning should be done using a detergent solution. Porous materials such as ceiling tiles and insulation, and wallboards with more than a small area of contamination should be removed and discarded. Porous materials (e.g., wallboard, and fabrics) that can be cleaned, can be reused, but should be discarded if possible. A professional restoration consultant should be contacted when restoring porous materials with more than a small area of fungal contamination. All materials to be

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 431 of 2531

BEST AVAILABLE COPY

reused should be dry and visibly free from mold. Routine inspections should be conducted to confirm the effectiveness of remediation work.

6) Clean and disinfect all contaminated surfaces such as the supply diffusers throughout the facility with a 10 percent Clorox™ solution during off-hours. Any carpet that has been contaminated over a large area with sewage backup should be discarded under controlled conditions and the entire area disinfected with bleach and water.

7) Any initial water infiltration should be stopped and cleaned immediately. An immediate response (within 24 to 48 hours) and thorough clean up, drying, and/or removal of water damaged materials will prevent or limit mold growth. If the source of water is elevated humidity, relative humidity should be maintained at levels below 60% to inhibit mold growth.[31] Emphasis should be on ensuring proper repairs of the building infrastructure, so that water damage and moisture buildup does not recur.

8) Contaminated materials that cannot be cleaned should be removed from the building is a sealed plastic bag. There are no special requirements for the disposal of moldy materials.

9) Material Safety Data Sheets (MSDS) are required to be kept at the primary workplace facility and to be easily accessible in case of emergency. Personnel responsible for these items should receive annual training in the requirements of the Hazardous Communication Program and the appropriate keeping and storage of all MSDS.

10) An ergonomics survey should be completed for all supply and administrative personnel as a preventative measure to document and address any and all ergonomic concerns or problems. Provide ergonomics training and awareness to all employees who spend the majority of their time working at a computer terminal.

TECHNICAL ASSISTANCE

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 432 of 2531

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Non-Responsive

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 433 of 2531

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APPENDICES

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APPENDIX A

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- American conference of Governmental Industrial Hygieist (ACGIH), Industrial Ventilation, A Manual of Recommended Practice, 23rd Edition, 1998.American National Standards Institute (ANSI), Illuminating Engineering Society (IES), Industrial Lighting, 1991.
- Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 1990.
- Army Regulation (AR) 40-5, Preventative Medicine, 15 October 1990.
- Army Regulation (AR) 385-10, The Army Safety Program, 29 Feb 2000.
- NGR 385-10, Army National Guard Safety and Occupational Health Program, 7 October 1988.
- TB MED 503, The Army Industrial Hygiene Program, February 1985.
- Title 29, Code of Federal Regulations (CFR), 1999, revision, Part 1910, Occupational Safety and Health Standards.
- TG 022, US Army Environmental Hygiene Agency (YSAEHA), Industrial Hygiene Evaluation Guide, October 1975.
- TG 141, US Army for Health Promotion and Preventative Medicine (USACHPPM) Industrial Hygiene Air Sampling Guide, November 1997.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 436 of 2531

INSTRUMENTATION:
The following survey instrumentation was provided by the National Guard Bureau and was utilized to obtain noise, illumination or ventilation measurements. All equipment was used according to manufacturer / manual recommendations. All equipment was calibrated prior to and after use

Nomenclature	Model No.	Serial No.
Alnor Thermoanemometer Cal 08/07/02	8565	2800
Metrosonics Sound Level Meter Cal 08/07/02	DB3100	4877
Metrosonics Calibrator Cal 08/07/02	CL304	5630
Sper Scientific Light Meter Cal 01/23/01	840020	025432

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APPENDIX B

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May, 2018

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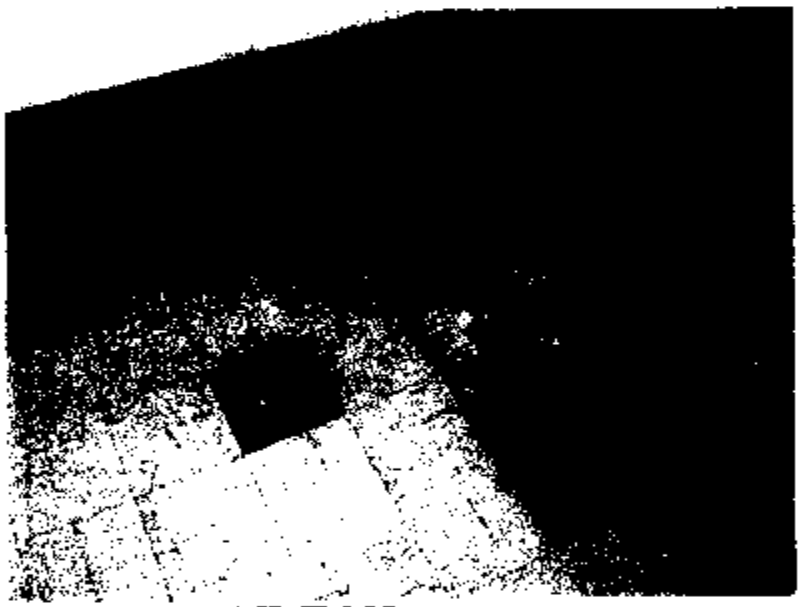
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 438 of 2531

DRESDEN ARMORY FRONT VIEW

DRESDEN ADMINSTRATIVE OFFICE WATER DAMAGE ON CEILING

DRESDEN KITCHEN OFFICE

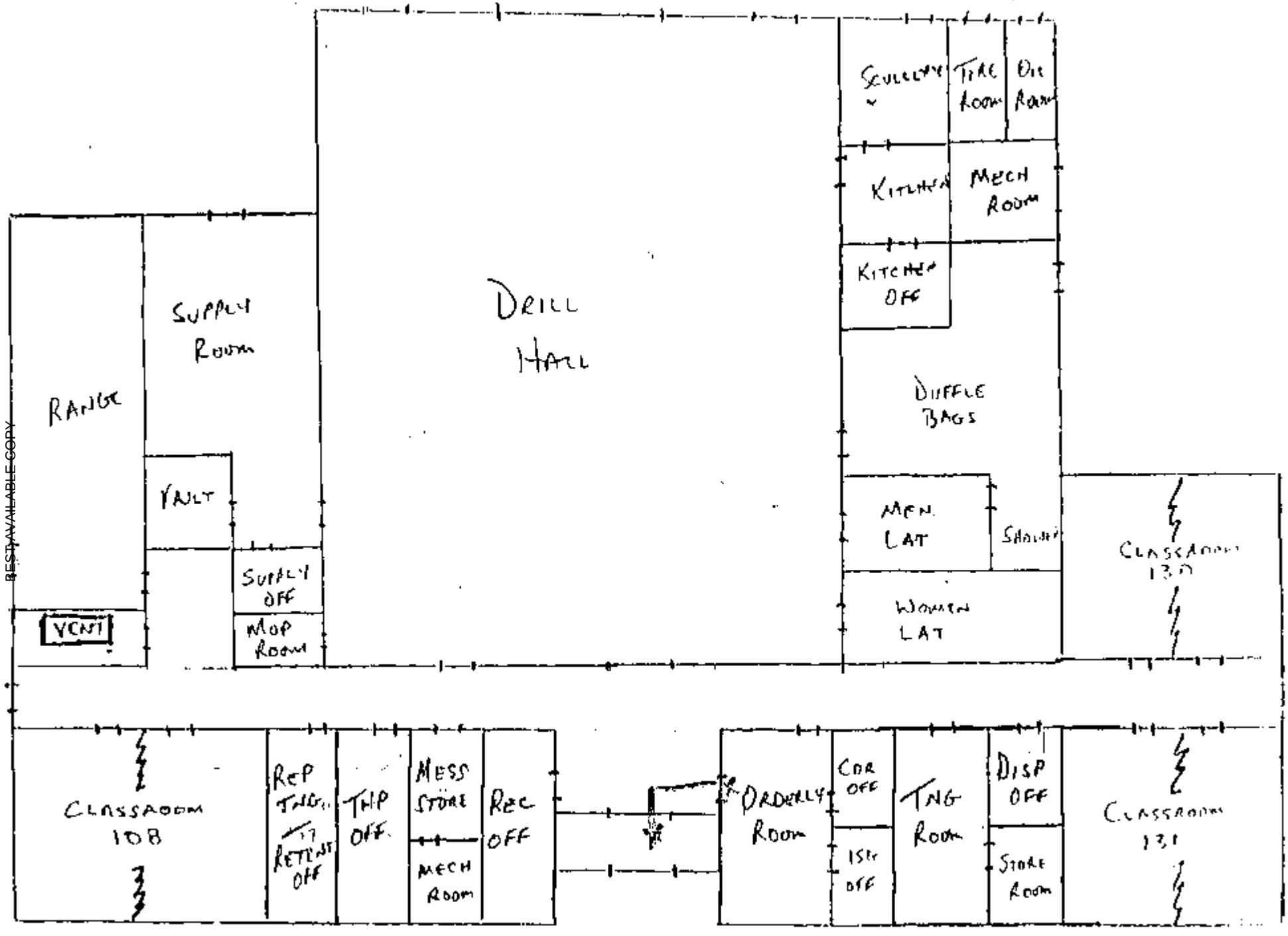
DRESDEN KITCHEN SUPPLY



WATER DAMAGED FLOOR

DRESDEN DRILL HALL

DRESDEN ADMIN AREA CEILING



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Released by National Guard Bureau
Page 443 of 2531
Posted to NGB FOIA Reading Room
May, 2018

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Full time Personnel Dresden Armory

1174th Transportation Company
Dresden, TN

Non-Responsive

[redacted]

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APPENDIX C

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 446 of 2531

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May, 2018

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Using Unit Supply System (Major ... R Forms

PACKAGED PETROLEUM, OILS, AND LUBRICANTS SUBMISSION LOG

For use of this form, see DA PAM 710-2-1; the proponent agency is DCSLOG

NOMENCLATURE 1	NSN 2	DLA CONTRACT NO. 3	BATCH LOT NO. 4	NEW TEST DATE 5	QUANTITY ON HAND 6	REMARKS 7
Lube oil 15W40	9150-01-152-4117	SP0450-99-C5396	6133	102004	38 EA	
Transmission Automatic Fluid	9150-00-698-2382	SMF-20156	6654	0103	20 EA	
Gear Lubr PS X Rev III	9150-01-353-4799	SP0450-01-MC739	W102440	0804	14 EA	
Brake Fluid	9150-01-402-9455	400-91-C5203	6L021702	0812003	9 EA	
[illegible]	9150-01-102-[illegible]	SP045196D0010001	98001		2 EA	[illegible]
[illegible]	9150-00-657-4959	SP0450DC0605	743535	12/24/03	6 EA	
[illegible]	9150-01-197-[illegible]	[illegible]	[illegible]	0250[illegible]	1 EA	
[illegible]	9150-01-[illegible]	[illegible]	[illegible]	[illegible]	10 [illegible]	
[illegible]	[illegible]	[illegible]	[illegible]		7 [illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]		1	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]		1	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]		11	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]
[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	11	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]

DA FORM 5832-R, AUG 89

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Figure 89-12. Reproducible DA Form 5832-R

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 447 of 2531

POL LOG SHEET

OIL TYPE	ADMIN NUMBER	QUANTITY	DATE
[illegible]	[illegible]	[illegible]	[illegible]
Anti-freeze	44 T	1/2 gal	13 July 02
10wt	17 T	2 qt	13 July 02
10wt	14 T	1 QT	13 July 02
ANTIFREEZ	#9	16 GAL	13 JULY 02
DEXTRON	#38	3 QTS	13 July 02
10wt	#38	1 QT	14 July 02
15-40W	Conway To Tallahassee	5 gal.	05 Nov 02
Anti-Freeze	"	"	"
Dextron III	"	"	"
Dextron III	Supply 3/4 ton	2 qts.	19 Nov 02

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APPENDIX D

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 448 of 2531

HHIMS INDUSTRIAL HYGIENE SURVEY FORM

ARLOC: 22000 | Installation: Dresden Armory, TN | Building Number: | Room Number:

Location: SA | Operation: 420 | Survey Date: Year 03 Month 04 Day 28 | MACOM: | Sub-MACOM: | RAC: | Unit/Organization: 1174th Transportation

Supervisor: Mr. X Ms. [redacted]

[redacted] | DSN: | Commercial: X | Frequency (hrs/day): 008 | No. CIVs: 02 | No. MIL: 00 | Contractors: 00 | No. LOCs: 00

Lab Hoods: 00 | Vapor Degreasers: 00 | Spray Booths: 00 | Open Surface Tanks: 00 | Ventilation Units: 00

Controls present (if >6, continue in comments)[25]	Evaluation [25 char max per line]	Unit Code	Controls Required [25 char max per line]
OTH Supply	13.3	FTC	20 to 50 FTC
OTH Supply	182	Ng	40 Micrograms of Lead per sq. ft

Glove	e*	R	U
acid			
cold surfaces			
hot surfaces			
NBC agents			
oil			
solvents			
surgical gloves			
leather/cotton			
other			

Respirator	e*	R	U
airline			
abrasive blasting hood			
disposable			
full face air purifying			
1/2 face air purifying			
powered air purifying			
1/4 face air purifying			
self-contained			
other			

Manufacturer's Description [10 char max]	NIOSH TC# or foreign equiv. [10 char max]

Eyes and Face	e*	R	U
chemical splash			
full face shield			
chem/safety impact			
safety impact			
welding helmet			
sunglasses			
welding goggles/glasses			
laser eye protection			
other			

Hearing	e*	R	U
canal caps			
(>85-108dBA steady) earplugs			
helmets w/muffs			
muffs alone			
(108-118) muff/earplug comb			
muffs and earplugs			
(118 or >) with time limit			
other			
other			

Body	e*	R	U
aprons			
cold weather clothing			
coveralls			
full body suit			
heat reflective vest/suit			
safety belt/harness			
special purpose clothing			
other BDUs		/	/
other			

Head and Feet	e*	R	U
cold weather boots/hat			
hard hats			
impermeable boots			
safety shoes (conductive)			
safety shoes (nonconductive)			
other			
other			
other			
other			

e* = evaluator's recommendation or agreement

Reminders: ergonomics · dermatitis · physical agents · flammable storage
EYE (permanent) ____ · EYE (portable) ____ · SHW · GMV · LEV

ACO ADM DSA DSN LAB LCK
RAD ECB EPL RHS SPR WEL

MEDDAC (FT MC FIN) 1 MAY 95 FORM 609-R

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 449 of 2531

Posted to NGB FOIA Reading Room
May, 2018

CAS Code		PAC	EPC	Hazard Description
PONOISECO	POLIFTING	3	A	Heavy Lifting
POFOOTHAZ	7439-92-1	2	A	Lead Dust Film
POFLYPROJ	POLIGHTIN	3	A	Lighting Inadequate
POEYEHAZA				
POFLAMHAZ				
POLIFTING				
POSHARPOB				
POHOTOBJE				
POELSHOCK				
COLUBEOIL				

Social Security Number or Other Unique Identifier	Last Name	First Name	MI	Sex	Category
Non-Responsive [redacted]		Non-Responsive [redacted]		M	C1
				M	C1

☐ Personnel data provided by the facility is attached to this form

Comments — Remember to comment on problems, recommendations, and needed control items

Operation described is Supply Area has Equipment that is stored and dispensed to personnel

☐ (Comments continued on attached sheet)

☐ This operation was explained to the evaluators, but was not actually observed.

☐ There is a noise data sheet attached to this form

☐ There is a ventilation data sheet attached to this form

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 450 of 2531

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May, 2018

NOISE SURVEY

(Sound Level Meter Survey)

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TE (Year Month Day) 013 014 218

TYPE SURVEY: [7] 1–INITIAL SURVEY 2–RE–SURVEY 3–OTHER

SOUND LEVEL METER		MICROPHONE		CALIBRATOR	
ACTURER: Metrosonics		MANUFACTURER: Metrosonics		MANUFACTURER: Metrosonics	
DEL: DB3/00	SERIAL NO: 4877	MODEL	SERIAL NO	MODEL: CL304	SERIAL NO: 5630
ST ELECTROACOUSTIC LIB. DATE (year month day): 02 08 07		LAST ELECTROACOUSTIC CALIB DATE (year month day)		LAST ELECTROACOUSTIC CALIB DATE (year month day): 02 08 07	

WIND SCREEN: [ ] USED [ ] NOT USED

MEASUREMENTS OBTAINED: [X] INDOORS [ ] OUTDOORS

ESCRIPTION OF AREAS/DUTIES WHERE NOISE SURVEY CONDUCTED *(Illustrate on ditional sheet and attach to form)*

Noise survey was conducted in main drill hall area. Personnel perform basic maintenance and cleaning in the area

PRIMARY SOURCE OF NOISE: Fan

SECONDARY SOURCE OF NOISE:

SOUND LEVEL DATA

LOCATION	METER ACTION	dBC	dBA	RISK ASSESSMENT CODE	PROTECTION REQUIRED (re: dBA Level): NONE less than 85	PLUG OR MUFF 85–108	PLUG AND MUFF 108–118	PLUG + MUFF + TIME LIMIT greater than 118
Dresden, TN - Drill Hall	Slow		71.0/74.3		✓			

NOTES: *Range of levels noted by /; i.e., 102/109. At operator work stations, measure at ear level.*
METER ACTION: Enter F for fast meter action and S for slow meter action.

REMARKS *(i.e., Area and equipment posted, hearing protection in use, etc.)*

MORE DETAILED NOISE EVALUATION REQUIRED: [ ] YES [X] NO *(If "YES", identify type evaluation needed.)*

PERSONS IDENTIFIED FOR AUDIOMETRIC MONITORING *(Use additional sheet if more space is needed and attach to form.)*

Non-Responsive

[redacted]

st Name, First Name, MI)

1

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0305142

Industrial Hygiene Surface Wipe Sample Sheet

Return Address Environvironmental Management Solutions
247 Mary Lane
Dallas, GA 30157

[redacted] Non-Responsive
[redacted] Non-Responsive

Sampled Facility Dresden Armory

City Dresden TN

Description of Operation Tenn Army National Guard

Date Collected 4/28/03

Date Shipped 5/5/03

Analysis Desired

Sampling Data Lead DR-(1-11)

Lab Use Only	Sample #	Results	Remarks
	DR-01		HVAC- Intake
	DR-02		HVAC-Room Flat Shelf
	DR-03		Kitchen Shelf
	DR-04		Drill Hall Center Floor
	DR-05		Supply Admin Desk
	DR-06		Supply Office
	DR-07		Supply Secured Area
	DR-08		Drill Floor Near Exit
	DR-09		HVAC Unit Return Admin Orderly Rm
	DR-10		HVAC Unit Vent
	DR-11		1SGT Office Desk

Comments to Lab:

Amel Hamic
5/6/03
8:10

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Analytical Environmental Servs, Inc.

Date: 5/12/2003

TOTAL LEAD IN WIPE SAMPLES
N7082

CLIENT:	Environmental Management Solutions	**Lab Order:**	0305142
Project:	Dresden Armory	**Date Received:**	5/6/2003 8:10:00
Project No:	Dresden Armory	**Matrix:**	Wipe
PO No:	-	**Analyst:**	LIK

Laboratory ID	Client Sample ID	Results	Units	MDL	DF	Date Collected	Date Analyzed
0305142-001A	DR-01	BRL	µg, Total	2.83	1	4/28/2003	5/8/2003
0305142-002A	DR-02	BRL	µg, Total	2.83	1	4/28/2003	5/8/2003
0305142-003A	DR-03	BRL	µg, Total	2.83	1	4/28/2003	5/8/2003
0305142-004A	DR-04	BRL	µg, Total	2.83	1	4/28/2003	5/8/2003
0305142-005A	DR-05	182	µg, Total	2.83	1	4/28/2003	5/8/2003
0305142-006A	DR-06	BRL	µg, Total	2.83	1	4/28/2003	5/8/2003
0305142-007A	DR-07	BRL	µg, Total	2.83	1	4/28/2003	5/8/2003
0305142-008A	DR-08	BRL	µg, Total	2.83	1	4/28/2003	5/8/2003
0305142-009A	DR-09	33.0	µg, Total	2.83	1	4/28/2003	5/8/2003
0305142-010A	DR-10	20.0	µg, Total	2.83	1	4/28/2003	5/8/2003
0305142-011A	DR-11	BRL	µg, Total	2.83	1	4/28/2003	5/8/2003

Qualifiers: MDL - Method Detection Limit; DF - Dilution Factor
ND - Not Detected at the Reporting Limit

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 453 of 2531

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NATIONAL GUARD REGION SOUTH
INDUSTRIAL HYGIENE OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

NGB-AVN-SI June 19, 2006

MEMORANDUM THRU Non-Responsive [redacted] puty State Surgeon, Tennessee Army National Guard, P.O. Box 41502, Houston, TN 37204.

TO: The Tennessee Army National Guard Dresden Armory, ATTN: Non-Responsive [redacted] Commander, 6575 Highway 22 South, Dresden, TN 38335-0200.

SUBJECT: Industrial Hygiene Survey of the Dresden National Guard Armory, Dresden, Tennessee.

1. References.

a. Report submitted May 2006, Industrial Hygiene Survey, Technical Solutions International, Inc (TSI).

b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 2004.

c. AR 40-5, Preventive Medicine, October 1990.

d. AR 11-34, 15 February 1990, the Army Respiratory Protection Program.

e. AR 385-10, 29 February 2000, Army Safety Program.

f. Department of the Army Pamphlet (DA PAM) 40-501, 10 December 1998, Hearing Conservation.

g. TB MED 530, the Army Industrial Hygiene Program.

h. Title 29 Code of Federal regulation (CFR), 2004 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.

i. Industrial Ventilation, 25th ed, 2004, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.

2. General.

a. At the request of the Tennessee State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at the South Carolina National Guard Armories.

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b. TSI conducted the survey.

3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)

4. Recommendations.

a. Follow all recommendations made in reference 1. a., attachment 1 requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Discuss the high lead samples taken inside of this previously cleaned inactive indoor firing range and the weapons Vault with the Safety and Occupational Health Office, the Facility Management Office and the Environmental Office. Request help in eliminating possible employee lead exposures. Be prepared to educate personnel on proper housekeeping procedures of the range. Follow NG PAM 385-16, Guidelines for converting indoor firing ranges to other uses and NG PAM 385-15, Policy, Responsibilities and guidelines for housekeeping, rehabilitation and/or conversion of indoor firing ranges.

c. Use the report to help in correcting all deficiencies noted by the contractor.

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the FMO, the Environmental Office the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

f. Ensure that the FMO and the Environmental Offices receive a copy of this report.

4. Please accept the apologies of the Regional Industrial Hygiene Office for getting these reports out so late. This is not our normal practice. We strive to have reports of surveys back to you within 30-45 days of walk thru.

Non-Responsive

[redacted]

CF: Safety and Occupational Health Office, ATTN: Non-Responsive .O. BOX 41502, Nashville, TN 37204-1502

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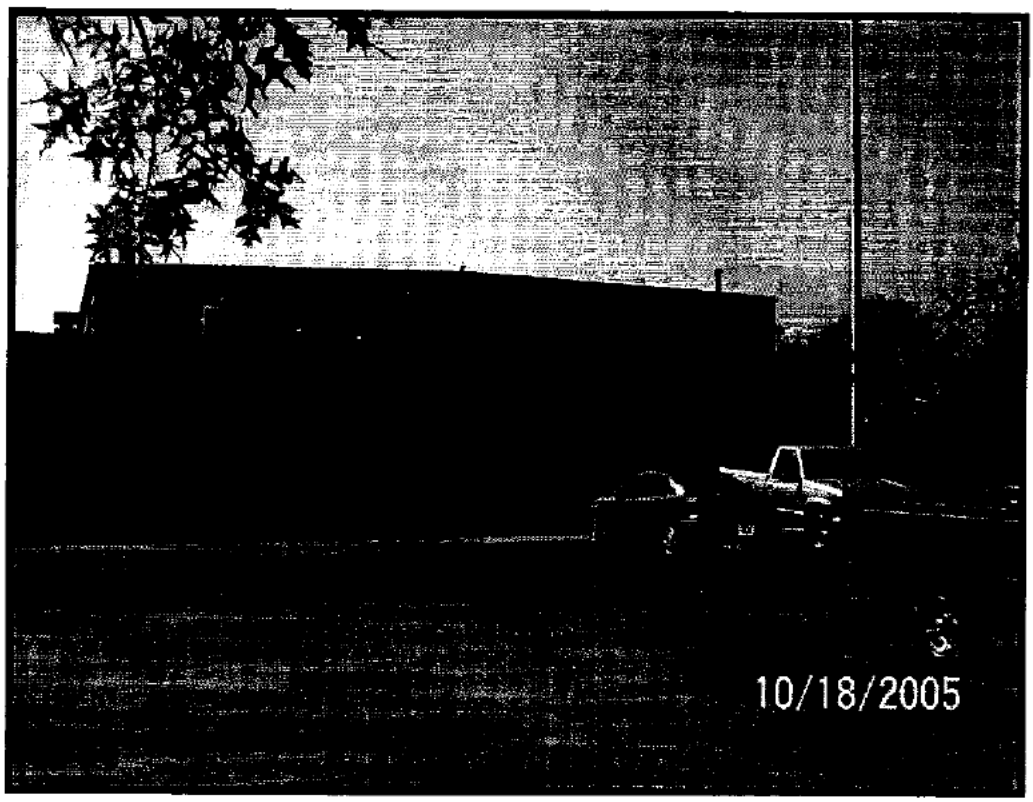
Army National Guard Industrial Hygiene Survey



Dresden Armory

6575 Hwy 22 S.
Dresden, TN 38225-0260

Non-Responsive

P[redacted]

TABLE OF CONTENTS

BACKGROUND: 1
Introduction: 1
Scope of Work: 1
INSTRUMENTATION: 2
FINDINGS: 3
BUILDING CONDITION: 3
LEAD DUST WIPE SAMPLES: 4
ADMINISTRATIVE OFFICES 4
HVAC ..... Error! Bookmark not defined.
SUPPLY ROOM(S) AND VAULTS: 5
KITCHEN / MESS HALL 5
DRILL HALL 5
INDOOR FIRING RANGE (IFR) 5
MOTOR POOL 5
Hearing Conservation Program 6
TECHNICAL ASSISTANCE: 6
APPENDIX A – ADDITIONAL DATA 7
FACILITY DIAGRAM: 7
WALK THROUGH OBSERVATIONS 8
Illumination Readings: 8
APPENDIX B – Recommendations: 9
APPENDIX C – Pictures 10
APPENDIX D – Lab Report 17
APPENDIX E – HHIM Sheets 18

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 457 of 2531

Technical Solutions International, Inc.
220 Jaysee Court
Fayetteville, GA 30215
Phone: (678) 522-1138
FAX: (877) 631-9226
E-mail: info@tsi-cg.com
Web: www.tsi-cg.com

19 October 2005

MEMORANDUM FOR: Tennessee Army National Guard, ATTN Non-Responsive
Commander, 1174th Transportation Company, [redacted]
Dresden, TN 38225-0260

SUBJECT: Industrial Hygiene Survey of Dresden Armory Army National Guard, Dresden, Tennessee

BACKGROUND:

Introduction:

At the request of Non-Responsive [redacted] National Guard Bureau Regional Industrial Hygiene South Office, Atlanta, GA, an initial baseline industrial hygiene survey was conducted at the **Dresden Armory, Dresden, Tennessee**, on **18 October 2005** as part of the **Tennessee** Army National Guard Occupational Health Program to identify potential hazards in the workplace. The point of contact for this facility was Non-Responsive

Scope of Work:

An initial baseline survey was conducted, which consisted of collecting lead wipe samples, bulk asbestos samples (as needed), conducting noise and illumination survey, as well as evaluating the condition of the building, including the Heating Ventilation and Air Conditioning (HVAC) System as it relates to indoor air quality. A review of several industrial hygiene programs, such as hazard communication, radiation protection, ergonomics, and personal protective equipment was also performed. A field survey form is completed on all industrial operations at the facility, and the data is contained in this report. Nineteen lead samples were collected, with color photos documenting sample locations. All standard industrial hygiene sampling analysis were performed by Analytical Environmental Services Laboratory. As part of the general walkthrough, any noted deficiencies were photographed and documented as part of this report.

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May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 458 of 2531

BEST AVAILABLE COPY

INSTRUMENTATION:

The following survey instrumentation was provided by or for the contractor, and was used to obtain lead wipe dust, illumination, ventilation, and noise sample measurements. All noise dosimeter instrumentation was calibrated before and after sampling. All other instrumentation was operated according to manufacturer recommendations.

Instrument	Serial Number	Calibration
Extech Heavy Duty Light Meter	Q009392	NEW, Purchase July 2003
Bruel & Kjaer Sound Level Meter	1942768	09 June 2005
Bruel & Kjaer 4231 Acoustic calibrator	1944552	10 June 2005
Alnor-Thermo Anamometer (CompuFlow)	2800	07 June 2005
Ghost Wipe Lead Dust Wipes		

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 459 of 2531

FINDINGS:

The armory was built in 1989. Vehicles stored at this facility include tractors, tankers, a water buffalo, a fuel pod, an LMTV, and HUMVEEs. This facility houses the following units:

1. 1174th Transportation Company, Non-Responsive Commander

   This unit is responsible for providing fuel transportation for the Army National Guard.

   This unit has two fulltime personnel providing readiness and other personnel support as follows:

Last Name	First Name	MI	Sex	SSN (Last 4 digits)	Rank
Non-Responsive					Non-Responsive

BUILDING CONDITION:

There was water damage to several areas of the ceiling throughout the building, which are evidence of roof leaks. Some areas have been repaired, but some are still in need of repair. A few areas showed possible signs of mildew. There was also standing water found in a mechanical room which can create a potential electrical hazard.

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 460 of 2531

LEAD DUST WIPE SAMPLES:

Lead dust wipe samples were taken using 10 cm templates. Nineteen dust wipe samples were submitted to the lab for analysis. The results show that most were below reportable levels (BRL). However, two samples were well above the Army National Guard standard ***of 200 µg/ft²***. Pictures of the lead sample wipes were taken (see pictures Dresden01 to Dresden14).

The following table notes where the samples were taken, the sample number and the lead results:

Sample Location	Sample No.	Results (µg/ft²)
Supply Room: Blank	1	BRL
Supply Room: Vault Shelf	2	BRL
Supply Room: Vault Rack	3	5427
Supply Room: Outside Vault Door	4	BRL
Supply Room: Countertop	5	BRL
Supply Room: Storage Cage	6	13,608
Drill Hall: Center Floor	7	BRL
Drill Hall: Supply Room Entrance	8	BRL
Drill Hall: Bay Door	9	BRL
Kitchen: Blank	10	BRL
Kitchen: Stovetop	11	BRL
Kitchen: Prep Table	12	BRL
Commander's Office	13	BRL
Outside IFR Door	14	BRL
HVAC Inflow	15	BRL
HVAC Outflow	16	BRL
Motor Pool: Blank	17	BRL
Motor Pool: Bay I	18	BRL
Motor Pool: Bay II	19	BRL

Note 1: IFR refers to Indoor Firing Range
Note 2: µg/ft² refers to micrograms or one millionth of a gram per square foot

ADMINISTRATIVE OFFICES

There are several administrative offices in this facility where personnel use computer systems, file, read, write and perform other administrative tasks as necessary. Computer use occurs throughout the day. Illumination levels range from 7.5 to 82.1 foot-candles (FC's). ***(Illumination and Engineering Society of North America (IES) requires 20 to 50 foot-candles (FC) for storage areas and 50 – 100 FC for administrative areas.)***

AIRFLOW / VENTILATION

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Airflow samples were taken during the survey and the results are as follows:

Location	Sample Reading (FPM)	Area of grid
Supply Room Office	410	2' x 2'
Classroom 108	315	2' x 2'

SUPPLY ROOM(S) AND VAULTS:

This facility has one supply room, with several storage areas. The supply officers use the computer between six to eight hours per day. An inventory of all chemicals is maintained by the safety officers. A Material Safety Data Sheet (MSDS) book is maintained and kept in the office with a table of contents, and/or is cross-reference to the chemical inventory sheet for easy accessibility by all personnel in case of emergency. The facilities manager separated the chemicals by POL storage shed, flammable storage locker, and utility room. All employees must be initially trained in the Federal Hazardous Communication Program IAW 1910.1200. Heavy lifting is performed with the aid of hand jacks, lifts, and other personnel.

KITCHEN / MESS HALL

Due to severe roof leakage, per order of the readiness NCO, the kitchen is currently not used for cooking. This issue has been brought to the attention of the state National Guard head office (Nashville, TN), but has not been corrected. The illumination levels range from 23.0 to 36.2 FC's

DRILL HALL

Personnel officielly use the drill hall two to three days per month. It is rented out on an average of two to three times per year for community events. Weapons cleaning take place by units during drill weekends. Ceiling lamps were in poor working order, as a result of eight non-working bulbs within the drill area. Illumination levels ranged from 5.1 to 27.0 FC's.

Due to low noise levels (administrative and drill areas) there were no requirements for a hearing conservation program.

INDOOR FIRING RANGE (IFR)

This IFR has been sealed by the state of Tennessee Army National Guard Headquarters since September 2002.

MOTOR POOL

The motor pool building was built in 1989. The building is used on a daily basis throughout each week, as well as two days per month during drill weekend drill.

Four fire extinguishers were found in the area. The annual certification is due in and the October 2001 monthly inspection was last logged for October 2001.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 462 of 2531

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A plumbed eyewash and shower, which is connected to an alarm, are available. No log is available to record periodic flushing of the system to ensure water purity. A petroleum, oil, and lubricant (POL) storage building is available with a fire suppression system.

Exhaust fans in the area exhaust an average of approximately 1360 fpm each. Carbon monoxide units are available to alarm in case of dangerous levels when doors are closed, or when vehicles are left idle close to the building

Location	Sample Reading (FPM)	Area of grid
Motor Pool Carbon Monoxide Exhaust Vent	1510	8" Diameter Hose

Hearing Conservation Program

A noise survey was performed in the maintenance area while running a HUMVEE, the air compressor, and carbon monoxide exhaust system. Noise levels measured 71.9 dBA in front ten feet in front of the source and 81.4 dBA five feet adjacent to the vehicle. The area is clearly marked as noise hazardous and a noise survey was completed on maintenance equipment.

TECHNICAL ASSISTANCE:

Non-Responsive

[redacted]

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 463 of 2531

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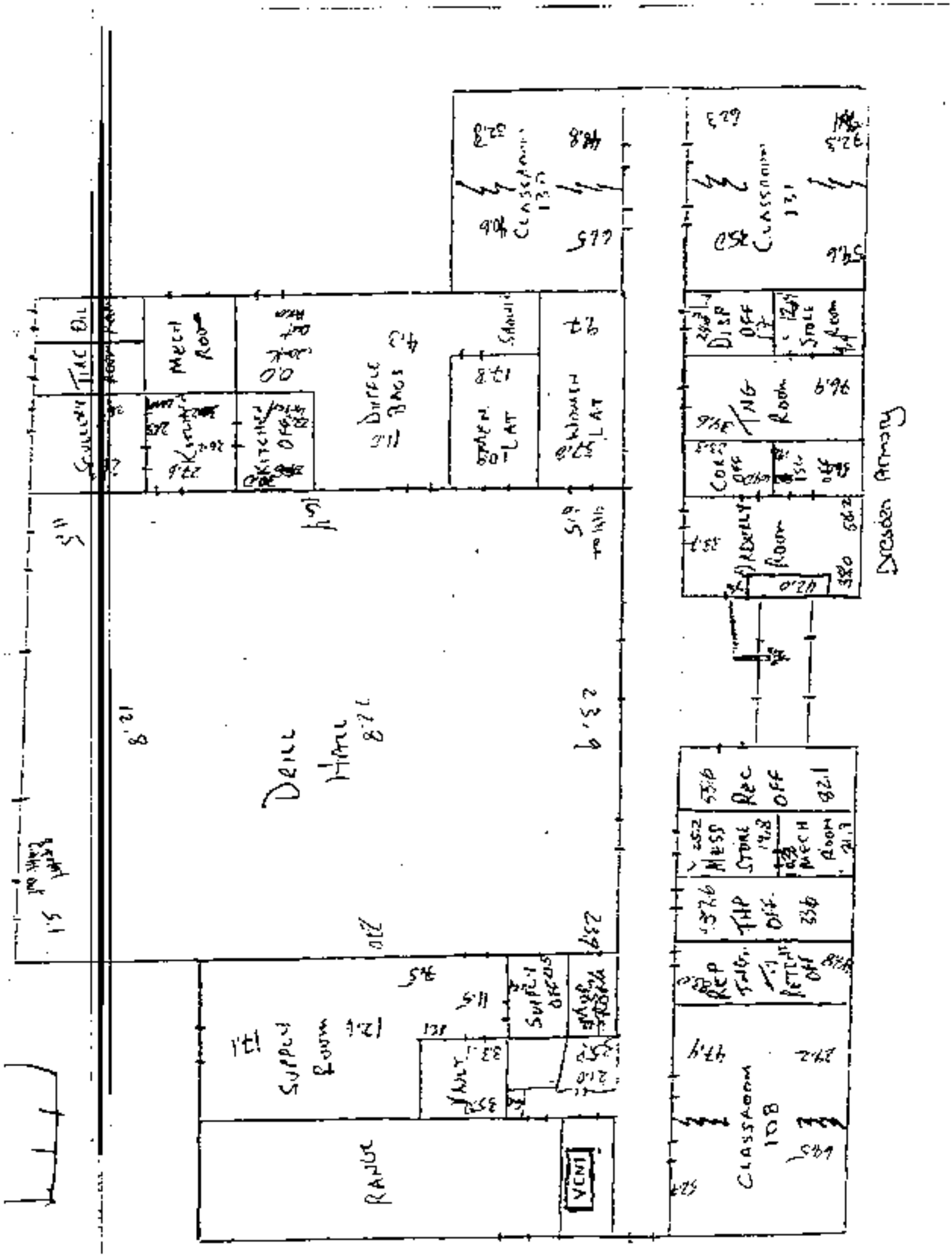
FACILITY DIAGRAM:



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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 464 of 2531

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WALK THROUGH OBSERVATIONS

No.	Location	Description	Picture #
1	Supply Room Office	Signs of water leak	14
2	Kitchen	Severe ceiling water damage; mildew / moldy odor	15, 16, 17, & 18
3	Men's Bathroom	Signs of water leak	19
4	Ladies Bathroom	Signs of water leak	20
5	East Hallway	Signs of water leak	21
6	THP Office 106	Signs of water leak	22
7	Retention Office 107	Signs of water leak	23
8	Classroom 108	Signs of water leak	24
9	Mechanical Room	Standing water	26
10	Maintenance Shop Bathroom	Severe water leak; mold	27 & 28

Illumination Readings:

Light levels found in the administrative areas are as follows:

Location	Sample Reading in Foot-candles (FC)	Average FC	Remarks
Drill Hall: Center Floor	22.8 / 27.0 / 16.4	22.1	
Drill Hall: Main Entrance	23.9 / 23.9 / 6.5	18.1	
Drill Hall: Bay Door Entrance	5.1 / 12.8 / 11.5	9.8	Several bulbs need replacement
Supply Room	17.1 / 12.6 / 7.5 18.1 / 11.5	13.4	A few bulbs need replacement
Kitchen	27.6 / 36.2 30.0 / 23.0 / 30.2	29.4	
Classroom 108	64.5 / 29.2 47 4 / 52.7	48.5	
Rep. Training Office	47.8 / 83.0	65.4	
THP Office	57.6 / 33.6	45.6	
Recruiting Office	55.6 / 82.1	68.9	
Main Office	42.0 / 38.0 58.2 / 33.7	43 0	
Training Office	76.9 / 34.6	55.8	
Classroom 131	59.6 / 72.3 35.0 / 62.3	57.3	
Classroom 130	61.5 / 40.6 48.8 / 32.8	45.9	
Locker Room	11.0 / 4.3 / 0.0	5.1	Some light fixtures need repair

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 465 of 2531

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APPENDIX B – Recommendations:

a. All items that are contaminated with lead should be thoroughly decontaminated with a detergent and water solution. Care should be taken to wipe down tables where weapons are issued and cleaned. Kitchen areas should be thoroughly cleaned on a regular basis and especially before serving personnel or community use.

b. Continue a maintenance schedule for ensuring that filters in the HVAC system are properly changed, any leaks or standing water are identified, repaired, and prevented, and supply and exhaust grilles are appropriately cleaned. Failure to do so may lead to further indoor air quality issues. The plan should include monitoring, inspecting and cleaning HVAC components such as outside air intakes, outside air dampers, air filters, drain pans, heating and cooling coils, the interior of air handling units, fan motors and belts, air humidification, controls and cooling towers. Consult manufacturers' instructions for appropriate maintenance schedules.

c. Non-porous (e.g., metals, glass, and hard plastics) and semi-porous (e.g., wood, and concrete) materials that are structurally sound and are visibly moldy can be cleaned and reused. Cleaning should be done using a detergent solution. Porous materials such as ceiling tiles and insulation, and wallboards with more than a small area of contamination should be removed and discarded. Porous materials (e.g., wallboard, and fabrics) that can be cleaned, can be reused, but should be discarded if possible. A professional restoration consultant should be contacted when restoring porous materials with more than a small area of fungal contamination. All materials to be reused should be dry and visibly free from mold. Routine inspections should be conducted to confirm the effectiveness of remediation work.

d. Any initial water infiltration should be stopped and cleaned immediately. An immediate response (within 24 to 48 hours) and thorough clean up, drying, and/or removal of water damaged materials will prevent or limit mold growth. If the source of water is elevated humidity, relative humidity should be maintained at levels below 60% to inhibit mold growth. Emphasis should be on ensuring proper repairs of the building infrastructure, so that water damage and moisture buildup does not recur.

e. Upgrade lighting measurements as required. Replacing blown or broken lights, painting the walls a light color, cleaning existing light fixtures, rearranging furniture to make better use of available light, and supplemental or task lighting are considerations in increasing available light levels.

f. An ergonomics survey should be completed for all supply and administrative personnel as a preventative measure to address and document any ergonomic concerns or problems. An emphasis on maintaining neutral postures and proper lifting techniques should be covered.

g. Material Safety Data Sheets (MSDS) are required to be kept at the primary workplace facility and to be easily accessible in case of emergency. Personnel responsible for these items should receive annual training in the requirements of the Hazardous Communication Program and the appropriate keeping and storage of MSDSs.

h. Personnel should be prohibited from drinking, eating, smoking chewing tobacco and gum, or applying makeup in supply and maintenance areas. Hands should be cleaned with soap and water before eating drinking, eating, smoking, chewing tobacco and gun, or applying makeup. Remove all refrigerators, cups, and other utensils from supply and maintenance areas.

j. Fire extinguishers should be visually inspected on a monthly basis and recorded on service tag.

k. Perform noise dosimetry on maintenance personnel during drill weekend, in order to document noise exposure.

l. Plumbed eyewashes should be flushed on a weekly basis to ensure removal of opportunistic pathogens at least three minutes of flushing will greatly reduce the number of organisms in the eyewash.

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 466 of 2531

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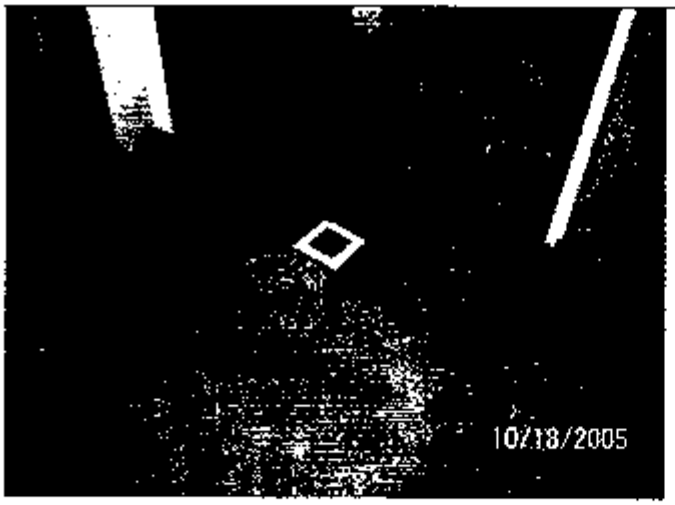

Photo # 1

Lead Wipe Sample 4 - Supply Room: Vault Entrance

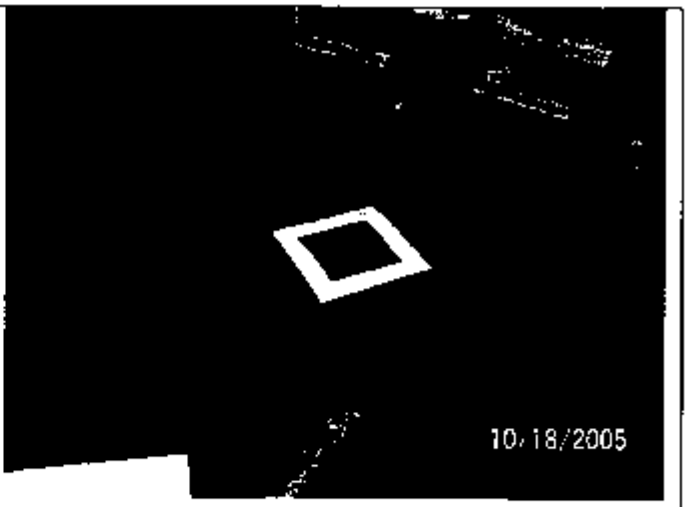

Photo # 2

Lead Wipe Sample 5 - Supply Room: Countertop

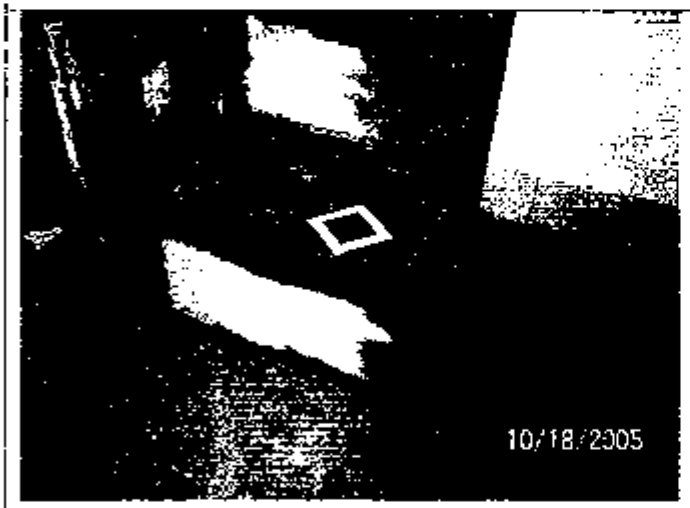

Photo # 3

Lead Wipe Sample 6 - Supply Room: Storage Cage

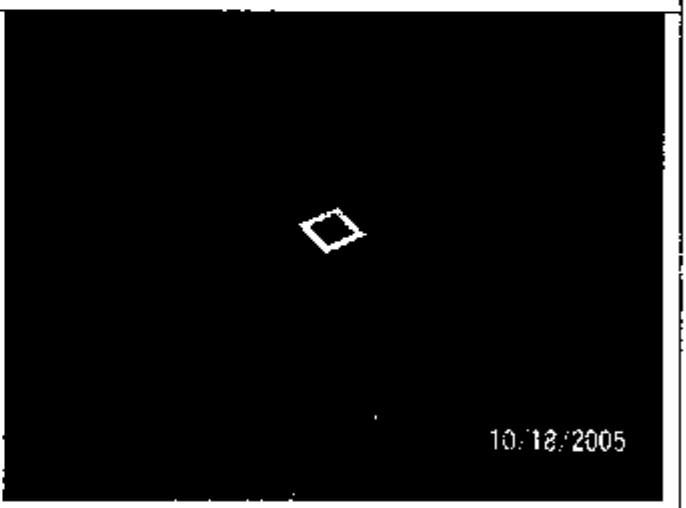

Photo # 4

Lead Wipe Sample 7 - Drill Hall: Center Floor

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 467 of 2531

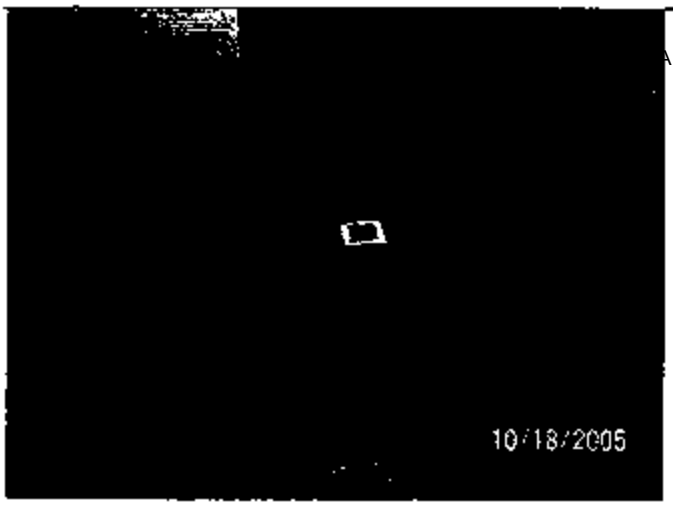

Photo # 5

Lead Wipe Sample 8 - Drill Hall: Supply Room Entrance

Photo # 6

Lead Wipe Sample 9 - Drill Hall: Bay Door

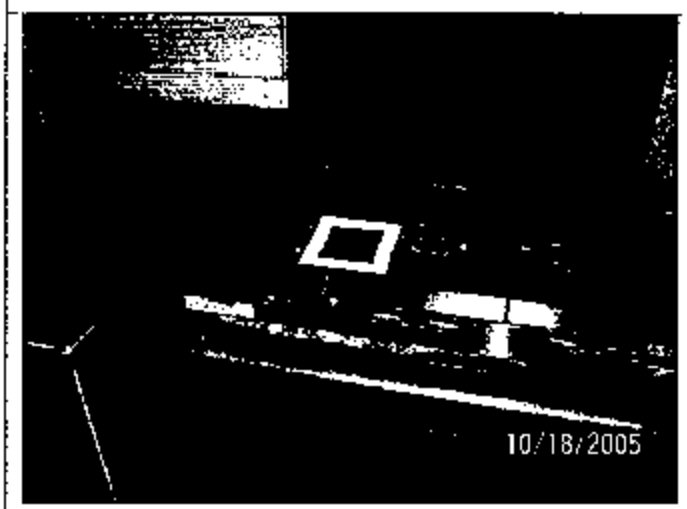

Photo # 7

Lead Wipe Sample 11 - Kitchen: Stovetop

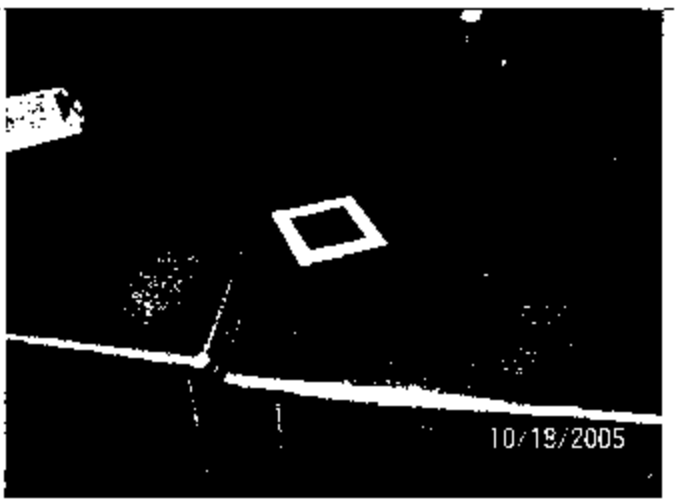

Photo # 8

Lead Sample 12 - Kitchen: Prep Table

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 468 of 2531

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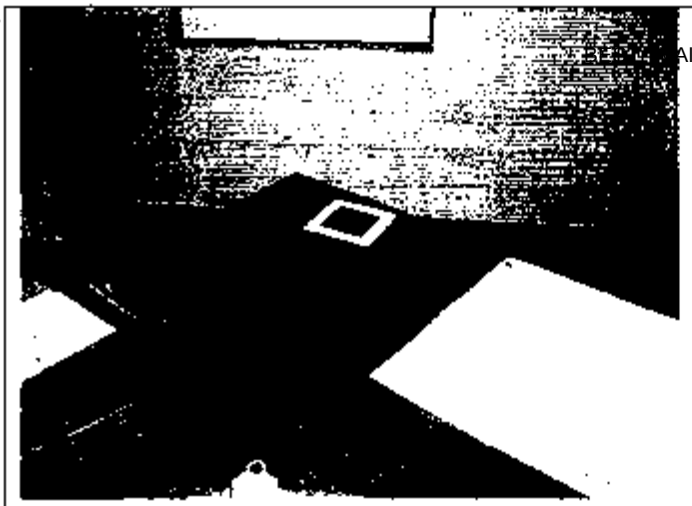

Photo # 9

Lead Wipe Sample 13 - Commander's Office

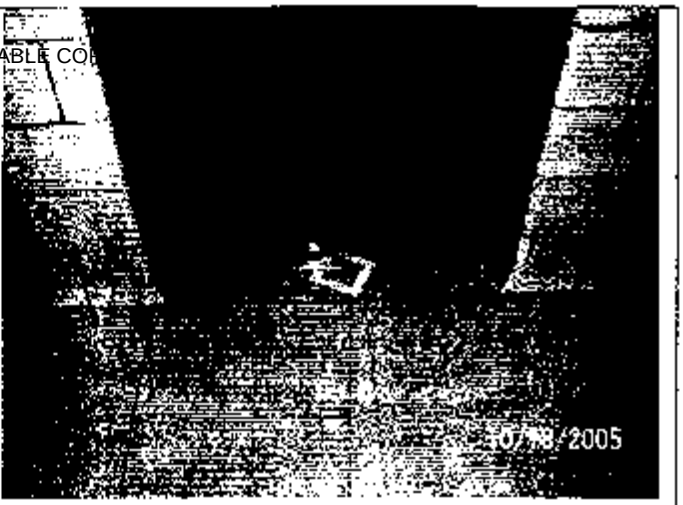

Photo # 10

Lead Wipe Sample 14 - Outside IFR Door

Photo # 11

Lead Wipe Sample 15 - HVAC Inflow

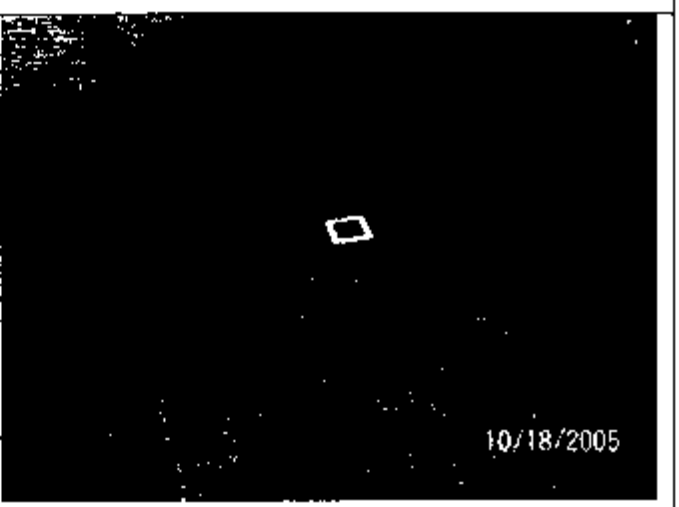

Photo # 12

Lead Wipe Sample 16 - Motor Pool: Bay I

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 469 of 2531

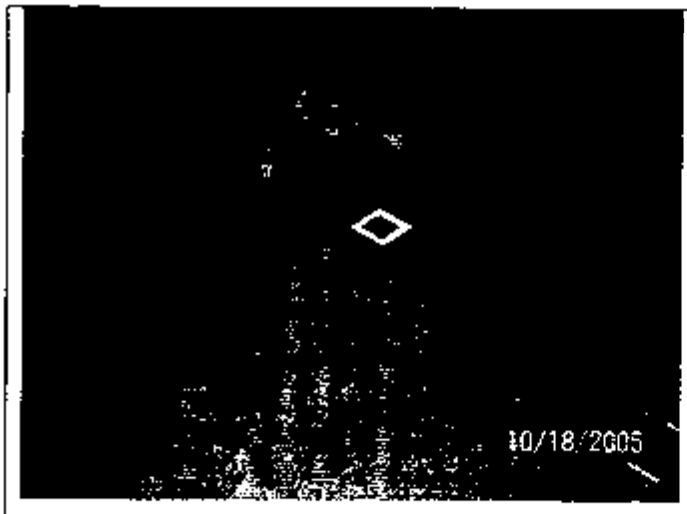

Photo # 13
Lead Wipe Sample 19 - Motor Pool: Bay II

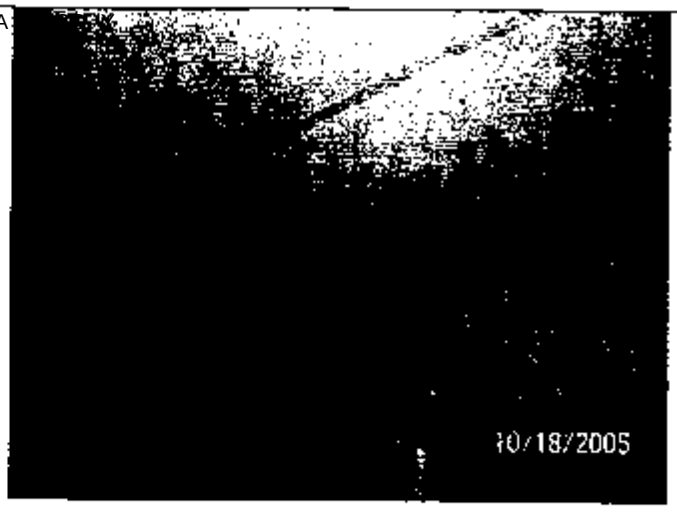

Photo # 14
Supply Room Ceiling Water Damage

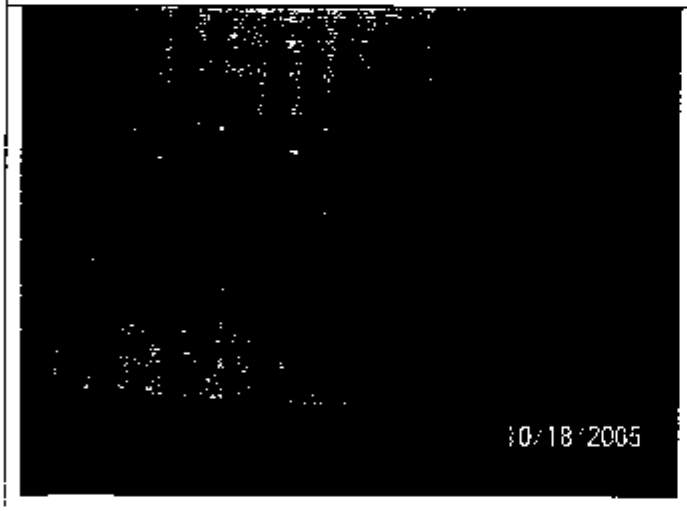

Photo # 15
Kitchen Ceiling Water Damage I

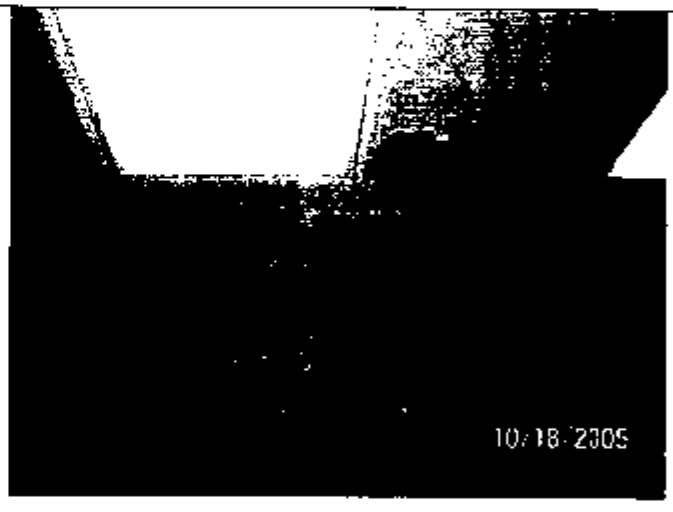

Photo # 16
Kitchen Ceiling Water Damage II

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 470 of 2531

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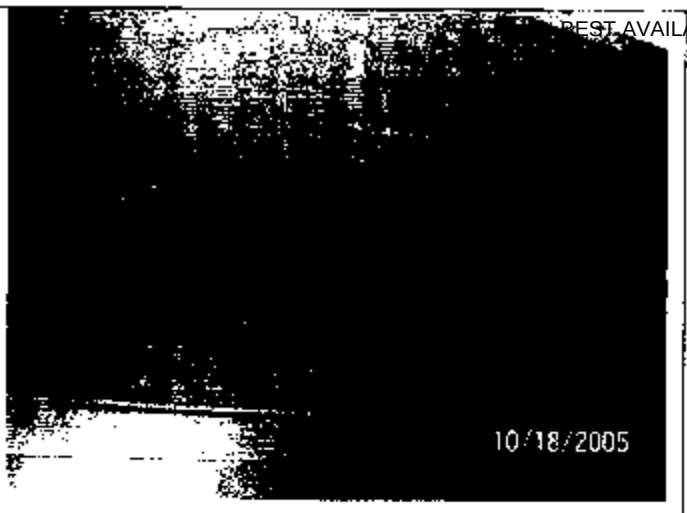

Photo # 17
Kitchen Ceiling Water Damage III

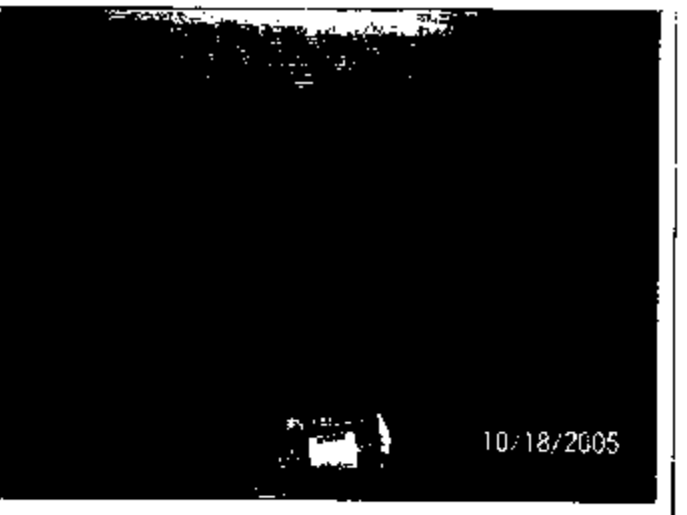

Photo # 18
Kitchen Ceiling Water Damage IV

Photo # 19
Men's Bathroom Water Damage

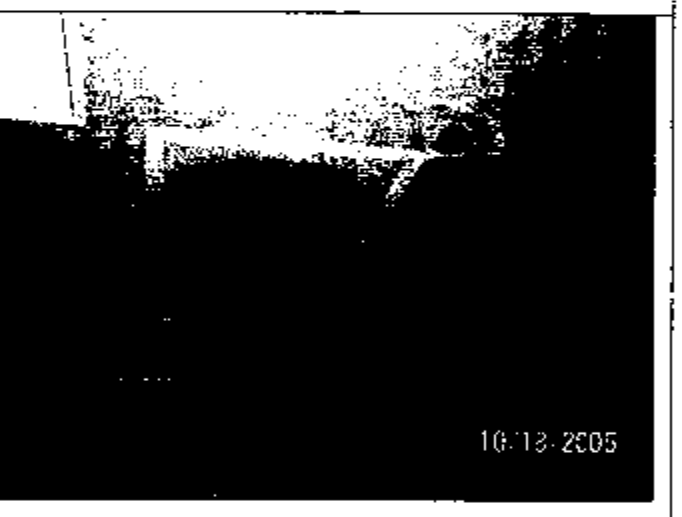

Photo # 20
Ladies Bathroom Water Damage

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 471 of 2531

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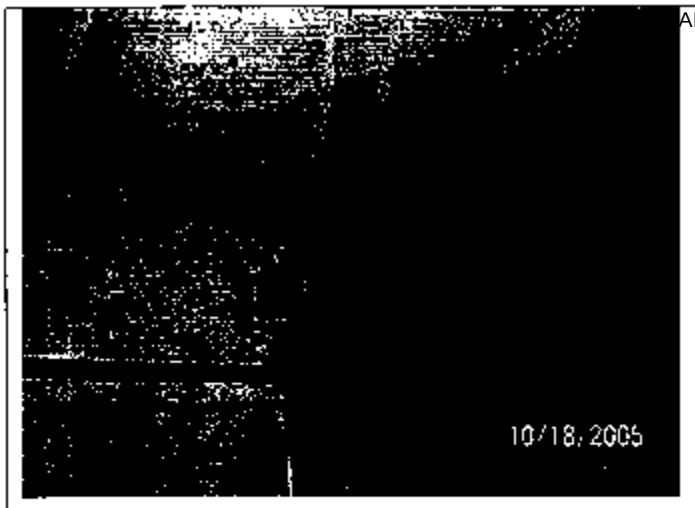

Photo # 21
Hallway (East) Ceiling Water Damage

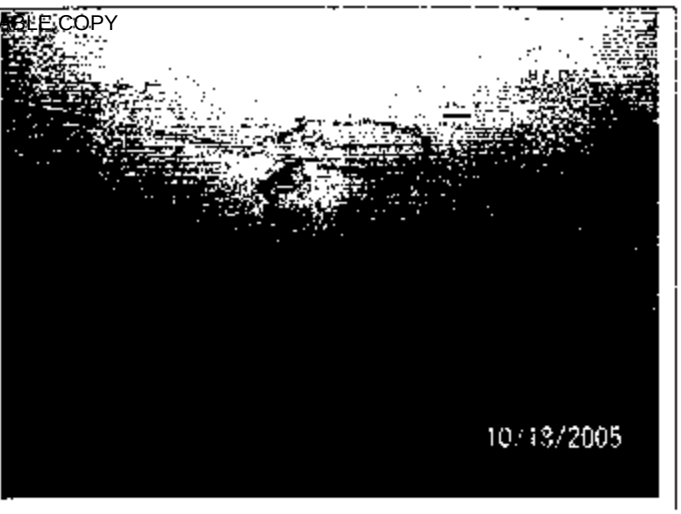

Photo # 22
THP Office 106 Ceiling Water Damage

Photo # 23
Retention Office 107 Ceiling Water Damage

Photo # 24
Classroom 108 Ceiling Water Damage

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 472 of 2531

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Photo # 25
Tennessee ARNG Indoor Firing Range Seal

Photo # 26
Mechanical Room Standing Water

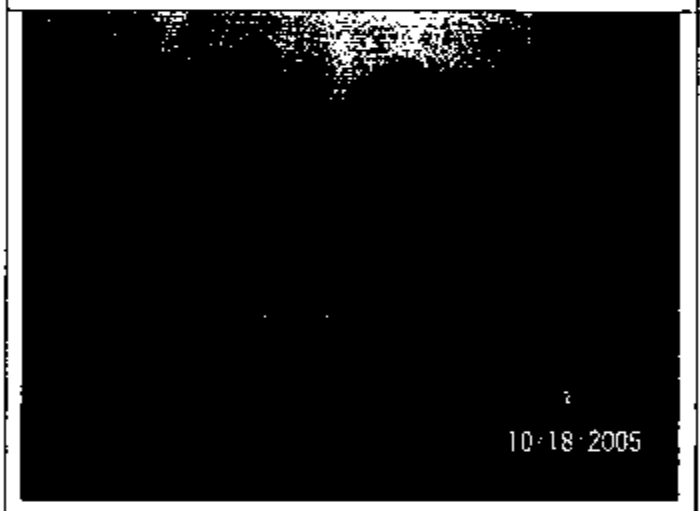

Photo # 27
Maintenance Shop Bathroom Ceiling Water Damage & Mildew I

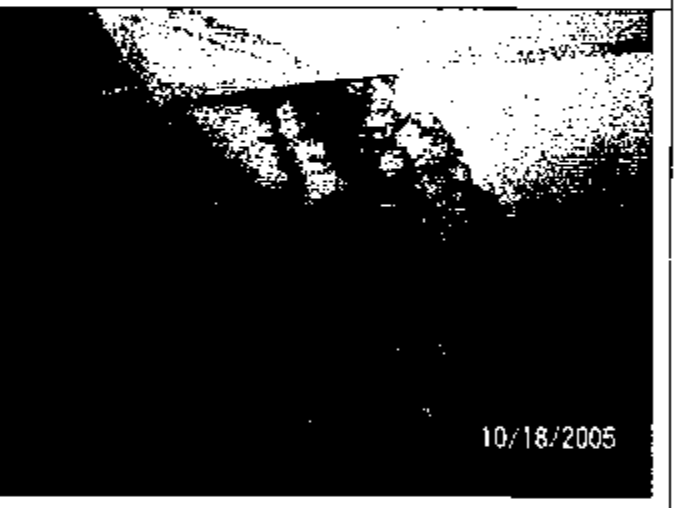

Photo # 28
Maintenance Shop Bathroom Ceiling Water Damage & Mildew II

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 473 of 2531

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Analytical Environmental Services, Inc.

Date: 11/9/2005

TOTAL LEAD IN WIPE SAMPLES
N7082

CLIENT: Technical Solutions International
Project: Dresden Armory
Delivery Order:
PO No:

Lab Order: 0510C81
Date Received: 10/25/2005 9:15 AM
Matrix: Wipe

Laboratory ID	Client Sample ID	Results	Units	Report Limit	DF	Date Collected	Date Analyzed	Analyst
0510C81-001A	DRESDEN 1	BRL	µg, Total	20	1	10/18/2005	10/28/2005	VA
0510C81-002A	DRESDEN 2	BRL	µg, Total	20	1	10/18/2005	10/28/2005	VA
0510C81-003A	DRESDEN 3	419	ug, Total	20	1	10/18/2005	10/28/2005	VA
0510C81-004A	DRESDEN 4	BRL	µg, Total	20	1	10/18/2005	10/28/2005	VA
0510C81-005A	DRESDEN 5	BRL	µg, Total	20	1	10/18/2005	10/28/2005	VA
0510C81-006A	DRESDEN 6	1050	µg, Total	20	1	10/18/2005	10/28/2005	VA
0510C81-007A	DRESDEN 7	BRL	µg, Total	20	1	10/18/2005	10/28/2005	VA
0510C81-008A	DRESDEN 8	BRL	µg, Total	20	1	10/18/2005	10/28/2005	VA
0510C81-009A	DRESDEN 9	BRL	µg, Total	20	1	10/18/2005	10/28/2005	VA
0510C81-010A	DRESDEN 10	BRL	µg, Total	20	1	10/18/2005	10/28/2005	VA
0510C81-011A	DRESDEN 11	BRL	µg, Total	20	1	10/18/2005	10/28/2005	VA
0510C81-012A	DRESDEN 12	BRL	µg, Total	20	1	10/18/2005	10/28/2005	VA
0510C81-013A	DRESDEN 13	BRL	µg, Total	20	1	10/18/2005	10/28/2005	VA
0510C81-014A	DRESDEN 14	BRL	µg, Total	20	1	10/18/2005	10/28/2005	VA
0510C81-015A	DRESDEN 15	BRL	µg, Total	20	1	10/18/2005	10/28/2005	VA
0510C81-016A	DRESDEN 16	BRL	µg, Total	20	1	10/18/2005	10/28/2005	VA
0510C81-017A	DRESDEN 17	BRL	µg, Total	20	1	10/18/2005	10/28/2005	VA
0510C81-018A	DRESDEN 18	BRL	µg, Total	20	1	10/18/2005	10/28/2005	VA
0510C81-019A	DRESDEN 19	BRL	µg, Total	20	1	10/18/2005	10/28/2005	VA

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 474 of 2531

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Section 1. Demographics Data

a. ARLOC _____ b. Installation _____ c. BLDG / RM Number _____
d. Location / Code e. Operation Code f. Description

g. MACOM/CODE _____ h. SUBMACOM/CODE _____ i. Supervisor _____
j. Telephone / AUTOVON Number _____ k. RAC _____ l. Frequency (hrs. per day) _____
m. NO CIV(S) _____ n. NO MIL _____ o. NO Contractor(s) _____ p. NO LOC(S) _____ q. NO Other _____

Section 2. IH Staffing data

a. LAB Hoods _____ b. Vapor Degreasers _____ c. Maintenance Bays _____ d. Spray Booths _____
e. Open Surface Tanks _____ f. Ventilation Units _____

Section 3. Survey Data

a. Survey Date		b. Evaluator (initials)	

c. Controls Present	d. Evaluation	e. Unit Code	f. Controls Required	g. Status

h. Personal Protective Equipment (R – Required; A – Available)

1. Respirator	Manufacturer	NIOSH TC NO	R/A
Disposable			/
½ Face Air Purifying			/
½ Face Air Purifying			/
Full Face Air Purifying			/
Powered Air Purifying			/
Airline			/
Self-Contained			/
Abrasive Blasting Hood			/

2. Gloves	R/A	3. Eye / Face	R/A	4. Hearing	R/A	5. Body	R/A	6. Head/Foot	R/A
Acid	/	Chemical / Splash	/	Muffs	/	Aprons	/	Hard Hats	/
Oil	/	Safety / Impact	/	Earplugs	/	Coveralls	/	Impermeable Boots	/
Solvents	/	Chemical / Safety	/	Canal Caps	/	Full Body Suit	/	Safety Conduct Shoes	/
Hot Surfaces	/	Full Face Shield	/	Helmets	/	Safety Belt / Harness	/	Safety Non-Conductive Shoes	/
Cold Surfaces	/	Welding Helmet	/			Heat Reflect Vest / Suit	/		/
NBC Agents	/					BDU's	/		/

Section 4. Hazard Inventory Data

a. CAS Code	b. Hazard Description	c. PAC or EPC	d. Medical Surveillance Recommended (Yes or No)

Posted to NGB FOIA Reading Room
May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 475 of 2531

Section 5: Personnel Data

a. Last Name	b. First Name	c. MI	d. Sex	e. SSN (Last 4 digits)	f. Category

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Section 6: Comments (add blank sheet of paper, if necessary)

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 476 of 2531

Facility Name: Dresden National Guard Armory BEST AVAILABLE COPY Date: 18 October 2005

Storage Area:

Trade Name:

Nomenclature: Container:

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 477 of 2531

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NATIONAL GUARD REGION SOUTH
INDUSTRIAL HYGIENE OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

NGB-ARS-IHSE (40-5f) January 12, 20010

MEMORANDUM FOR The Adjutant General of Tennessee, ATTN: Non-Responsive, TN Army National Guard Armory Dyersburg, Armory, 502 James H Rice Road, Dyersburg, TN 38024

THRU Non-Responsive Deputy State Surgeon, Tennessee National Guard, HQS, AGTN-DCSPER-DSS, P.O. Box 41502, Houston Barracks, Nashville, Tennessee 37204-1501.

SUBJECT: Transmittal of IH Survey of TN ARNG Dyersburg Armory, Dyersburg, TN.

1. References.

   a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 19 August 1998.

   b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1996 rev.

   c. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 25 May 2007

   d. AR 385-10, The Army Safety Program, 23 August 2007.

   e. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.

   f. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, 23 May 2008.

   g. TB MED 503, The Army Industrial Hygiene Program, 30 October 2000.

   h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2008, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

   i. Industrial Ventilation, 26th rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

   j. Title 29, Code of Federal Regulations (CFR), 2001 rev., part 1910, Occupational Safety and Health Standards.

   k. Reports of Dyersburg Armory Industrial Hygiene Survey, Non-Responsive Non-Responsive Fayetteville, GA.

2. General.

   a. At the request of Non-Responsive, of the Tennessee National Occupational Health Office, an Industrial Hygiene Survey was put together to conduct Health Hazard

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Information module (HHIM) Field survey of the s and industrial hygiene sampling of the TN ARNG Dyersburg Armory, Dyersburg,, TN.

b. The survey was conducted by Non-Responsive Non-Responsive Non-Responsive

3. Findings: The information that follows is based on the findings of the survey performed. All HHIM field survey forms, industrial hygiene sampling and survey findings of the report are enclosed (See ENCL 1). Operations of very short duration were not sampled due to the requirements of the sampling method. If the operation changes or if the length of the operation is increased, contact this office to schedule sampling if it is deemed needed then.

4. Recommendations. Understand that all findings documented in the enclosed report have been reviewed by the Regional Industrial Hygienist and the following recommendations are the ones to be followed.

a. Use the guidance given in the enclosed report as good IH practices, requesting industrial hygiene (IH) services where needed. The recommendations that follow are based on the survey findings as reported for the areas surveyed:

i Up grade the illumination in the Armory to meet Standard. Consider the use of supplemental lighting at locations that were below the recommended standards and replace burned out bulbs and/or light fixtures in the offices, classrooms and drill hall. See Light Readings Section. (RAC 3)

ii Ensure personnel using computers for extended periods of time take occasional breaks and change position to minimize the possibility of eyes and/or hands/wrist injury. (RAC 2)

iii Continue to ensure that weapon maintenance and cleaning is done in a well-ventilated area. Continue to practice good personal hygiene by washing hands after handling and cleaning weapons and ammunition. Ensure that the weapons racks are well cleaned before placing them back in the vault. Also, consider the use of disposable plastic table cloth to cover the tables while the weapons are cleaned to prevent contamination of the tables. (RAC 2)

iv Place the MSDS book at a visible location in an easy to access area of the armory. Ensure that personnel and troops have knowledge of the location of the MSDS book, and are take the hazardous materials safety training. Also a Hazardous Materials Inventory List should be made from the MSDS forms and be placed in the POL storage. (RAC 3)

b. The recommendations given in the comments section of the HHIM data sheets and data collected will serve as an update of the baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY2009. A follow up operation and hazard specific air sampling survey based on the enclosed

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findings will be included in the FY2010 IHIP.

c. Have all HHIM data entered into the HHIM computer module.

d. Use the report to help in correcting all deficiencies noted.

e. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present visits, especially if this will help eliminate health hazards and reduce medical surveillance cost.

f. Contact the State Occupational Health Office for any medical Surveillance that may be needed.

g. To execute your responsibilities in correcting all deficiencies, coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed about the industrial hygiene survey or air sample

Non-Responsive

[redacted]

CF:
Non-Responsive [redacted] ennessee State Safety and Occupational Health Manager, 3041 Sidco Drive, [redacted] 1504
[redacted] RN, Occupational Health Nurse, Tennessee State Safety and Occupational Health Office, Smyrna, TN 37167

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FINAL REPORT

FOR

BASELINE INDUSTRIAL HYGIENE SURVEY

TENNESSEE ARMY NATIONAL GUARD

DYERSBURG ARMORY

DYERSBURG, TN

DATE:

NOVEMBER 16, 2009

PREPARED BY

Non-Responsive

[redacted]

Posted to NGB FOIA Reading Room
May, 2018

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CONTENTS

1.0 INTRODUCTION

2.0 INSTRUMENTATION

3.0 FINDINGS

4.0 REFERENCES

Attachment 1 HHIM Forms

Attachment 2 Laboratory Reports: Deactivated Indoor Firing Range
Weapons Vault
Laboratory Reports: A/C-Heating System Outlet Grills & Filter

Attachment 3 Weapons Vault and IFR Sampling Areas

Attachment 4 Photographs of the Facility

Attachment 5 Schematic Drawing of Facility

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1.0 INTRODUCTION

At the request of the National Guard Bureau South Region Industrial Hygiene Office, Non-Responsive performed a Baseline Industrial Hygiene Survey at the TN ARNG Dyersburg Armory. The purpose of the survey was to perform a baseline survey to evaluate health hazards, controls present in the work site, collect lead swipe samples from renovated/inactive or closed Indoor Firing Ranges, Weapons Vault, A/C-Heating System, illumination survey and to make recommendations regarding health hazards associated with the work at the Dyersburg Armory.

The facility was built in 1989. Personnel reported that in 2009 some improvement were done to the building including a new roof, the replacement of the ceiling tiles where needed and painting the drill hall ceiling. The facility houses the 168th MP BN and the 268th MP Co. Detachment. The armory is used by the troops of the above mentioned units for their monthly weekend drills.

The 168th MP BN with about 70 troops and the 268th MP Co. with about 51 troops had between the two about 15 full time AGR personnel at the time of the survey. The AGR employees are assigned to perform administrative duties Monday-Friday 8:00am-4:30pm. The facility houses administrative areas, a drill hall, classrooms, a supply room, a weapons vault, a kitchen, and a deactivated Indoor Firing Range. The unit returned from deployment in Iraq on October, 2009. They were just beginning to operate on a regular basis. The week of the survey was the first one that all the unit personnel were in the armory. The kitchen will be used to cook for the troops at the next drill. Personnel reported that there is only one water leak left and it was in the supply room. It was schedule to be fixed the week of the survey. It was also reported that there were three broken A/C units on the right side of building, no air or heating on that side the day of the survey. A request for repairing these units was sent on July 2009. Somebody was supposed to come to the armory to inspect the units to see if they need replacement. A schematic drawing of the facility can be found in Attachment 5.

The facility was visually examined and personnel consulted to assess potential hazards present. Health Hazard Information Modules were completed. Illumination survey was performed throughout the facility.

2.0 INSTRUMENTATION/CALIBRATION

The following instrumentation was used to obtain light measurements. The instrument used has been calibrated and was operated according to the manufacturer's recommendations:

- SPER SCIENTIFIC Light Meter
- GHOST WIPES, Lead Wipes

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3.0 FINDINGS

Illumination

Illumination levels were recorded in administration offices, classrooms, the conference room, the drill hall and the supply room. Light measurements were below IES guidelines at the S-1 office (# 46), Command Section/CSM (# 43), Conference Room, S-3 office (# 37), Classroom 1(# 52), Classroom 2 (# 8) with three fixtures out, Drill Hall (# 18) with one bulb out, Supply Room office and the Supply room storage area. The other areas tested were within IES minimum standards, although the following areas had light fixtures out. The Orderly room (One fixture out), S-4 office (# 33) one fixture out and Office 29a. See Light Readings Table at the end of this section.

Administration

Personnel perform administrative duties that consist of reading, handling and generating paper work. Computer use comprises a large portion of the working day, four to five hours per day. This continuous use of computers can in the long run lead to eyestrain and hand/wrist soreness. Personnel reported no health problems associated with the job at this time.

Motor Pool

The motor pool is located behind the building. It is not a large, 25-30 vehicles. It is fenced and locked. Operator level PMCS are performed at the armory on weekend drills with road testing. When major repairs are needed the vehicles are taken to the shop facility in Jackson. Usually personnel from the shop come to the armory to take the vehicles to Jackson.

Drill Hall

The Drill Hall is located towards the rear of the building. It is used primarily for formation on weekend drills. Vehicles are never stored in the room. The Drill Hall is used to clean weapons several times a year. There are air exhaust ventilation fans, located at the roof of the room. At the time of the survey both air exhaust ventilation fans were working. The weapons are cleaned on tables at the Drill Hall in an area close to the supply Room. The tables are not covered. Rags with CLP are used to clean the weapons. The used rags are collected and placed in a disposal container. If they can not be used again, the rags are kept in the armory until someone from the shop comes later to pick them up for their disposal. When weapons are used in the field, an initial cleaning is done while there. Then they are thoroughly clean when return to the facility on tables in the Drill Hall. One of the light bulbs in the room was out the day of the survey. The Drill Hall has been rented in the past for parties and other activities.

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Kitchen

The facility has a kitchen that is used to cook on weekend drills. Each unit using the armory has their own mess section. Lunches are provided on Saturday and Sunday on weekend drills. They eat on tables in the Drill Hall. The kitchen was clean the day of the survey and no food particles were found anywhere. There are two inmates that come every day and help clean the armory inside and outside.

Boiler Room

There is no boiler in the facility.

Deactivated Indoor Firing Range

There is a deactivated Indoor Firing Range (IFR) at the facility. Personnel reported that it has been cleaned on stages over the last two or three years. The space was empty the day of the survey. The backstop and the sand were removed for disposal. The space where the sand was located was filled with concrete. Personnel stated that the room can not be used for any purpose until it has been cleared for lead contamination. All lead samples were taken using a 10 inch by 10 inch template. The US environmental Protection Agency (EPA), under a new standard issued in 2000, considers lead dust as a hazard if levels are greater than 40 micrograms of lead in dust per square foot on floors. The National Guard Bureau recommends a limit of 200 micrograms per square foot for surface contamination. Five wipe samples were taken from the IFR. Two of the five samples were above the clearance level of 200ug/ft2. See table 1 for results. See attachment 3 for sampling locations.

Table 1

Sample Number	Sample Location	Results	
1	Floor where bullet backstop was located, right front side	368ug	525ug/ft2
2	Floor where bullet backstop was located, left front side	287ug	410ug/ft2
3	End of pit area (covered with concrete)	63ug	90ug/ft2
4	Floor in front of where bullet backstop was	24ug	34ug/ft2
5	Floor inside next to exit/entrance door	BRL	BRL

18	Blank	BRL	BRL

Weapons Vault

The Dyersburg Armory has a weapon storage vault located in the Supply Room. Personnel stated that accountability and issuing of weapons are performed in this area. Weapons are cleaned several times a year as stated in the Drill Hall section above. The dehumidifier in the weapons vault was working the day of the survey. It was reported that it is on all the time and has a direct hose connection for outside drainage. All lead samples were taken using a 10 inch by 10 inch template. Four wipe samples were taken from the weapons vault racks. None of the samples was above the clearance level of 200ug/ft2. See table 2 for results. See attachments 3 and 4 for sampling locations and pictures.

Table 2

Sample Number	Sample Location	Results	
14	Weapons Vault. Floor in front of rack (See Attach. 3 & 4)	BRL	BRL
15	Weapons Vault. and Floor and Rack bottom(See Attachment 3 & 4)	42ug	60ug/ft2
16	Weapons Vault. Floor in front of rack (See Attach. 3 & 4)	BRL	BRL
17	Weapons Vault. Floor in front of rack (See Attach. 3 & 4)	21ug	30ug/ft2
18	Blank	BRL	BRL

A/C System

Central A/C units are used to cool the administration offices, the classrooms and conference room. Personnel reported that there are three A/C-Heating units that were broken on the right side of the building the day of the survey. No heat or A/C. A request for repair was sent on July 2009. The latest information at the time was that a person would be going to the facility to inspect the broken units to see if they need to be replaced. The filters were dirty and in need of replacement the

day of the survey. All lead samples were taken using a 10 inch by 10 inch template. The US environmental Protection Agency (EPA), under a new standard issued in 2000, considers lead dust as a hazard if levels are greater than 40 micrograms of lead in dust per square foot on floors. The National Guard Bureau recommends a limit of 200 micrograms per square foot for surface contamination. Ten wipe samples were collected from the supply air outlet grills in the offices classrooms and library. All samples were below the clearance level of 200 ug/ft2.

Table 3

Sample Number	Sample Location	Results
6	A/C-Heating Outlet, HHD Orderly Room	BRL
7	A/C-Heating Outlet, S-1 Office (# 46)	BRL
8	A/C-Heating Outlet, Recruitment Sustainment Office (# 4)	BRL
9	A/C-Heating Outlet, Det.268th Readiness NCO Office (#5)	BRL
10	A/C-Heating Outlet, Classroom 2 (# 8)	BLR
11	A/C-Heating Unit 1 Filter, Fan Side	BLR
12	A/C-Heating Unit 1 Filter, Supply Side	BRL
13	A/C-Heating Outlet, Classroom 1 (# 52)	BRL
101	A/C-Heating Unit 2 Filter, Supply Side)	BRL
102	A/C-Heating Unit 2 Filter, Fan Side	BRL
18	Blank	BLR

Material Safety Data Sheets

There is an MSDS Book in the armory located in the Supply Room. It was updated until the unit was deployed. No sign was found anywhere in the armory to advise personnel and troops about the location of the MSDS book. There is a flammables cabinet located in the Supply Room. It is kept locked. It contains CLP, aerosol can paint, regular paint and WD 40. It should have Hazardous Materials Inventory List either outside or inside the cabinet.

Light Readings

Light measurements were taken in various locations throughout the facility. The results were compared to guidelines recommended by the Illuminating Engineering Society (IES). The results of the survey are shown in Table 4.

Table 4

Location	Light Reading (footcandles)	IES Recommendation (footcandles)
ADO HHD Orderly Room	32-63 (Avg. 49)	50-100
ADO 168th MP BN HHD NCO (# 51)	37-82 (Avg. 61)	50-100
ADO S-1 Office (# 46)	26-56 (Avg. 44)	50-100
ADO S-1 Office (# 49)	26-74 (Avg. 54)	50-100
ADO Command Section/CSM	35-52 (Avg. 46)	50-100
ADO SW-3 Office (# 48)	54-77 (Avg. 67)	50-100
Unit Office (# 38)	47-78 (Avg. 59)	50-100
ADO S-3 Office (# 37)	33-41 (Avg. 37)	50-100
ADO S-4 Office (# 33)	26-66 (Avg.53)	50-100
ADO S-4 Office (# 34)	52-72 (Avg. 58	50-100
ID Card Room (# 30)	56-72 (Avg. 63)	50-100
Commo Office (# 29A)	22-70 (Avg. 59)	50-100
Conference Room (# 41)	21-52 (Avg. 36)	50-100
Classroom 1 (# 52)	17-61 (Avg. 35)	50-100
Classroom 2 (# 8)	9-57 (Avg. 34)	50-100
ADO Supply Room Office (# 16)	21-32 (Avg. 26)	50-100

ADO Supply Room (Storage # 17)	**12-18 (Avg. 15)**	**20**
Drill Hall (# 18)	**10-31 (Avg. 26)**	**30**

Light measurements were below IES guidelines at the S-1 office (# 46), Command Section/CSM (# 43), Conference Room, S-3 office (# 37), Classroom 1(# 52), Classroom 2 (# 8) with three fixtures out, Drill Hall (# 18) with one bulb out, Supply Room office and the Supply room storage area. The other areas tested were within IES minimum standards, although the following areas had light fixtures out. The Orderly room (One fixture out), S-4 office (# 33) one fixture out and Office 29a. Consideration should be given to provide supplemental lighting in those areas that were below the recommended standard and to replace burned out bulbs. ANSI RP7-1991.

4. REFERENCES

- Guide to Occupational Exposure 2000, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.
- American National Standards Institute (ANSI), /Illuminating Engineering Society (IES), Industrial Lighting 1991.
- Title 29, Code of Federal Regulations (CFR). 1999, revision, Part 1910. Occupational Safety and Health Standards
- AR 40-5, Preventative Medicine, 15 October 1990.
- AR 385-10, The Army Safety Program, 23 May 1988.
- National Safety Council, Fundamentals of Industrial Hygiene, 4th edition, 1996.
- AR 385-16, National Guard Pamphlet, Safety Guidelines for Converting Indoor Firing Ranges to Other uses.
- TB MED 503, The Army Industrial Hygiene Program, February 1985.
- Department of the Army Pamphlet (DA PAM) 40-501,27 August 1991, Hearing Conservation.
- Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.

Non-Responsive

[redacted]

RECOMMENDATIONS

- Consideration should be given to provide supplemental lighting at locations that were below the recommended standards and to replace burned out bulbs and/or light fixtures in the offices, classrooms and drill hall. See Light Readings Section.

- Recommend that when using computers for extended periods of time, personnel should take occasional breaks and change position to minimize the possibility of eyes and/or hands/wrist injury.

- Continue to ensure that weapon maintenance and cleaning is done in a well-ventilated area. Continue to practice good personal hygiene by washing hands after handling and cleaning weapons and ammunition. Ensure that the weapons racks are well cleaned before placing them back in the vault.

- Recommend the use of disposable plastic table cloth to cover the tables while the weapons are cleaned to prevent contamination of the tables.

- A request should be submitted to the appropriate state office to repair the roof leaks in the Supply Room if it has not been done yet.

- A request should be submitted to the appropriate state office to repair the non working A/C units if they are not been repaired yet.

- Recommend that A/C filters should be change regularly according to manufacturers' recommendation).

- Recommend that Hazardous Materials Inventory Lists should be made from the MSDS forms and be placed in the flammables cabinets.

- Ensure that personnel and troops have knowledge of the location of the MSDS book. And is enrolled hazardous materials safety training.

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SECTION 1. DEMOGRAPHIC DATA

a. ARLOC 47000 b. INSTALLATION Dyersburg TN Armory c. BLDG/RM NUMBER S-3-Room 48

d. LOCATION/CODE AA e. OPERATION/CODE ADO f. DESCRIPTION Training office Coordinate training & monitor subordinate units

g. MACOM/CODE NG / [redacted] Non-Responsive ODE / i. SUPERV [redacted] Non-Responsive

j. TELEPHONE/AUTOVON NUMBER k. RAC l. FREQUENCY (Hrs Per Day)

m. NO CIV(S) n. NO MIL o. NO CONTRACTOR(S) p. NO LOC(S) q. NO OTHER

SECTION 2. IH STAFFING DATA

a. LAB HOODS b. VAPOR DEGREASERS c. MAINTENANCE BAYS d. SPRAY BOOTHS

e. OPEN SURFACE TANKS f. VENTILATION UNITS

SECTION 3. SURVEY DATA

a. SURVEY DATE 11-16-09 b. EVALUATOR (INITIALS) [redacted] Non-Responsive

c. CONTROLS PRESENT	d. EVALUATION	e. UNIT CODE	f. CONTROLS REQUIRED	g. STATUS
Lighting	54-77; Aug 67	FC	50-100	Adequate

h. PERSONAL PROTECTIVE EQUIPMENT (R=REQUIRED; A=AVAILABLE)

i. RESPIRATOR	MANUFACTURER	NIOSH TC NO	R/A
DISPOSABLE			
½ FACE AIR PURIFYING			
¾ FACE AIR PURIFYING			
FULL FACE AIR PURIFYING			
POWERED AIR PURIFYING			
AIRLINE			
SELF-CONTAINED			
ABRASIVE BLASTING HOOD			

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	R/A
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	
OIL	/	SAFETY/IMPACT	/	EARPLUGS	/	COVERALLS	/	IMPERMEABLE BOOTS	
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/ HARNESS	/	SAFETY/NONCONDUCTIVE SHOES	
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/								

SECTION 4. HAZARD INVENTORY DATA

a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC or EPC	d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO)
PO U DT	eye/hand strain Computer use for long periods of time	3	

a. HAZARD	b. SAMPLE TYPE	c. RESULTS	d. REMARKS

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SECTION 6. PERSONNEL DATA

Non-Responsive

					d. CATEGORY
					AGR

SECTION 7. COMMENTS (Add blank sheet of paper if necessary)

① Training officer
② Has been here since 4 yrs.
③ Was at Lebanon before
④ Computer work about 6 hrs/day
⑤ No health hazard

* PRIVACY ACT STATEMENT

Title 5 U.S. Code, Section 301; Executive Order 9397 authorizes the use of your Social Security Number as a identification number. The purpose of this information is to identify and monitor data relating each DA civilian employee exposed to a hazardous workplace or operation. The use of this information is to provide histories of exposure for any given worker.

Disclosure of your Social Security Number is not mandatory; however, nondisclosure may result in untimely provision of proper medical monitoring.

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Page 492 of 2531

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SECTION 1. DEMOGRAPHIC DATA

a. ARLOC 47000 b. INSTALLATION Dyersburg TN Armory c. BLDG/RM NUMBER 5-4 OFFICE Room 34

d. LOCATION/CODE AA e. OPERATION/CODE ADO f. DESCRIPTION

BN 5-4 NCOIC Logistics Computer work about 5-6 hrs/day

g. MACOM/CODE NG / [redacted] OM/CODE / i. SUPERVI [redacted]

j. TELEPHONE/AUTOVON NUMBER [redacted] k. RAC l. FREQUENCY (Hrs Per Day)

m. NO CIV(S) n. NO MIL o. NO CONTRACTOR(S) p. NO LOC(S) q. NO OTHER

SECTION 2. IH STAFFING DATA

a. LAB HOODS b. VAPOR DEGREASERS c. MAINTENANCE BAYS d. SPRAY BOOTHS

e. OPEN SURFACE TANKS f. VENTILATION UNITS

SECTION 3. SURVEY DATA

a. SURVEY DATE 11-16-09 b. EVALUATOR (INITIALS) [redacted]

c. CONTROLS PRESENT	d. EVALUATION	e. UNIT CODE	f. CONTROLS REQUIRED	g. STATUS
Lighting	52-72; Avg 58 FC	FC	50-100 FC	Adequate

h. PERSONAL PROTECTIVE EQUIPMENT (R=REQUIRED; A=AVAILABLE)

1. RESPIRATOR	MANUFACTURER	NIOSH TC NO	R/A
DISPOSABLE			
¼ FACE AIR PURIFYING			/
½ FACE AIR PURIFYING			/
FULL FACE AIR PURIFYING			/
POWERED AIR PURIFYING			/
AIRLINE			/
SELF-CONTAINED			/
ABRASIVE BLASTING HOOD			/

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	R/A
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	
OIL	/	SAFETY/IMPACT	/	EARPLUGS	/	COVERALLS	/	IMPERMEABLE BOOTS	
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/HARNESS	/	SAFETY/NONCONDUCTIVE SHOES	
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/								

SECTION 4. HAZARD INVENTORY DATA

a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC or EPC	d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO)
POVDT	eye/hand strain. Computer work for long periods of time	3	

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a. HAZARD	b. SAMPLE TYPE	c. RESULTS	d. REMARKS

SECTION 6. PERSONNEL DATA

					d. CATEGORY
Non-Responsive					AGR

SECTION 7. COMMENTS (Add blank sheet of paper if necessary)

① BN S4 NCOIC - Logistics
② Has been here for over 2 yrs (Aug 07)
③ Was at Ripley before
④ Computer work about 5-6 hr/day
⑤ No health Problem

PRIVACY ACT STATEMENT

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Disclosure of your Social Security Number is not mandatory; however, nondisclosure may result in untimely provision of proper medical monitoring.

Signature

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Page 494 of 2531

(... Form, see ... User's Instructions.)

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SECTION 1. DEMOGRAPHIC DATA

a. ARLOC 47000 b. INSTALLATION Dyersburg, TN Armory c. BLDG/RM NUMBER Supply Room

d. LOCATION/CODE ~~[illegible]~~ ~~[illegible]~~ e. OPERATION/CODE SAH f. DESCRIPTION

Paper work, supervise people who clean & maintenance. Dispense equipment. Computer work about

g. MACOM/CODE NG / [redacted] CODE / i. SUPERVI[redacted]

j. TELEPHONE/AUTOVON NUMBE[redacted] k. RAC l. FREQUENCY (H[redacted])

m. NO CIV(S) n. NO MIL o. NO CONTRACTOR(S) p. NO LOC(S) q. NO OTHER

SECTION 2. IH STAFFING DATA

a. LAB HOODS — b. VAPOR DEGREASERS — c. MAINTENANCE BAYS — d. SPRAY BOOTHS

e. OPEN SURFACE TANKS — f. VENTILATION UNITS

SECTION 3. SURVEY DATA

a. SURVEY DATE 11-16-09 b. EVALUATOR (INITIALS) [redacted]

c. CONTROLS PRESENT	d. EVALUATION	e. UNIT CODE	f. CONTROLS REQUIRED	g. STATUS
Lighting - office	21-32FC; Avg 26.5	FC	50-100 FC	Inadequate
Supply area light	12-20; Avg 15	FC	20	Inadequate

h. PERSONAL PROTECTIVE EQUIPMENT (R=REQUIRED; A=AVAILABLE)

1. RESPIRATOR	MANUFACTURER	NIOSH TC NO	R/A
DISPOSABLE			
¼ FACE AIR PURIFYING			
½ FACE AIR PURIFYING			
FULL FACE AIR PURIFYING			
POWERED AIR PURIFYING			
AIRLINE			
SELF-CONTAINED			
ABRASIVE BLASTING HOOD			

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	R/A
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	
OIL	/	SAFETY/IMPACT	/	EARPLUGS	/	COVERALLS	/	IMPERMEABLE BOOTS	
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/HARNESS	/	SAFETY/NONCONDUCTIVE SHOES	
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/								

SECTION 4. HAZARD INVENTORY DATA

a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC or EPC	d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO)
POVDT	eye/hand strain computer work for long periods of time	3	
	Foot hazard	3	
	Heavy lifting	3	

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a. HAZARD	b. SAMPLE TYPE	c. RESULTS	d. REMARKS

SECTION 6. PERSONNEL DATA

					d. CATEGORY
					AGR

Non-Responsive

SECTION 7. COMMENTS (Add blank sheet of paper if necessary)

① Supply Room Personnel.
② Has been at the facility for
③ No health problem as of now
④ Request help when handling heavy supplies or boxes.
⑤ computer work about 5 hrs/day

* PRIVACY ACT STATEMENT

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Signature

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Page 496 of 2531

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SECTION 1. DEMOGRAPHIC DATA

a. ARLOC 47000 b. INSTALLATION Dyersburg Int Armory c. BLDG/RM NUMBER Supply Rm

d. LOCATION/CODE S A / AA e. OPERATION/CODE AHO SAH f. DESCRIPTION

Supply personnel, order, organize + distribute supplies, Computer work about 3 hrs/day

g. MACOM/CODE NG / [redacted] /CODE / i. SUPERVISO[redacted]

j. TELEPHONE/AUTOVON NUMBER [redacted] k. RAC l. FREQUENCY (Hrs Per Day)

m. NO CIV(S) n. NO MIL o. NO CONTRACTOR(S) p. NO LOC(S) q. NO OTHER

SECTION 2. IH STAFFING DATA

a. LAB HOODS b. VAPOR DEGREASERS c. MAINTENANCE BAYS d. SPRAY BOOTHS

e. OPEN SURFACE TANKS f. VENTILATION UNITS

SECTION 3. SURVEY DATA

a. SURVEY DATE 11-16-09 b. EVALUATOR (INITIA[redacted]

c. CONTROLS PRESENT	d. EVALUATION	e. UNIT CODE	f. CONTROLS REQUIRED	g. STATUS
Office-Lighting	21-32; Avg: 26.5	FC	50	Inadqt
Supply area-Lighting	12-20; Avg 15	FC	30	Inadqt

h. PERSONAL PROTECTIVE EQUIPMENT (R=REQUIRED; A=AVAILABLE)

1. RESPIRATOR

	MANUFACTURER	NIOSH TC NO	R/A
DISPOSABLE			
½ FACE AIR PURIFYING			
⅔ FACE AIR PURIFYING			
FULL FACE AIR PURIFYING			
POWERED AIR PURIFYING			
AIRLINE			
SELF-CONTAINED			
ABRASIVE BLASTING HOOD			

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	R/A
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	
OIL	/	SAFETY/IMPACT	/	EARPLUGS	/	COVERALLS	/	IMPERMEABLE BOOTS	
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/ HARNESS	/	SAFETY/NONCONDUCTIVE SHOES	
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/								

SECTION 4. HAZARD INVENTORY DATA

a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC or EPC	d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO)
POVDT	eye/head strain Computer work for long periods of time	3	
	Foot hazard	3	
	Heavy lifting	3	

BEST AVAILABLE COPY

a. HAZARD	b. SAMPLE TYPE	c. RESULTS	d. REMARKS

SECTION 6. PERSONNEL DATA

Non-Responsive

					CATEGORY
					AGR

SECTION 7. COMMENTS (Add blank sheet of paper if necessary)

① Supply Sgt.
② Has been here since May 1, 2009
③ Was in Jackson before
④ Supply room duties
⑤ Computer work about 3 hrs/day
⑥ No health problems

PRIVACY ACT STATEMENT

Title 5 U.S. Code, Section 301; Executive Order 9397 authorizes the use of your Social Security Number as a identification number. The purpose of this information is to identify and monitor data relating each DA civilian employee exposed to a hazardous workplace or operation. The use of this information is to provide histories of exposure for any given worker.

Disclosure of your Social Security Number is not mandatory; however, nondisclosure may result in untimely provision of proper medical monitoring.

Signature

2

(For use of this form, see HHIM User's Instructions.)

SECTION 1. DEMOGRAPHIC DATA

BEST AVAILABLE COPY

a. ARLOC 47000 b. INSTALLATION Dyersburg TN Army c. BLDG/RM NUMBER S-4 Office #33

d. LOCATION/CODE AA e. OPERATION/CODE ADO f. DESCRIPTION S-4 Assistant Property Book Computer WORC Output 6 hrs/day

g. MACOM/CODE NG / Non-Responsive [redacted] E / i. SUPERVIS Non-Responsive [redacted]

j. TELEPHONE/AUTOVON NUMBE [redacted] RAC l. FREQUENCY (HR PER DAY)

m. NO CIV(S) n. NO [redacted] CONTRACTOR(S) p. NO LOC(S) q. NO OTHER

SECTION 2. IH STAFFING DATA

a. LAB HOODS — b. VAPOR DEGREASERS — c. MAINTENANCE BAYS — d. SPRAY BOOTHS —

e. OPEN SURFACE TANKS — f. VENTILATION UNITS Non-Responsive [redacted]

SECTION 3. SURVEY DATA

a. SURVEY DATE 11-16-09 b. EVALUATOR (INITIALS) [redacted]

c. CONTROLS PRESENT	d. EVALUATION	e. UNIT CODE	f. CONTROLS REQUIRED	g. STATUS
Lighting	21-60; Avg: 53	FC	50-100	Adequate

h. PERSONAL PROTECTIVE EQUIPMENT (R=REQUIRED; A=AVAILABLE)

1. RESPIRATOR	MANUFACTURER	NIOSH TC NO	R/A
DISPOSABLE			
¼ FACE AIR PURIFYING			
½ FACE AIR PURIFYING			
FULL FACE AIR PURIFYING			
POWERED AIR PURIFYING			
AIRLINE			
SELF-CONTAINED			
ABRASIVE BLASTING HOOD			

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	R/A
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	
OIL	/	SAFETY/IMPACT	/	EARPLUGS	/	COVERALLS	/	IMPERMEABLE BOOTS	
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/HARNESS	/	SAFETY/NONCONDUCTIVE SHOES	
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/								

SECTION 4. HAZARD INVENTORY DATA

a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC or EPC	d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO)
Po VDT	eye/hand strain computer use for long periods of time	3	

BEST AVAILABLE COPY

a. HAZARD	b. SAMPLE TYPE	c. RESULTS	d. REMARKS

SECTION 6. PERSONNEL DATA

Non-Responsive

					CATEGORY
					AGR

SECTION 7. COMMENTS (Add blank sheet of paper if necessary)

① ASS istant Property Book – S4 Office NCO
② Has been at this activity about 3 yrs
③ Computer work about 6 hrs – 7
④ No health problems

* PRIVACY ACT STATEMENT

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 500 of 2531

(For use of this form, see HHIM User's Instructions.)

SECTION 1. DEMOGRAPHIC DATA

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a. ARLOC 47006 b. INSTALLATION Dyersburg TN Armory c. BLDG/RM NUMBER 1D Card Room

d. LOCATION/CODE A+ e. OPERATION/CODE ADO f. DESCRIPTION Deers Rapid Operator, ID Cards, Computer work about 4-5 hrs / day

g. MACOM/CODE NG / [redacted] DE / i. SUPERVIS[redacted]

j. TELEPHONE/AUTOVON NUMBER [redacted] RAC l. FREQUENCY (Hrs Per Day)

m. NO CIV(S) n. NO MIL o. NO CONTRACTOR(S) p. NO LOC(S) q. NO OTHER

SECTION 2. IH STAFFING DATA

a. LAB HOODS b. VAPOR DEGREASERS c. MAINTENANCE BAYS d. SPRAY BOOTHS

e. OPEN SURFACE TANKS f. VENTILATION UNITS

SECTION 3. SURVEY DATA

a. SURVEY DATE 11-16-09 b. EVALUATOR (INITIAL [redacted]

c. CONTROLS PRESENT	d. EVALUATION	e. UNIT CODE	f. CONTROLS REQUIRED	g. STATUS
Lighting	56-72, Aug 63	FC	50-100	Adequate

h. PERSONAL PROTECTIVE EQUIPMENT (R=REQUIRED; A=AVAILABLE)

i. RESPIRATOR	MANUFACTURER	NIOSH TC NO	R/A
DISPOSABLE			/
¼ FACE AIR PURIFYING			/
½ FACE AIR PURIFYING			/
FULL FACE AIR PURIFYING			/
POWERED AIR PURIFYING			/
AIRLINE			/
SELF-CONTAINED			/
ABRASIVE BLASTING HOOD			/

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	R/A
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	
OIL	/	SAFETY/IMPACT	/	EARPLUGS	/	COVERALLS	/	IMPERMEABLE BOOTS	
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/ HARNESS	/	SAFETY/NONCONDUCTIVE SHOES	
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/								

SECTION 4. HAZARD INVENTORY DATA

a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC or EPC	d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO)
POVDT	eyehand strain Computer use for long periods of time	3	

BEST AVAILABLE COPY

a. HAZARD	b. SAMPLE TYPE	c. RESULTS	d. REMARKS

SECTION 6. PERSONNEL DATA

Non-Responsive

					d. CATEGORY
					AGR

SECTION 7. COMMENTS (Add blank sheet of paper if necessary)

(1) Deers & Rapids operator (ID cards, computer
(2) Has been here since Nov. 1
(3) Computer work about 4-5 hrs
(4) No health problems

PRIVACY ACT STATEMENT

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 502 of 2531

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SECTION 1. DEMOGRAPHIC DATA

aa. AFSC: 47000

bb. INSTALLATION: [illegible]

cc. BUCKET/PAY NUMBER: [illegible]

dd. LOCATION CODE: MA

ee. OPERATION CODE: MDO

ff. DESCRIPTION: [illegible]

gg. MAJCOM CODE: NG

[redacted] Non-Responsive

ii. SUPERVISOR [redacted] Non-Responsive

jj. TELEPHONE/AUTOVON NUMBER [redacted]

kk. RANK: [illegible]

ll. AFSC EFFECTIVE DATE (MM/DD/YY): [illegible]

mm. MOS(S): [illegible]

nn. MOS [redacted]

oo. MOS [illegible]

pp. MOS [illegible]

qq. MOS [illegible]

SECTION 2. INSTALLATION DATA

aa. LAST HOLIDAY: [illegible]

bb. VARIOUS MEDICAL EXAMS: [illegible]

cc. MAINTENANCE EXAMS: [illegible]

dd. TRAINING EXAMS: [illegible]

ee. OPEN SURFACE TANKS: [illegible]

ff. WEEKLY INSPECTIONS: [illegible]

[redacted] Non-Responsive

SECTION 3. SURVEY DATA

aa. SURVEY DATE: 11-16-00 [illegible]

bb. EVALUATOR (INITIALS): [redacted]

cc. CONTROLS PRESENT	dd. EVALUATION	ee. UNIT CODE	ff. CONTROLS FREQUENCY	gg. STATUS
[illegible]	[illegible] 11-17-53	FC	50-100	[illegible]

hh. PERSONNAL PROTECTIVE EQUIPMENT (ALL SELECTED; N/A IF NOT AVAILABLE):

ii. PPE	MANUFACTURER	MODEL (IF NO)	P.F.
EARPLUGS			
HALF FACE AIR PURIFYING			
FULL FACE AIR PURIFYING			
FULL FACE AIR PURIFYING			
POWERED AIR PURIFYING			
AIRLINE			
SELF CONTAINED			
ABRASIVE BLASTING HOOD			

2. GLOVES	N/A	3. EYE/FACE	N/A	4. HEARING	N/A	5. BODY	N/A	6. HEAD/FOOT	P.F.
ACID	/	CHEMICAL SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	
OIL	/	SAFETY/IMPACT	/	EARPLUGS	/	COVERALLS	/	UNDERWEAR & BOOTS	
SOLVENTS	/	CHEMICAL SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/ HARNESS	/	SAFETY/ANTI-CONDUCT TOE SHOES	
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/								

SECTION 4. HAZARD INVENTORY DATA

a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC or EPC	d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO)
10V DT	eyeband strain computer use for long periods of time	3	

a. HAZARD	b. SAMPLE TYPE	c. RESULTS	d. REMARKS

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SECTION 6. PERSONNEL DATA

					d. CATEGORY
					AGR

Non-Responsive

SECTION 7. COMMENTS (Add blank sheet of paper if necessary)

① Property Book Officer - Inchange of equipment maintain accountability. Organizational + Installation
② Has been here for one month
③ Was in Nashville before
④ Computer work about 6 hrs / day
⑤ No health problems.

* PRIVACY ACT STATEMENT

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 504 of 2531

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Analytical Environmental Services, Inc.

Date: 12/3/2009

LEAD ON WIPES (N9100/7082)
N7082

CLIENT: Non-Responsive
Project: Dyersburg, TN Armory
Delivery Order:
PO No:

Lab Order: 0911J00
Date Received: 11/23/2009 2:45 PM
Matrix: Wipe

Laboratory ID	Client Sample ID	Results	Units	Report Limit.	DF	Date Collected	Date Analyzed	Analyst
0911J00-001A	1	368	ug, Total	20	1	11/16/2009	11/30/2009	MAW
0911J00-002A	2	287	ug, Total	20	1	11/16/2009	11/30/2009	MAW
0911J00-003A	3	63	ug, Total	20	1	11/16/2009	11/30/2009	MAW
0911J00-004A	4	24	ug, Total	20	1	11/16/2009	11/30/2009	MAW
0911J00-005A	5	BRL	ug, Total	20	1	11/16/2009	11/30/2009	MAW
0911J00-006A	6	BRL	ug, Total	20	1	11/16/2009	11/30/2009	MAW
0911J00-007A	7	BRL	ug, Total	20	1	11/16/2009	11/30/2009	MAW
0911J00-008A	8	BRL	ug, Total	20	1	11/16/2009	11/30/2009	MAW
0911J00-009A	9	BRL	ug, Total	20	1	11/16/2009	11/30/2009	MAW
0911J00-010A	10	BRL	ug, Total	20	1	11/16/2009	11/30/2009	MAW
0911J00-011A	11	BRL	ug, Total	20	1	11/16/2009	11/30/2009	MAW
0911J00-012A	12	BRL	ug, Total	20	1	11/16/2009	11/30/2009	MAW
0911J00-013A	13	BRL	ug, Total	20	1	11/16/2009	11/30/2009	MAW
0911J00-014A	101	BRL	ug, Total	20	1	11/16/2009	11/30/2009	MAW
0911J00-015A	102	BRL	ug, Total	20	1	11/16/2009	11/30/2009	MAW
0911J00-016A	14	BRL	ug, Total	20	1	11/16/2009	11/30/2009	MAW
0911J00-017A	15	42	ug, Total	20	1	11/16/2009	11/30/2009	MAW
0911J00-018A	16	BRL	ug, Total	20	1	11/16/2009	11/30/2009	MAW
0911J00-019A	17	21	ug, Total	20	1	11/16/2009	11/30/2009	MAW
0911J00-020A	18	BRL	ug, Total	20	1	11/16/2009	11/30/2009	MAW

Qualifiers: BRL - Not Detected at the Reporting Limit DF - Dilution Factor

Results are blank corrected where applicable

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 505 of 2531

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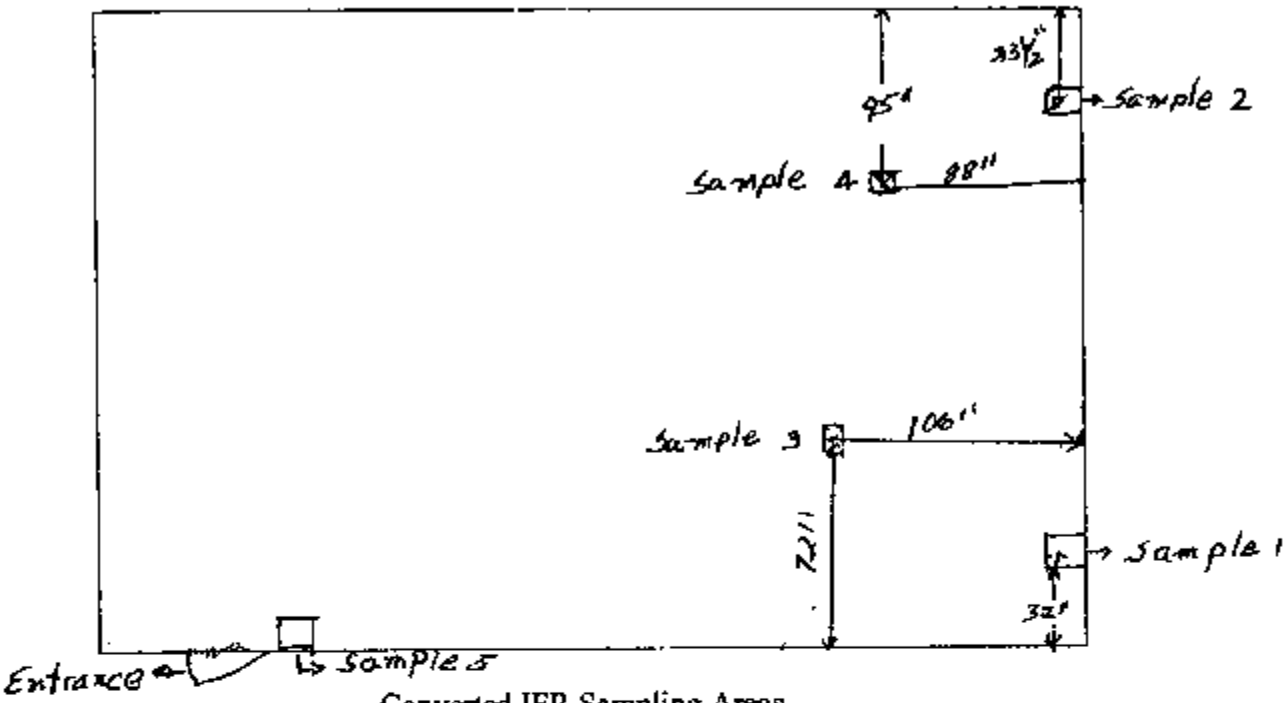
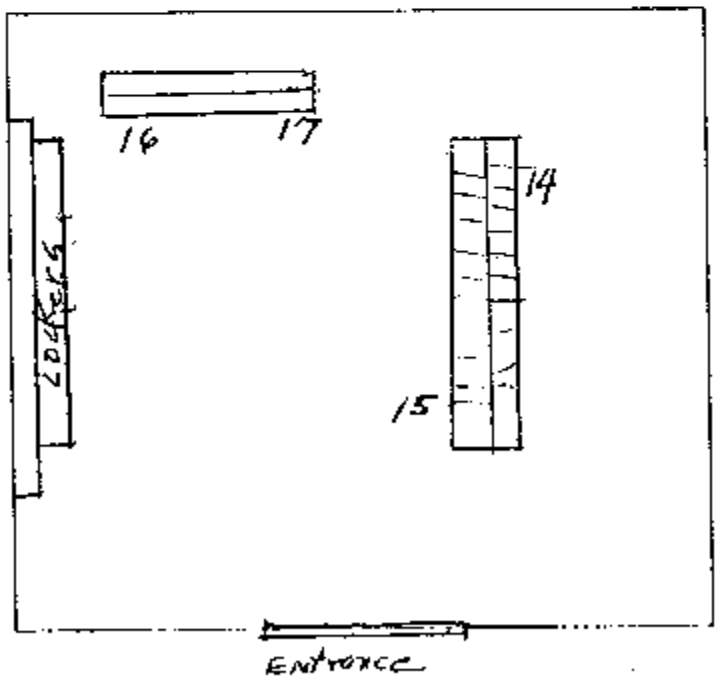
Dyersburg, TN Armory



Converted IFR Sampling Areas



Weapons Vault Sampling Areas

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DYERSBURG, TN
ARMORY

MOTOR POOL

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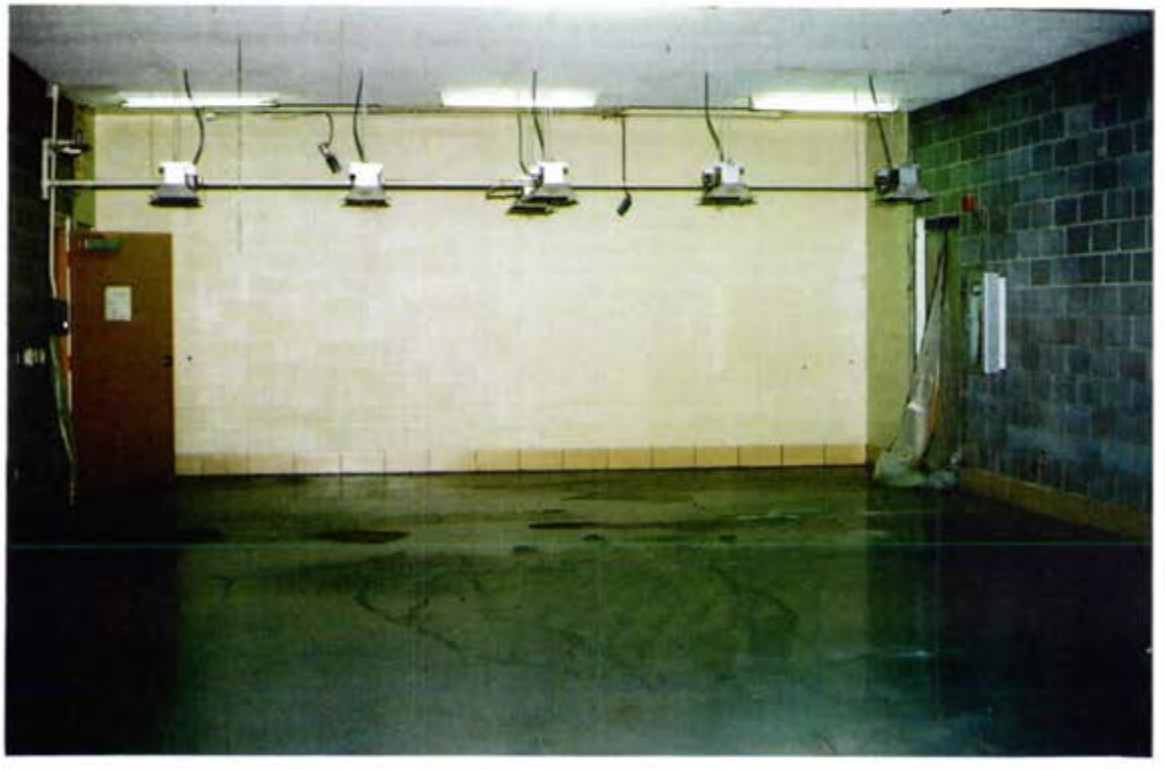
IFR, FRONT VIEW

IFR, REAR VIEW



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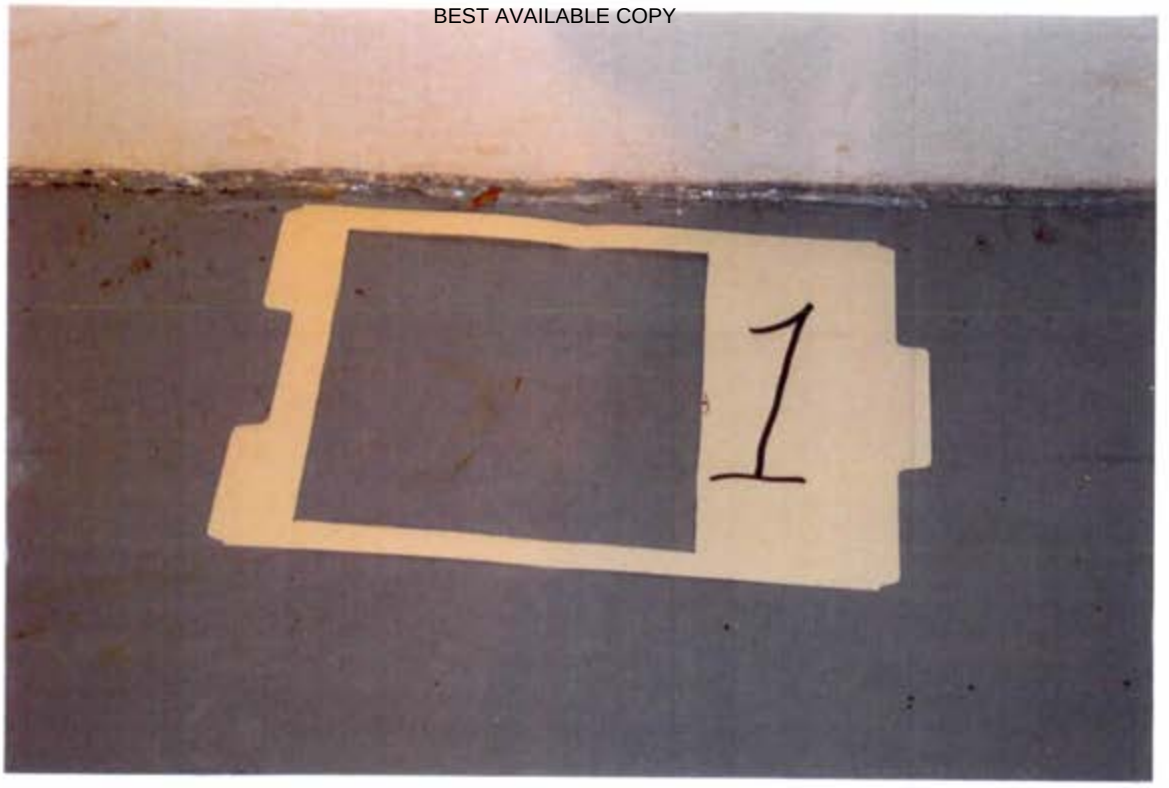
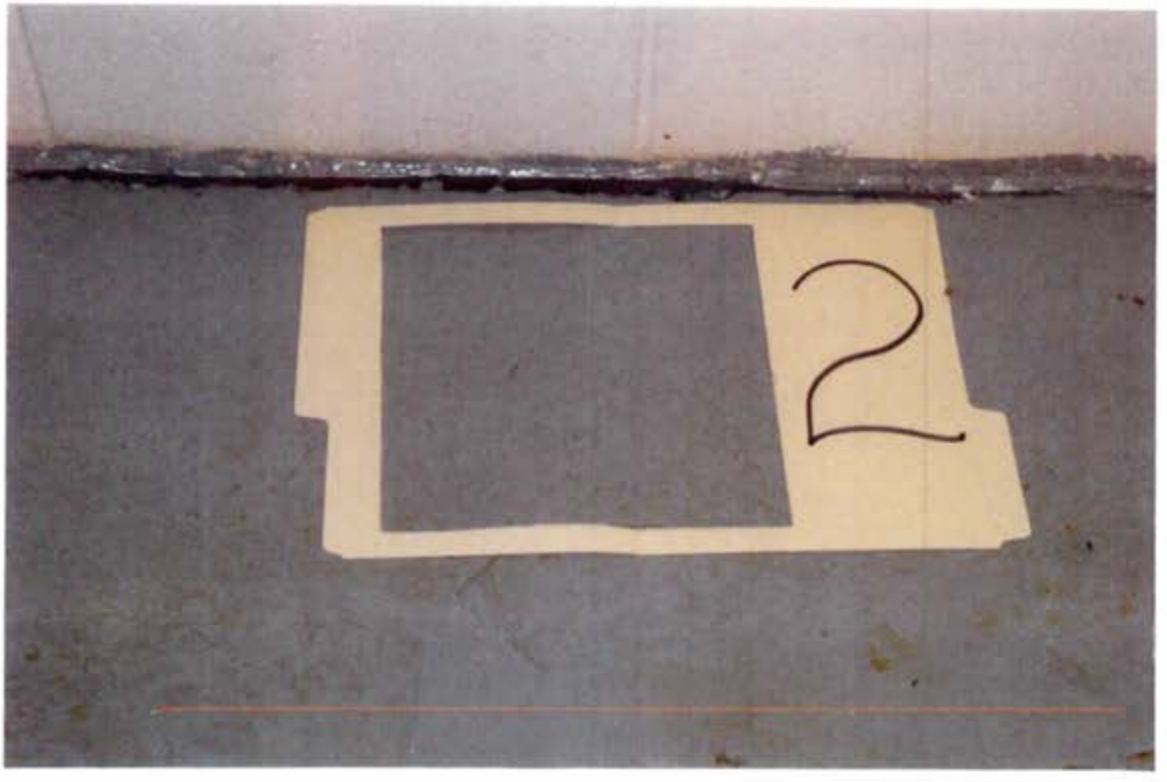


IFR, SAMPLES 1 & 2



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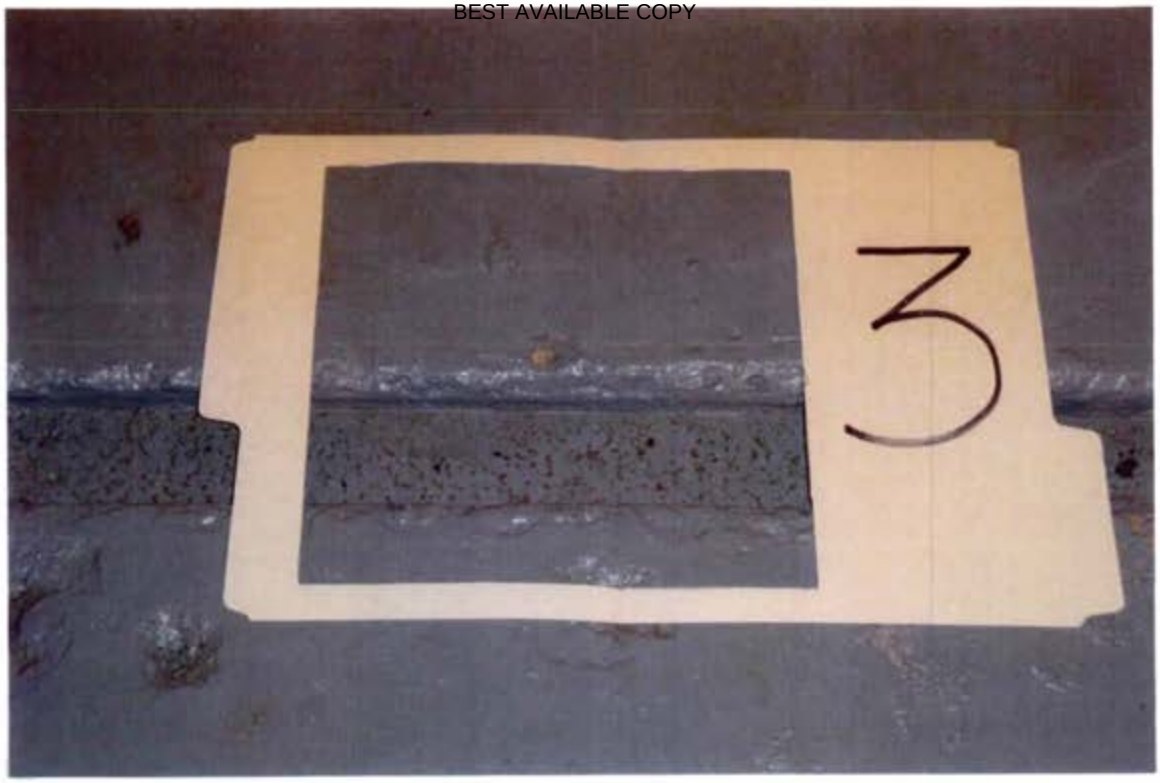

IFR, SAMPLES 3 & 4

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IFR, SAMPLE 5

MSDS BOOK

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WEAPONS VAULT,
SAMPLES 14 & 15

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WEAPONS VAULT,
SAMPLES 16 & 17

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A/C-HEATING FILTERS, SAMPLES 12 &102

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A/C-HEATING OUTLETS
ORDERLY ROOM & S-1
OFFICE, SAMPLES 6 & 7

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**A/C-HEATING OUTLETS,
CLASS ROOMS 1(#52)
&2(#8), SAMPLES 13 & 10**

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POL ENTRANCE

FLAMMABLES CABINET

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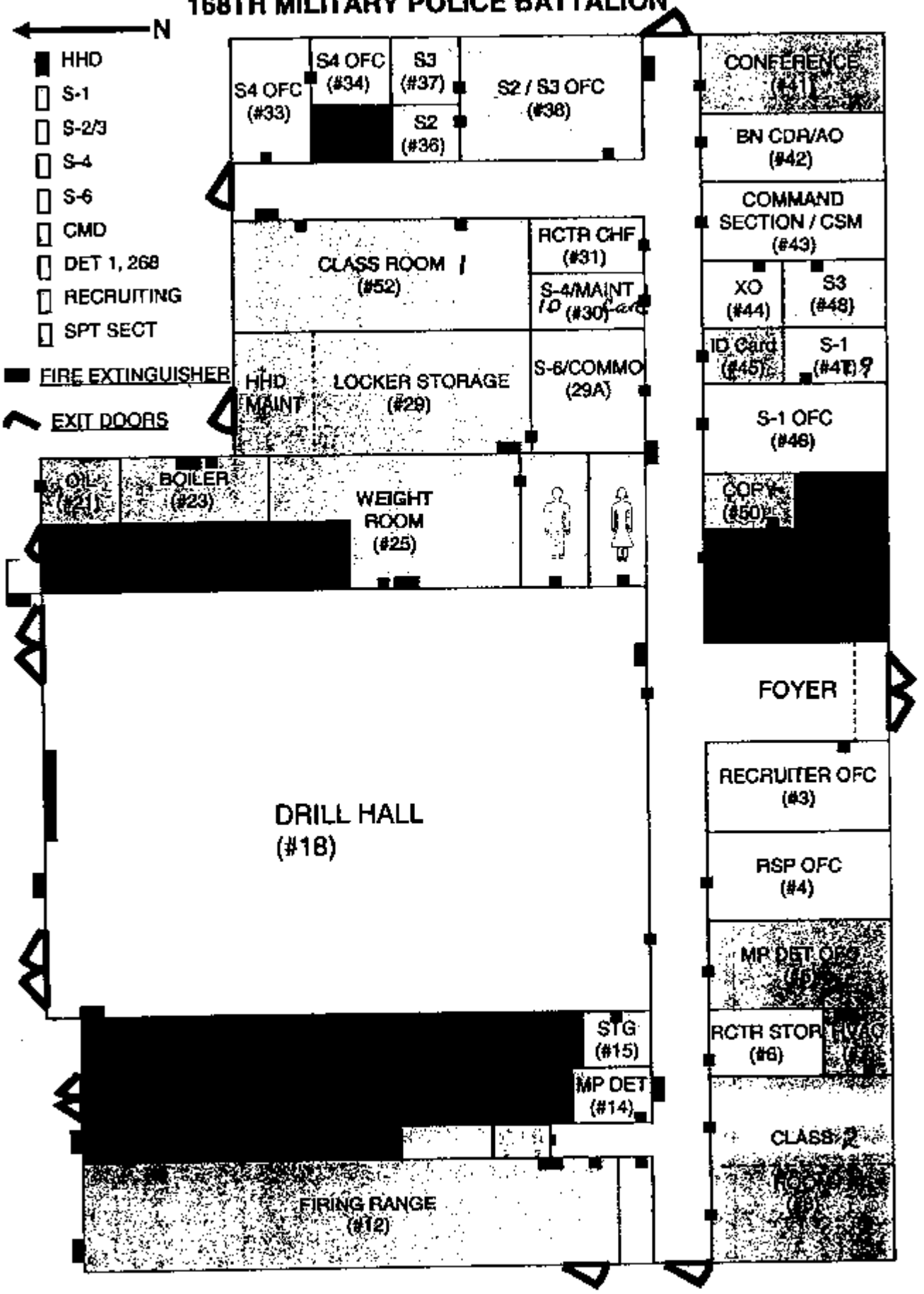
168TH MILITARY POLICE BATTALION



Dyersburg TN Armory

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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-AVN-SI

April 18, 2003

MEMORANDUM FOR: The Adjutant General of Tennessee, ATTN: Non-Responsive State Occupational Health Office, P O Box 41502, Nashville, TN 37204-1502.

SUBJECT: Transmittal of Survey Reports for the Phillip Miller Armory, Ripley, TN, the Lexington Armory, Lexington, TN, the Frankland-Taylor Armory, Jackson, TN, the Dyersburg Armory, Dyersburg, TN, the Henderson Armory, Henderson, TN, and the Wyatt-Duke Armory, Brownsville, TN.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, 30 August 1986, Medical Service, Preventive Medicine.

c. National Guard Regulation (NGR) 385-10, 1988, Army National Guard Safety and Occupational Health Program.

d. AR 11-34, The Army Respiratory Protection Program, 15 February 1990.

e. TB MED 502, Occupational and Environmental Health Respiratory Protection Program, February 1982.

f. DA PAM 40-503, 30 October 2000, The Army Industrial Hygiene Program.

g. DA PAM 40-501, 10 December 1998, Hearing Conservation.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2001, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

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j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

k. Title 29, Code of Federal Regulations (CFR), 2000 rev., part 1910, Occupational Safety and Health Standards.

l. Reports dated 24-26 January 2003, Industrial Hygiene Survey, Environmental Mgmt. Solutions, Atlanta, GA.

2. General.

a. At the request of the TNARNG Safety and Occupational Health Office, an Industrial Hygiene Service was put together to conduct Health Hazard Information module (HHIM) Field surveys and industrial hygiene sampling of the Phillip Miller Armory, Ripley, TN, the Lexington Armory, Lexington, TN, the Frankland-Taylor Armory, Jackson, TN, the Dyersburg Armory, Dyersburg, TN, the Henderson Armory, Henderson, TN, and the Wyatt-Duke Armory, Brownsville, TN.

b. Environmental Mgmt. Solutions, 247 Mary Lane, Dallas, GA. 30132 conducted the surveys.

3. Findings. All HHIM field survey forms and survey findings of the reports. (See enclosure 1)

4. Recommendations.

a. Follow all recommendations made in reference 1.l., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Control water infiltration in the armory and/or replace or repair damaged surfaces or components (ceiling and floor tiles). Building conditions that present IAQ concerns or problems not only exacerbates normally minor health issues but also tend to promote or accelerate building deterioration.

c. The recommendations given in the comment section of the HHIM data sheets and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-03. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-04 IHIP.

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May, 2018

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Page 520 of 2531

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SUBJECT: Transmittal of Survey Reports for the Phillip Miller Armory, Ripley, TN, the Lexington Armory, Lexington, TN, the Frankland-Taylor Armory, Jackson, TN, the Dyersburg Armory, Dyersburg, TN, the Henderson Armory, Henderson, TN, and the Wyatt-Duke Armory, Brownsville, TN.

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present survey, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

f. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

5. If additional information is needed about the industrial hygiene survey or air sample

Non-Responsive

[redacted]

CF:
NBG-AVN-SH

Encl
as

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ENVIRONMENTAL MANAGEMENT SOLUTIONS
INDUSTRIAL HYGIENE CONSULTING

TENNESSEE ARMY NATIONAL GUARD

DYERSBURG ARMORY
DYERSBURG, TENNESSEE

247 MARY LANE, DALLAS, GEORGIA 30157
PHONE: 770.459.4376 • FAX: 770 234.6297

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EXECUTIVE SUMMARY 1

SUBJECT 2

BACKGROUND 2

INTRODUCTION 2
SITE DESCRIPTION 2
SCOPE OF WORK 2
METHODOLOGY 2

FINDINGS AND DISCUSSION 3

LEAD WIPE SAMPLES 3
ASBESTOS SUSPECT BUILDING MATERIAL 4
NOISE SURVEY 4
ILLUMINATION SURVEY 4
BUILDING CONDITION 6
HAZARD COMMUNICATION 6
RADIATION PROTECTION PROGRAM 6
ERGONOMICS 7
PERSONAL PROTECTIVE EQUIPMENT 7

RECOMMENDATIONS 8

TECHNICAL ASSISTANCE 9

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 523 of 2531

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EXECUTIVE SUMMARY

An initial baseline industrial hygiene survey was conducted at the Dyersburg Armory on 24 February 2003 as part of the Tennessee Army National Guard Occupational Health Program to identify potential health hazards in the workplace. The survey consisted of collecting lead wipe samples and bulk asbestos samples as needed, conducting a noise and illumination survey and an evaluation of the condition of the building as it related to indoor air quality. A review of the Hazard communication progam, ergonomics, and personal protective equipment was also performed.

The following table summarizes the survey findings and recommendations for each topic surveyed.

TOPIC	SUMMARY OF FINDINGS	RECOMMENDATIONS
Lead Wipe Samples	29.0 to 50900 micrograms	Clean surfaces in the Indoor Firing Range area, decontaminate all contaminated items, and follow good hygiene and housekeeping practices
Asbestos Bulk Samples	No findings	No action
Noise Survey	Under 85 dBA	No action
Illumination Survey	15 to 73 foot-candles	Upgrade lighting to appropriate levels.
Building Condition	Water damage to ceiling and floor tiles	Clean damaged surfaces, control sources of water infiltration, and create a maintenance schedule for HVAC units
Hazard Communication	MSDS are available for chemicals used	Personnel responsible for these items should receive annual training in HAZCOM requirements
Ergonomics	Poor workstations design in some offices	Complete ergonomics survey on all personnel and offer ergonomic training or awareness to employees who spend the majority of their time working on a computer terminal
Personal Protective Equipment	No findings	No action

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SUBJECT

Initial Baseline Industrial Hygiene Survey of the Dyersburg Armory performed 24 February 2003 in Dyersburg, Tennessee.

BACKGROUND

INTRODUCTION

At the request of Non-Responsive f the National Guard Bureau Region South Industrial Hygiene Office, an initial baseline industrial hygiene survey was performed at the Dyersburg Armory in Dyersburg, Tennessee. Environmental Management Solutions conducted the survey on 24 February 2003. The purpose of the survey was to perform an initial baseline industrial hygiene survey to evaluate potential health hazards present at the armory.

SITE DESCRIPTION

The facility houses the 230th Area Support GP. The one story building contains several administrative offices, one classroom, a drill hall, and a kitchen. An unconverted indoor firing range is present at this facility and is being used as storage space. The indoor firing range has been closed since 1990. Refer to Building layout in Appendix C.

SCOPE OF WORK

The work included collecting wipe samples for lead, bulk samples for suspect asbestos containing building material, noise readings, illumination levels, and an evaluation of the ventilation system as it pertains to indoor air quality. A list of occupational health programs and procedures were verbally covered with the armory personnel.

METHODOLOGY

Lead wipe samples were collected from surfaces that showed signs of lead contamination in armories that have a renovated, inactive, or closed indoor firing range (IFR), kitchen or mess hall storage areas, indoor drill halls, and storage rooms with weapons vaults. The samples were collected in accordance to instructions published by Region South National Guard Bureau, which required the use of unscented baby wipes to wipe one square foot of surface. Samples were then placed in a sealed plastic bag and sent to an American Industrial Hygiene Associations (AIHA) accredited laboratory for analysis. Asbestos bulk samples and lead paint chips were collected from suspect friable and damaged building material. Each bulk sample was placed in a sealed bag and sent to an AIHA laboratory for analysis. All instruments used for assessment were factory calibrated and calibrated prior to the survey as applicable. Illumination readings were taken on work surfaces and approximately four feet from the floor.

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 525 of 2531

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FINDINGS AND DISCUSSION

LEAD WIPE SAMPLES

Thirteen wipe samples were collected from the areas of the indoor firing range, kitchen, supply, and other storage areas as listed in the table below.

SAMPLE NUMBER	SAMPLE LOCATION	MICROGRAMS OF LEAD (µg) PER SQUARE FOOT
DB-01	Bullet Trap, #3 Bottom Plate, IFR	**5090**
DB-02	Shelving, Left side wall, IFR	76.0
DB-03	Top of lockers, middle aisle, IFR	29.0
DB-04	Shelving front of range, IFR	BRL
DB-05	Shelving, right side wall, IFR	**689**
DB-06	Plenum ledge, right side, IFR	103
DB-07	Plenum, locker, storage, right side, IFR	**1450**
DB-08	Floor, left side range, near exit door, IFR	**225**
DB-09	Back of entrance door, IFR	BRL
DB-10	Kitchen, 2nd shelf under window	BRL
DB-11	Drill hall, Top of vending machine	BRL
DB-12	Drill hall, by rollup door	BRL
DB-13	Shelving, weapon's rack	**365**

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 526 of 2531

BEST AVAILABLE COPY

*Below Reporting Limit

The Army National Guard All States Log Number P01-0075, **Policies and Responsibilities for Inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges (IFR) and Guidelines for IFR Rehabilitation, Conversion, and Cleaning** requires a limit of 200 micrograms per square foot for surface contamination in and around indoor firing ranges. The Environmental Protection Agency standards (40 CFR 745) indicate lead in dust levels above 40 micrograms per square foot on bare and carpeted floors is considered dangerous for common areas. Several samples in and around the indoor firing range and in the supply area were above required limits.

ASBESTOS SUSPECT BUILDING MATERIAL

Sampling for asbestos was limited to damaged material or material that could pose a higher exposure risk. No friable suspect material was found.

NOISE SURVEY

Area noise levels are well within the Army National Guard limit of 85 dBA and the Occupational Safety and Health Administration (OSHA) regulated limit of 90 dBA over an eight-hour period.

ILLUMINATION SURVEY

Lighting levels throughout the armory ranged between 15 foot-candles to 73 foot-candles. Specific readings are listed in the table below.

MAP ROOM NUMBER (SEE APPENDIX C)	AREA	AVERAGE FOOT-CANDLES
47	Headquarter Company	26.9
50	Fax Room	34
51	Command Judge Advocate	53.6
46	Supply & Service Branch	36.5
45	Unit Ministry	29
48A	Supply Officer	59

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 527 of 2531

BEST AVAILABLE COPY

43	Command Section	29
42	Engineer Branch	32
41	Operations NCO	30.5
48B	Commander	51
44	Deputy Commander	15
33	Host Nations	39.3
36	Director of Host Nations	42.5
36	Non-Responsive [redacted]	35.5
37	Director, Security Plan, and Operations	50
38	Security,, Plan, and Operations	26
52	Classroom	22
31	Communications Branch	39
30	Support Operations Director	33
29A	Maintenance Branch	38.5
3	Recruiting Office	26
4	I.D. Cards	37.9
5	Personnel and Administrative Director	18.5
6	Storage	15
8	CSS Automation	18
18	Assembly Hall	25.4

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 528 of 2531

BEST AVAILABLE COPY

16	Unit Supply SGT	28
17	Unit Supply Storage	15.6
15	Storage	73
25	Workout Room	23
22	Kitchen	44
20	Dish Washing	27
24	Refrigerator Room	50

These readings are not within the Army Design Guide (DG 415-2) minimum illumination level of 50 foot-candles for office areas and 20 foot-candles for parts storage/supply. The American National Standard Institute/Industrial Engineering Society (ANSI/IES) recommends a minimum illumination of 50 to 100 foot-candles for administrative and kitchen areas, and 20 to 50 foot-candles for storage areas. Luminance of 50 to 100 foot-candles is recommended for performance of visual tasks of medium contrast or small size such as reading, pencil handwriting, and poorly printed, or reproduced material. Depending of the type of display, background luminance of 30 to 60 foot-candles is recommended for VDT work. Some areas had lighting that was burned out.

BUILDING CONDITION

Several areas of the armory have damaged ceiling or floor tiles due to water damage. The administrative hallway, command section, engineer branch, recruiting office, personnel/administrative director, CSS automation, classroom, supply office, and kitchen showed the most significant damage. The armory is cooled with a central heating, ventilating, and air conditioning (HVAC) system. Personnel did not have any specific complaints about the indoor air quality.

HAZARD COMMUNICATION

Material Safety Data Sheets were available and easily accessible.

RADIATION PROTECTION PROGRAM

Several pieces of equipment stored at the facility contain radioactive materials. Radiac meters, alarms, compasses, and multimeters are among stored equipment. An inventory and designated safety officer are present.

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May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 529 of 2531

BEST AVAILABLE COPY

ERGONOMICS

The full time employees in the supply or office areas did not express any ergonomic related injuries or concerns. Many workstations were not set up to provide neutral postures and appropriate ergonomically correct positions. Consideration should be given to providing all full time employees that spend the majority of their working time at a computer terminal ergonomic training or awareness. Such awareness should emphasize the importance of proper posture and set-up of the workstation to fit the user.

PERSONAL PROTECTIVE EQUIPMENT

Normal duties of full time employees at the armory do not require the use of personal protective equipment (PPE).

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 530 of 2531

BEST AVAILABLE COPY

RECOMMENDATIONS

1) All items that are contaminated with lead should be thoroughly decontaminated with a detergent and water solution. Care should be taken to wipe down tables where weapons are issued and cleaned. Kitchen areas should be thoroughly cleaned on a regular basis and especially before serving personnel.

2) Personnel should be prohibited from eating, drinking, smoking, chewing tobacco or gum, or applying cosmetics in supply areas and should be instructed to clean hands with soap and water before doing any of these. Remove all refrigerators, cups, and other eating utensils from supply areas.

3) Lead results indicate that some areas of the indoor firing range are not completely free from contamination. **An indoor firing range should not be used for any purpose other than firing until it has been appropriately cleaned and converted.** Consult the Army National Guard All States Log Number P01-0075, Policies and Responsibilities for inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges (IFR) and Guidelines for IFR Rehabilitation, Conversion, and Cleaning on guidelines for cleaning and convering Indoor Firing Range. Decontaminate and remove all items until the range has been properly cleaned and converted.

4) Upgrade lighting measurements as required. Lighting can be upgraded in the following ways:

   - Replace blown or broken lighting
   - Paint wall a light color
   - Clean existing light fixtures
   - Rearrange furniture to make better used of available light
   - Provide supplemental or task lighting

5) Develop a maintenance schedule for monitoring, inspecting and cleaning HVAC components such as outside air intakes, outside air dampers, air filters, drain pans, heating and cooling coils, the interiors of air handling units, fan motors ad belts, air humidification, controls and cooling towers. The schedule should also ensure that any leaks or standing water are identified, repaired, and prevented. Proper repairs and maintenance of the building infrastructure and interior surfaces can prevent water damage and moisture buildup which may lead to further indoor air quality issues.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 531 of 2531

BEST AVAILABLE COPY

6) Material Safety Data Sheets (MSDS) are required to be kept at the primary workplace facility and to be easily accessible in case of emergency. Personnel responsible for these items should receive annual training in the requirements of the Hazardous Communication Program and the appropriate keeping and storage of all MSDS.

7) An ergonomics survey should be completed for all supply and administrative personnel as a preventative measure to document and address any and all ergonomic concerns or problems. Provide ergonomics training and awareness to all employees who spend the majority of their time working at a computer terminal.

TECHNICAL ASSISTANCE

Non-Responsive *y please Bureau*

Non-Responsive

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 532 of 2531

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APPENDICES

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APPENDIX A

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 534 of 2531

BEST AVAILABLE COPY

- American conference of Governmental Industrial Hygieist (ACGIH), Industrial Ventilation, A Manual of Recommended Practice, 23rd Edition, 1998.American National Standards Institute (ANSI), /Illuminating Engineering Society (IES), Industrial Lighting, 1991.
- Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 1990.
- Army Regulation (AR) 40-5, Preventative Medicine, 15 October 1990.
- Army Regulation (AR) 385-10, The Army Safety Program, 29 Feb 2000.
- NGR 385-10, Army National Guard Safety and Occupational Health Program, 7 October 1988.
- TB MED 503, The Army Industrial Hygiene Program, February 1985.
- Tide 29, Code of Federal Regulations (CFR), 1999, revision, Part 1910, Occupational Safety and Health Standards.
- TG 022, US Army Environmental Hygiene Agency (YSAEHA), Industrial Hygiene Evaluation Guide, October 1975.
- TG 141, US Army for Health Promotion and Preventative Medicine (USACHPPM) Industrial Hygiene Air Sampling Guide, November 1997.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 535 of 2531

BEST AVAILABLE COPY

APPENDIX B

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 536 of 2531

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2/8/98 CHPMFRNT.XLS

HHIMS Industrial Hygiene Survey Form

Front page

ARLOC: 4 7 0 0 0

Installation: Diersburg Armory

Building:

Room Number:

Location: A A

Operation: A D O

Survey Date: 0 3 (month) 0 8 (day) 2 4

Evaluator: [illegible]

Mscom: N G

Submscom: X X

Unit / Organization (45): 230th Area Support GP

Supervisor: Mr. / Ms. / Rank

RAC

Supervisor, or Point of Contact Telephone Number

DSN / Commercial

Frequency (hrs/day): 0 0 8

No. CIVs

No. MIL: 0 0

Contractors: 0 0

No. LOCs: 0 0

Lab Hoods: 0 0

Vapor Degreasers: 0 0

Spray Booths: 0 0

Open Surface Tanks: 0 0

Ventilation Units: 0 0

Controls Present (5>6, continue in comments)(25): OTH

Evaluation (25 characters max): 15 - 53.6

Unit code: F T C

Controls Required (25 characters max): 50 - 100 FTC

Gloves	e*	R	U
acid			
cold surfaces			
hot surfaces			
NBC agents			
oil			
solvents			
surgical gloves			
leather / cotton			
other			

Respirator	e*	R	U
airline			
abrasive blasting hood			
disposable			
full face air purifying			
1/2 face air purifying			
powered air purifying			
1/4 face air purifying			
self-contained			
other			

Manufacturer's Description (10 characters max)

NIOSH TC # or Foreign equivalent (10 characters max)

Eyes and Face	e*	R	U
chemical splash			
full face shield			
chem/safety impact			
safety impact			
welding helmet			
sunglasses			
welding goggles/glasses			
laser eye protection			
other			

Hearing	e*	R	U
canal caps			
(>85-106 dBA steady) earplugs			
" helmets w/ muffs			
" muffs alone			
(106-118) muff/earplug comb			
muffs and earplugs			
(118 or >) with time limit			
other			
other			

Body	e*	R	U
aprons			
cold weather clothing			
coveralls			
full body suit			
heat reflective			
vestibule			
safety [illegible]			
special purp. clothing			
other			

Head and Feet	e*	R	U
cold weather boots/hoz			
hard hats			
impermeable boots			
safety shoes (conductive)			
safety (nonconductive)			
other			
other			
other			
other			

e* = evaluator's recommendation or agreement

Reminders: ergonomics - dermatitis - physical specs - flammable storage
EYE (permanent) ___ - EYE (portable) ___ - EHW - GMV - LEV

ACO ADM DSA DSN LAB LCK
RAD ECB EPL RHS SPR WEL

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[illegible] Form

Back page

	CAS code										PAC	EPC
PONOISECO	P	O	V	D	T	X	X	X	X		[illegible]	[illegible]
POPOSCHAZ	P	O	S	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	X		[illegible]	[illegible]
POPLYRBU												
POSHEMAZA												
POPLAMHAZ												
POLIFTING												
POSHARPOB												
POHOTBLIE												
POBLENSCK												
OOMISEOIL												

Hazard Description

[illegible]

Social Security Identifier

See personnel [illegible]

First Name (20 characters max)

MI

Sex

Category

[illegible] personnel data provided by the facility is attached to this form

Insert Privacy Act Statement

Comments

Operation described is [illegible] to include [illegible] phone and [illegible] use. Some workstations [illegible] with [illegible]. Duties of [illegible] vary, so [illegible] can be taken as needed

[illegible] operation was explained to [illegible] this not [illegible] statement.

(comments continued on attached)

There is a noise data sheet attached to this form [illegible]

There is a ventilation data sheet attached to this form [illegible]

2/8/96 CHPMBACK.XLS

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 538 of 2531

HHIMS Industrial Hygiene Survey Form

Front page

ARLOC: 47000

Installation: Dierburg Armory

Building:

Room Number:

Location: SA

Operation: 421

Survey Date: 03 08 24 (month / day)

Evaluator: [illegible]

Manam: NG

Submacom: KX

Unit / Organization (45): 230th Area Support GP

Supervisor: Mr. [redacted] Ms. [redacted] Regd. [redacted]

RAC:

Supervisor, or Point of Contact Telephone Number:

DSN: [redacted] Commercial: [redacted]

Frequency (hr/day): 008

No. CIVs:

No. MIL: 00

Contractors: 00

No. LOCs: 00

Lab Hoods: 00

Vapor Degreasers: 00

Spray Booths: 00

Open Surface Tanks: 00

Ventilation Units: 00

Controls Present (# >8, continue in comments)(25): OTH

Evaluation (25 characters max): 36.5-59; 15-73

Unit code: FTC

Controls Required (25 characters max): 50-100 FTC (Admin); 20-50 FTC (Storage)

Gloves	e*	R	U
acid	[redacted]		
cold surfaces	[redacted]		
hot surfaces	[redacted]		
NBC agents	[redacted]		
oil	[redacted]		
solvents	[redacted]		
surgical gloves	[redacted]		
leather / cotton	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]

Respirator	e*	R	U
airline	[redacted]		
abrasive blasting hood	[redacted]		
disposable	[redacted]		
full face air purifying	[redacted]		
1/2 face air purifying	[redacted]		
powered air purifying	[redacted]		
1/4 face air purifying	[redacted]		
self-contained	[redacted]		
other	[redacted]	[redacted]	[redacted]

Manufacturer's Description (10 characters max)

NIOSH TC # or Foreign equivalent (10 characters max)

Eyes and Face	e*	R	U
chemical splash	[redacted]		
full face shield	[redacted]		
chem/safety impact	[redacted]		
safety impact	[redacted]		
welding helmet	[redacted]		
sunglasses	[redacted]		
welding goggles/glasses	[redacted]		
laser eye protection	[redacted]		
other	[redacted]	[redacted]	[redacted]

Hearing	e*	R	U
canal caps	[redacted]		
(>85-105 dBA steady) earplugs	[redacted]		
" helmets w/ muffs	[redacted]		
" muffs alone	[redacted]		
(106-118 hmuff/earplug comb)	[redacted]		
muffs and earplugs	[redacted]		
(118 or >) with time limb	[redacted]		
other	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]

Body	e*	R	U
aprons	[redacted]		
cold weather clothing	[redacted]		
coveralls	[redacted]		
full body suit	[redacted]		
heat reflective	[redacted]		
[illegible]	[redacted]		
safety [illegible]	[redacted]		
special purp. clothing	[redacted]		
other	[redacted]	[redacted]	[redacted]

Head and Feet	e*	R	U
cold weather boots/hat	[redacted]		
hard hats	[redacted]		
impermeable boots	[redacted]		
safety shoes (conductive)	[redacted]		
safety (nonconductive)	[redacted]		
other	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]

e* = evaluator's recommendation or agreement

Reminders: ergonomics - dermatitis - physical agents - flammable storage
EYE (permanent) ____ - EYE (portable) ____ - SHW - DMV - LEV

ACO ADM DSA DSN LAB LCK
RAD ECB EPL RHS SPR WEL

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HH[illegible] Industrial [illegible] Survey Form

Back page

	CAS code	FAC	SFC
PONDIBECO	P O Y D T X X X X		
POFOOTHAZ	P O 8 [illegible]		
POFLYFRDJ	P O L I F T I N [illegible]		
POENEBAZA	7 [illegible] 3 9 - 9 [illegible]		
POFLAMMAZ			
POLIFTING			
POSHARPDB			
POHOTSEHB			
POELEVBCK			
CO[illegible]			

Hazard Description

[illegible] Video Display Terminal [illegible]

Social Security Number or Unique Identifier

List Name (20 characters max)

See Personnel List

First Name (20 characters max)

MI

Sex

Category

Personnel data provided by the facility is attached to this form

Insert Privacy Act Statement

Comments

Operation described is receive, inventory, issue. Critical unit items to include weapons and ammunition.

This operation was explained to the [illegible], but was not [illegible] [illegible]

Instruments [illegible] on attached)

There is a noise data sheet attached to this form

There is a ventilation data sheet attached to this form

2/8/96 CHPMBACK.XLS

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 540 of 2531

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 541 of 2531

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WPD9AA - DYERSBURG
230 AREA SUPPORT GP 114G4300
HHC

TN02842001	AGR-O5	DEPUTY CDR	ILO [NO VAC]				0	1	8888
TN02842001L	GS-0341-12	ADMINISTRATIVE OFFICER	ARMOUR MICHAEL D	O8	1	N	1	0	8888
TN02842002	AGR-O4	OPNS OFF	BISHOP JAMES	O4		N	1	1	8888
TN02842003	AGR-O4	SUPPLY OFF					0	1	8888
TN02842004	AGR-O4	PERS MGT OFF					0	1	8888
TN02842005	AGR-E9	LOG OPNS NCO	COPOUS JIMMY LEE	E9		N	1	1	8888
TN02842006	AGR-E8	LOG SVC/SUPPLY NCO	BREECE MARK ALAN	E7		N	1	1	8888
TN02842007	AGR-E7	SR PERS NCO	SLAUGHTER WILLIAM GRADY	E7		N	1	1	8888
TN02842008	AGR-E7	MAT SUPPLY SUPV	ILO [NO VAC]				0	1	8888
TN02842008L	GS-2005-07	SUPPLY TECHNICIAN	ELDER RONNIE L	E8	1	N	1	0	1200
TN02842009	AGR-E6	PERS NCO	ILO [NO VAC]				0	1	8888
TN02842009L	GS-0204-08	MIL PERS TECH	HALBROOK ROBERT C	E7	1	N	1	0	8888
TN02842010	AGR-E5	ADMIN NCO-PERS					0	1	8888
TN02842011	AGR-E4	ADMIN SP-OPS					0	1	8888
TN02842012	AGR-E4	ADMIN SP-LOG					0	1	8888
TN02842020	AGR-E7	RDNS NCO	POINDEXTER SANDRA MAXINE	E7		N	1	1	8888
TN02842021	AGR-E6	SUPPLY NCO	ILO [NO VAC]				0	1	8888
TN02842021L	GS-2005-08	SUPPLY TECHNICIAN	DEAN WILLIAM A	E7	2	N	1	0	1200
TN02842022	AGR-E6	TNG NCO	ILO [NO VAC]				0	1	8888
TN02842022L	GS-1702-07	TRAINING TECHNICIAN	MOBILIZED (SACER)	E4	1	N	1	0	1200
TN02842023	AGR-E5	ADMIN NCO					0	1	8888
TN02842024	AGR-E4	ARMORER					0	1	8888
	REQ: 47	AUTH: 10	ASGD: 10						

WZG2AA - TULLAHOMA
230 AREA SUPPORT GP 114G4300
130 SUPPORT CENTER (CORPS RACC)

TN02841001	AGR-O3	[redacted]	LEDBETTER JAMIE	O2					

TITLE - HAZARDOUS MATERIALS INVENTORY LIST

Purpose	Document the type, quantity, and location of hazardous materials at the facility
Frequency	Monthly
Materials	Checklist, Inventories, MSDSs
References	Module 3, HAZMAT Employee Training OSHA Checklists TEAM Guide, Section 3, Hazardous Materials Management
Instructions	The storage areas and containers should be inventoried monthly. The inspection log should be conspicuously posted in the storage area to verify that inspections have been performed.

Facility Location	230th ASG	**Page Number** 1 of 4	
Storage Area	Supply Room		
Inspector Signature		**Date**	

Item	Trade Name/ Nomenclature	National Stock Number	Container Size/Type	Quantity on Hand	Location
1	Black Spray Paint	7510-00-469-7910	PT	8	Flamable
2	Black Enamel Spray	8010-00-582 5382	PT	3	Flamable
3	Brown Enamel Spray	8010-00-721 9742	PT	7	Flamable
4	Alkyd Enamel Spray Br	8010-00-568-7715	PT	4	Flamable
5	Olive Drab Spray	8010-00 848-9272	PT	6	Flamable
6	Fire Red Spray Paint	0363 3300 184-1	PT	3	Flamable
7	Orange Fluorescent Spray	8010-00-958-8148	PT	2	Flamable
8	Light Gray Spray Paint	8010-00 616-9181	PT	6	Flamable
9	Insecticide Spray	6840-01 067-6674	PT	1	Flamable
10	Insecticide Spray	6840-01 067-2137	PT	1	Flamable

Comments:

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FOIA Requested Record #J-15-0085 (TN) Released by National Guard Bureau Page 542 of 2531

TITLE - HAZARDOUS MATERIALS INVENTORY LIST

Purpose	Document the type, quantity, and location of hazardous materials at the facility
Frequency	Monthly
Materials	Checklist, Inventories, MSDSs
References	Module 3, HAZMAT Employee Training OSHA Checklists TEAM Guide, Section 3, Hazardous Materials Management
Instructions	The storage areas and containers should be inventoried monthly. The inspection log should be conspicuously posted in the storage area to verify that inspections have been performed.

Facility Location	230th Reg	**Page Number** 2 of 4	
Storage Area	Supply Room		
Inspector Signature		**Date**	

Item	Trade Name/ Nomenclature	National Stock Number	Container Size/Type	Quantity on Hand	Location
1	Garden Insect Spray	6840-01 067-2137	PT	3	Flamable
2	Trim Adhesive	051135 08088	16.25 oz.	1	Flamable
3	3-m Spray Foam	UPC 021200 82242-1	17.25 oz	1	Flamable
4	Starting Fluid	6752 7-99-Date	10.7 oz.	2	Flammable
5	WD 40 - oil	Item no. 10011	11-oz.	2	Flammable
6	Tire Repair Cement	2640-00 922-6917	1/2 PT	8	Flammable
7	Urethane Sealant	AZSDEC140 #0189	Tube	2	Flammable
8	Acrylic Latex Caulk	UPC 070798 181-01-4	Tube	1	Flamable
9	100% Silicone Caulk	0000380253	Tube	1	Flamable
10	Semi-gloss Ex. Paint	UPC 0787 4232291	Sgal. Pail	1	Flamable

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May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 543 of 2531

TITLE	**HAZARDOUS MATERIALS INVENTORY LIST**
Purpose	Document the type, quantity, and location of hazardous materials at the facility
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Materials	Checklist, Inventories, MSDSs
References	Module 3, HAZMAT Employee Training OSHA Checklists TEAM Guide, Section 3, Hazardous Materials Management
Instructions	The storage areas and containers should be inventoried monthly. The inspection log should be conspicuously posted in the storage area to verify that inspections have been performed.

Facility Location	230 Asg	**Page Number** 3 of 4	
Storage Area	Supply Room		
Inspector Signature		**Date**	

Item	Trade Name/ Nomenclature	National Stock Number	Container Size/Type	Quantity on Hand	Location
1	Industrial Enamel	BS4-T-104 7969-99993	gal	1	Flammable
2	Lafex Semi Gloss Paint	UPC 0357 7724081-6	2 gal	1	Flamable
3	Semi-gloss-Enamel Paint	#5435	gal	1	Flammable
4	Alum Primer	155 A 100	gal	1	Flammable
5	Biege Paint	UPC-0357 7721146-5	gal	1	Flammable
6	Dursban Insecticide	6840-01-210 3392	40 ml	6	Flammable
7	N-Amyl-Acetate	DLA-400 91-M-2867	PT	1	Flammable
8	Stoddard Solvent		QT	1	Flammable
9	Paint daglosser	UPC-081703 13104-8	QT	1	Flammable
10	Paint thinner	UPC-030492 00925-3	gal	1	Flammable

Comments:

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 544 of 2531

TITLE	**HAZARDOUS MATERIALS INVENTORY LIST**
Purpose	Document the type, quantity, and location of hazardous materials at the facility
Frequency	Monthly
Materials	Checklist, Inventories, MSDSs
References	Module 3, HAZMAT Employee Training OSHA Checklists TEAM Guide, Section 3, Hazardous Materials Management
Instructions	The storage areas and containers should be inventoried monthly. The inspection log should be conspicuously posted in the storage area to verify that inspections have been performed.

Facility Location	230 AS 6	**Page Number** 4 **of** 4	
Storage Area	Supply Room		
Inspector Signature		**Date**	

Item	Trade Name/ Nomenclature	National Stock Number	Container Size/Type	Quantity on Hand	Location
1	odorless Mineral Spirits	UPC-6301 4204425-4	gal	1	Flammable
2	Round up weed killer	PPN 2118043 11100701	gal	1	Flammable
3	Kutzit Paint Remover	UPC-0488 4201113-6	gal	1	Flammable
4					
5					
6					
7					
8					
9					
10					

Comments:

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FOIA Requested Record #J-15-0085 (TN) Released by National Guard Bureau Page 545 of 2531

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APPENDIX C

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 546 of 2531

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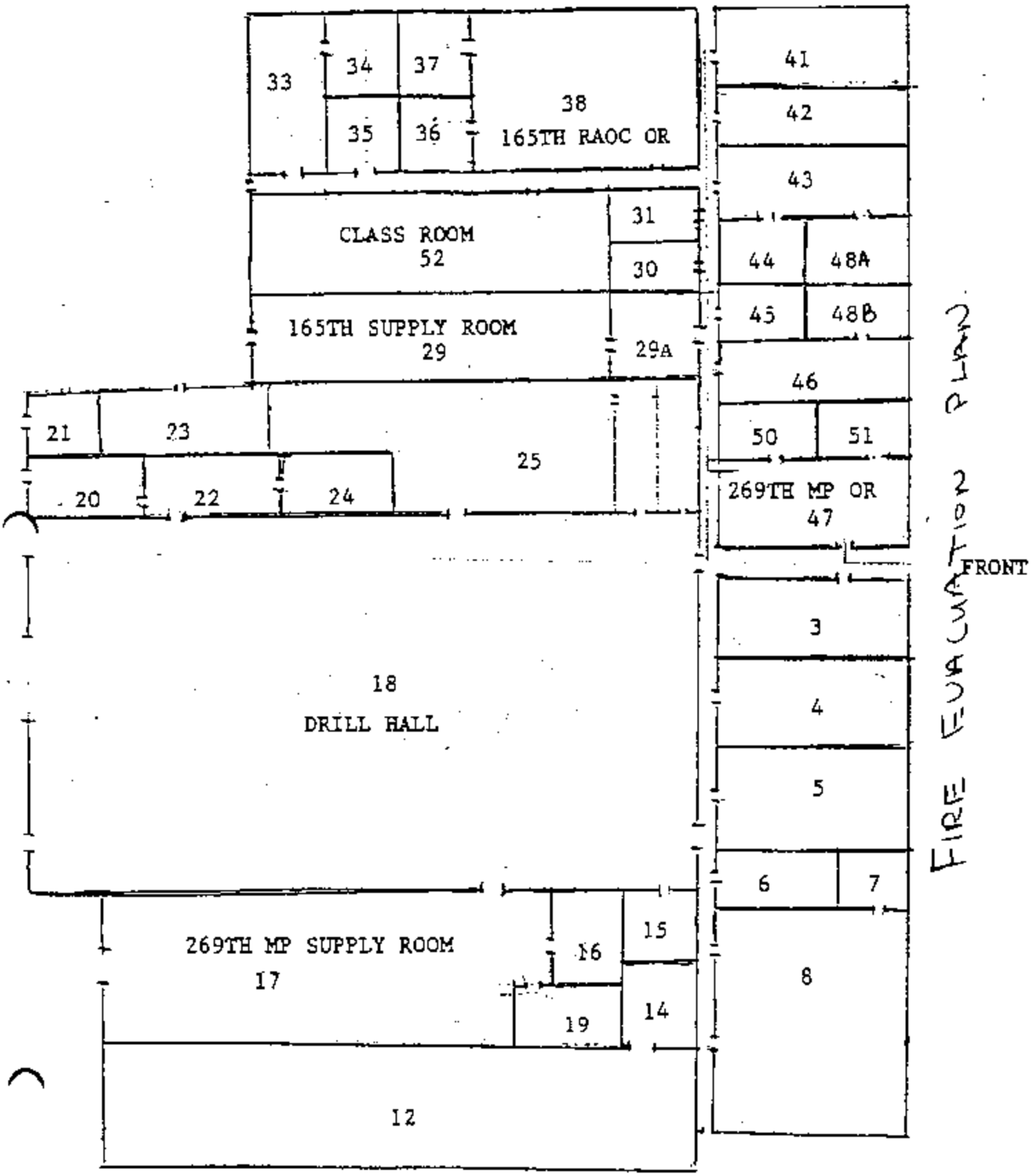
NOT TO SCALE

NORTH

NATIONAL GUARD ARMORY, DYERSBURG, TN



FIRE EVACUATION PLAN

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 548 of 2531

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Analytical Environmental Servs, Inc.

Date: 3/25/2003

TOTAL LEAD IN WIPE SAMPLES
N7082

CLIENT:	Environmental Management Solutions	**Lab Order:**	0303462
Project:	Dyersburg Armory	**Date Received:**	3/17/2003 9:35:0
Project No:	Dyersburg Armor	**Matrix:**	Wipe
PO No:		**Analyst:**	SSS

Laboratory ID	Client Sample ID	Results	Units	MDL	DF	Date Collected	Date Analyzed
0303462-001A	DB-01	5090	µg, Total	10.3	3.65	2/24/2003	3/19/2003
0303462-002A	DB-02	76.0	µg, Total	2.83	1	2/24/2003	3/19/2003
0303462-003A	DB-03	29.0	µg, Total	2.83	1	2/24/2003	3/19/2003
0303462-004A	DB-04	BRL	µg, Total	2.83	1	2/24/2003	3/19/2003
0303462-005A	DB-05	689	µg, Total	2.83	1	2/24/2003	3/19/2003
0303462-006A	DB-06	103	µg, Total	2.83	1	2/24/2003	3/19/2003
0303462-007A	DB-07	1450	µg, Total	2.83	1	2/24/2003	3/19/2003
0303462-008A	DB-08	225	µg, Total	2.83	1	2/24/2003	3/19/2003
0303462-009A	DB-09	BRL	µg, Total	2.83	1	2/24/2003	3/19/2003
0303462-010A	DB-10	BRL	µg, Total	2.83	1	2/24/2003	3/19/2003
0303462-011A	DB-11	BRL	µg, Total	2.83	1	2/24/2003	3/19/2003
0303462-012A	DB-12	BRL	µg, Total	2.83	1	2/24/2003	3/19/2003
0303462-013A	DB-13	365	µg, Total	2.83	1	2/24/2003	3/19/2003

Qualifiers: MDL - Method Detection Limit DF - Dilution Factor
ND - Not Detected at the Reporting Limit

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 549 of 2531

Industrial Hygiene Surface Wipe Sample Sheet

Return Address Environmental Mgmt. Sltns.
Non-Responsive [redacted]

Point of Contact (name & phone Non-Responsive [redacted]

Sampled Facility Dyersburg Armory

City Dyersburg

State TN

Description of Operation TN ARNG

Date Collected 2/24/03

Date Shipped 2/26/03

Analysis Desired Lead

Sampling Data

Lab Use Only	Sample #	Results	Remarks
	DB-01		Bullet trap, #3 bottom plate
	DB-02		Shelving, left side (downrange) wall
	DB-03		Top of lockers, middle aisle
	DB-04		Shelving front of range
	DB-05		Shelving, right side (downrange) wall
	DB-06		Plenum ledge, right side (facing plenum)
	DB-07		Plenum, locker storage, right side
	DB-08		Floor, near left side range exit door
	DB-09		Back of entrance door
	DB-10		Kitchen, 2nd shelf under window
	DB-11		Drill Hall, Top of vending machine
	DB-12		Drill Hall, by rollup door

Comments to Lab:

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Industrial Hygiene Surface Wipe Sample Sheet

Return Address		**Point of Contact** *(name & phone #)*	
		Samples Collected By	
Sampled Facility	**City**	**State**	**Location** *(bldg/area)*
Description of Operation		**Date Collected**	**Date Shipped**
Analysis Desired			
Sampling Data			

Lab Use Only	Sample #	Results	Remarks
	DB-13		Shelving in weapons room

Comments to Lab:

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NATIONAL GUARD REGION SOUTH
INDUSTRIAL HYGIENE OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

NGB-AVN-SI June 19, 2006

MEMORANDUM THRU Non-Responsive Deputy State Surgeon, Tennessee Army National Guard, P.O. Box 41502, Houston Barracks, Nashville, TN 37204.

TO: The Tennessee Army National Guard Dyersburg Armory, ATTN: Non-Responsive Non-Responsive Commander, 502 James H. Rice Road, Dyersburg, TN 38024-1217.

SUBJECT: Industrial Hygiene Survey of the Dyersburg National Guard Armory, Dyersburg, Tennessee.

1. References.

a. Report submitted May 2006, Industrial Hygiene Survey, Technical Solutions International, Inc (TSI).

b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 2004.

c. AR 40-5, Preventive Medicine, October 1990.

d. AR 11-34, 15 February 1990, the Army Respiratory Protection Program.

e. AR 385-10, 29 February 2000, Army Safety Program.

f. Department of the Army Pamphlet (DA PAM) 40-501, 10 December 1998, Hearing Conservation.

g. TB MED 530, the Army Industrial Hygiene Program.

h. Title 29 Code of Federal regulation (CFR), 2004 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.

i. Industrial Ventilation, 25th ed, 2004, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.

2. General.

a. At the request of the Tennessee State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at the South Carolina National Guard Armories.

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b. TSI conducted the survey.

3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)

4. Recommendations.

a. Follow all recommendations made in reference 1. a., attachment 1 requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Explain the importance of proper clean-up to reduce the high lead swipe samples found in the weapons Room. (See lead sample result in report)

c. Use the report to help in correcting all deficiencies noted by the contractor.

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the FMO, the Environmental Office the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

4. Please accept the apologies of the Regional Industrial Hygiene Office for getting these reports out so late. This is not our normal practice. We strive to have reports of surveys back to you within 30-45 days of walk thru.

5. If additional information is needed about the contractors report, please contact M.

Non-Responsive

[redacted]

CF: Safety and Occupational Health Office, ATTN [redacted] P.O. BOX 41502, Nashville, TN 37204-1502

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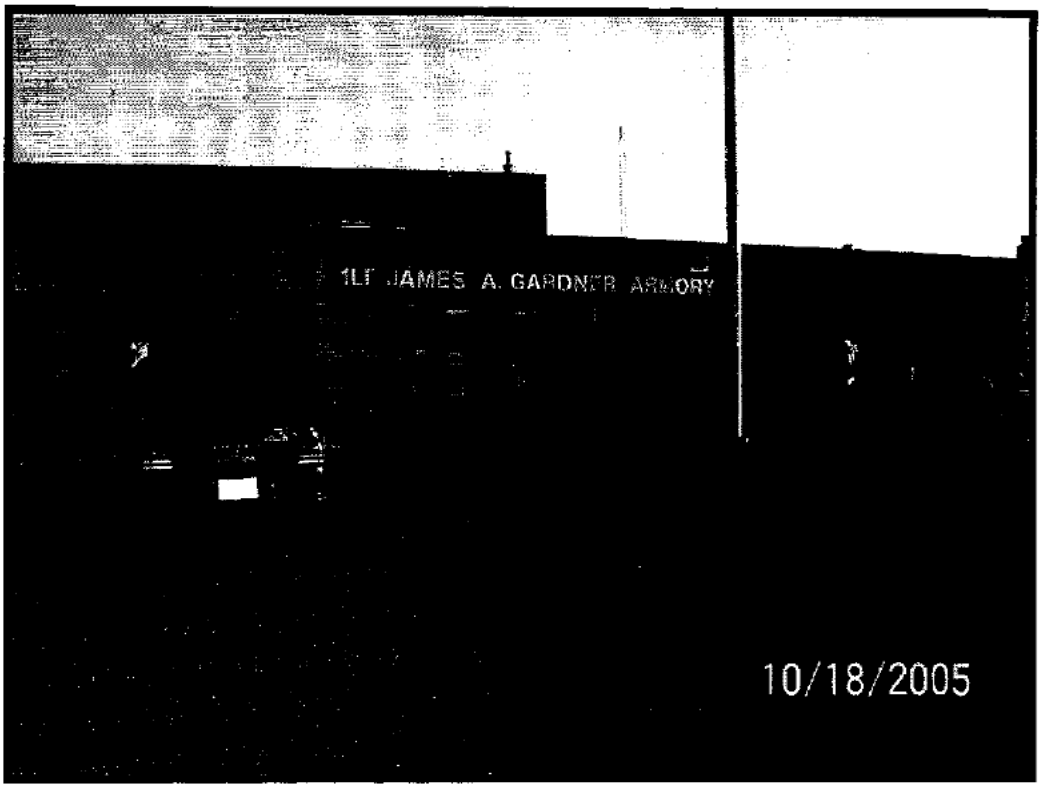
Army National Guard Industrial Hygiene Survey



Dyersburg Armory

502 James H. Rice Rd
Dyersburg, TN 38024-1217

Non-Responsive

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TABLE OF CONTENTS

BACKGROUND: 1
Introduction: 1
Scope of Work: 1
INSTRUMENTATION: 2
FINDINGS: 3
BUILDING CONDITION: 3
LEAD DUST WIPE SAMPLES: 4
ADMINISTRATIVE OFFICES 4
HVAC ..... **Error! Bookmark not defined.**
SUPPLY ROOM(S) AND VAULTS: 5
KITCHEN / MESS HALL 5
DRILL HALL 5
INDOOR FIRING RANGE (IFR) 5
MOTOR POOL 5
TECHNICAL ASSISTANCE: 6
APPENDIX A – ADDITIONAL DATA 7
FACILITY DIAGRAM: 7
WALK THROUGH OBSERVATIONS 8
PAINT CHIP SAMPLE RESULTS 8
Illumination Readings: 9
APPENDIX B – Recommendations: 10
APPENDIX C – Pictures 11
APPENDIX D – Lab Report 19
APPENDIX E – HHIM Sheets 20

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 555 of 2531

Technical Solutions International, Inc.
220 Jaysee Court
Fayetteville, GA 30215
Phone: (678) 522-1138
FAX: (877) 631-9226
E-mail: info@tsi-cg.com
Web: www.tsi-cg.com

19 October 2005

MEMORANDUM FOR: Tennessee Army National Guard, ATTN: Non-Responsive
Commander, 230TH Area Support Group, 502 James H. Rice Rd,
Dyersburg, TN 38024-1217

SUBJECT: Industrial Hygiene Survey of Dyersburg Army National Guard, Dyersburg, Tennessee

BACKGROUND:

Introduction:

At the request of Non-Responsive National Guard Bureau Regional Industrial Hygiene South Office, Atlanta, GA, an initial baseline industrial hygiene survey was conducted at the **Dyersburg Armory, Dyersburg, Tennessee**, on **18 October 2005** as part of the **Tennessee** Army National Guard Occupational Health Program to identify potential hazards in the workplace. The point of contact for this facility was Non-Responsive

Scope of Work:

An initial baseline survey was conducted, which consisted of collecting lead wipe samples, conducting noise and illumination survey, as well as evaluating the condition of the building, including the Heating Ventilation and Air Conditioning (HVAC) System as it relates to airflow for indoor air quality. A review of several industrial hygiene programs, such as hazard communication, radiation protection, and personal protective equipment was also performed. A field survey form is completed on all industrial operations at the facility, and the data is contained in this report. Twenty-three lead samples were collected, with color photos documenting sample locations. All standard industrial hygiene sampling analysis were performed by Analytical Environmental Services Laboratory. As part of the general walkthrough, any noted deficiencies were photographed and documented as part of this report.

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May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 556 of 2531

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INSTRUMENTATION

The following survey instrumentation was provided by or for the contractor, and was used to obtain lead wipe dust, illumination, ventilation, and noise sample measurements. All noise dosimeter instrumentation was calibrated before and after sampling. All other instrumentation was operated according to manufacturer recommendations.

Instrument	Serial Number	Calibration
Extech Heavy Duty Light Meter	Q009392	NEW, Purchase July 2003
Bruel & Kjaer Sound Level Meter	1942768	09 June 2005
Bruel & Kjaer 4231 Acoustic calibrator	1944552	10 June 2005
Alnor-Thermo Anamometer (CompuFlow)	2800	07 June 2005
Ghost Wipe Lead Dust Wipes		

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 557 of 2531

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FINDINGS:

The armory was built in 1989. The unit recently returned from deployment, therefore the only vehicles currently stored at this facility include HUMVEEs and water trailers. This facility houses one unit:

1. 230TH Area Support Group, [redacted] Commander

   Although, the current main function of this unit is to provide logistical support for an entire area, by January 2006, the unit will have completed a transition to a MP (Military Police) Battalion.

   This unit has twelve fulltime personnel providing readiness and other personnel support as follows:

	Last Name	First Name	MI	Sex	SSN (Last 4 digits)	Rank
1	[redacted]					
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						

Non-Responsive

BUILDING CONDITION:

The majority of the building was fair condition, although, there was water damage to several areas of the ceiling through out the building, which are evidence of roof leaks. Some areas have been repaired, but some are still in need of repair.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 558 of 2531

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LEAD DUST WIPE SAMPLES:

Lead dust wipe samples were taken using 15 cm templates. Twenty dust wipe samples were submitted to the lab for analysis. The results show that most were below reportable levels (BRL). Two samples were above the Federal Environmental Protection Agency standards ***(40 CFR 745) of 40 µg/ft²***. Pictures of the lead sample wipes were taken (see pictures Dyersburg01 to Dyersburg16).

The following table notes where the samples were taken, the sample number and the lead results:

Sample Location	Sample No.	Results (µg/ft²)
Supply Room: Vault Shelf	1	954
Supply Room: Vault Rack	2	531
Supply Room: Outside Vault Door	3	BRL
Supply Room: Blank	4	BRL
Supply Room: Storage Cage	5	BRL
Drill Hall: Near Supply Room Door	7	BRL
Drill Hall: Center Floor	8	BRL
Drill Hall: Bay Door	9	BRL
Kitchen: Stovetop	10	BRL
Kitchen: Prep Table	11	BRL
Office 14 A/C Outflow	12	BRL
Office 14 A/C Outflow (Without Vent)	13	BRL
HVAC Blank	14	BRL
HVAC Inflow	15	BRL
HVAC Outflow	16	BRL
Office# 5	18	BRL
IFR Bathroom	19	BRL
HVAC Outflow II	21	BRL
HVAC Inflow II	22	BRL
Commander's Office	23	BRL

Note 1: IFR refers to Indoor Firing Range
Note 2: µg/ft² refers to micrograms or one millionth of a gram per square foot

ADMINISTRATIVE OFFICES

There are several administrative offices in this facility where personnel use computer systems, file, read, write and perform other administrative tasks as necessary. Computer use occurs throughout the day. Illumination levels range from 8.2 to 110.4 foot-candles (FC's). ***(Illumination and Engineering Society of North America (IES) requires 20 to 50 foot-candles (FC) for storage areas and 50 – 100 FC for administrative areas.)***

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 559 of 2531

AIRFLOW / VENTILATION

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Airflow sample was taken during the survey and the results are as follows:

Location	Sample Reading (FPM)	Area of grid
CSS Automation Room	860	2' x 2'

SUPPLY ROOM(S) AND VAULTS:

This facility has one supply room, with several storage areas. The supply officer(s) use the computer between seven to eight hours per day. An inventory of all chemicals is maintained by the safety officer(s). A Material Safety Data Sheet (MSDS) book is maintained and kept in the office with a table of contents, and/or is cross-reference to the chemical inventory sheet for easy accessibility by all personnel in case of emergency. The facilities manager separated the chemicals by POL storage shed, flammable storage locker, and utility room. All employees must be initially trained in the Federal Hazardous Communication Program IAW 1910.1200. Heavy lifting is performed with the aid of hand jacks, lifts, and other personnel.

KITCHEN / MESS HALL

The kitchen is primarily used by to prepare meals on drill weekends. It is also utilized occasionally by the public when the drill hall is rented. The illumination levels range from 11.8 to 45.6 FC's.

DRILL HALL

Personnel officially use the drill hall two to three days per month during drill weekends. It is occasionally rented out for community events an average of ten to fifteen times per year. Weapons cleaning take place by units during drill weekends. Most ceiling lamps were in fair working order, but a few bulbs needed to be replaced. Illumination levels ranged from 16.8 to 27.7 FC's.

Due to low noise levels (administrative and drill areas) there were no requirements for a hearing conservation program.

INDOOR FIRING RANGE (IFR)

This IFR has been sealed by the state of Tennessee Army National Guard Headquarters since February 2003.

MOTOR POOL

A motor pool building is not present at this facility. The vehicles on hand are stored in a secured, paved area located behind the armory. User-level maintenance is performed, however the unit's vehicles are service at the Jackson, Tennessee OMS.

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 560 of 2531

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Non-Responsive

[redacted]

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Posted to NGB FOIA Reading Room
May, 2018
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 561 of 2531

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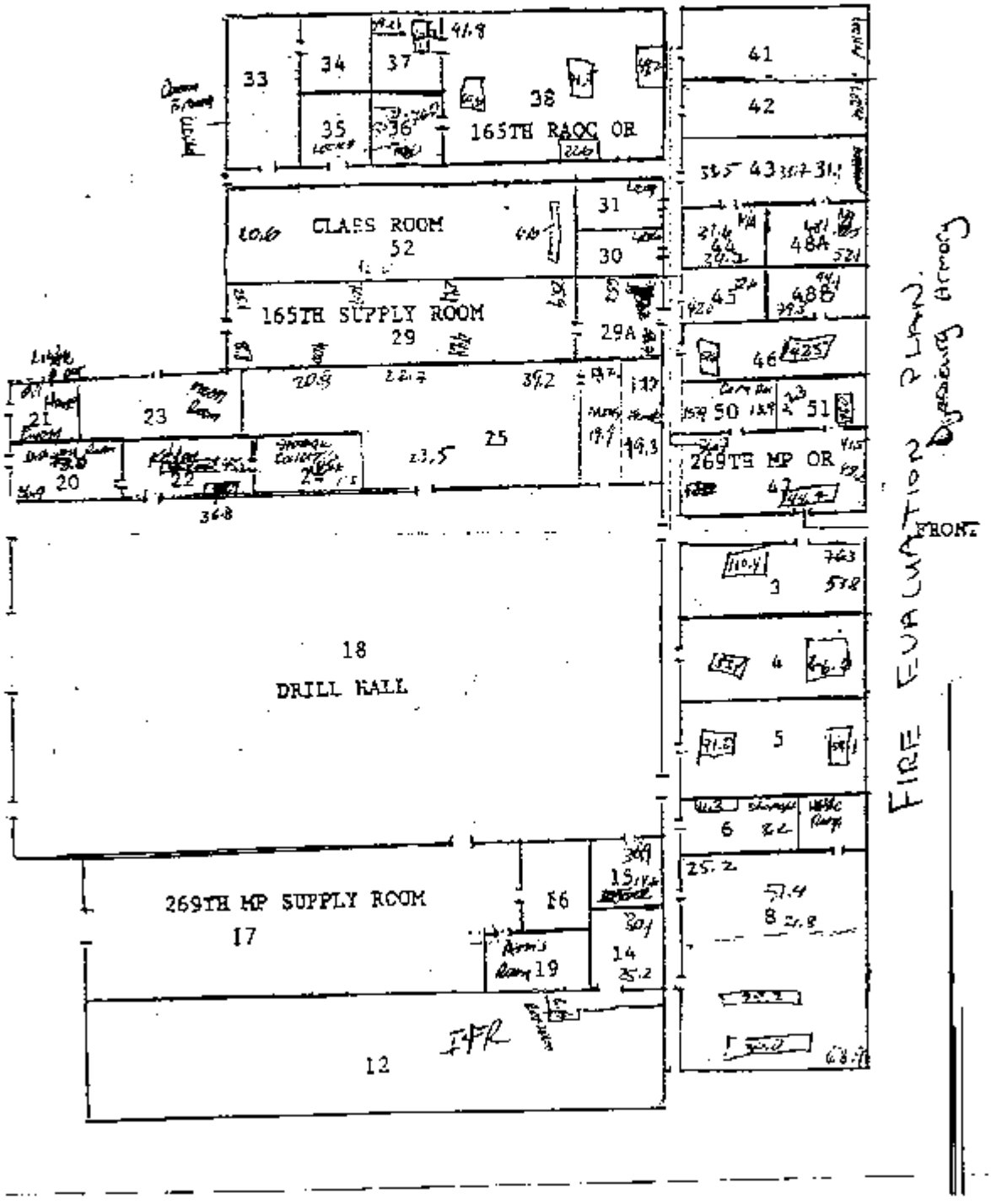
FACILITY DIAGRAM:

NOT TO SCALE

NORTH

NATIONAL GUARD ARMORY, DYERSBURG, TN



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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 562 of 2531

WALK THROUGH OBSERVATIONS

No.	Location	Description	Picture #
1	CSS Administrative Office	Signs of water leak	17
2	Hallway (West)	Signs of water leak; possible mildew	18, 19, & 20
3	Classroom (West)	Signs of water leak; paint chipping	21
4	Recruiting Office	Signs of water leak	22 & 23
5	Hallway (East)	Signs of water leak	24
6	Commander's Office	Signs of water leak	26
7	Engineer Branch	Signs of water leak	27
8	Classroom	Signs of water leak	28, 29, & 30

PAINT CHIP LEAD SAMPLE RESULTS

Sample Location	Sample No.	Results (µg/ft²)	Remarks
Supply Room: Heating Unit	6	0.0213	
Classroom (West) Wall	17	BRL	
Transportation Branch HAVC Vent	20	0.0209	

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 563 of 2531

Illumination Readings:

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Light levels found in the administrative areas are as follows:

Location	Sample Reading in Foot-candles (FC)	Average FC	Remarks
Drill Hall: Center Floor	22.8 / 19.2	21.0	
Drill Hall: Supply Room Entrance	27.7 / 26.5	27.1	
Drill Hall: Kitchen Entrance	16.8 / 20.7	18.8	A few bulbs need replacement
Supply Room: Counter Top	20.4 / 22.3	21.4	
Supply Room Main Office	35.8 / 19.7	29.1	
Classroom 25	23.5 / 39.2 20.8 / 22.7	26.6	
Kitchen	45.2 / 36.8 / 36.4 / 45.6 / 11.8	35.2	
Latrine (Men's & Women's)	17.2 / 19.9 17.2 / 19.3	18.4	
Office 14 & 15	30.1 / 25.2 36.9 / 14.6	26.7	
Storage 29 (165th Supply Room)	25.1 / 8.8 / 42.9 40.0 / 44.4 24.1 / 25.9	30.2	
Classroom 52	10.6 / 16.0 / 6.6	11.1	Several bulbs need replacement
Office 38 (165th RAOC OR)	41.8 / 60.6 / 14.5 / 49.2 / 22.6	37.7	
Office 3	110.4 / 76.3 / 53.8	80.2	
Office 4	66.0 / 83.4	74.7	
Office 5	59.1 / 91.0	75.1	
Office 8	21.8 / 51.4 / 25.2 / 29.2 / 30.0 / 68.9	37.8	

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 564 of 2531

BEST AVAILABLE COPY

a. All items that are contaminated with lead should be thoroughly decontaminated with a detergent and water solution. Care should be taken to wipe down tables where weapons are issued and cleaned. Kitchen areas should be thoroughly cleaned on a regular basis and especially before serving personnel or community use.

b. Continue a maintenance schedule for ensuring that filters in the HVAC system are properly changed, any leaks or standing water are identified, repaired, and prevented, and supply and exhaust grilles are appropriately cleaned. Failure to do so may lead to indoor air quality issues. The plan should include monitoring, inspecting and cleaning HVAC components such as outside air intakes, outside air dampers, air filters, drain pans, heating and cooling coils, the interior of air handling units, fan motors and belts, air humidification, controls and cooling towers. Consult manufacturers' instructions for appropriate maintenance schedules.

c. Non-porous (e.g., metals, glass, and hard plastics) and semi-porous (e.g., wood, and concrete) materials that are structurally sound and are visibly moldy can be cleaned and reused. Cleaning should be done using a detergent solution. Porous materials such as ceiling tiles and insulation, and wallboards with more than a small area of contamination should be removed and discarded. Porous materials (e.g., wallboard, and fabrics) that can be cleaned, can be reused, but should be discarded if possible. A professional restoration consultant should be contacted when restoring porous materials with more than a small area of fungal contamination. All materials to be reused should be dry and visibly free from mold. Routine inspections should be conducted to confirm the effectiveness of remediation work.

d. Any initial water infiltration should be stopped and cleaned immediately. An immediate response (within 24 to 48 hours) and thorough clean up, drying, and/or removal of water damaged materials will prevent or limit mold growth. If the source of water is elevated humidity, relative humidity should be maintained at levels below 60% to inhibit mold growth. Emphasis should be on ensuring proper repairs of the building infrastructure, so that water damage and moisture buildup does not recur.

e. Upgrade lighting measurements as required. Replacing blown or broken lights, painting the walls a light color, cleaning existing light fixtures, rearranging furniture to make better use of available light, and supplemental or task lighting are considerations in increasing available light levels.

f. An ergonomics survey should be completed for all supply and administrative personnel as a preventative measure to address and document any ergonomic concerns or problems. An emphasis on maintaining neutral postures and proper lifting techniques should be covered.

g. Material Safety Data Sheets (MSDS) are required to be kept at the primary workplace facility and to be easily accessible in case of emergency. Personnel responsible for these items should receive annual training in the requirements of the Hazardous Communication Program and the appropriate keeping and storage of MSDSs.

h. Ensure personnel are prohibited from drinking, eating, smoking chewing tobacco and gum, or applying makeup in supply and maintenance areas. Hands should be cleaned with soap and water before eating drinking, eating, smoking, chewing tobacco and gun, or applying makeup. Remove all refrigerators, cups, and other utensils from supply and maintenance areas.

i. Ensure that all noise hazardous machinery and noise hazardous areas are appropriately marked.

j. Personnel should be prohibited from drinking, eating, smoking chewing tobacco and gum, or applying makeup in supply and maintenance areas. Hands should be cleaned with soap and water before eating drinking, eating, smoking, chewing tobacco and gun, or applying makeup. Remove all refrigerators, cups, and other utensils from supply and maintenance areas.

j. Fire extinguishers should be visually inspected on a monthly basis and recorded on service tag.

k. Do not disturb damaged floor tiles, utilize damp mop to clean said areas.

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FOIA Requested Record #J-15-0085 (TN)
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Page 565 of 2531

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APPENDIX C – Pictures

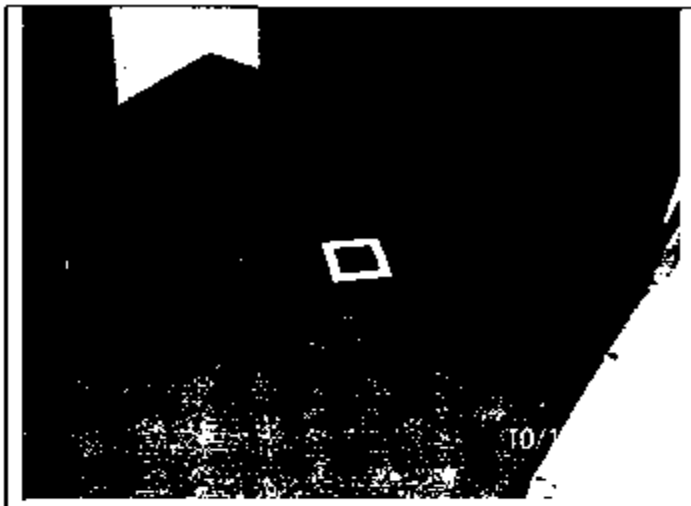

Photo # 1
Lead Wipe Sample 3 – Supply Room: Outside Vault Door

Photo # 2
Lead Wipe Sample 5 – Supply Room: Storage Cage

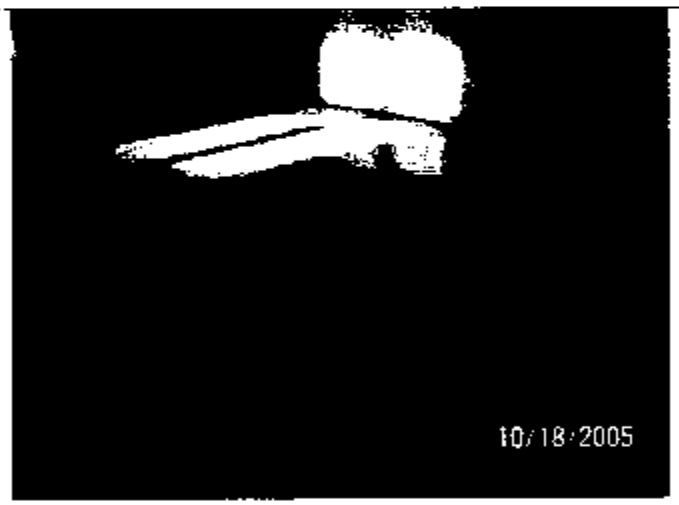

Photo # 3
Lead Wipe Sample 7 – Drill Hall: Near Supply Room Entrance

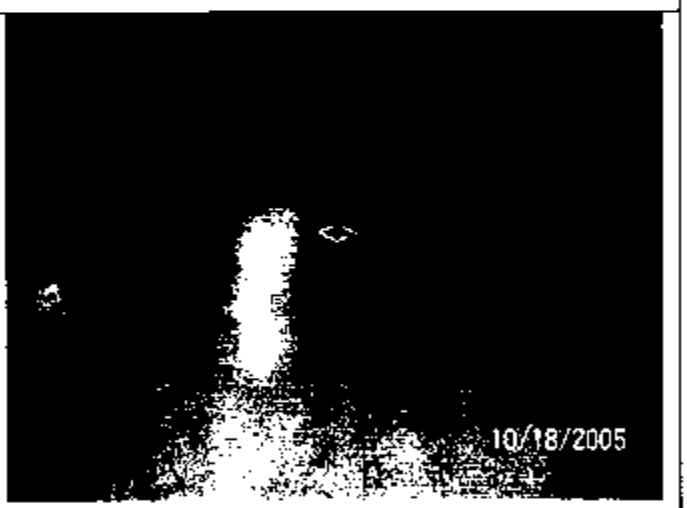

Photo # 4
Lead Wipe Sample 8 – Drill Hall: Center Floor

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 566 of 2531

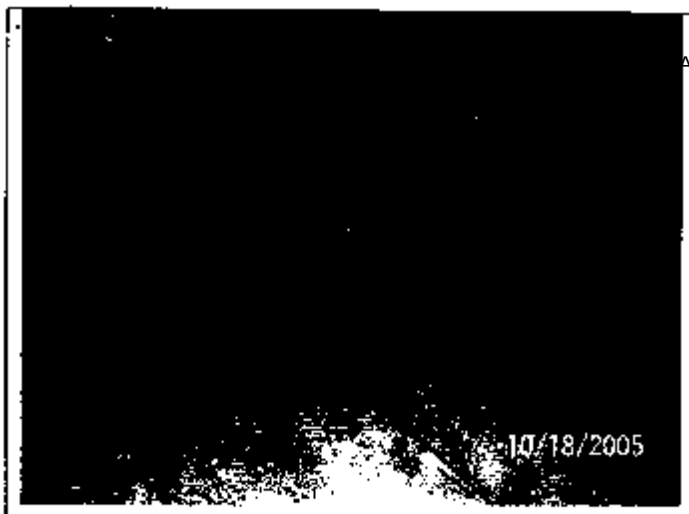

Photo # 5

Lead Wipe Sample 9 – Drill Hall: Near Bay Door

Photo # 6

Lead Wipe Sample 10 - Kitchen: Stovetop

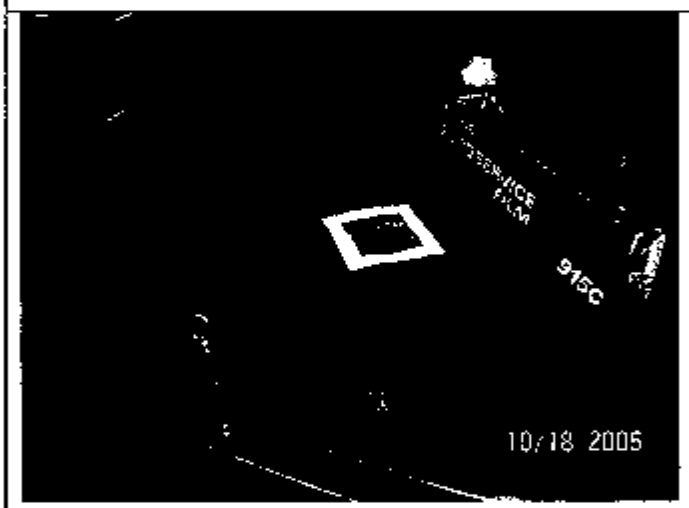

Photo # 7

Lead Wipe Sample 11 - Kitchen: Prep Table

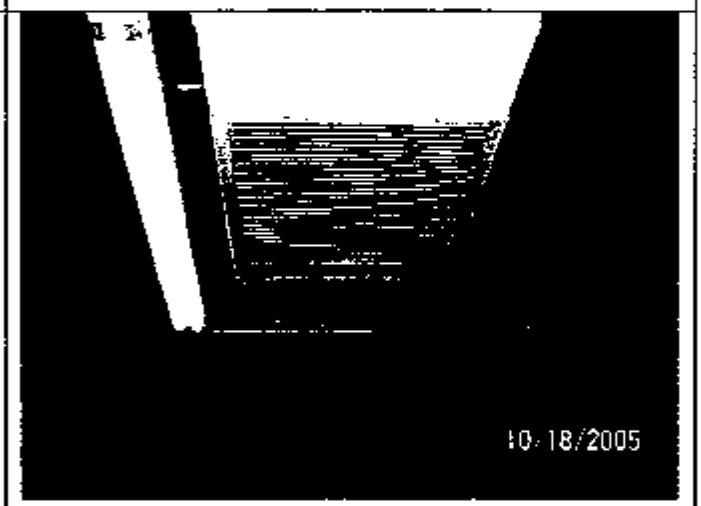

Photo # 8

Lead Wipe Sample 12 - Office 14 A/C Outflow

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FOIA Requested Record #J-15-0085 (TN)
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Page 567 of 2531

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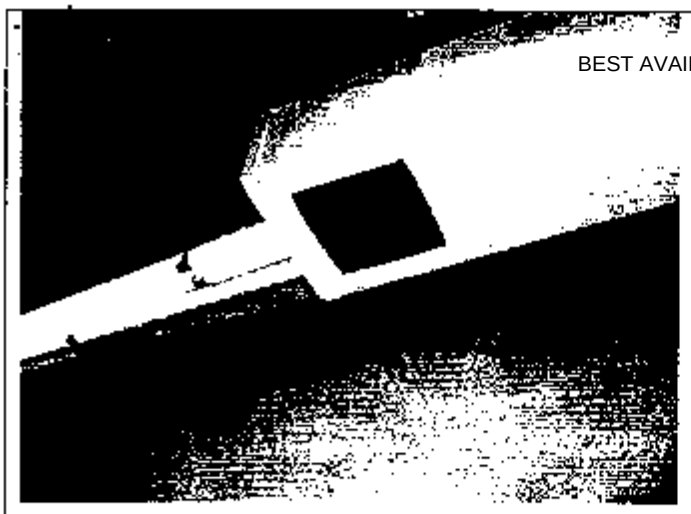

Photo # 9

Lead Wipe Sample 13 - Office 14
A/C Outflow (Without Vent)

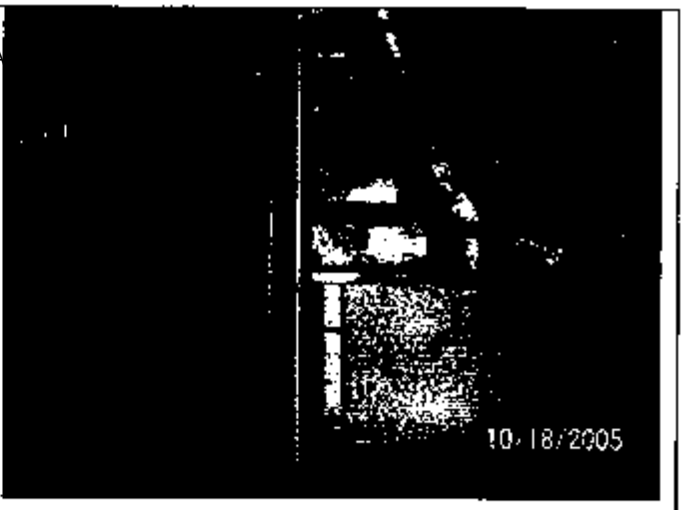

Photo # 10

Lead Wipe Sample 15 - HVAC Inflow

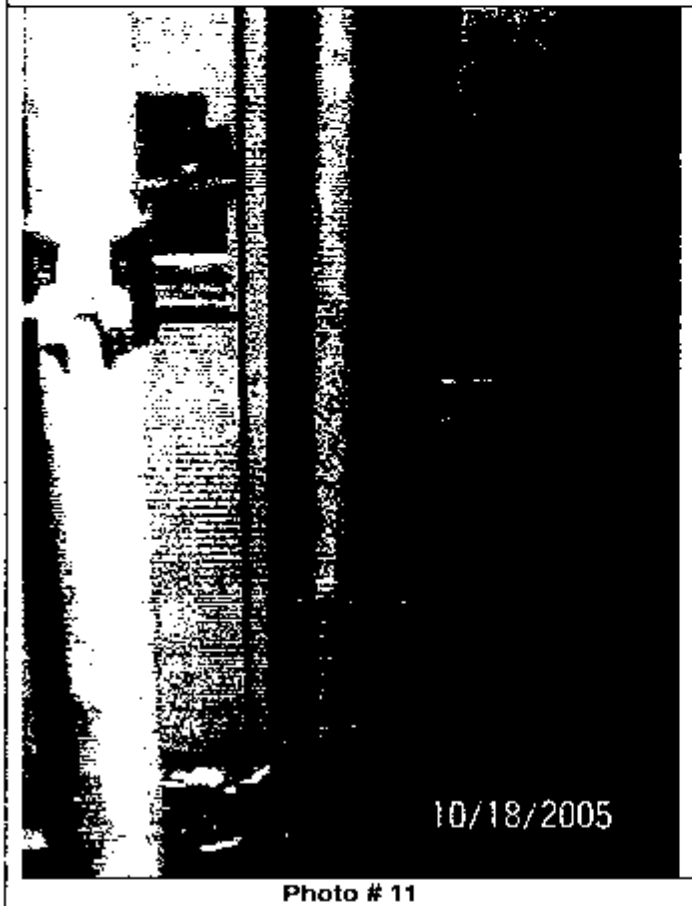

Photo # 11

Lead Wipe Sample 16 - HVAC Outflow

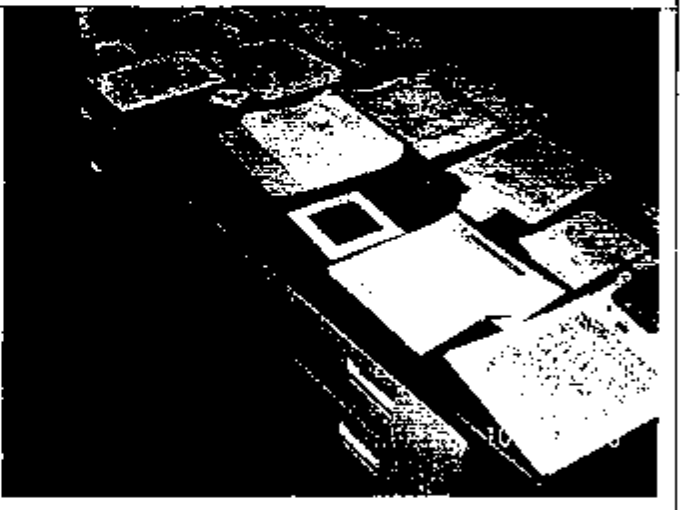

Photo # 12

Lead Wipe Sample 18 – Office #15

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FOIA Requested Record #J-15-0085 (TN)
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Page 568 of 2531

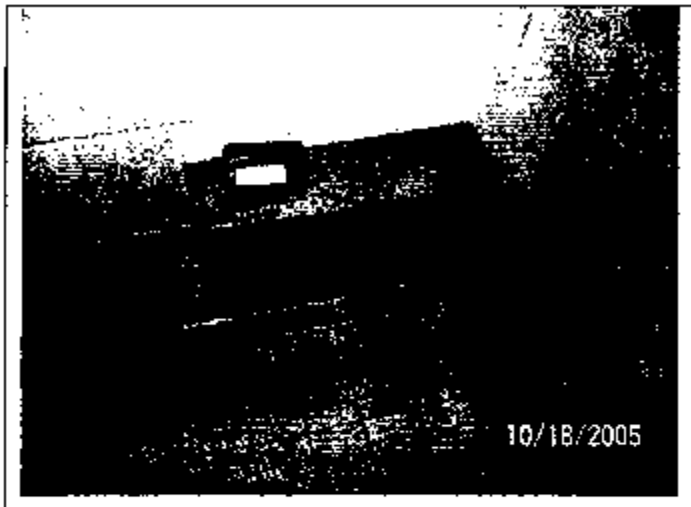

Photo # 13

Lead Wipe Sample 19 – IFR Bathroom

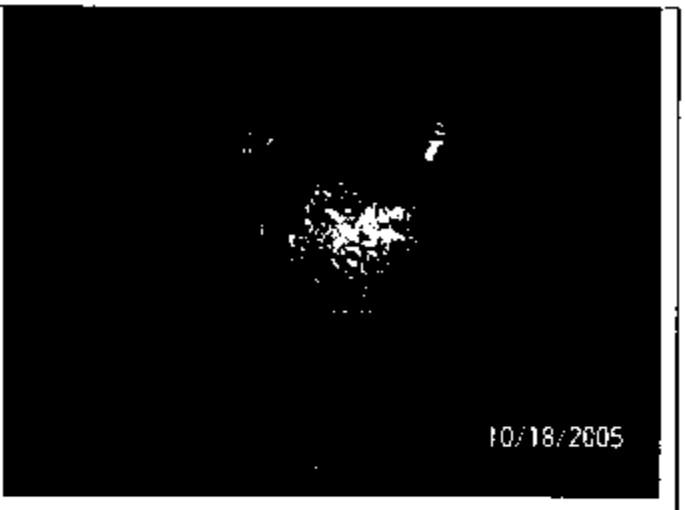

Photo # 14

Lead Wipe Sample 21 – HVAC Inflow II

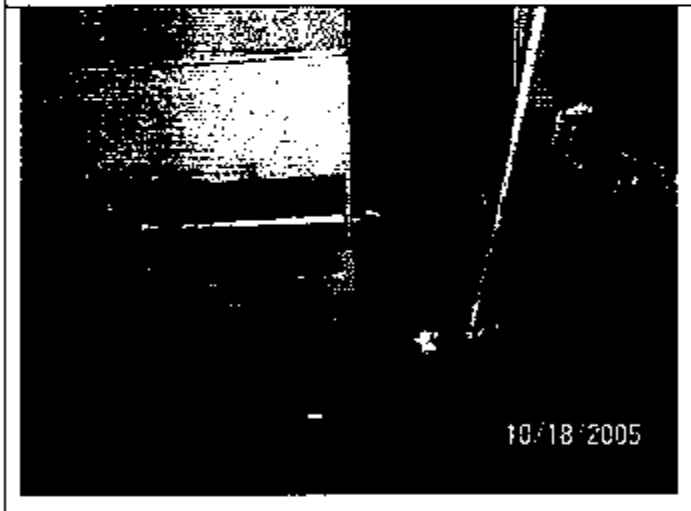

Photo # 15

Lead Wipe Sample 22 – HVAC Outflow II

Photo # 16

Lead Wipe Sample 23 - Commander's Office

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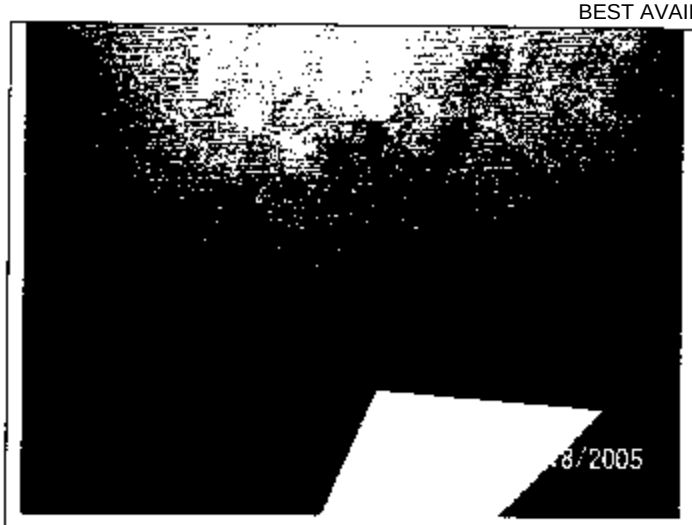

Photo # 17
CSS Office Ceiling Water Damage

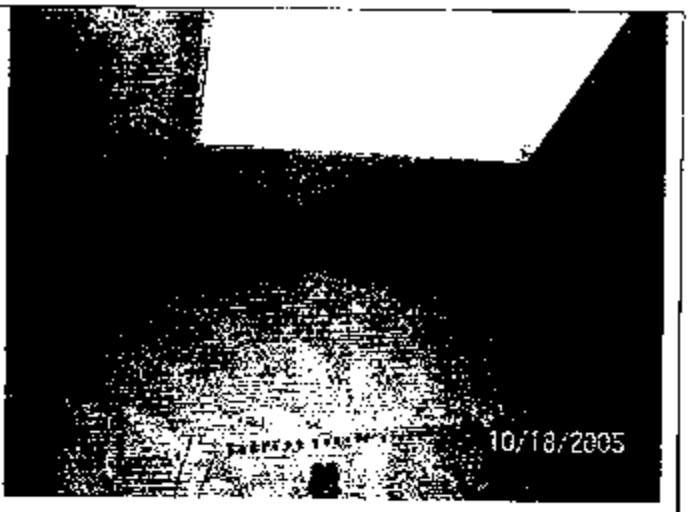

Photo # 18
Hallway (West) Ceiling Water Damage I

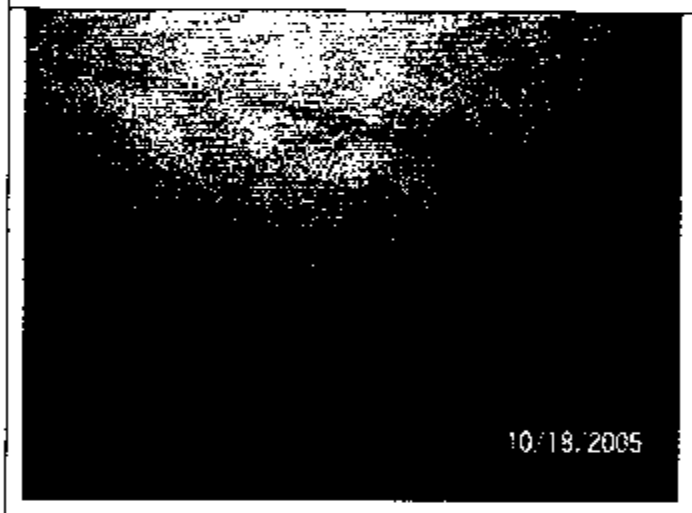

Photo # 19
Hallway (West) Ceiling Water Damage II

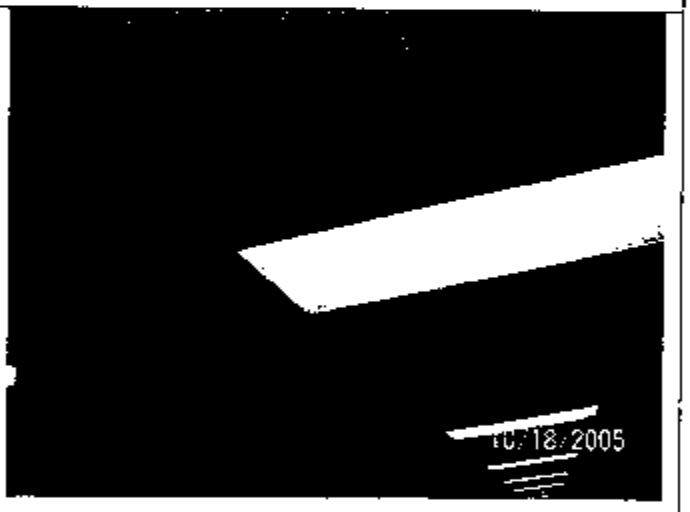

Photo # 20
Hallway (West) Ceiling Mildew

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 570 of 2531

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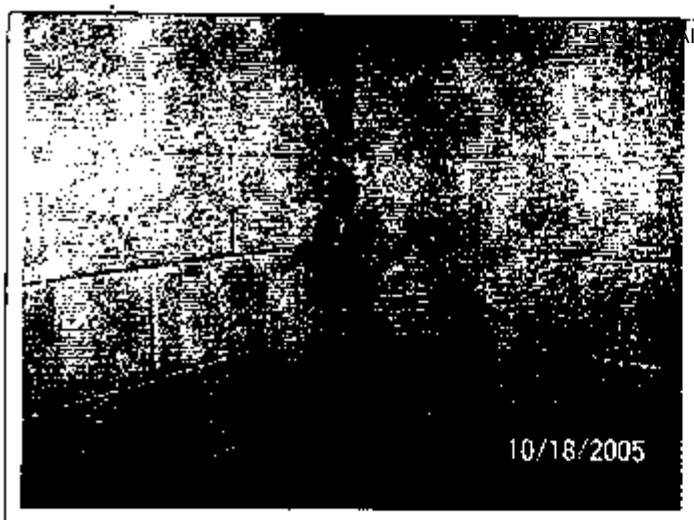

Photo # 21

Classroom (West) Wall Water Damage

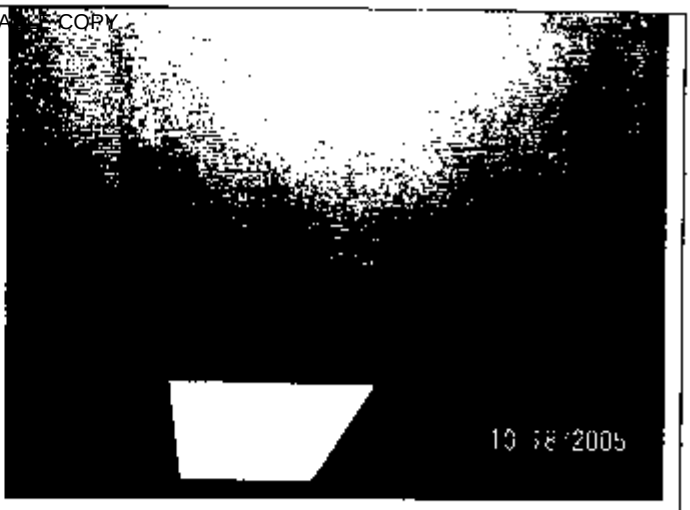

Photo # 22

Recruiting Office Ceiling Water Damage I

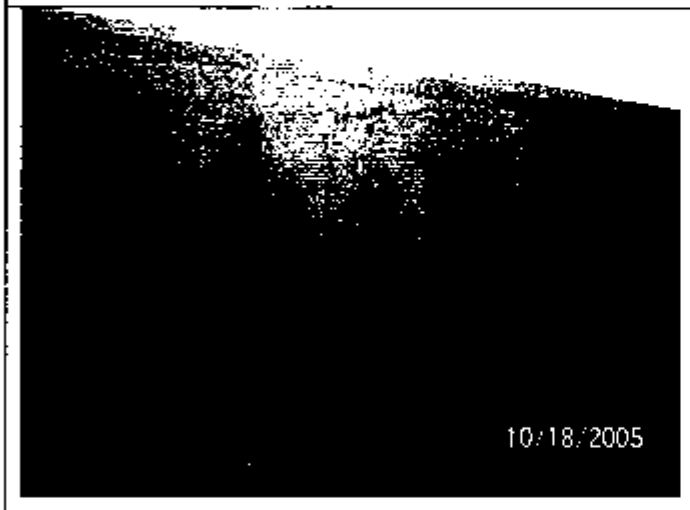

Photo # 23

Recruiting Office Ceiling Water Damage II

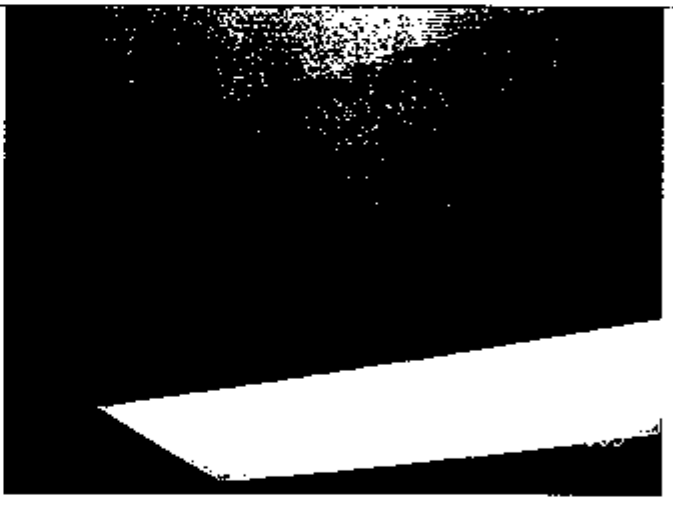

Photo # 24

Hallway (East) Ceiling Water Damage

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Page 571 of 2531

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Photo # 25

Room 29 / Transportation Branch Paint Chips

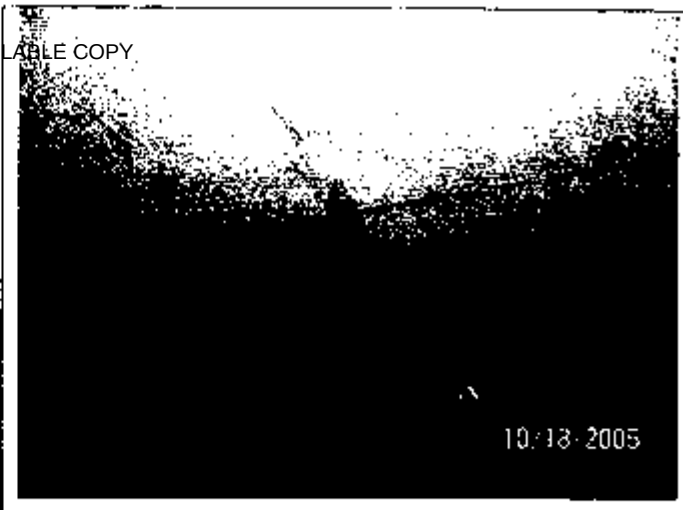

Photo # 26

Commander's Office Ceiling Water Damage

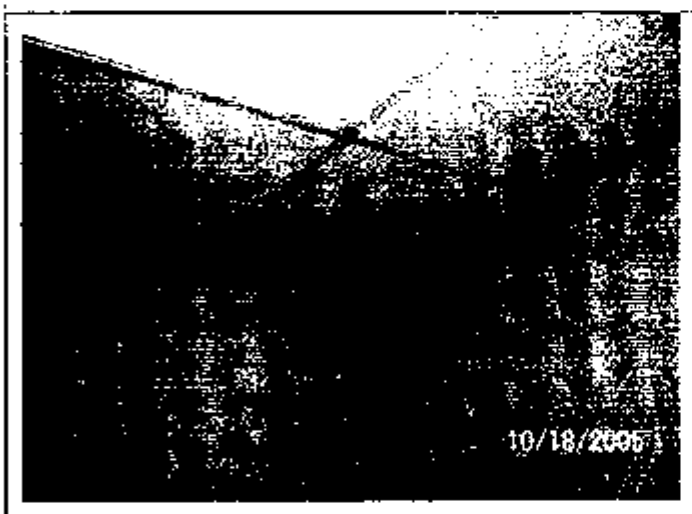

Photo # 27

Engineer Branch Office Ceiling Water Damage

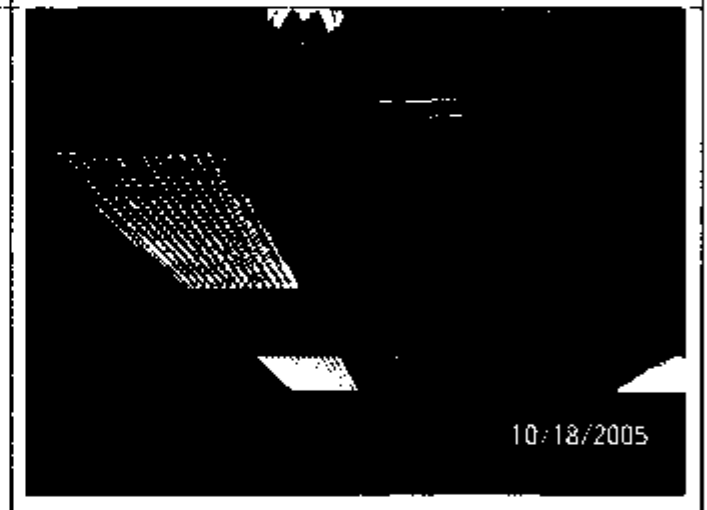

Photo # 28

Classroom 52 Ceiling Water Damage I

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 572 of 2531

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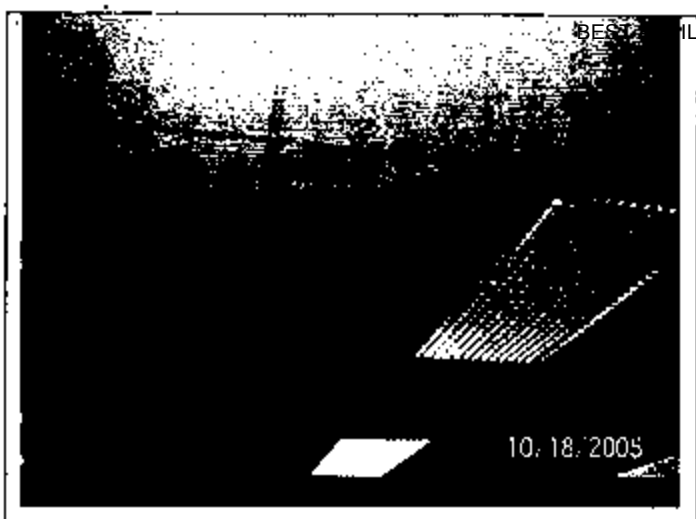

Photo # 29

Classroom 52 Ceiling Water Damage II

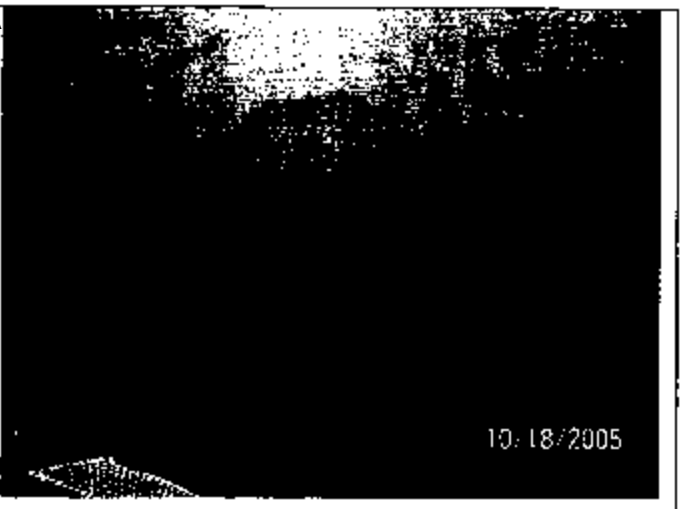

Photo # 30

Classroom 52 Ceiling Water Damage III

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 573 of 2531

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APPENDIX D – Lab Report

Analytical Environmental Services, Inc.

Date: 11/9/2005

TOTAL LEAD IN WIPE SAMPLES
N7082

CLIENT: Technical Solutions International
Project: Dyersburg Armory
Delivery Order:
PO No:

Lab Order: 0510C81
Date Received: 10/25/2005 9:15 AM
Matrix: Wipe

Laboratory ID	Client Sample ID	Results	Units	Report Limit	DF	Date Collected	Date Analyzed	Analyst
0510C81-020A	DYERSBURG 1	106	µg Total	20	1	10/18/2005	10/28/2005	VA
0510C81-021A	DYERSBURG 2	59	µg Total	20	1	10/18/2005	10/28/2005	VA
0510C81-022A	DYERSBURG 3	BRL	µg Total	20	1	10/18/2005	10/28/2005	VA
0510C81-023A	DYERSBURG 4	BRL	µg Total	20	1	10/18/2005	10/28/2005	VA
0510C81-024A	DYERSBURG 5	BRL	µg Total	20	1	10/18/2005	10/28/2005	VA
0510C81-026A	DYERSBURG 7	BRL	µg Total	20	1	10/18/2005	10/28/2005	VA
0510C81-027A	DYERSBURG 8	BRL	µg Total	20	1	10/18/2005	10/28/2005	VA
0510C81-028A	DYERSBURG 9	BRL	µg Total	20	1	10/18/2005	10/28/2005	VA
0510C81-029A	DYERSBURG 10	BRL	µg Total	20	1	10/18/2005	10/28/2005	VA
0510C81-030A	DYERSBURG 11	BRL	µg Total	20	1	10/18/2005	10/28/2005	VA
0510C81-031A	DYERSBURG 12	BRL	µg Total	20	1	10/18/2005	10/28/2005	VA
0510C81-032A	DYERSBURG 13	BRL	µg Total	20	1	10/18/2005	10/28/2005	VA
0510C81-033A	DYERSBURG 14	BRL	µg Total	20	1	10/18/2005	10/28/2005	VA
0510C81-034A	DYERSBURG 15	BRL	µg Total	20	1	10/18/2005	10/28/2005	VA
0510C81-035A	DYERSBURG 16	BRL	µg Total	20	1	10/18/2005	10/28/2005	VA
0510C81-037A	DYERSBURG 18	BRL	µg Total	20	1	10/18/2005	10/28/2005	VA
0510C81-038A	DYERSBURG 19	BRL	µg Total	20	1	10/18/2005	10/28/2005	VA
0510C81-040A	DYERSBURG 21	BRL	µg Total	20	1	10/18/2005	10/28/2005	VA
0510C81-041A	DYERSBURG 22	BRL	µg Total	20	1	10/18/2005	10/28/2005	VA
0510C81-042A	DYERSBURG 23	BRL	µg Total	20	1	10/18/2005	10/28/2005	VA

Analytical Environmental Services, Inc.

Date: 11/9/2005

TOTAL LEAD IN PAINT
PAINT

CLIENT: Technical Solutions International
Project: Dyersburg Armory
Delivery Order:
PO No:

Lab Order: 0510C81
Date Received: 10/25/2005 9:15 AM
Matrix: Paint

Laboratory ID	Client Sample ID	Results	Units	Report Limit	DF	Date Collected	Date Analyzed	Analyst
0510C81-025A	DYERSBURG 6	0.0213	wt%	0.00040	1	10/18/2005	10/27/2005	VA
0510C81-036A	DYERSBURG 17	BRL	wt%	0.00038	1	10/18/2005	10/27/2005	VA
0510C81-039A	DYERSBURG 20	0.0209	wt%	0.00037	1	10/18/2005	10/27/2005	VA

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
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Page 574 of 2531

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APPENDIX E – HHIM Sheets

Section 1. Demographics Data

a. ARLOC _____ b. Installation _____ c. BLDG / RM Number _____

d. Location / Code e. Operation Code f. Description

g. MACOM/CODE _____ h. SUBMACOM/CODE _____ i. Supervisor _____

j. Telephone / AUTOVON Number _____ k. RAC _____ l. Frequency (hrs. per day) _____

m. NO CIV(S) _____ n. NO MIL _____ o. NO Contractor(s) _____ p. NO LOC(S) _____ q. NO Other _____

Section 2. IH Staffing data

a. LAB Hoods _____ b. Vapor Degreasers _____ c. Maintenance Bays _____ d. Spray Booths _____

e. Open Surface Tanks _____ f. Ventilation Units _____

Section 3. Survey Data

a. Survey Date _____ b. Evaluator (initials) _____

c. Controls Present	d. Evaluation	e. Unit Code	f. Controls Required	g. Status

h. Personal Protective Equipment (R - Required; A - Available)

1. Respirator	Manufacturer	NIOSH TC NO	R/A
Disposable			/
½ Face Air Purifying			/
½ Face Air Purifying			/
Full Face Air Purifying			/
Powered Air Purifying			/
Airline			/
Self-Contained			/
Abrasive Blasting Hood			/

2. Gloves	R/A	3. Eye / Face	R/A	4. Hearing	R/A	5. Body	R/A	6. Head/Foot	R/A
Acid	/	Chemical / Splash	/	Muffs	/	Aprons	/	Hard Hats	/
Oil	/	Safety / Impact	/	Earplugs	/	Coveralls	/	Impermeable Boots	/
Solvents	/	Chemical / Safety	/	Canal Caps	/	Full Body Suit	/	Safety Conduct Shoes	/
Hot Surfaces	/	Full Face Shield	/	Helmets	/	Safety Belt / Harness	/	Safety Non-Conductive Shoes	/
Cold Surfaces	/	Welding Helmet	/			Heat Reflect Vest / Suit	/		/
NBC Agents	/					BDU's	/		/

Section 4. Hazard Inventory Data

a. CAS Code	b. Hazard Description	c. PAC or EPC	d. Medical Surveillance Recommended (Yes or No)

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
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Page 575 of 2531

Section 5: Personnel Data

a. Last Name	b. First Name	c. MI	d. Sex	e. SSN (Last 4 digits)	f. Category

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Section 6: Comments (add blank sheet of paper, if necessary)

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 576 of 2531

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Facility Name: Dyersburg National Guard Armory **Date:** 18 October 2005

Storage Area:

Trade Name:

Nomenclature:	**Container:**

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 577 of 2531

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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-AVN-SI May 18, 2001

MEMORANDUM FOR: Adjutant General TN ARNG, ATTN: State Safety Manager, P O Box 41502, Nashville, TN 37204-1502.

SUBJECT: Transmittal of Industrial Hygiene Indoor Firing Range Inspection/Evaluation Report Elizabethton Armory Hygiene Indoor Firing Range, Elizabethton, TN.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, 30 August 1986, Medical Service, Preventive Medicine.

c. National Guard Regulation (NGR) 385-10, 1988, Army National Guard Safety and Occupational Health Program.

d. AR 11-34, The Army Respiratory Protection Program, 15 February 1990.

e. TB MED 502, Occupational and Environmental Health Respiratory Protection Program, February 1982.

f. TB MED 503, 1 February 1985, The Army Industrial Hygiene Program.

g. DA PAM 40-501, 27 August 1991, Hearing Conservation (Updates TB MED 501, 15 March 1980, Hearing Conservation).

h. Guide to Occupational Exposure Values 2000, American Conference of Governmental Industrial Hygienists (ACGIH). Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, ACGIH, Cincinnati, Ohio.

j. USAEHA TG-141, 5 Mar. 1991, Guidelines for Air Sampling and Bulk sample Collection.

k. Title 29, Code of Federal Regulations (CFR), part 1910, Occupational Safety and Health Health Standards.

l. National Guard Regulation, NGR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and use of ARNG Indoor Firing Ranges, Draft March 2000.

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m. Army National Guard Guidelines for Housekeeping, Rehabilitation and Conversion of Indoor Firing Ranges, Draft NGB Pam 385-15.

n. OSHA Standards 29 CFR (Code of Federal Regulations), 1910.1025, Lead Standard

o. OSHA Standards 29 CFR (Code of Federal Regulations), 1926.62, Construction Standard

p. Report dated October March 23, 2001, Industrial Hygiene Survey, Tammer Sciences, Inc.

2. General.

a. At the request of Non-Responsive [redacted], TN ARNG Occupational Health Office, an Industrial Hygiene Service was put together to conduct IH evaluation of the Elizabethton Armory Hygiene Indoor Firing Range, Elizabethton, TN.

b. The survey was conducted by Tammer Sciences, Inc., 3744 Lawrence Drive, Napperville, IL 60564

3. Findings. All findings are listed in the enclosed report (See ATTACHEMENT 1).

4. Recommendations.

a. Follow all recommendations made in the enclosed report.

b. At the time when the range is safe for use contact this office to evaluate it again. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY2001 IHIP.

c. Have all HHIM data entered into the HHIM computer module.

d. Contact the State Occupational Health Nurse, Non-Responsive [redacted] for any medical Surveillance that may be needed.

e. To execute your responsibilities in correcting all deficiencies, coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

[redacted]
Non-Responsive

CF: NBG-AVN-SH
State Occupational Health Office, P O Box 41502, Nashville, TN 37204-1502.
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Indoor Firing Range Inspection/Evaluation Survey Report

For

Tennessee Army National Guard
(TNANG)

At

Elizabethton Armory Indoor Firing Range
Elizabethton, Tennessee

Prepared by:

Tammer Sciences, Inc.
3744 Lawrence Drive
Naperville, IL 60564

For
National Guard Bureau
Army National Guard
Region South Industrial Hygiene Office
Airport Plaza Suite 1530
510 Plaza Drive
College Park, GA 30349

March 23, 2001

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Released by National Guard Bureau

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Table of Contents

I. Executive Summary ..... page 1

II. Findings and Recommendations Summary ..... page 2

III. Background ..... page 4

a. Introduction
b. Site Description
c. Scope of Work
d. Health effects and hazard determination
e. Methodology and Assessment Criteria

IV. Findings and Recommendations ..... page 6

a. Building envelope
b. Range lighting
c. Bullet traps
d. Targets and target carriers
e. Range use
f. Range maintenance
g. Personal protective equipment
h. Posting of signs
i. Range sop
j. Record keeping
k. Ventilation
l. Air sampling

Appendices

A. References

B. Risk Assessment Codes (RAC) Table

C. IFR Checklist and Photographs

D. Range Layout Drawing and Ventilation Measurements

E. Air Sampling Results and Laboratory Sample Analysis Report

F. Air Sampling Notification Letters

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I. EXECUTIVE SUMMARY

At the request of the Tennessee Army National Guard (TNARNG), field personnel representing the National Guard Bureau, Region South Industrial Hygiene Office, conducted an inspection/evaluation of the Elizabethton Armory indoor firing range (IFR) located in Elizabethton, Tennessee on 7 December 2000. This survey was conducted as part of the TNARNG occupational safety and health program to evaluate potential health hazards associated with air contaminants generated during firing. The survey consisted of conducting a physical inspection of the range, collecting air samples, evaluating the ventilation system, measuring the lighting levels, and reviewing the range operating procedures

Five personal samples and two area air samples were collected during a simulated thirty-two minute weapons firing qualification test. Three out of the five personal sample results exceeded the Army National Guard recommended limit of 0.03 mg/m^3. However, the equivalent eight-hour time weighted average were below the regulated Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (PEL) of 0.05 mg/m^3. Area air sampling results were well below the recommended limit of 0.03 mg/m^3, indicating that the exposure is limited to the firing line area. This finding was confirmed by the results of the air velocity measurements and smoke testing. The average air velocities in firing lanes 1, 2, and 5 at the standing position were below the recommended 50 feet per minute. However, the overall average velocities in all lanes ranged from 59 feet per minute in lane 1 to 90 feet per minute in lane 3 indicating uneven air distributions throughout the range. Smoke testing showed turbulence at the firing line. In addition to air sampling and ventilation measurements, illumination readings in critical areas were below the recommended levels. Detailed findings and recommendations regarding this range can be found in the following table and report.

In conclusion and based on the findings of this inspection/evaluation, the Elizabethton firing range is classified as unsafe for use based on deficiencies in ventilation, lighting and building envelope. Based on air sampling results, this range is classified as limited use. Considerations should be given to implementing the recommendations listed herein.

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 582 of 2531

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II. FINDINGS and RECOMMENDATIONS SUMMARY

Findings	Recommendations	RAC
This range has been classified as unsafe due to building envelope, lighting, air sampling, and ventilation system deficiencies.	Further use of this range is restricted until deficiencies in the building envelope, lighting, and ventilation system have been corrected.	RAC 2
	Building envelope	
Access doors are not weather-stripped.	Access doors should be weather-stripped and the locks should be fixed so that the door closes and locks properly.	RAC 2
	Range lighting	
Range lighting is below the recommended 100 FC at the firing line and 30 FC in all other areas.	Upgrade lighting to meet these requirements.	RAC 3
	Range use	
Several items were found stored in the range.	No items should be stored in the firing range at any time. Stored should be decontaminated and removed.	RAC 2
Additional clothing and equipment is permitted in the range	No additional clothing or equipment should be permitted in the range	RAC 2
A fire extinguisher is not provided in the range.	An ABC type fire extinguisher should be kept at the firing line in case of emergencies.	RAC 3
	Posting of signs	
All warning signs were not posted in the range.	Post appropriate signs in the vicinity of the range and on the entrance door.	RAC 2
	Range SOP	
Elizabethton Armory does not have an approved standing operation procedure	Develop and implement a standing operation procedure	RAC 2
	Recordkeeping	
No records of range training, maintenance, or cleaning are maintained.	Maintain appropriate records regarding range operations and procedures	RAC 2
	Ventilation	
Supply and exhaust fans are not interlocked with range lighting.	Interlock supply and exhaust fans with range lighting.	RAC 3
Ventilation flow rates were found below 50 fpm at the standing positions in lanes 1, 2, and 5	Holes in the plenum wall should be one inch in diameter and extended over the entire surface of the plenum wall.	RAC 2
Flow rates at the plenum wall were less than the required 400 to 600 fpm	Holes in the plenum wall should be one inch in diameter and extended over the entire surface of the plenum wall.	RAC 2
More than 10 to 15% of the plenum wall is open.	Holes in the plenum wall should be one inch in diameter and extended over the entire surface of the plenum wall.	RAC 2
Smoke tests revealed turbulence at the firing line observable in the right three lanes	Correct ventilation system deficiencies to provide a uniform and even flow rate.	RAC 2
	Air sampling	
Air sampling results ranged from <0.0039 to 0.062 mg/m^3.	Range is classified as limited use based on results of air sampling. Appropriate records must be kept for all persons using the range.	RAC 2

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 583 of 2531

BEST AVAILABLE COPY

III. BACKGROUND

a.) Introduction: At the request of Non-Responsive of the National Guard Bureau Region South Industrial Hygiene Office, an inspection/evaluation survey was performed at the Elizabethton Indoor Firing Range at the Elizabethton Armory in Tennessee. Non-Responsive Non-Responsive contract industrial hygienist, conducted the survey on 7 December 2000. The purpose of the survey was to evaluate range characteristics, ventilation, and quantify employee exposure to lead dust.

b.) Site Description: The Elizabethton Indoor Firing Range measures approximately 72 feet long, 23 feet wide, and 12 feet high and is used for weapons firing and qualification. The range has five firing lanes and an inclined steel plate bullet trap. An exhaust fan, which is rated at 14,000 cubic feet per minute draws air through the bullet trap and exhausts it to the rear of the building. 100 percent outside air is supplied through a plenum that extends across the back wall.

c.) Scope of Work: The work consisted of a physical inspection of the range and an evaluation of the building envelope, range lighting levels, bullet traps condition, targets and target carriers, the use of personal protective equipment, posting of signs, range standard operating procedures (SOP), record keeping, the ventilation system, range use and maintenance. In addition personal and area air samples were collected during firing to evaluate the airborne exposures to the range users. A range inspection checklist found in National Guard Regulation 385-15, which addresses Indoor Firing Range use and maintenance was completed for the range. Smoke candles were utilized to observe airflow patterns in the range. Air velocities were also measured at the firing line. Air sampling and ventilation measurements were performed to quantify performance of the range and its effectiveness in reducing employee exposure to lead dust.

d.) Health Effects and Hazard Determination: The most significant hazard present to employees and users of the indoor firing range is lead dust. Shooters using ammunition with lead primers or bullets manufactured with lead are potentially exposed to lead fumes and dust during the firing process. Furthermore, the lead found in the primer, the melting of the bullet base by hot powder gasses, the shaving and abrasion of the bullet during firing, and fragmentation of the bullet at the point of impact are all potential sources for lead. Exposure to lead may also occur during cleaning of the range, guns, or bullet trap where lead dust is deposited.

Lead affects the nervous, circulatory, digestive, excretory, and reproductive systems of both men and women. If the amount of lead absorbed and stored in the body exceeds the body's ability to expel it, lead can accumulate in the body affecting the blood, heart, and immune systems. Pregnant women overexposed to lead are more prone to spontaneous abortions or may give birth to babies with a low birth weight and slowed postnatal neurological development. Results of overexposure in children are slowed cognitive development and reduced growth.

e.) Methodology and Assessment Criteria: Personal air sampling was conducted during a simulated weapons firing qualification test, which lasted over a twenty-six-minute period. Area air samples were collected during the firing and one and half hour to two hours after the firing ended. Gilian air sampling pumps, Model Number GilAir5, Serial Numbers 13248, 13249, 13250, 13251, 13252, 13521, 13522, 13523, 13524, 13525 were used to collect the personal and area air samples. Each pump was calibrated prior to sampling and at the end of each sampling

Posted to NGB FOIA Reading Room
May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 584 of 2531

BEST AVAILABLE COPY

period using a pre-calibrated rotameter, which was calibrated against a bubble meter. The sampling flow rate was set at approximately 2 liters per minute (lpm). Samples were sent to NATLSCO laboratory, which is accredited by the American Industrial Hygiene Association (AIHA), for analysis.

An Alnor CompuFlow Air Velocity Meter, Model Number 8570, Serial Number 99097037, was used to measure air velocities at the firing line. A total of nine velocity readings were taken at each firing lane. Three measurements were taken at each of three positions: standing, kneeling, and prone positions for a total of nine readings. Details of locations where ventilation measurements were made can be found in Appendix D.

Lighting measurements were taken at the firing line, target line, and intermediate areas to determine luminance levels in these areas. Approximately fifteen to twenty readings were taken throughout the range using a Minolta Light Meter Model Number TL-1, Serial Number 90480727.

Air sampling, ventilation and illumination readings were compared to the NGR 385-15 Policy Responsibilities, and Procedures for Inspection/Evaluation and use of ARNG Indoor Firing Ranges.

Risk Assessment Codes (RACs) are included in this report to quantify the risk of particular operations to employees and to establish funding priorities for corrective actions. RACs are assigned with regard to hazard severity and mishap probability. The type, length, and route of exposure are taken into consideration, as are the medical effects that would occur with such exposures. RAC criteria can be found in Appendix B.

Posted to NGB FOIA Reading Room
May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 585 of 2531

BEST AVAILABLE COPY

IV. FINDINGS, DISCUSSION, AND RECOMMENDATIONS

a. Building Envelope. This indoor firing range measures 48 feet from the firing line to the bullet trap, 23 feet wide, and 12 feet high. Each firing lane is the appropriate width and all pipes, conduits, and projecting surfaces are adequately baffled. No open drains exist in the range and roof and walls provide ballistic security. The access door to the range is not adequately weather-stripped.

Recommendation: Weather-strip all access doors to the range to prevent leakage of lead dust and debris into outlying areas. [385-15 2-2a(2)(b)] **(RAC 2)**

b. Range Lighting. Range lighting is relatively uniform but causes some shadows throughout the range. Lighting measures an average 14 footcandles (FC) at the targets and 20.1 FC in all other areas. Baffles adequately protect all lighting fixtures. Emergency and exit lighting is provided for the range.

Recommendation: Increase lighting to the recommended 100 FC at the targets and 30 FC in all other areas. [NGR 385-15, 1-17c(1)(d)] **(RAC 3)**

c. Bullet Traps. An inclined plate bullet trap is permanently installed and is designed for .22 caliber use, all that is permitted for firing on this range. The bullet trap measures ¼" thick and adequately prevents ricochets. The bullet trap is not bowed, punctured, or pitted. Plates are in proper alignment and all plates are flush.

Recommendations:

1. The bullet trap should be adequately maintained. Rust or paint chips may cause ricochets. A thin coating of oil should be applied every 3 months for moderate firing, sooner if heavy firing occurs (10W30 or 3 in 1). **DO NOT APPLY GREASE. (RAC 3)**
2. Bullet collection bins should not be allowed to get over ¾ full. Contact the TN ARNG State Environmental Office prior to emptying for disposal instructions. **(RAC 3)**

d. Targets and Target Carriers. Target retrieval systems were provided for each lane and are in good working order. Paper targets are used for personnel during firing procedures.

Recommendation: None at this time.

e. Range Use. The range is used for firing purposes only approximately twelve days per year. Several items were stored in the range. Additional clothing and equipment is permitted in the range. A fire extinguisher is provided in the hallway outside of the range

Recommendations:

1. No items should be stored in the firing range at any time. Stored items can become contaminated with lead dust and will increase the exposure to anyone who moves or touches stored items. [NGR 385-15 2-3a, 2-4h] **(RAC 2)**

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 586 of 2531

BEST AVAILABLE COPY

2. No items should be stored in front of the plenum wall, which will disturb airflow while the ventilation system is running. [NGR 385-15 2-4a] **(RAC 2)**
3. A hand held ABC-type fire extinguisher should be kept at the firing line in case of emergencies. [DG 415-1, App. A, 4-5] **(RAC 3)**

f. Range Maintenance. This indoor firing range has not been cleaned. Brooms are used to clean up spent shells. A range custodian has not been appointed to the range.

Recommendations:

1. The indoor firing range should be cleaned with the ventilation system operating to prevent dust and debris from migrating into other work areas and to minimize exposure to the cleaners. Floor areas behind the firing line and 15 feet downrange should be cleaned after firing or at least every three months if the range is not used as often. [NIOSH 76-130, p.24, II. 1] **(RAC 2)**
2. Dry sweeping and cleaning bullet traps by pouring or shoveling bullet debris into waste buckets causes settled lead dust to become airborne and inhaled by the workers. **Dry sweeping of indoor firing ranges is prohibited.** A High Efficiency Particulate Air (HEPA) filtered vacuum system is recommended for lead dust and particles cleanup only (no bullet casings). If a HEPA vacuum cannot be acquired, a wet method should be used which includes a solution of detergent and hot water. Two containers should be used; one to wet the area, and the other to rinse the applicator after the dust has been wiped from the surface. Water should be changed often to prevent reapplication of contaminated water. Wastewater should be left to evaporate and the residue and any applicators should be disposed under guidance from the TN ARNG Environmental Office. [29 CFR 1910.1025(h)(ii), NIOSH 76-130, P.24, II. 2] **(RAC 2)**
3. One person, preferably the range custodian, should be responsible for cleaning the range and discarding debris. The range should be cleaned **ONLY** with a HEPA vacuum system or utilizing a wet method. [29 CFR 1910.1025(h)(ii)] **(RAC 2)**

g. Personal Protective Equipment (PPE). Personnel were observed wearing appropriate hearing and eye protection.

Recommendation: All personnel should wear ANSI approved hearing and eye protection. Additional eye and hearing protection should be available for those users that do not have their own. [NGR 385-15, 2-5a, 2-5 b, 29 CFR 1910.133 (a-b), 29 CFR 1910.95 a]. **(RAC 2)**

h. Posting of Signs. Warning signs are posted and instruct users about the regulations and requirements of the range. Warnings include only those indicating the type of ammunition to be used and the need for hearing protection. The entrance door to the range only requires hearing protection. No illuminated warning sign is interlocked with the range ventilation switch to alert individuals that the range is use. Firing lanes are not numbered.

Posted to NGB FOIA Reading Room
May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 587 of 2531

BEST AVAILABLE COPY

Recommendations.

1. The following signs should be posted in or in the vicinity of the range and of the access door to the bullet trap. [NGR 385-15 3-6a.b] **(RAC 2)**:

   a. Eating, drinking, and Smoking are Prohibited
   b. Dry Sweeping is Prohibited
   c. Wash Hands and Face Immediately Following Firing
   d. The Following Ammunition is Authorized for use on this Range
   e. Hearing Protection Must Be Properly Worn During Firing
   f. Proper Safety Glasses/Goggles Must Be Worn During Firing
   g. No Furniture or Storage of Items Permitted in the Range

2. The following signs must be posted on the entrance door to the range and to the access door of the bullet trap:

   a. Noise Hazardous Area
   b. Danger Lead Hazard Area
   c. Pregnant Females are Not Permitted in this Area

3. An illuminated sign should be interlocked with the range ventilation switch and located outside of the firing range to alert individuals outside when the range is in use. [NGR 385-15 2-6c] **(RAC 4).**

4. Each firing line should be clearly numbered at the firing line and bullet trap. [NGR 385-15 1-21C] **(RAC 4)**

i. Range Standing Operation Procedure (SOP). A range SOP with all requirements is not available for this facility as approved by the State Safety Office.

Recommendations:

A Range Standing Operation Procedure should be written for this facility and should include the following **(RAC 2)**:

1. Requirements for establishment and maintenance of a visitor's log indicating date, age, and ammunition fired
2. Requirements for safety briefing for all individuals before entrance to the range given by a designated range safety officer
3. Work practices
4. Instructive guidance
5. Personnel responsibilities for performing, supervising, reviewing, and updating the SOP
6. Authorized ammunition
7. Posting of signs
8. Cleaning and maintenance requirements
9. PPE requirements for maintenance, firing, and cleaning of the range.

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May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 588 of 2531

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j. Recordkeeping. Records kept at the range are a visitor's log with name and age of firer, organization and sign in and sign out times. The type of ammunition used is not documented. Copies of initial and previous inspections and any air-sampling data are not available. An OSHA compliance program is not in place. A range custodian has not been appointed to this range.

Recommendations.

1. Visitor's log must be maintained that contains the name and age of firer, organization, sign in and out time, and type of ammunition, and number of rounds fired. [NGR 385-15 1-16c] **(RAC 2)**
2. A copy of this and any other inspections should be maintained. [NGR 385-15 3-6] **(RAC 2)**
3. An OSHA compliance program must be established and maintained to document how engineering (i.e. ventilation) and work practice controls will be put in place to reduce exposure to or below the permissible exposure limit. The written plan should include a description of the operation, ammunition and weapons used, existing controls, groups using the firing range, employee job responsibilities, operating procedures and maintenance practices. A record of previous inspections and air sampling data must also be retained. [29 CFR 1910.1025(e)(3)(i-ii)]. **(RAC 2)**
4. All individuals utilizing the range must be provided with a copy of the SOP or have been briefed on the unit's requirements and must sign an agreement to follow the rules. [NGR 385-15 1-15h] **(RAC 2)**
5. State maintenance officers and custodians must be fully trained on an annual basis on the health effects from exposure to lead dust and the appropriate precautions that must be taken. Records verifying this training must be kept by the range custodian. Each employee who works in a place in which there is a potential exposure to airborne lead at any level shall be informed of the Content of Appendix A Substance Data Sheet for Occupational Exposure to Lead, and Appendix B Employee Standard Summary of OSHA regulation 1910.1025. Initial training should be performed at least 180 days from date of initial job assignment and annually thereafter. [29 CFR 1910.1025(l)(1)(i-iv). 29 CFR 1910.1200(h)] **(RAC 2)**
6. A range safety officer and custodian should be designated in writing. [NGR 385-15 1-17d] **(RAC 2)**

k. Ventilation. The range is equipped with an operational ventilation system, with 100% of the make-up air exhausted behind the bullet trap. Supply and exhaust fans are not interlocked with range lighting. Overall average velocity readings in each lane were above the required 50 feet per minute (fpm). Average velocities ranged from 59 to 90 fpm. Average velocities in the standing positions of Lanes 1, 2, and 5 measured below 50 fpm. Refer to Table D-1 in Appendix D. The exhaust fan is rated for 14,000 CFM, which when divided by the cross sectional area of the range would result in a calculated average velocity of 51 fpm. A properly designed plenum wall located at least 15 feet behind the firing line is meant to reduce turbulence and distribute the air evenly and uniformly downrange.

The plenum wall extends across the entire back wall. Air entering the plenum through the air intake vent exceeded the recommended 600 fpm. Readings ranged between 770 and 1015 fpm. Air exiting the holes in the plenum wall averaged a velocity below the recommended 400 to 600

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 589 of 2531

BEST AVAILABLE COPY

fpm. More than 10-15% of the plenum wall is open. Smoke tests revealed turbulence in the right three lanes. The range air temperature was measured at 45 degrees Fahrenheit.

Results of ventilation and smoke tests indicate that adequate flow rates are being provided by the fan but are not being evenly and uniformly distributed to move lead dust downrange and away from firer's breathing zone. Average air velocities in each lane and at each firing position must be at least 50 fpm.

Recommendations:

1. Interlock supply and exhaust fans with range lighting so that the ventilation system operates at all times during occupancy of the range. [CEHND 110-1-18. 3-4a] **(RAC 3)**
2. The plenum wall should be retrofitted so that the holes are one inch in diameter, and evenly distributed across the surface of the plenum wall and centered in a four-inch square area. The plenum wall should also be approximately 15 feet behind the firing line to allow the air enough time to straighten out over the entire area. The airflow must measure at least 50 fpm at all positions in each firing lane. **(RAC 2)**
3. Range temperature should remain between 65 degrees and 80 degrees Fahrenheit. [NGR 385-15 1-17b(1)(n)] **(RAC 3)**

I. Air Sampling. Area and personal air sampling was conducted to simulate weapons qualifications. Five personal samples were collected from personnel firing for about 26 minutes. Two area samples were also collected simultaneously; one inside the range behind the firing line, and the other outside. The firing was restricted to a single qualification time period. This 26-minute qualification period is representative of the expected exposure for personnel using the range. Personal sampling results ranged from 0.02 to 0.06 mg/m^3 for the 26 minute sampling period. Except for two personal samples, results exceeded the Army National Guard Occupational Exposure Limit of 0.03 mg/m^3. Assuming no exposure for the remainder of an eight-hour period, the equivalent 8-hour time weighted average for the five personal samples ranged from 0.001 to 0.003 mg/m^3. These equivalent results are lower than the OSHA PEL, NIOSH REL, and ACGIH TLV, on an eight-hour time weighted average basis. However, if firing were continued for the eight-hour period, airborne lead levels would have exceeded the regulated OSHA limit of 0.05 mg/m^3. Area air sampling results were less than 0.004 mg/m^3 for the two-hour sampling period. Area air sampling results indicate that the airborne lead exposure is limited to the firing line area and downstream from the firing line.

Air sampling results indicated that overexposure to lead is reasonably expected while using the range for an extended period of time. Reducing the air turbulence at the firing line and stream lining the air flow as recommended herein should reduce the exposure to less than the ANG recommended limit of 0.03 mg/m^3. According to National Guard regulations, Guardsmen exposed to hazards in the range less than thirty days per year are permitted to use the range up to five hours per day. Guardsmen utilizing the range for over thirty days per year and all non-military personnel are limited to three hours per day. Range users under 17 are limited to one-hour use per day.

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 590 of 2531

BEST AVAILABLE COPY

Recommendations:

1. This range is classified as unsafe based on sampling results collected during the survey, and the results of the ventilation survey. **(RAC 2)**
2. A record must be maintained for time spent on the range for all personnel using limited use firing ranges as recorded by the range custodian. [NGR 385-15 1-15 b] **(RAC 2)**
3. Air sampling should again be conducted after changes required in the ventilation system have been made. [NGR 385-15 1-27 c] **(RAC 2)**

m. Range Status. This range has been classified as unsafe due to building envelope, range lighting, air sampling, and ventilation deficiencies.

Recommendation: Further use of this range is restricted until deficiencies in the building envelope, range lighting, and ventilation system are corrected, reinspected, and approved and further air sampling has been accomplished. **(RAC 2)**

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Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 591 of 2531

BEST AVAILABLE COPY

Indoor Firing Range Inspection/Evaluation Survey Report

For

Tennessee Army National Guard
(TNANG)

At

Elizabethton Armory Indoor Firing Range
Elizabethton, Tennessee

Prepared by:

Environmental Management Solutions

For
National Guard Bureau
Army National Guard
Region South Industrial Hygiene Office
Airport Plaza Suite 1530
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ENVIRONMENTAL MANAGEMENT SOLUTIONS
INDUSTRIAL HYGIENE CONSULTING

Elizabethton Indoor Firing Range
Tennessee Army National Guard

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau

BEST AVAILABLE COPY

Table of Contents

I. Executive Summary ..... page 1

II. Findings and Recommendations Summary ..... page 2

III. Background ..... page 4

a. Introduction
b. Site Description
c. Scope of Work
d. Health effects and hazard determination
e. Methodology and Assessment Criteria

IV. Findings and Recommendations ..... page 6

a. Building envelope
b. Range lighting
c. Bullet traps
d. Targets and target carriers
e. Range use
f. Range maintenance
g. Personal protective equipment
h. Posting of signs
i. Range sop
j. Record keeping
k. Ventilation
l. Air sampling

Appendices

A. References

B. Risk Assessment Codes (RAC) Table

C. IFR Checklist and Photographs

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At the request of the Tennessee Army National Guard (TNARNG), field personnel representing the National Guard Bureau, Region South Industrial Hygiene Office, conducted an inspection/evaluation of the Elizabethton Armory indoor firing range (IFR) located in Elizabethton, Tennessee on 7 December 2000. This survey was conducted as part of the TNARNG occupational safety and health program to evaluate potential health hazards associated with air contaminants generated during firing. The survey consisted of conducting a physical inspection of the range, collecting air samples, evaluating the ventilation system, measuring the lighting levels, and reviewing the range operating procedures

Five personal samples and two area air samples were collected during a simulated thirty-two minute weapons firing qualification test. Three out of the five personal sample results exceeded the Army National Guard recommended limit of 0.03 mg/m^3. However, the equivalent eight-hour time weighted average were below the regulated Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (PEL) of 0.05 mg/m^3. Area air sampling results were well below the recommended limit of 0.03 mg/m^3, indicating that the exposure is limited to the firing line area. This finding was confirmed by the results of the air velocity measurements and smoke testing. The average air velocities in firing lanes 1, 2, and 5 at the standing position were below the recommended 50 feet per minute. However, the overall average velocities in all lanes ranged from 59 feet per minute in lane 1 to 90 feet per minute in lane 3 indicating uneven air distributions throughout the range. Smoke testing showed turbulence at the firing line. In addition to air sampling and ventilation measurements, illumination readings in critical areas were below the recommended levels. Detailed findings and recommendations regarding this range can be found in the following table and report.

In conclusion and based on the findings of this inspection/evaluation, the Elizabethton firing range is classified as unsafe for use based on deficiencies in ventilation, lighting and building envelope. Based on air sampling results, this range is classified as limited use. Considerations should be given to implementing the recommendations listed herein.

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Page 595 of 2531

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II. FINDINGS and RECOMMENDATIONS SUMMARY

Findings	Recommendations	RAC
This range has been classified as unsafe due to building envelope, lighting, air sampling, and ventilation system deficiencies.	Further use of this range is restricted until deficiencies in the building envelope, lighting, and ventilation system have been corrected.	RAC 2
BUILDING ENVELOPE		
Access doors are not weather-stripped.	Access doors should be weather-stripped and the locks should be fixed so that the door closes and locks properly.	RAC 2
RANGE LIGHTING		
Range lighting is below the recommended 100 FC at the firing line and 30 FC in all other areas.	Upgrade lighting to meet these requirements	RAC 3
RANGE USE		
Several items were found stored in the range.	No items should be stored in the firing range at any time. Stored should be decontaminated and removed	RAC 2
Additional clothing and equipment is permitted in the range	No additional clothing or equipment should be permitted in the range	RAC 2
A fire extinguisher is not provided in the range.	An ABC type fire extinguisher should be kept at the firing line in case of emergencies.	RAC 3
POSTING OF SIGNS		
All warning signs were not posted in the range.	Post appropriate signs in the vicinity of the range and on the entrance door.	RAC 2
RANGE SOP		
Elizabethton Armory does not have an approved standing operation procedure	Develop and implement a standing operation procedure	RAC 2
RECORDKEEPING		
No records of range training, maintenance, or cleaning are maintained.	Maintain appropriate records regarding range operations and procedures	RAC 2
VENTILATION		
Supply and exhaust fans are not interlocked with range lighting.	Interlock supply and exhaust fans with range lighting.	RAC 3
Ventilation flow rates were found below 50 fpm at the standing positions in lanes 1, 2, and 5	Holes in the plenum wall should be one inch in diameter and extended over the entire surface of the plenum wall.	RAC 2
Flow rates at the plenum wall were less than the required 400 to 600 fpm	Holes in the plenum wall should be one inch in diameter and extended over the entire surface of the plenum wall.	RAC 2
More than 10 to 15% of the plenum wall is open.	Holes in the plenum wall should be one inch in diameter and extended over the entire surface of the plenum wall	RAC 2
Smoke tests revealed turbulence at the firing line observable in the right three lanes	Correct ventilation system deficiencies to provide a uniform and even flow rate.	RAC 2
AIR SAMPLING		
Air sampling results ranged from <0.0039 to 0.062 mg/m^3.	Range is classified as limited use based on results of air sampling. Appropriate records must be kept for all persons using the range.	RAC 2

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 596 of 2531

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Page 597 of 2531

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III. BACKGROUND

a.) Introduction: At the request of Non-Responsive of the National Guard Bureau Region South Industrial Hygiene Office, an inspection/evaluation survey was performed at the Elizabethton Indoor Firing Range at the Elizabethton Armory in Tennessee. Non-Responsive Non-Responsive ontract industrial hygienist, conducted the survey on 7 December 2000. The purpose of the survey was to evaluate range characteristics, ventilation, and quantify employee exposure to lead dust.

b.) Site Description: The Elizabethton Indoor Firing Range measures approximately 72 feet long, 23 feet wide, and 12 feet high and is used for weapons firing and qualification. The range has five firing lanes and an inclined steel plate bullet trap. An exhaust fan, which is rated at 14,000 cubic feet per minute draws air through the bullet trap and exhausts it to the rear of the building. 100 percent outside air is supplied through a plenum that extends across the back wall.

c.) Scope of Work: The work consisted of a physical inspection of the range and an evaluation of the building envelope, range lighting levels, bullet traps condition, targets and target carriers, the use of personal protective equipment, posting of signs, range standard operating procedures (SOP), record keeping, the ventilation system, range use and maintenance. In addition personal and area air samples were collected during firing to evaluate the airborne exposures to the range users. A range inspection checklist found in National Guard Regulation 385-15, which addresses Indoor Firing Range use and maintenance was completed for the range. Smoke candles were utilized to observe airflow patterns in the range. Air velocities were also measured at the firing line. Air sampling and ventilation measurements were performed to quantify performance of the range and its effectiveness in reducing employee exposure to lead dust.

d.) Health Effects and Hazard Determination: The most significant hazard present to employees and users of the indoor firing range is lead dust. Shooters using ammunition with lead primers or bullets manufactured with lead are potentially exposed to lead fumes and dust during the firing process. Furthermore, the lead found in the primer, the melting of the bullet base by hot powder gasses, the shaving and abrasion of the bullet during firing, and fragmentation of the bullet at the point of impact are all potential sources for lead. Exposure to lead may also occur during cleaning of the range, guns, or bullet trap where lead dust is deposited.

Lead affects the nervous, circulatory, digestive, excretory, and reproductive systems of both men and women. If the amount of lead absorbed and stored in the body exceeds the body's ability to expel it, lead can accumulate in the body affecting the blood, heart, and immune systems. Pregnant women overexposed to lead are more prone to spontaneous abortions or may give birth to babies with a low birth weight and slowed postnatal neurological development. Results of overexposure in children are slowed cognitive development and reduced growth.

e.) Methodology and Assessment Criteria: Personal air sampling was conducted during a simulated weapons firing qualification test, which lasted over a twenty-six-minute period. Area air samples were collected during the firing and one and half hour to two hours after the firing

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 598 of 2531

FOIA Requested Record #J-15-0085 (TN)
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Page 599 of 2531

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Table D-1
Ventilation Measurements
Indoor Firing Range Lanes

Lane 1			Average FPM	Lane 2			Average FPM	Lane 3			Average FPM	Lane 4			Average FPM	Lane 5			Average FPM
46	14	6	22	7	29	34	23	63	76	77	72	80	56	40	59	9	21	25	18
83	52	37	57	28	76	93	66	91	87	101	93	98	99	86	94	74	65	132	90
84	99	111	98	106	92	84	94	102	102	109	104	107	109	104	107	101	56	103	87
59 FPM				61 FPM				90 FPM				87 FPM				65 FPM			

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APPENDIX E

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Page 601 of 2531

Table E-1
Personal and Area Air Sampling Results for Lead and Total Dust
Elizabethton Indoor Firing Range
Elizabethton, TN
07 DEC 2000

Sample # Type	Contaminant	Sampling Time in Minutes	Result mg/m^3	OSHA PEL-TWA	NIOSH REL-TWA	ACGIH TLV-TWA	ANG OEL
ET1	Lead in Air	127	<0.0039	0.05	0.09	0.05	0.03
Area	Total Dust		<0.39	15	15	15	15
ET2	Lead in Air	26	<0.021	0.05	0.09	0.05	0.03
Personal	Total Dust		<1.9	15	15	15	15
ET3	Lead in Air	26	0.021	0.05	0.09	0.05	0.03
Personal	Total Dust		<1.9	15	15	15	15
ET4	Lead in Air	26	0.056	0.05	0.09	0.05	0.03
Personal	Total Dust		<1.9	15	15	15	15
ET5	Lead in Air	26	0.062	0.05	0.09	0.05	0.03
Personal	Total Dust		<1.9	15	15	15	15
ET6	Lead in Air	128	<0.0039	0.05	0.09	0.05	0.03
Area	Total Dust		<0.39	15	15	15	15
ET7	Lead in Air	26	0.025	0.05	0.09	0.05	0.03
Personal	Total Dust		<1.9	15	15	15	15
ETB	Lead in Air	N/A	<1.0 microgram				
Field Blank	Total Dust		<100 microgram				

Notes:
mg/m^3 = Milligrams per cubic meter
OSHA PEL = Occupational Safety and Health Administration Permissible Exposure Limit (1989 PEL Values)
NIOSH REL = National Institute of Occupational Safety and Health Recommended Exposure Level
ACGIH TLV = American Conference of Governmental Industrial Hygienists Threshold Limit Value
ANG-OEL =National Guard Bureau Occupational Exposure Limit
TWA = Time Weighted Average, [C] means a Ceiling Value
STEL = Short Term Exposure Limit
LFC Lowest Feasible Concentration
All Limits are in milligram per meter cube

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Elizabethton

REPORT DATE DEC 27, 2000
SAMPLES REC'D DEC 19, 2000
REQUEST NUMBER 358465
PAGE NUMBER 7 OF 21

TO: Non-Responsive [redacted] IL 60564

T1-ETB

SAMPLE	AIR VOLUME / ANALYSIS REQUESTED	MEDIA TYPE / RESULTS	
	254 Liters	**37mm 0.8 Micron Matched Mixed Cellulose Ester Filter**	
		micrograms	mg/m3
	LEAD IN AIR	< 1.0	< 0.0039
	TOTAL DUST	< 100	< 0.39
	52 Liters	**37mm 0.8 Micron Matched Mixed Cellulose Ester Filter**	
		micrograms	mg/m3
	LEAD IN AIR	1.1	0.021
	TOTAL DUST	< 100	< 1.9
	52 Liters	**37mm 0.8 Micron Matched Mixed Cellulose Ester Filter**	
		micrograms	mg/m3
	LEAD IN AIR	1.1	0.021
	TOTAL DUST	< 100	< 1.9
	52 Liters	**37mm 0.8 Micron Matched Mixed Cellulose Ester Filter**	
		micrograms	mg/m3
	LEAD IN AIR	2.9	0.056
	TOTAL DUST	< 100	< 1.9

MENTS:

PRESENT, DE MEANS DESORPTION EFFICIENCY

pectfully submitted,

Non-Responsive [redacted]

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REPORT DATE DEC 27, 2000
SAMPLES REC'D DEC 19, 2000
REQUEST NUMBER 358465
PAGE NUMBER 8 OF 21

TO: Non-Responsive [redacted]

SAMPLE	AIR VOLUME / ANALYSIS REQUESTED	MEDIA TYPE / RESULTS	
5	52 Liters	37mm 0.8 Micron Matched Mixed Cellulose Ester Filter	
		micrograms	mg/m3
	LEAD IN AIR	3.2	0.062
	TOTAL DUST	< 100	< 1.9
6	256 Liters	37mm 0.8 Micron Matched Mixed Cellulose Ester Filter	
		micrograms	mg/m3
	LEAD IN AIR	< 1.0	< 0.0039
	TOTAL DUST	< 100	< 0.39
7	52 Liters	37mm 0.8 Micron Matched Mixed Cellulose Ester Filter	
		micrograms	mg/m3
	LEAD IN AIR	1.3	0.025
	TOTAL DUST	< 100	< 1.9

MMENTS:

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spectfully submitted,

Non-Responsive [redacted]

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REPORT DATE DEC 27, 2000
SAMPLES REC'D DEC 19, 2000
REQUEST NUMBER 358465
PAGE NUMBER 9 OF 21

TO: Non-Responsive

SAMPLE	AIR VOLUME / ANALYSIS REQUESTED	MEDIA TYPE / RESULTS
TB		**37mm 0.8 Micron Matched Mixed Cellulose Ester Filter**
		micrograms
	LEAD IN AIR (BLANK)	< 1.0
		SUBTRACTED
	TOTAL DUST (BLANK)	< 100
		AVERAGED AND SUBTRACTED.

MENTS:

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pectfully submitted,

Non-Responsive

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APPENDIX F

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INDUSTRIAL HYGIENE
SAMPLING RESULT NOTIFICATION SHEET

DATA REQUIRED BY THE PRIVACY ACT

AUTHORITY: Sections 133, 1071-87, 3012, 5031, and 8012, title 10, United States Code, Executive Order 9397 and AR 40-5.

PRINCIPAL PURPOSE: The Social Security Number of the individual is required to identify, record, and retrieve occupational medical surveillance records.

ROUTINE USE: The primary use of this information is to provide, plan, and coordinate occupational health medical surveillance and care.

DISCLOSURE: In the case of military personnel and Federal employees, the requested information is mandatory because of the need to document all occupational injuries and illnesses in view of future rights and benefits. If the requested information is not furnished comprehensive medical surveillance may not be possible, but AUTHORIZED CARE WILL NOT BE DENIED.

NAME:	SOCIAL SECURITY NO.:	OPERATION:	BLDG:	DIRECTORATE/COLLOCATED ACTV
Non-Responsive	[redacted]	Weapons Firing	Elizabethtown	Indoor Firing Range

Air sampling took place on December 7, 2000 to determine workplace exposure to:

SUBSTANCE	PERMISSIBLE EXPOSURE LIMIT	YOUR RESULTS	EXP CATEGORY (See Below)
1. Lead	0.050 mg/m3 (OSHA)	0.001 mg/m3	1
2.			
3.			
4.			
5.			
6.			

EXPOSURE CATEGORY

1. Airborne levels are below permissible limits: no work changes necessary.
2. Airborne levels are close to permissible limits: additional sampling necessary; temporary use of respiratory protection during this operation.
3. Airborne levels are above permissible limits and the following actions are indicated (where feasible) to prevent overexposure:
   a. Ventilation system improvements required (general and/or local exhaust).
   b. Engineering controls required.
   c. Employee work practices need improvement.
   d. Improve housekeeping.
   e. Personal protective equipment mandatory until exposure is below permissible limits.

COMMENTS:

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INDUSTRIAL HYGIENE
SAMPLING RESULT NOTIFICATION SHEET

DATA REQUIRED BY THE PRIVACY ACT

AUTHORITY: Sections 133, 1071 87, 3012, 5031, and 8012, title 10, United States Code, Executive Order 9397 and AR 40 5.

PRINCIPAL PURPOSE: The Social Security Number of the individual is required to identify, record, and retrieve occupational medical surveillance records.

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NAME:	OPERATION:	BLDG:	DIRECTORATE/COLLOCATED ACTV:
Non-Responsive	Weapons Firing	Elizabethtown	Indoor Firing Range

Air sampling took place on December 7, 2000 to determine workplace exposure to:

SUBSTANCE	PERMISSIBLE EXPOSURE LIMIT	TOUR RESULTS	EXP CATEGORY (See Below)
1. Lead	0.050 mg/m3 (OSHA)	0.001 mg/m3	1
2.			
3.			
4.			
5.			
6.			

EXPOSURE CATEGORY

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   a. Ventilation system improvements required (general and/or local exhaust).
   b. Engineering controls required.
   c. Employee work practices need improvement.
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   e. Personal protective equipment mandatory until exposure is below permissible limits.

COMMENTS:

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INDUSTRIAL HYGIENE
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NAME:	SOCIAL SECURITY NO.:	OPERATION:	BLDG:	DIRECTORATE/COLLOCATED ACTV:
Non-Responsive [redacted]		Weapons Firing	Elizabethtown	Indoor Firing Range

Air sampling took place on December 7, 2000 to determine workplace exposure to:

SUBSTANCE	PERMISSIBLE EXPOSURE LIMIT	YOUR RESULTS	EXP CATEGORY (See Below)
1. Lead	0.050 mg/m3 (OSHA)	0.001 mg/m3	1
2.			
3.			
4.			
5.			
6.			

EXPOSURE CATEGORY

1. Airborne levels are below permissible limits; no work changes necessary.
2. Airborne levels are close to permissible limits; additional sampling necessary; temporary use of respiratory protection during this operation.
3. Airborne levels are above permissible limits and the following actions are indicated (where feasible) to prevent overexposure:
   a. Ventilation system improvements required (general and/or local exhaust).
   b. Engineering controls required.
   c. Employee work practices need improvement.
   d. Improve housekeeping.
   e. Personal protective equipment mandatory until exposure is below permissible limits.

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INDUSTRIAL HYGIENE
SAMPLING RESULT NOTIFICATION SHEET

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NAME:	SOCIAL SECURITY NO.:	OPERATION:	BLDG:	DIRECTORATE/COLLOCATED ACTV:
Non-Responsive		Weapons Firing	Elizabethtown	Indoor Firing Range

Air sampling took place on December 7, 2000 to determine workplace exposure to:

SUBSTANCE	PERMISSIBLE EXPOSURE LIMIT	YOUR RESULTS	EXP CATEGORY (See Below)
1. Lead	0.050 mg/m3 (OSHA)	0.003 mg/m3	1
2.			
3.			
4.			
5.			
6.			

EXPOSURE CATEGORY

1. Airborne levels are below permissible limits: no work changes necessary.
2. Airborne levels are close to permissible limits: additional sampling necessary; temporary use of respiratory protection during this operation.
3. Airborne levels are above permissible limits and the following actions are indicated (where feasible) to prevent overexposure:
   a. Ventilation system improvements required (general and/or local exhaust).
   b. Engineering controls required.
   c. Employee work practices need improvement.
   d. Improve housekeeping.
   e. Personal protective equipment mandatory until exposure is below permissible limits.

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INDUSTRIAL HYGIENE
SAMPLING RESULT NOTIFICATION SHEET

DATA REQUIRED BY THE PRIVACY ACT

AUTHORITY: Sections 133, 1071 87, 3012, 5031, and 8012, title 10, United States Code, Executive Order 9397 and AR 40 5.

PRINCIPAL PURPOSE: The Social Security Number of the individual is required to identify, record, and retrieve occupational medical surveillance records.

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DISCLOSURE: In the case of military personnel and Federal employees, the requested information is mandatory because of the need to document all occupational injuries and illnesses in view of future rights and benefits. If the requested information is not furnished comprehensive medical surveillance may not be possible, but AUTHORIZED CARE WILL NOT BE DENIED.

NAME:	SOCIAL SECURITY NO.:	OPERATION:	BLDG:	DIRECTORATE/COLLOCATED ACTV
Non-Responsive		Weapons Firing	Elizabethtown	Indoor Firing Range

Air sampling took place on December 7, 2000 to determine workplace exposure to:

SUBSTANCE	PERMISSIBLE EXPOSURE LIMIT	YOUR RESULTS	EXP CATEGORY (See Below)
1. Lead	0.050 mg/m3 (OSHA)	0.003 mg/m3	1
2.			
3.			
4.			
5.			
6.			

EXPOSURE CATEGORY

1. Airborne levels are below permissible limits; no work changes necessary.
2. Airborne levels are close to permissible limits; additional sampling necessary; temporary use of respiratory protection during this operation.
3. Airborne levels are above permissible limits and the following actions are indicated (where feasible) to prevent overexposure:
   a. Ventilation system improvements required (general and/or local exhaust).
   b. Engineering controls required.
   c. Employee work practices need improvement.
   d. Improve housekeeping.
   e. Personal protective equipment mandatory until exposure is below permissible limits.

COMMENTS:

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APPENDIX C

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FIGURE 1-2

INDOOR FIRING RANGE INSPECTION CHECKLIST

See paragraphs 1-23 through 1-25 of this regulation for inspection requirements. For the range to be considered safe each of the following statements shall be true and air-sampling results shall be below the standard for Lead. The information in parentheses after each statement denotes the location of the requirement in this or other regulations.

Location of the Range Elizabethton, TN Date 7 Dec 00

Range Custodian _____ Telephone (423) 543-1521
DSSN 683-4710

Part 1, Physical Safety Inspection

A. Building Envelope

✓ 1. Each firing lane is at least 4 feet wide. [1-17a(1)(a)]

✓ 2. Pipes, conduits, and other projecting surfaces are baffled or covered by a material that shall protect these items and prevent ricochets. [1-17a(1)(b)]

✓ 3. No windows or doors are located in front of the firing line. (Except access door to the back of the bullet trap) [1-17a(1)(d)]

✓ 4. There are no open floor drains in the range. [1-17a(2)(c)]

✓ 5. There is no carpet, drapes or other fiber-like material in the range. [1-17a(2)(d)]

✓ 6. Pipes, conduits and walls are sealed to prevent leakage of Lead dust from the range into other areas. [1-17a(2)(b)]

✓ 7. The interior surfaces or the range floor, walls, and ceiling have no protruding edges or devices. [DG 415-1, App.A, 3-1d] acoustic lining

✓ 8. The roof provides ballistic security. [DG 415-1, App. A, 3-1e(1)]

✓ 9. The walls provide ballistic security. (DG 415-1, App. A, 3-1f(1))

✓ 10. Interior mortar joints are flush with the interior surface. (DG 415-1, App. A, 3-1f(2))

✓ 11. The plenum wall is adequately supported and thick enough to avoid flexing. (DG 415-1, App. A, 3-1f(4))

No 12. The entrance door to the range is weather-stripped unless the door acts as passive make-up air intake. (DG 415-1, App. A, 3-1h)

Two access doors, neither is weather stripped

Elizabethton

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FOIA Requested Record #J-15-0085 (TN)
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Page 612 of 2531

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B. Range Lighting

No 1. Lighting is uniform, non-glaring and does not cause shadows. [1-17c(1)(a)]
Some shadows prior to lighting

No 2. Illumination is at least 100 foot candles on the targets and 30 foot candles in all other areas. [1-17c(1)(b)] See diagram

✓ 3. All lighting is protected by baffles and placed so that the shooter has an unobstructed view down range. [1-17c(1)(c)]

✓ 4. Downrange lighting begins approximately 18 feet from the firing line and ends approximately 8 feet from the target line. [1-17c(1)(d)] See notes

✓ 5. Emergency lights are provided behind the firing line and are in working condition. [1-17c(1)(e)]

✓ 6. Exit lights are provided and working as required. [1-17c(1)(f)]

NA 7. Lighting of at least 30 foot-candles is provided behind the bullet trap for maintenance (if applicable). [1-17c(1)(g)]

✓ 8. No known electrical hazards exist in the range. [1-17c(2)(c)]

C. Bullet traps

✓ 1. A bullet trap is permanently installed in the range. [1-17d(1)(a)]

✓ 2. Bullet traps are of a commercial design, which is in compliance with the requirements of CEHND 1110-1-18, NGB-ARI, NG PAM 385-16, Chapter 4 and this regulation. [1-17d(1)(b)]

✓ 3. The thickness of inclined plate/sand trap type bullet trap shall be adequate to attenuate the maximum caliber of ammunition authorized to be fired on the range. [1-17d(1)(c)] 1/4"

NA 4. All plate/sand trap type bullet traps are designed to prevent ricochets by directing the projectiles in the same direction they are traveling. [1-17d(1)(d)]

NA 5. Sandpits in plate/sand trap type backstops extend to a point directly below the leading edge of the sloped plate. [1-17d(1)(e)]

NA 6. Forward edges in a louver or venetian blind type bullet trap are maintained in a knife edge condition to prevent ricochets. [1-17d(1)(f)]

✓ 7. Steel bullet traps are not bowed, punctured or severely pitted. [1-17d(2)(a)]

✓ 8. Plates in the bullet trap are flush with the other plates. Mold seams are ground smooth. [1-17d(2)(b)]

D. Targets and target carriers

✓ 1. A target retrieval system is operable in all lanes. [1-17e(1)(a)]
(Any one firing lane without a retrieval system shall not be used for firing)

✓ 2. The target retrieval system is constructed in such a manner as to minimize flat surfaces exposed to the firing line. [1-17e(1)(a)]

No 3. Only paper targets are used in the range. [1-17e(1)(b)]
cardboard + paper

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May, 2018

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FOIA Requested Record #J-15-0085 (TN) Pg 6
Released by National Guard Bureau
Page 613 of 2531

E. Range use

_____ 1. The range is not used for any purpose other than firing. [1-18a] Unit only 1. days/year

_____ 2. No equipment or furniture is stored or maintained in the range, plenum area or behind the bullet trap. No [1-17d]

_____ 3. No additional clothing or equipment is brought into the range. [1-19h] No

_____ 4. Personnel are *not* permitted in the plenum area during firing even if designed for observation. [1-19a] Hearing Protection wear in plenum

_____ 5. Individuals other than maintenance and inspection personnel are not allowed to walk downrange. (Except in regularly cleaned area as needed to pick up brass) [1-19f]

_____ 6. All areas directly in front of the plenum walls are kept clear at all times. [1-19c] some storage

_____ 7. Pellets, BBs, magnum and armor piercing rounds are not used in the range. [1-19g]

_____ 8. The ventilation system is in operation at all times during firing or cleaning. [1-18c]

No 9. A hand-held ABC-type fire extinguisher is located in a recessed cabinet near the entrance door, inside of the firing range. [DG 415-1, App. A, 4-5] B.C. only located in hallway

F. Range maintenance

No 1. Dry sweeping does not occur in the range. [1-19e]

No 2. No brooms are located in the range. [1-19a]

_____ 3. A range custodian is appointed for the range who is fully trained and aware of his/her responsibilities. [1-13c]

G. Personnel protective equipment

_____ 1. All personnel in the range during firing wear ANSI approved eye protection. [1-20a]

✓ 2. All personnel in the range during firing wear ANSI approved hearing protection. [1-20b]

H. Posting of signs

_____ 1. The following signs are posted in or in the vicinity of the range: [1-21a]

- ✓ a. Eating, Drinking and Smoking are *Prohibited*
- _____ b. Dry Sweeping is *Prohibited*
- ✓ c. Wash Hands and Face Immediately Following Firing Hands only
- ✓ d. The Following Ammunition is authorized for use on this Range: 22, 38, 45
- ✓ e. Hearing Protection *shall be* Properly worn during firing
- ✓ f. Proper Safety Glasses/Goggles *shall be* worn during firing
- _____ g. No Furniture or Storage of Items Permitted in the Range

No 2. The following signs are posted on the entrance door to the range: [1-21b]

- _____ a. Noise Hazardous Area
- _____ b. Danger Lead Hazard Area
- _____ c. Pregnant women are *not* permitted in this Area

No 3. An illuminated warning sign, which is interlocked with the range ventilation switch, is located outside of the firing range to alert individuals that the range is in use. [1-21c]

No 4. Each firing lane is numbered at the firing line and at the bullet trap visible to all shooters. [1-21c] at bullet trap only

NA 5. A warning sign is posted outside of the access door to the bullet trap, which warns personnel not to enter. [1-21e]

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 614 of 2531

I. Range SOP No

_____ 1. The indoor firing range has a written SOP, which is approved by the State Safety and Occupational Health Office. [1-10e]

_____ 2. The range SOP includes as a minimum the following: [1-22b]

_____ a. The requirement for establishment and maintenance of a log of visitors for the indoor firing range.

_____ b. The requirement for and contents of a mandatory safety briefing for all individuals prior to entering the range to be given by a designated competent range safety officer.

_____ c. Work practices including required, recommended, permissible and banned practices as specified by this regulation.

_____ d. Instructive guidance for all range procedures.

_____ e. Personnel responsibilities for performing the procedures, for supervising them, and reviewing and updating the SOP.

_____ f. Authorized ammunition for the range.

_____ g. The requirement for posting of signs IAW section 1-21 of this regulation.

_____ h. Cleaning and maintenance requirements.

_____ i. Personal protective equipment requirements for maintenance, firing and cleaning.

J. Recordkeeping No

_____ 1. A visitors log is maintained which includes the following information for all visitors/shooters: [1-14c]

_____ a. Name and age of shooter.

_____ b. Organization (if civilian, include address and phone number).

_____ c. Sign in and sign out times.

_____ d. Type of ammunition used and number of rounds fired.

_____ 2. Copies of initial and other previous inspections are available. [1-24a]

_____ 3. The initial inspection report includes air-sampling data. [1-24b]

_____ 4. An OSHA compliance program is in place, which covers the required aspects. [1-30a]

_____ 5. All individuals using the indoor firing range have been provided with a copy of the range SOP or been briefed on the requirements of the SOP, and have signed an agreement to follow the rules stated therein. [1-13h]

_____ 6. State maintenance officers/custodians have documentation to show that they have been educated to the health effects from exposure to Lead dust. [29 CFR 1910.1200 and 29 CFR 1910.1025]

_____ 7. Range safety officer(s) is/are designated. [1-13c]

K. New and Renovated Ranges

_____ 1. No doors are installed in the plenum wall.

_____ 2. Plenum area is at least 4 feet deep.

_____ 3. An access door is installed behind the bullet trap.

_____ 4. Only escalator or rubber bullet traps are installed.

Elizabethtown p. 6

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 615 of 2531

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INDOOR FIRING RANGE INSPECTION CHECKLIST

Part 2, Ventilation Inspection

A. Existing Ranges

✓ 1. The range has an operational mechanical ventilation system. [1-17b(1)(a)]

NO 2. The minimum ventilation rate at the firing line in each firing lane is 50 fpm at all levels. [1-17b(1)(b)]

✓ 3. 100% of air is exhausted at or behind the bullet trap. [1-17b(1)(c)]

✓ 4. Make-up air is introduced into the range behind the shooters. [1-17b(1)(d)]

NO 5. Air that is introduced through vents into the plenum does not exceed a velocity of 600 fpm. [1-17b(1)(e)]

770 - 1015

NO 6. Air exiting through holes in the plenum wall has a velocity between 400 and 600 fpm. [1-17b(1)(f)]

7

✓ 7. The ventilation system is so constructed that air exhausted from the indoor firing range does not enter into another part of the building or any other air supply system. [1-17b(1)(g)]

✓ 8. The exhaust exceeds the make-up air by approximately 10% to form a negative air pressure in the range in relation to adjoining areas. [1-17b(1)(h)]

NA 9. If air is recirculated in the range, it is installed with a HEPA filter with a reliable back-up filter. [29 CFR 1910.1025(e)(4)(ii)]

NA 10. If air is recirculated in the range, controls to monitor the concentration of Lead and Carbon Monoxide levels are installed and programmed to bypass the recirculation system automatically if the filter system fails.
[29 CFR 1910.1025(e)(4)(iii)]

✓ 11. The fan(s) in the ventilation system is a single speed fan only. [DG 415-1, App. A, 3-2a]

NO 12. A smoke test of the range shows laminar air flow and no turbulence in the range. (See NG PAM 385-16, Appendix E for troubleshooting guidance) [1-18b(1)(k)]

12.4.5

✓ 13. In non-powered systems, the supply air louvers and exhaust fan are electrically interlocked. [1-17b(1)(l)]

NA 14. In power systems, the supply and exhaust fans are electrically interlocked. The make-up air fan should start slightly after the exhaust fan. [1-17b(1)(m)]

NO 15. Range air temperature is between 65 degrees and 80 degrees Fahrenheit. [1-17b(1)(n)]

45°

B. New and Renovated Ranges

____ 1. A manometer is installed leading into the exhaust fan, which is capable of measuring at least 20 inches of static pressure.

____ 2. Supply and exhaust fans are electrically interlocked with the downrange lighting.

____ 3. The face velocity on supplied make-up and exhaust ducts does not exceed 2000 cfm per square foot of duct space.

____ 4. Passive supply systems have opposing blade louvers.

____ 5. Turning vanes are installed in all duct elbows, which have between 60° and 90° angles.

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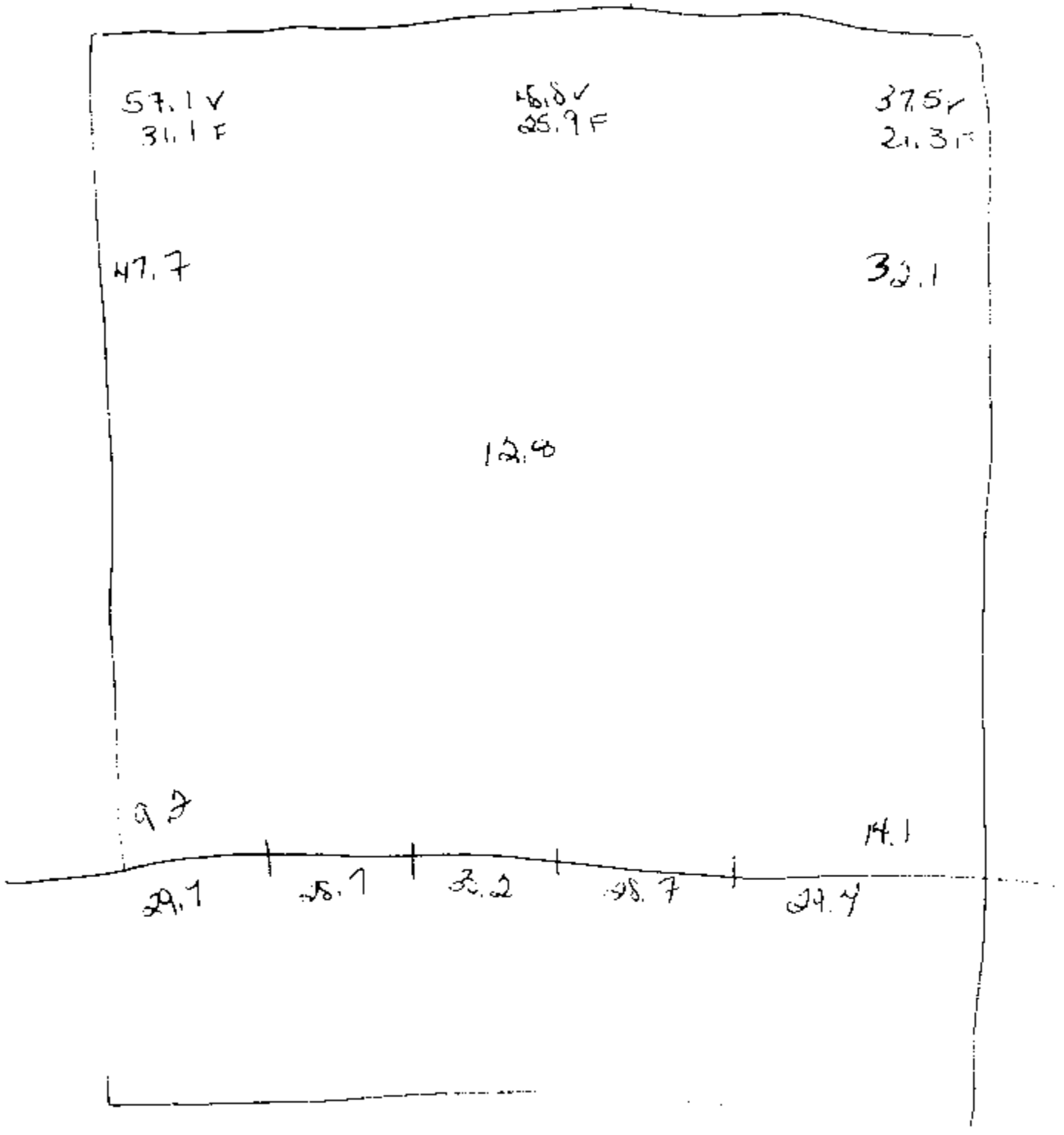
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 616 of 2531

5 of 6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25.9 F
37.5 V
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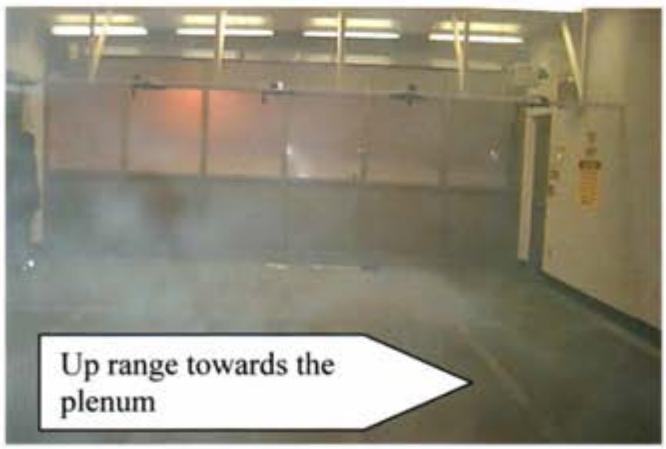
Elizabethtown Indoor Firing Range



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APPENDIX D

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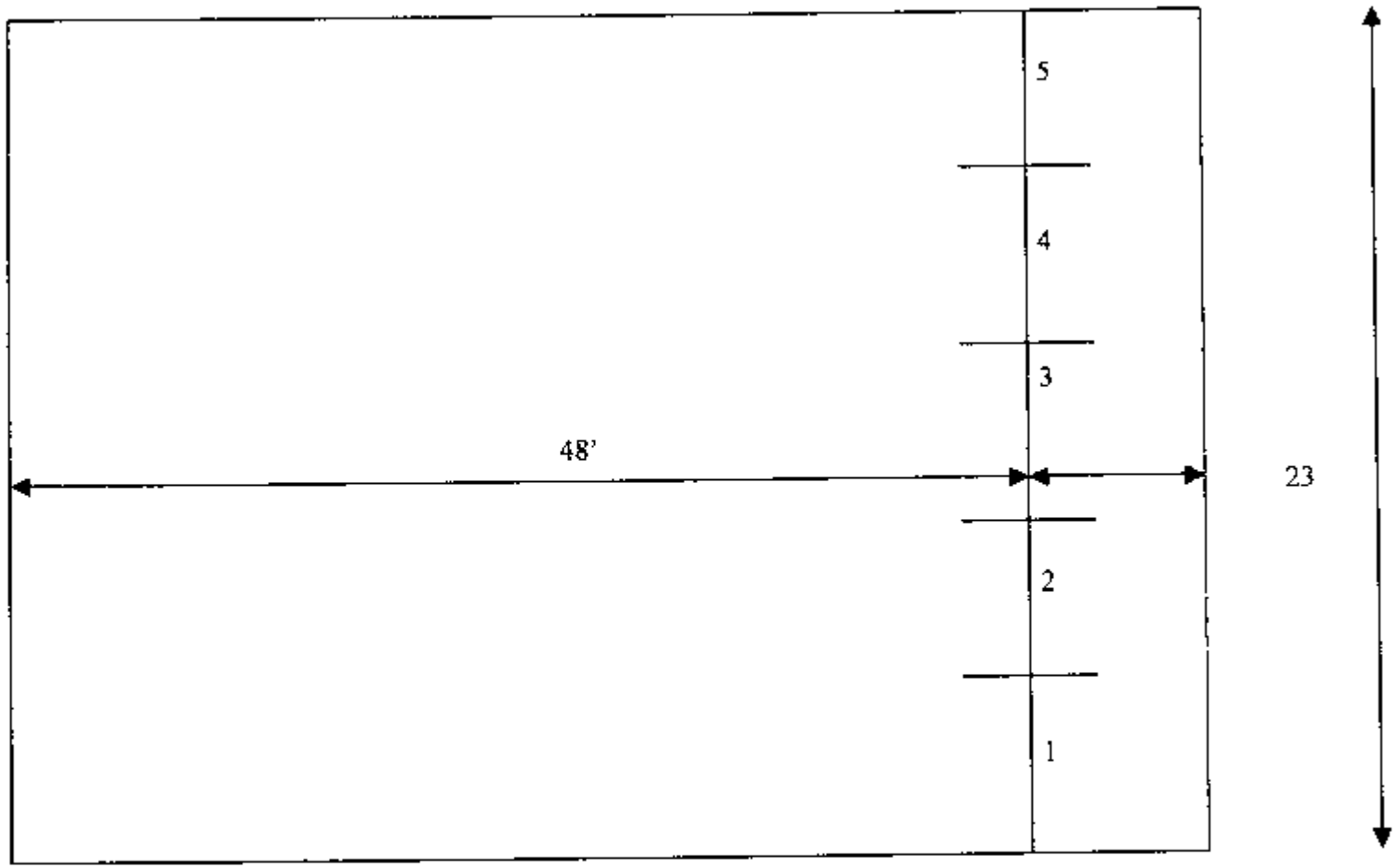

Figure D-1: Firing Range Dimensions and Lane Configuration

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 620 of 2531
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May, 2018

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ended. Gilian air sampling pumps, Model Number GilAir5, Serial Numbers 13248, 13249, 13250, 13251, 13252, 13521, 13522, 13523, 13524, 13525 were used to collect the personal and area air samples. Each pump was calibrated prior to sampling and at the end of each sampling period using a pre-calibrated rotameter, which was calibrated against a bubble meter. The sampling flow rate was set at approximately 2 liters per minute (lpm). Samples were sent to NATLSCO laboratory, which is accredited by the American Industrial Hygiene Association (AIHA), for analysis.

An Alnor CompuFlow Air Velocity Meter, Model Number 8570, Serial Number 99097037, was used to measure air velocities at the firing line. A total of nine velocity readings were taken at each firing lane. Three measurements were taken at each of three positions; standing, kneeling, and prone positions for a total of nine readings. Details of locations where ventilation measurements were made can be found in Appendix D.

Lighting measurements were taken at the firing line, target line, and intermediate areas to determine luminance levels in these areas. Approximately fifteen to twenty readings were taken throughout the range using a Minolta Light Meter Model Number TL-1, Serial Number 90480727.

Air sampling, ventilation and illumination readings were compared to the NGR 385-15 Policy Responsibilities, and Procedures for Inspection/Evaluation and use of ARNG Indoor Firing Ranges.

Risk Assessment Codes (RACs) are included in this report to quantify the risk of particular operations to employees and to establish funding priorities for corrective actions. RACs are assigned with regard to hazard severity and mishap probability. The type, length, and route of exposure are taken into consideration, as are the medical effects that would occur with such exposures. RAC criteria can be found in Appendix B.

Posted to NGB FOIA Reading Room
May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 621 of 2531

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IV. FINDINGS, DISCUSSION, AND RECOMMENDATIONS

a. Building Envelope. This indoor firing range measures 48 feet from the firing line to the bullet trap, 23 feet wide, and 12 feet high. Each firing lane is the appropriate width and all pipes, conduits, and projecting surfaces are adequately baffled. No open drains exist in the range and roof and walls provide ballistic security. The access door to the range is not adequately weather-stripped.

> **Recommendation:** Weather-strip all access doors to the range to prevent leakage of lead dust and debris into outlying areas. [385-15 2-2a(2)(b)] **(RAC 2)**

b. Range Lighting. Range lighting is relatively uniform but causes some shadows throughout the range. Lighting measures an average 14 footcandles (FC) at the targets and 20.1 FC in all other areas. Baffles adequately protect all lighting fixtures. Emergency and exit lighting is provided for the range.

> **Recommendation:** Increase lighting to the recommended 100 FC at the targets and 30 FC in all other areas. [NGR 385-15, 1-17c(1)(d)] **(RAC 3)**

c. Bullet Traps. An inclined plate bullet trap is permanently installed and is designed for .22 caliber use, all that is permitted for firing on this range. The bullet trap measures ¼ " thick and adequately prevents ricochets. The bullet trap is not bowed, punctured, or pitted. Plates are in proper alignment and all plates are flush.

> **Recommendations:**
>
> 1. The bullet trap should be adequately maintained. Rust or paint chips may cause ricochets. A thin coating of oil should be applied every 3 months for moderate firing, sooner if heavy firing occurs (10W30 or 3 in 1). **DO NOT APPLY GREASE. (RAC 3)**
> 2. Bullet collection bins should not be allowed to get over ¾ full. Contact the TN ARNG State Environmental Office prior to emptying for disposal instructions. **(RAC 3)**

d. Targets and Target Carriers. Target retrieval systems were provided for each lane and are in good working order. Paper targets are used for personnel during firing procedures.

> **Recommendation:** None at this time.

e. Range Use. The range is used for firing purposes only approximately twelve days per year. Several items were stored in the range. Additional clothing and equipment is permitted in the range. A fire extinguisher is provided in the hallway outside of the range

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Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 622 of 2531

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1. No items should be stored in the firing range at any time. Stored items can become contaminated with lead dust and will increase the exposure to anyone who moves or touches stored items. [NGR 385-15 2-3a, 2-4h] **(RAC 2)**
2. No items should be stored in front of the plenum wall, which will disturb airflow while the ventilation system is running. [NGR 385-15 2-4a] **(RAC 2)**
3. A hand held ABC-type fire extinguisher should be kept at the firing line in case of emergencies. [DG 415-1, App. A, 4-5] **(RAC 3)**

f. Range Maintenance. This indoor firing range has not been cleaned. Brooms are used to clean up spent shells. A range custodian has not been appointed to the range.

Recommendations:

1. The indoor firing range should be cleaned with the ventilation system operating to prevent dust and debris from migrating into other work areas and to minimize exposure to the cleaners. Floor areas behind the firing line and 15 feet downrange should be cleaned after firing or at least every three months if the range is not used as often. [NIOSH 76-130, p.24, II, 1] **(RAC 2)**
2. Dry sweeping and cleaning bullet traps by pouring or shoveling bullet debris into waste buckets causes settled lead dust to become airborne and inhaled by the workers. **Dry sweeping of indoor firing ranges is prohibited.** A High Efficiency Particulate Air (HEPA) filtered vacuum system is recommended for lead dust and particles cleanup only (no bullet casings). If a HEPA vacuum cannot be acquired, a wet method should be used which includes a solution of detergent and hot water. Two containers should be used; one to wet the area, and the other to rinse the applicator after the dust has been wiped from the surface. Water should be changed often to prevent reapplication of contaminated water. Wastewater should be left to evaporate and the residue and any applicators should be disposed under guidance from the TN ARNG Environmental Office. [29 CFR 1910.1025(h)(ii), NIOSH 76-130, P.24, II, 2] **(RAC 2)**
3. One person, preferably the range custodian, should be responsible for cleaning the range and discarding debris. The range should be cleaned **ONLY** with a HEPA vacuum system or utilizing a wet method. [29 CFR 1910.1025(h)(ii)] **(RAC 2)**

g. Personal Protective Equipment (PPE). Personnel were observed wearing appropriate hearing and eye protection.

Recommendation: All personnel should wear ANSI approved hearing and eye protection. Additional eye and hearing protection should be available for those users that do not have their own. [NGR 385-15, 2-5a, 2-5 h, 29 CFR 1910.133 (a-b), 29 CFR 1910.95 a]. **(RAC 2)**

h. Posting of Signs. Warning signs are posted and instruct users about the regulations and requirements of the range. Warnings include only those indicating the type of ammunition to be used and the need for hearing protection. The entrance door to the range only requires hearing

Posted to NGB FOIA Reading Room
May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 623 of 2531

BEST AVAILABLE COPY

protection. No illuminated warning sign is interlocked with the range ventilation switch to alert individuals that the range is use. Firing lanes are not numbered.

Recommendations.

1. The following signs should be posted in or in the vicinity of the range and of the access door to the bullet trap. [NGR 385-15 3-6a,b] **(RAC 2)**:

a. Eating, drinking, and Smoking are Prohibited
b. Dry Sweeping is Prohibited
c. Wash Hands and Face Immediately Following Firing
d. The Following Ammunition is Authorized for use on this Range
e. Hearing Protection Must Be Properly Worn During Firing
f. Proper Safety Glasses/Goggles Must Be Worn During Firing
g. No Furniture or Storage of Items Permitted in the Range

2. The following signs must be posted on the entrance door to the range and to the access door of the bullet trap:

a. Noise Hazardous Area
b. Danger Lead Hazard Area
c. Pregnant Females are Not Permitted in this Area

3. An illuminated sign should be interlocked with the range ventilation switch and located outside of the firing range to alert individuals outside when the range is in use. [NGR 385-15 2-6c] **(RAC 4).**

4. Each firing line should be clearly numbered at the firing line and bullet trap. [NGR 385-15 1-21C] **(RAC 4)**

i. Range Standing Operation Procedure (SOP). A range SOP with all requirements is not available for this facility as approved by the State Safety Office.

Recommendations:

A Range Standing Operation Procedure should be written for this facility and should include the following **(RAC 2)**:

1. Requirements for establishment and maintenance of a visitor's log indicating date, age, and ammunition fired
2. Requirements for safety briefing for all individuals before entrance to the range given by a designated range safety officer
3. Work practices
4. Instructive guidance
5. Personnel responsibilities for performing, supervising, reviewing, and updating the SOP

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 624 of 2531

BEST AVAILABLE COPY

6. Authorized ammunition
7. Posting of signs
8. Cleaning and maintenance requirements
9. PPE requirements for maintenance, firing, and cleaning of the range.

j. Recordkeeping. Records kept at the range are a visitor's log with name and age of firer, organization and sign in and sign out times. The type of ammunition used is not documented. Copies of initial and previous inspections and any air-sampling data are not available. An OSHA compliance program is not in place. A range custodian has not been appointed to this range.

Recommendations.

1. Visitor's log must be maintained that contains the name and age of firer, organization, sign in and out time, and type of ammunition, and number of rounds fired. [NGR 385-15 1-16c] **(RAC 2)**
2. A copy of this and any other inspections should be maintained. [NGR 385-15 3-6] **(RAC 2)**
3. An OSHA compliance program must be established and maintained to document how engineering (i.e. ventilation) and work practice controls will be put in place to reduce exposure to or below the permissible exposure limit. The written plan should include a description of the operation, ammunition and weapons used, existing controls, groups using the firing range, employee job responsibilities, operating procedures and maintenance practices. A record of previous inspections and air sampling data must also be retained. [29 CFR 1910.1025(e)(3)(i-ii)]. **(RAC 2)**
4. All individuals utilizing the range must be provided with a copy of the SOP or have been briefed on the unit's requirements and must sign an agreement to follow the rules. [NGR 385-15 1-15h] **(RAC 2)**
5. State maintenance officers and custodians must be fully trained on an annual basis on the health effects from exposure to lead dust and the appropriate precautions that must be taken. Records verifying this training must be kept by the range custodian. Each employee who works in a place in which there is a potential exposure to airborne lead at any level shall be informed of the Content of Appendix A Substance Data Sheet for Occupational Exposure to Lead, and Appendix B Employee Standard Summary of OSHA regulation 1910.1025. Initial training should be performed at least 180 days from date of initial job assignment and annually thereafter. [29 CFR 1910.1025(l)(1)(i-iv), 29 CFR 1910.1200(h)] **(RAC 2)**
6. A range safety officer and custodian should be designated in writing. [NGR 385-15 1-17d] **(RAC 2)**

k. Ventilation. The range is equipped with an operational ventilation system, with 100% of the make-up air exhausted behind the bullet trap. Supply and exhaust fans are not interlocked with range lighting. Overall average velocity readings in each lane were above the required 50 feet per minute (fpm). Average velocities ranged from 59 to 90 fpm. Average velocities in the standing positions of Lanes 1, 2, and 5 measured below 50 fpm. Refer to Table D-1 in Appendix D. The exhaust fan is rated for 14,000 CFM, which when divided by the cross sectional area of the range would result in a calculated average velocity of 51 fpm. A properly designed plenum

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 625 of 2531

BEST AVAILABLE COPY

wall located at least 15 feet behind the firing line is meant to reduce turbulence and distribute the air evenly and uniformly downrange.

The plenum wall extends across the entire back wall. Air entering the plenum through the air intake vent exceeded the recommended 600 fpm. Readings ranged between 770 and 1015 fpm. Air exiting the holes in the plenum wall averaged a velocity below the recommended 400 to 600 fpm. More than 10-15% of the plenum wall is open. Smoke tests revealed turbulence in the right three lanes. The range air temperature was measured at 45 degrees Fahrenheit

Results of ventilation and smoke tests indicate that adequate flow rates are being provided by the fan but are not being evenly and uniformly distributed to move lead dust downrange and away from firer's breathing zone. Average air velocities in each lane and at each firing position must be at least 50 fpm.

Recommendations:

1. Interlock supply and exhaust fans with range lighting so that the ventilation system operates at all times during occupancy of the range. [CEHND 110-1-18, 3-4a] **(RAC 3)**
2. The plenum wall should be retrofitted so that the holes are one inch in diameter, and evenly distributed across the surface of the plenum wall and centered in a four-inch square area. The plenum wall should also be approximately 15 feet behind the firing line to allow the air enough time to straighten out over the entire area. The airflow must measure at least 50 fpm at all positions in each firing lane. **(RAC 2)**
3. Range temperature should remain between 65 degrees and 80 degrees Fahrenheit. [NGR 385-15 1-17b(1)(n)] **(RAC 3)**

l. Air Sampling. Area and personal air sampling was conducted to simulate weapons qualifications. Five personal samples were collected from personnel firing for about 26 minutes. Two area samples were also collected simultaneously; one inside the range behind the firing line, and the other outside. The firing was restricted to a single qualification time period. This 26-minute qualification period is representative of the expected exposure for personnel using the range. Personal sampling results ranged from 0.02 to 0.06 mg/m^3 for the 26 minute sampling period. Except for two personal samples, results exceeded the Army National Guard Occupational Exposure Limit of 0.03 mg/m^3. Assuming no exposure for the remainder of an eight-hour period, the equivalent 8-hour time weighted average for the five personal samples ranged from 0.001 to 0.003 mg/m^3. These equivalent results are lower than the OSHA PEL, NIOSH REL, and ACGIH TLV, on an eight-hour time weighted average basis. However, if firing were continued for the eight-hour period, airborne lead levels would have exceeded the regulated OSHA limit of 0.05 mg/m^3. Area air sampling results were less than 0.004 mg/m^3 for the two-hour sampling period. Area air sampling results indicate that the airborne lead exposure is limited to the firing line area and downstream from the firing line.

Air sampling results indicated that overexposure to lead is reasonably expected while using the range for an extended period of time. Reducing the air turbulence at the firing line and stream lining the air flow as recommended herein should reduce the exposure to less than the ANG

Posted to NGB FOIA Reading Room
May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 626 of 2531

BEST AVAILABLE COPY

recommended limit of 0.03 mg/m^3. According to National Guard regulations, Guardsmen exposed to hazards in the range less than thirty days per year are permitted to use the range up to five hours per day. Guardsmen utilizing the range for over thirty days per year and all non-military personnel are limited to three hours per day. Range users under 17 are limited to one-hour use per day.

Recommendations:

1. This range is classified as unsafe based on sampling results collected during the survey, and the results of the ventilation survey. **(RAC 2)**
2. A record must be maintained for time spent on the range for all personnel using limited use firing ranges as recorded by the range custodian. [NGR 385-15 1-15 b] **(RAC 2)**
3. Air sampling should again be conducted after changes required in the ventilation system have been made. [NGR 385-15 1-27 c] **(RAC 2)**

m. Range Status. This range has been classified as unsafe due to building envelope, range lighting, air sampling, and ventilation deficiencies.

Recommendation: Further use of this range is restricted until deficiencies in the building envelope, range lighting, and ventilation system are corrected, reinspected, and approved and further air sampling has been accomplished. **(RAC 2)**

Non-Responsive

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May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 627 of 2531

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APPENDIX A

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2. American Conference of Governmental Industrial Hygienists (ACGIH), Threshold Limit Values for Chemical Substances and Physical Agents and Biological Indices for 2000.

3. Army Regulations - AR 40-5, Preventative Medicine, 15 October 1990.

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5. National Safety Council, Fundamentals of Industrial Hygiene, 4th edition, 1996.

6. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, 29 December 1989.

7. National Guard Regulation (NGR) 385-15 Policy Responsibilities, and Procedures for Inspection/Evaluation and use of ARNG Indoor Firing Ranges, 18 September 2000..

8. National Guard Pamphlet (NG PAM) 385-16, Guidelines for Converting Firing Ranges to Other Uses, 31 January 1994.

9. National Institute for Occupational Safety and Health, Pocket Guide to Chemical Exposures, 2000.

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11. TB MED 502, Occupational Safety and Health Respiratory Protection Program..

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APPENDIX B

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau

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DERIVING RISK ASSESSMENT CODES (RACs) FOR HEALTH HAZARDS (Ref: DOD Instruction 6055.1)

STEP 1. Using the following procedures to assess points, determine the health hazard severity category (HHSC). The HHSC reflects the magnitude of exposure to a physical, chemical, or biological agent and the medical effects of exposure.

A. Exposure Points Assessed

		Exposure Conditions			
		<CT	Occasionally - >CT Always - <STD	>CT =STD	>STD
AER	NO	0	3	5	7
POSSIBLE?	YES	1-2	4	6	8

AER = Alternate exposure route, such as skin absorption, ingestion
CT = DoD component threshold that triggers surveillance actions, such as microWatts/cm^2, dB, parts per million
STD = DoD exposure limit, such as Threshold Limit Value and Permissible Exposure Limit

B. Medical Effects Points Assessed

Condition	Points
No medical effect, such as nuisance noise and nuisance odor	0
Temporary reversible illness requiring supportive treatment, such as eye irritation and sore throat	1-2
Temporary reversible illness with a variable but limited period of disability such as metal fume fever	3-4
Permanent, nonsevere illness or loss of capacity, such as permanent hearing loss	5-6
Permanent, severe, disabling, irreversible illness or death, such as asbestosis and lung cancer	7-8

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C. Determine the HHSC by totaling the points assessed and using the following guide:

Total Points (sum of A and B, above)	HHSC
13-16	I
9-12	II
5-8	III
0-4	IV

STEP 2. Using the following guides to assess points, determine the mishap probability category (MPC) for health hazards. The probability of mishap reflects the duration of exposure and the number of exposed personnel.

A. Duration of Exposure Points Assessed

		Length of Exposure		
		1-8 hr/wk	>8 hr/wk not continuous	continuous
Type of Exposure	Irregular, intermittent	1-2	4-6	-
	Regular, periodic	2-3	5-7	8

B. Number of Exposed Personnel Points Assessed

Number of Exposed Personnel	Points
<5	1-2
5 to 9	3-4
to 49	5-6
>49	7-8

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C. Determine the MPC for health hazards by totaling the points assessed and using the following guide:

Total Points (sum of A and B, above)	MPC
14-16	A
10-13	B
5-9	C
<5	D

STEP 3. Determine the RAC for health hazards by using the following matrix to measure health hazard severity and mishap probability factors.

		MISHAP PROBABILITY			
		A	B	C	D
HAZARD SEVERITY	I	1	1	2	3
	II	1	2	3	4
	III	2	3	4	5
	IV	3	4	5	5

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NATIONAL GUARD REGION SOUTH
INDUSTRIAL HYGIENE OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

ARNG -CSG June 27, 2014

MEMORANDUM FOR The Adjutant General of Tennessee, ATTN: Non-Responsive Elizabethton Armory, 128 Judge Don Lewis Boulevard, Elizabethton, TN 37644.

THRU: Non-Responsive Deputy State Surgeon, Tennessee National Guard, HQS, AGTN-DCSPER-DSS, P.O. Box 41502, Houston Barracks, Nashville, Tennessee 37204-1501.

SUBJECT: Industrial Hygiene Survey of the TN ARNG Elizabethton Armory, Elizabethton, TN.

1. References.

a. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1996 rev.

a. Title 29, Code of Federal Regulations (CFR), 2009 rev., part 1910, Occupational Safety and Health Standards.

b. Title 29 CFR, General Industry, revised 1996 rev. Part 1940

c. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 25 May 2007

d. AR 385-10, The Army Safety Program, 23 August 2007.

e. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.

f. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, 12 September 2008.

g. TB MED 503, The Army Industrial Hygiene Program, 30 October 2000.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2010 American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 26th rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

k. NG PAM 420-15, 03 November 2006, Facilities Engineering, Rehabilitation and Conversion of Indoor Firing Ranges.

2. General. At the request of Non-Responsive, of the Tennessee National Guard Occupational Health Office, an Industrial Hygiene Survey was put together to conduct a Health Hazard Information module (HHIM) Field survey of the s and industrial hygiene sampling of the TN ARNG Elizabethton Armory, Elizabethton, TN.

3. Findings. All Health Hazard information is on the survey findings of the report. (See enclosure 1). Operations of very short duration were not sampled due to the requirements of the

sampling method. If the operation changes or if the length of the operation is increased, contact this office to schedule sampling if it is deemed needed then.

4. Recommendations. Follow the recommendations made in the enclosed report, requesting industrial hygiene (IH) in the event operations performed or work schedule change to schedule a follow up survey of the facility earlier than the normal schedule.

a. Have all HHIM data entered into the HHIM computer module.

b. Use the report to help in correcting all deficiencies noted.

c. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present visits, especially if this will help eliminate health hazards and reduce medical surveillance cost.

d. Contact the State Occupational Health Office for any medical Surveillance that may be needed.

e. To execute your responsibilities in correcting all deficiencies, coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

f. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

g. Use the guidance given in the enclosed report as good IH practices, requesting industrial hygiene (IH) services where needed. The recommendations given in the comment section of the HHIM data sheets and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-14. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-15 IHIP.

5. If additional information is needed about the industrial hygiene survey or air sample results, Non-Responsive

Non-Responsive

CF: ARNG-CSG
Non-Responsive and Occupational Health Manager, Tennessee State Safety 3041 Sidco
7204-1504
see National Guard Occupational Health Office, 250 8th Ave, Smyrna, TN 37167

PHASE Associates
Progressive Health And Safety Environmental

INDUSTRIAL HYGIENE SURVEY

At

Non-Responsive

Elizabethton Armory
128 Judge Don Lewis Boulevard
Elizabethton, TN 37644

Prepared by:
PHASE Associates, LLC

Survey Date:
May 8, 2014

Report Date:
May 20, 2014

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May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 636 of 2531

BEST AVAILABLE COPY

Table of Contents

I. Executive Summary 3
II. Introduction 4
III. Methodology: 4
IV. Discussion of results: 5
- i. Illumination Survey 5
- ii Ventilation Survey 6
- iii, Sound Level Survey 6
- iv. Hazard Communication Program 7
- v. Asbestos 8
- vi. Chemical Exposure 8
- vii. Respiratory Protection Program 9
- viii. Bloodborne Pathogens 9
- ix. Heat Stress 10
- x. Confined space 10

V. Recommendations 10
VI. Prior Recommendations 12
VII. HHIM – IH Survey Form 12
VIII. References 12
IX. Photographs 12
X. Limitations 12
- Appendix A - Illumination 13
- Appendix B - Ventilation 15
- Appendix C - Sound Level 17
- Appendix D - Lead Surface 25
- Appendix E - HHIM Forms 30
- Appendix F - References 40
- Appendix G - Photographs 50

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 637 of 2531

BEST AVAILABLE COPY

I. Executive Summary:

An industrial hygiene survey was conducted on May 8, 2014 at the Tennessee Army National Guard Elizabethton Armory located 128 Judge Don Lewis Boulevard, Elizabethton, TN 37644. The Field Maintenance Shop (FMS) located at this site, a satellite facility of the Johnson City FMS #1, consists of two pull-in maintenance bays. The purpose of the survey was to identify and assess industrial hygiene conditions at the facility. USPFO-GA-P&C retained the services of PHASE Associates, LLC; BPA Master Number W912JM-10-A-0018, BPA Call Number 0015.

A walkthrough was conducted of the facility, noting potential industrial hygiene related conditions and controls present to mitigate the potential physical and chemical stress issues. An informal interview was conducted with Non-Responsive to obtain additional information on the practices and control measures employed in the shop, along with written programs and training records.

The armory and shop, built circa 1986, are one-story block structures. The maintenance shop contains two pull-in maintenance bays. The armory includes a main assembly hall, kitchen facilities, equipment storage rooms, administrative offices, latrines, and a former gun range. Outbuildings include a storage building and POL storage shed. Oxygen and fuel gas cylinders are stored in cages in the yard.

The maintenance shop performs maintenance and repairs on a variety of wheeled and tracked vehicles, along with a variety of support equipment, such as construction equipment, trailers, generators, etc. This includes engine replacement, track/tire replacement, parts replacement, fluids checks/replacements, welding, battery replacements and brake maintenance/repair. It was noted that two floor mechanics associated with the Johnson City FMS #1 facility work at this location. Armory personnel include administrative personnel and recruitment center personnel.

1SG Dugger reported that the activity level in the maintenance shop varies greatly and that the level of activity was normal on the survey day. No vehicle maintenance was performed on the day of the survey, with the only activity being the movement of a metal conveyor that had been storage out in the field. This required the use of a truck and small crane.

Significant recommendations include:

Arrange for a Lead remediation project in the former firing range to reduce surface Lead dust levels to below micrograms per square foot before repurposing the range to other uses. Conduct post remediation clearance sampling to verify the effectiveness of the cleaning.

Increase the lighting levels in the maintenance bays to meet the Illuminating Engineering Society of North America (IESNA) recommended levels. The IESNA recommends a level of 50 Fc for areas where performance of visual tasks of low contrast and large size are performed.

Provide physical and health hazard information on labels on secondary containers.

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 638 of 2531

Discontinue the use of respiratory protection since there is no indication that respirator use is required. This includes removing the existing respirators from the facility.

II. Introduction

An industrial hygiene survey was conducted on May 8, 2014 at the Tennessee Army National Guard Elizabethton Armory located 128 Judge Don Lewis Boulevard, Elizabethton, TN 37644.

The purpose of the survey was to identify and assess industrial hygiene conditions at the facility. USPFO-GA-P&C retained the services of PHASE Associates, LLC; BPA Master Number W912JM-10-A-0018, BPA Call Number 0015. Non-Responsive [redacted] oriented and provided a physical tour to Non-Responsive [redacted] CSP of PHASE Associates to the facility, and provided information on the work practices, procedures and control measures employed in the shop. Additional point-of-contacts (POC) included Non-Responsive [redacted] Industrial Hygiene office College Park, GA, and RN Wanda L. Wicker.

The armory is used for the assembly, training and deployment of National Guard personnel, and the storage and distribution of equipment and supplies. There is a former gun range in the armory that is currently used for minor storage. A recruiting center is also housed in the armory.

There are two floor mechanics assigned to the maintenance shop, with five day 8-hour per day shifts worked by the mechanics. These mechanics are assigned to the Elizabethton Armory facility from the Johnson City FMS #1 facility. It was reported that the activity level varies greatly and that the level of activity was normal and representative on the survey day. No vehicle maintenance was performed on the day of the survey, with the only activity being the movement of a metal conveyor that had been storage out in the field. This required the use of a truck and small crane.

This field shop performs maintenance and repairs on a variety of vehicles; both wheeled and tracked, along with a variety of support equipment, such as construction equipment, trailers, generators, etc. This includes engine replacement, track/tire replacement, parts replacement, fluids checks/replacements, welding, battery replacements and brake maintenance/repair.

The armory and shop, built circa 1986, are one-story block structures. The maintenance shop contains two pull-in maintenance bays. The armory includes a main assembly hall, kitchen facilities, equipment storage rooms, administrative offices, latrines, and a former gun range. Outbuildings include a storage building and POL storage shed. Oxygen and fuel gas cylinders are stored in cages in the yard.

III. Methodology:

The industrial hygiene survey conducted at the Elizabethton Armory included a walkthrough of the entire facility and outside property; discussions with Non-Responsive [redacted] an illumination assessment; a sound level assessment with dosimetry; ventilation assessment; a review of the Hazard Communication program, a review of confined spaces and completion of "Health Hazard Information Survey Industrial Hygiene Survey" forms. A prior industrial

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 639 of 2531

hygiene survey was not available for a review of prior recommendations.

IV. Discussion of results:

i. Illumination Survey

Illumination readings were obtained with a SPER Scientific Advance Light Meter, Model 840022, at a height of approximately 5 feet above the bay or office floor surface. Readings were recorded in foot-candles (Fcs) and the meter was programmed for the type of illumination source present, i.e. fluorescent lamp, when known. Readings were taken in the vehicle maintenance bays with all the doors closed to minimize solar illumination as a light source.

The maintenance bays are illuminated with florescent lighting fixtures for both bays. Portable drop lights are used by the mechanics during many of their vehicle repairs or servicing tasks. Illumination levels from the ceiling mounted fixtures ranged from 22.2 Fc to 47.8 Fc in the bays. The lower illumination levels were found near the bay doors, and don't have spot halogen light fixtures as found in the areas away from the doors. The Illuminating Engineering Society of North America (IESNA) recommends a level of 50 Fc for areas where performance of visual tasks of low contrast and large size occurs.

Non-Responsive office area recorded an average illumination level of 74.7 Fc. The administrative offices had a range of 27 to 74.7 Fc. A contract electrician was on-site at the time of the survey that was task with repairing non-functioning fixtures and replacing burnt out bulbs. The IESNA recommends a level of 50 Fc for areas where performance of visual tasks of high contrast and small size occurs.

The main assembly hall had an average of illumination level of 22.7 Fc. The IESNA recommends a level of 30 Fc for public spaces. In addition, it was observed that the hall is lit with Sodium vapor lamps that produce a yellow tinted light. Florescent, LED and Mercury vapor lamps will produce a more pleasant and natural light.

The tool room had an average illumination level of 12 Fc. The IESNA recommends a level of 30 Fc for areas where performance of visual tasks of high contrast and large size are performed. However, it was reported that this room was going to be re-lamped.

The main storage room had an average illumination level of 7.1 Fc. The storage room next to the tool room had an illumination level of 16.6 Fc. The storage room adjacent to the former firing range had an illumination level of 36.5 Fc. The Army National Guard DG 415-2 "Logistics Facilities Design Guide," 01 June 2011 recommends a level of 40 Fc for supply rooms.

Posted to NGB FOIA Reading Room
May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 640 of 2531

The latrines had levels of 42 Fc (Men's), 29.9 Fc (Women's) and 7.8 Fc (adjacent to former firing range. The IESNA recommends a level of 10 Fc for working spaces where simple visual tasks are performed.

The mechanical room had an average illumination level of 1.1 Fc, with one of the two fixtures not functioning. The boiler room had an average illumination level of 4.1 Fc, with one of the two fixtures were not operating. The water heater room had an illumination level of 22 Fc, with four of the ten bulbs not working. The IESNA recommends a level of 30 Fc for areas where performance of visual tasks of high contrast and large size occurs.

The parts storage building had an average illumination level of 56.4 Fc and the POL room had an illumination level of 0.8 Fc. One of the two fixtures in the room was not operating and the on/off switch doesn't work properly. The IESNA recommends a level of 30 Fc for areas where performance of visual tasks of high contrast and large size occurs.

The kitchen preparation areas had illumination levels ranging from 35.8 to 44.7 Fc. The IESNA recommends a level of 50 Fc for areas where performance of visual task of high contrast and small size occurs.

A building floor plan with measured illumination levels are presented in Appendix A.

ii Ventilation Survey

Exhaust ventilation airflow velocity was measured using a TSI VelociCalc Model 9515 hot wire anemometer. The instrument was positioned at multiple points across the face of the local exhaust opening. The velocities were recorded and averaged to provide a calculated velocity measurement. The volume of exhausted air was determined by multiplying the velocity with the area of the exhaust opening. Each maintenance bay is serviced by a flexible vehicle exhaust duct. Measurements were taken when the dampers on all the manifolded ducts were open. Measurements were also taken on the welding exhaust system and inside the battery room.

The airflow was measured for two local exhaust ducts. The airflows were 64.6 cubic feet per minute (cfm) and 83 cfm. These airflow values well below the minimum ACGIH airflow guidelines depending on the size and engine speed of the vehicle. The ACGIHs' airflow guideline for diesel engines is 275 cfm (5.7 Liter normally aspirated engine) to 1400 cfm (9.0 Liter turbocharged engine) when operating at 1000 revolutions per minute (rpm). These recommended airflow rates increase as the rpm of the engine is increased.

A building floor plan with measured ventilation rates is provided in Appendix B.

iii. Sound Level Survey

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 641 of 2531

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Sound levels were measured using a Quest Model 2700 Type II Sound Level Meter (SLM) that was pre- and post- calibrated using a Quest QC-10 Calibrator. The SLM was set at "slow," on the A-scale, and a range of 60 decibels to 120 decibels (dBA).

The sound levels ranged from 78.9 dBA at 3 feet away when a crane was picking up a piece of metal conveyor to 102.7 dBA at 3 feet away from a palletized load system (PLS) vehicle when the pressure released from the air brakes.

Noise dosimetry was conducted on four mechanics. Measurements were collected under both the Department of Defense (DoD) and the OSHA criteria. The primary difference between the DoD and OSHA criteria is the exchange rate, which are 3 dBA and 5 dBA respectively. The highest dose using the DoD criteria was 117.3%. This is the calculated dose at the end of exactly 8 hours assuming noise exposure occurs at the same rate for the remainder of the shift. This mechanic was involved with operating the PLS. The other mechanics had doses ranging from 57.3 to 88.4%. These results indicate that that these individuals and others whose tasks involved vehicle mobilization and servicing tasks should continue to participate in the existing hearing conservation program including written program, recordkeeping and annual training. A written program was not available for review at the sending facility, FMS #17. It was reported that audiograms are not obtained annually for the mechanics, but that annual training is conducted. Both would be required under the program.

Personnel should wear hearing protection on a voluntary basis if they move in close proximity to high sound level generating equipment and tasks for any period of time.

Hearing protection devices included ear plug inserts from Moldex™ and ear muffs such as the Tasco™-Golden Eagle. The mechanics did not always utilize these hearing protection devices when involved with high sound level tasks.

The air compressor for the shop is located outdoors.

A table with measured sound levels is provided in Appendix C.

iv. Hazard Communication Program

There are Safety Data Sheets (SDSs) located in a 3-ring binder in the maintenance shop, and a chemical inventory is maintained. This inventory is updated annually. It appears that SDSs were available for all chemicals from the random check conducted.

A generic written program (Hazardous Materials SOP Appendix 6) that only discusses training was available for review at the sending facility, FMS #17, and

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 642 of 2531

BEST AVAILABLE COPY

annual training has been conducted. Some changes were made to the written program during the auditor's time on-site, but do not include all of the required elements. Semiannual emergency response drills were reported to be conducted.

Storage practices appeared to be appropriate. Large containers of fluids have secondary containment pallets provided. Many of the lubricants are transferred via manual pouring.

Labeling of secondary containers does not include any physical or health hazard information. These containers included the small lubricant containers.

v. Asbestos

It was reported that vehicle asbestos containing brake pads are no longer encountered.

Because of the age of the building, there is no presumed asbestos containing building materials present at the facility.

vi. Chemical Exposure

The armory houses a former firing range that was reportedly remediated of Lead particulates approximately two to three years ago. The space currently is used for minor storage that included some furniture, some angle iron, a decorated Christmas tree and several leaf bags containing undistributed children's toys. It was observed that plastic sheeting that was originally mounted at the three doorways into the range for containment purposes during the remediation were left in a pile on the range floor. In addition, the porous acoustic tile on one of the walls and ceiling at the firing stations had not been removed and could not have been fully remediated. One surface wipe sample was collected on the right-hand wall approximately thirty feet down range of the firing stations (vertical surface), and a second surface wipe sample was collected on metal angle iron mounted on the ceiling above the firing position #4 (horizontal surface). The wall sample had a Lead concentration of 428 micrograms per square foot (ug/ft^2) and the metal angle iron sample had a Lead concentration of 2500 ug/ft^2. These concentration levels exceed the Departments of the Army and the Air Force, National Guard Bureau, "Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges," NG Pam 420-15, 3 November 2006, clearance level of 200 ug/ft^2.

This shop services various wheeled and tracked diesel powered vehicles, both inside the shops and out in the yard. On the day of the survey assessment, no maintenance activities were conducted. The overhead doors are generally left open during the day, providing natural ventilation during comfortable ambient weather conditions. There are two local exhaust hood systems serving the two bays. These hoods are used to exhaust vehicular exhaust if the work is conducted in close proximity to the hoods.

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 643 of 2531

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There is a always the potential exposure from the components that comprise diesel fume exhaust, including Carbon monoxide, particulates, polyaromatic hydrocarbons (PAHs), sulfur and nitrogen oxides and aldehydes. However, on this day there was no maintenance work performed where the vehicles' engines were idling in the bays. In addition, prior airborne contaminant monitoring conducted by PHASE at approximately 10 other field maintenance shops indicate exposures to be well below applicable established occupational exposure limits.

There is a Carbon monoxide sensor in the bays where the maintenance activity takes place. These sensors can alert personnel when unhealthy airborne concentrations of Carbon monoxide are reached, allowing for corrective action such as increasing natural and mechanical ventilation. However, there is no record on the periodically required recalibration of the sensor.

Minor spray painting is reportedly conducted by shop personnel and is typically limited to minor touch-up and stenciling work. Larger scale painting is tolled out to other shops. This limited painting does not appear to be a cause of concern and does not warrant monitoring.

Occasional minor arc welding is performed. This limited welding activity does not appear to be a cause of concern and does not warrant monitoring. Face shields with shaded lenses, shaded googles and welding gloves are available on the welding station.

The enclosed parts cleaner, "Landa" utilizes hot water/steam for the degreasing process and is an enclosed process. There is little exposure to vapors because of the absence of chemical solvent in the process.

Disposable chemical resistant gloves (nitrile) are available for use by employees while exposed to petroleum based lubricants. An apron, face shield and acid resistant gloves are available for use in the battery room.

vii. Respiratory Protection Program

There were no tasks observed or monitored that appeared to require the use of respiratory protection. Half-face air-purifying respirators equipped combination N95 filters and organic vapor cartridges are available for use on a voluntary basis by the mechanics. Reportedly used infrequently, it was also reported that medical clearance has been obtained, and fit testing and training have been provided to the mechanics. However, because these are tight-fitting respirators, a written program is required. This program does not exist at this facility or at the sending facility, FMS #17.

viii. Bloodborne Pathogens / First Aid

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 644 of 2531

BEST AVAILABLE COPY

There is no dedicated first aid response team at the shop. Personnel have been trained in CPR and the use of the Automatic External Defibrillator (AED) that is located in the maintenance shop. Since no one is expected to be exposed to bodily fluid as part of their job function, instruction in bloodborne pathogens is not required. Bloodborne pathogens awareness training has not been provided to all who make may voluntarily offer to perform first aid.

All minor first aid administration (i.e. application of first aid cream and band-aid) is self-administered since there are no formal first aid trained personnel in the shop.

The first aid kit does not contain Over the Counter (O-T-C) medicine such as Ibuprofen, antacid and aspirin. Items such as these are not allowed due to expiration and allergic reaction reasons.

There is an operating plumbed emergency eyewash station available in the maintenance bay that is not alarmed. However, this is a very small maintenance facility and it would be easily noticed if the station was activated.

ix. Heat Stress

Vehicle maintenance is performed both in the maintenance bays and in the yard. It was reported that there is an informal heat stress program that includes additional fluids and work breaks during periods of elevated temperatures. The shop utilizes floor fans for air movement.

Wet Bulb Globe Temperature (WBGT) measurements were not recorded since the ambient temperature over the day of this survey assessment didn't exceed 84 degrees Fahrenheit, relative humidity averaged approximately 60% and there was no heavy physical work activity.

x. Confined Spaces

There were no confined spaces located at the facility.

V. Recommendations:

1. Increase the lighting levels in the maintenance bays to meet the Illuminating Engineering Society of North America (IESNA) recommended level. Some of this increase can be accomplished by adding additional lighting in the bays need the garage doors. The IESNA recommends a level of 50 Fc for areas where performance of visual tasks of low contrast and large size are performed. RAC – 5

2. Continue identifying and rectifying light fixture issues such as found in the mechanical room, boiler room, tool room, POL storage room, water heater room, storage rooms, etc. Increase the illumination levels in these rooms to the IESNA

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 645 of 2531

BEST AVAILABLE COPY

and/or DG 415-2 guidance levels. RAC – 5

3. Increase the lighting level in the main assembly hall to the GD 415-2 recommended illumination level of 30 Fc, and consider re-lamping with LED, fluorescent or Mercury vapor lamps. RAC – 5

4. Increase the lighting level in the kitchen preparation to the IESNA recommended illumination level of 50 Fc and/or incorporate appropriate task lighting at food preparation tables/counters. RAC – 5

5. Increase the airflow of the local exhaust ventilation system in the maintenance bays to the ACGIH recommended levels for diesel fuel engines. RAC – 4

6. Develop and implement a site specific written Hearing Conservation Program; this task can be done in conjunction with FMS #17. Require hearing protection usage when working around equipment/tasks that generate high sound levels. This also includes conducting annual audiometric testing. Encourage mechanics' to utilize hearing protective devices when operating vehicles and using high sound level generating equipment. Signage should be posted at entryways into the maintenance bays warning of potential high noise exposure. RAC – 5

7. Provide physical and health hazard information on labels on secondary containers that are not for the immediate use of the mechanic that filled the container. RAC - 4

8. Install Carbon monoxide sensors in the maintenance bays. These sensors can alert personnel when unhealthy airborne concentrations of Carbon monoxide are reached, allowing for corrective action such as increasing natural and mechanical ventilation. RAC – 5

9. Conduct a Lead remediation project in the former firing range in the armory using a fully qualified remediation company. This remediation project needs to include the ventilation ductwork and air handling systems dedicated to the range. The remediation project needs to adhere to the requirements laid out in the "Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges," NG Pam 420-15, 3 November 2006. RAC – 4

10. Ensure the Carbon monoxide sensor is recalibrated according to the manufacturer's specifications. RAC – 5

11. With no data indicating mandatory use of respiratory protection, remove the air-purifying respirators from the facility. A respiratory protection program and its elements are not required at this time. If the type of tasks changes or the frequency of current task significantly increases, request that another assessment be conducted to determine if respiratory protection is required. RAC – 5

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 646 of 2531

12. Purchase a drum handling attachment for the forklift that is capable of lifting and tipping a drum so that the contents can be poured from a spigot. RAC – 3

VI. Prior Recommendations Update

A report with prior recommendations was not available at the time of the survey.

VII. Health Hazard Information Module (HHIM) – Industrial Hygiene Survey Form

The HHIM forms were completed for the operations surveyed. They are included in Appendix E.

VIII. References

A listing of references used for this survey is included in Appendix F.

IX. Photographs

A photograph index and site photographs are included in Appendix GA.

X. Limitations

The observations and findings outlined in this report and the HHIM forms in based on the conditions, operations, practices and interviews conducted during the survey. Conditions may not have been representative of a typical day and will vary over time.

This concludes the report narration.

Survey conducted and prepared by: Non-Responsive

Report survey review: Non-Responsive

Date report finalized: June 3, 2014

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 647 of 2531

APPENDIX A

BUILDING FLOOR PLAN WITH ILLUMINATION MEASUREMENTS

Elizabethton Armory
Elizabethton, TN
May 8, 2014

Location	Light Measurements (Foot-Candles) *[1,2]
Armory –	
Main Assembly Hall	23.2, 20.7, 28.6, 22.2, 23.4, 30.3, 18.4, 10.4 & 27.2
Tool Room	15.4, 3.9, 6.8, 6.0, 40.3, 8.1 & 3.4
Kitchen	44.7, 37.5 & 35.8
POL Storage	0.8
Water Heater Room	22.0
Storage with Office	8.2, 5.3 & 0.7
Classroom	50.4 & 37.3
Training/Office	34.4, 34.6
Offices	23, 30.5, 66.2, 56.1, 74.7, 44.7 & 75.3
Boiler Room	7.9 & 0.3
Mechanical Room	2.2
Women Latrine	29.9
Men Latrine	42.0
Storage Shed	47.7 & 65.1
Maintenance Shop	47.7, 28.4, 22.2 & 41.8

Footnotes:
1. The Illuminating Engineering Society of North America (IESNA) recommends a level of 50 Fc for areas where performance of visual tasks of low contrast and large size occurs.
2. The IESNA recommends a level of 30 Fc for areas where performance of visual tasks of high contrast and large size are performed.

PHASE ASSOCIATES, L.L.C.
316 Eisenhower Parkway, Livingston, New Jersey 07039 • Telephone (973) 597-0750•Fax (973) 597-6445

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Page 648 of 2531

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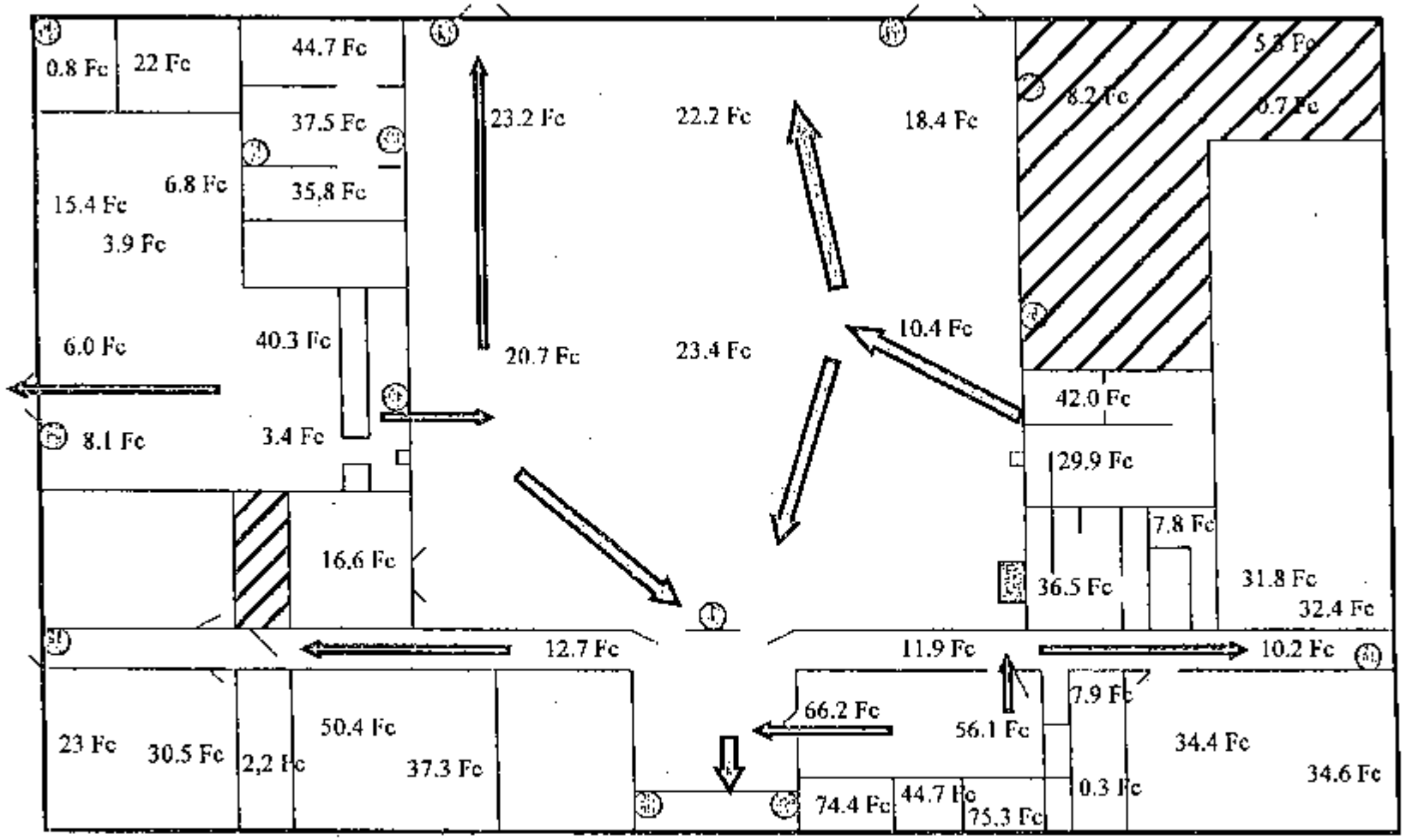
ELIZABETHTON ARMORY
ILLUMINATION SURVEY

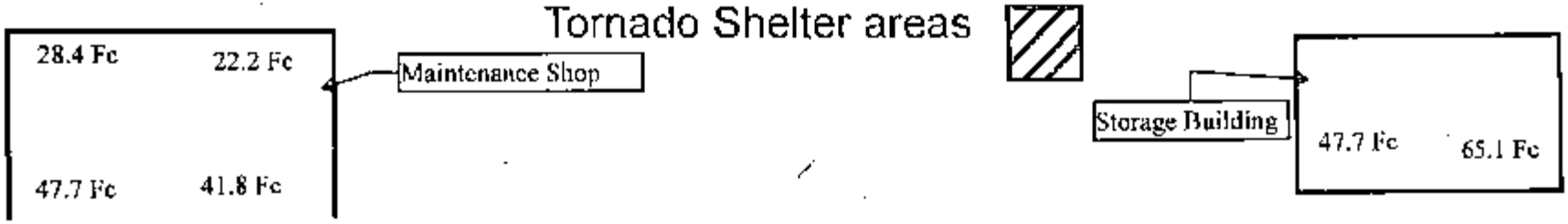
EMERGENCY ACTION FACILITY DIAGRAM



FIRE EXTINGUISHER= A.E.D.= FIRST AID KIT=

Fire Extinguisher, A.E.D., First Aid Locations

Tornado Shelter areas



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APPENDIX B

BUILDING FLOOR PLAN AND VENTILATION MEASUREMENTS

Elizabethton Armory
Elizabethton, TN
May 8, 2014

LOCATION	VENTILATION VELOCITY (fpm)*1	VENTILATION VOLUME (cfm)*2,3,4
Bay 1	742	64.6
Bay 2	609	83

*Footnote:

1. fpm denotes feet per minute for an average velocity.
2. cfm denotes cubic feet per minute; calculated by multiplying the velocity by the area of the exhaust opening in feet.
3. ACGIHs' airflow guideline for diesel engines is 275 cfm (5.7 Liter normally aspirated engine) to 1400 cfm (9.0 Liter turbocharged engine) when operating at 1000 revolutions per minute (rpm).
4. Battery room outside air of 2.0 cfm/ ft.^{2} per each system per Army National Guard, DG 415-2, *Logistics Facilities Design Guide*, Table 6. Mechanical Requirements.

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Page 650 of 2531

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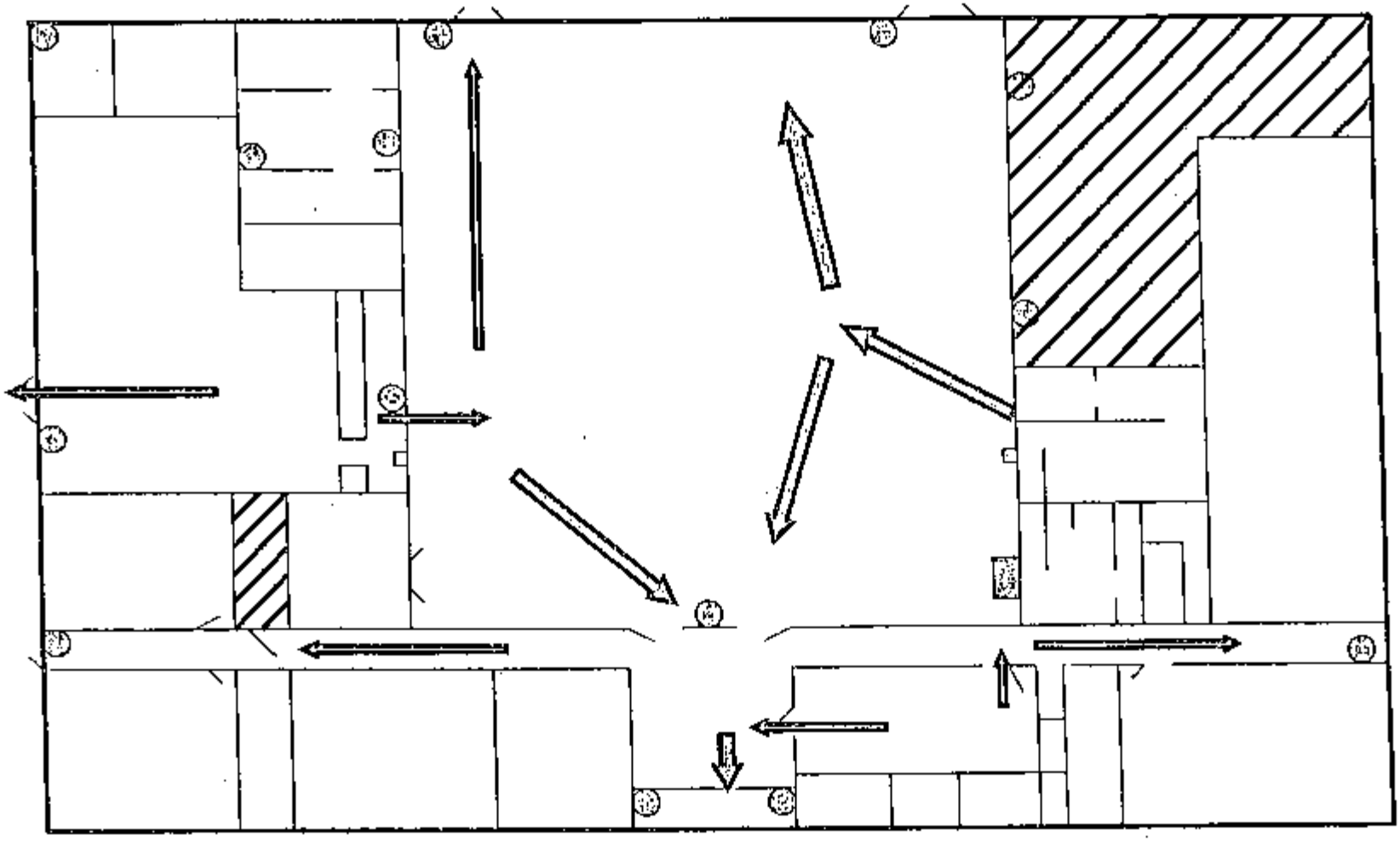
ELIZABETHTON ARMORY
VENTILATION SURVEY

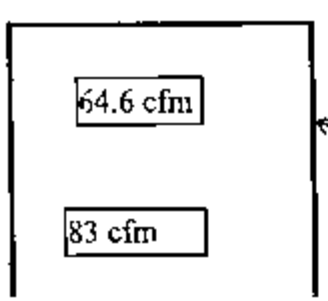
EMERGENCY ACTION FACILITY DIAGRAM



FIRE EXTINGUISHER= A.E.D.= FIRST AID KIT=

Fire Extinguisher, A.E.D., First Aid Locations

Tornado Shelter areas



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FOIA Requested Record #J-15-0085 (TN)
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Page 651 of 2531

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APPENDIX C

SOUND LEVEL MEASUREMENTS

Elizabethton Armory
Elizabethton, TN
May 8, 2014

Location	Equipment	Sound Level (dBA)[1]
Outdoors	Crane – moving	91.2
	PIT – Rough terrain	84.8
	PLS – idling	84.6
	PLS – off loading FRS	85.4 – 102.7 (air brake release)
	Crane – lifting material	78.9

Footnotes:
1. dBA denotes decibels measured in the A-scale with sound level meter set at "slow" response.

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 652 of 2531

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Sound Level Dosimetry
Elizabethton Armory
Elizabethton, TN
May 8, 2014

Name of employee/ SSN	Job position	Time monitored (minutes)	Average sound level [1] DoD/ OSHA (dBA)	Time weighted average [2] DoD/ OSHA (dBA)	Maximum Level [3] (dBA)	Dose percent[4,5] DoD/OSHA
Robert Banner / x-3164	Mechanic	222	87.8 / 83.3	88.4 / 77.8	113.7	88.4 / 18.5
Jason Peters / x-8298	Mechanic	453	82.8 78.4	82.6 / 78.0	105.6	57.3 / 18.9
Sammy Hartman / x-9433	Mechanic	447	86.0 / 80.4	85.7 / 79.9	116.8	117.3 / 24.5
Brian Edwards / x-6615	Mechanic	267	86.3 / 82.3	74.7 / 78.0	109.6	74.7 / 19.0

Footnotes:

1. Average sound level – denotes accumulated sound averaged during the dosimetry test time for the Department of Defense (DoD) Exposure Limit and OSHA Hearing Conservation level of 85dBA.
2. Time Weighted Average – denotes accumulated sound averaged over 8 hours the Department of Defense (DoD) Exposure Limit and OSHA Hearing Conservation level of 85dBA.
3. Maximum level – denotes maximum decibel level during the testing time.
4. Dose percent – denotes percent of the Department of Defense (DoD) Exposure Limit and OSHA Hearing Conservation level of 85dBA.
5. All noise dosimeters were left operating when they were removed during the 1 hour lunch break and left in a quiet area to simulate a representative work break environment.

PHASE ASSOCIATES, L.L.C.
346 Eisenhower Parkway, Livingston, New Jersey 07039 • Telephone (973) 597-0750•Fax (973) 597-6445

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Page 653 of 2531

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National Guard Region South
Industrial Hygiene Office
510 Plaza Drive, Suite 1530
College Park, GA 30349

MEMORANDUM FOR: Tennessee Army National Guard, Attn: 1SG James Dugger, Elizabethton Armory, Elizabethton, TN.

SUBJECT: Employee Notification of Noise Survey Sampling Results.

1. DA regulation requires employees to be notified of their exposure results from Industrial Hygiene surveys. The following results are from noise surveys performed at the Elizabethton Armory on 8 May 2014.

EMPLOYEE	NOISE EXPOSURE
Robert Banner	8-Hour TWA 88.4 dBA

2. Statistical calculations of the employee's exposures indicate levels are above the Department of Defense noise standard of 85 dBA. Therefore this employee should be included in the LA ARNG Hearing Conservation Program.

3. According to the noise survey performed, you are required by the DA's Hearing Conservation Policy, DA PAM 40-501, to:

a. Wear either earplugs or noise muffs whenever noise levels are greater than or equal to 85 dBA.

b. Be enrolled in a Hearing Conservation Program.

c. Obey warning signs throughout the installation in noise hazardous areas and on equipment which require personnel to wear hearing protection.

d. Have a copy of this notification letter placed in your employee file.

4. For additional information see Report regarding this survey.

5. If you have any questions regarding this matter contact the TN Occupational Safety and Health Manager's Office.

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Page 654 of 2531

National Guard Region South
Industrial Hygiene Office
510 Plaza Drive, Suite 1530
College Park, GA 30349

MEMORANDUM FOR: Tennessee Army National Guard, Attn: Non-Responsive
Elizabethton Armory, Elizabethton, TN.

SUBJECT: Employee Notification of Noise Survey Sampling Results.

1. DA regulation requires employees to be notified of their exposure results from Industrial Hygiene surveys. The following results are from noise surveys performed at the Elizabethton Armory on 8 May 2014.

EMPLOYEE	NOISE EXPOSURE
Non-Responsive	8-Hour TWA 82.6 dBA

2. Statistical calculations of the employee's exposures indicate levels are below the Department of Defense noise standard of 85 dBA. Therefore this employee should be included in the LA ARNG Hearing Conservation Program.

3. According to the noise survey performed, you are required by the DA's Hearing Conservation Policy, DA PAM 40-501, to:

a. Wear either earplugs or noise muffs whenever noise levels are greater than or equal to 85 dBA.

b. Be enrolled in a Hearing Conservation Program.

c. Obey warning signs throughout the installation in noise hazardous areas and on equipment which require personnel to wear hearing protection.

d. Have a copy of this notification letter placed in your employee file.

4. For additional information see Report regarding this survey.

5. If you have any questions regarding this matter contact the TN Occupational Safety and Health Manager's Office.

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Page 655 of 2531

National Guard Region South
Industrial Hygiene Office
510 Plaza Drive, Suite 1530
College Park, GA 30349

MEMORANDUM FOR: Tennessee Army National Guard, Attn: Non-Responsive Elizabethton Armory, Elizabethton, TN.

SUBJECT: Employee Notification of Noise Survey Sampling Results.

1. DA regulation requires employees to be notified of their exposure results from Industrial Hygiene surveys. The following results are from noise surveys performed at the Elizabethton Armory on 8 May 2014.

EMPLOYEE	NOISE EXPOSURE
Non-Responsive	8-Hour TWA 85.7 dBA

2. Statistical calculations of the employee's exposures indicate levels are above the Department of Defense noise standard of 85 dBA. Therefore this employee should be included in the LA ARNG Hearing Conservation Program.

3. According to the noise survey performed, you are required by the DA's Hearing Conservation Policy, DA PAM 40-501, to:

a. Wear either earplugs or noise muffs whenever noise levels are greater than or equal to 85 dBA.

b. Be enrolled in a Hearing Conservation Program.

c. Obey warning signs throughout the installation in noise hazardous areas and on equipment which require personnel to wear hearing protection.

d. Have a copy of this notification letter placed in your employee file.

4. For additional information see Report regarding this survey.

5. If you have any questions regarding this matter contact the TN Occupational Safety and Health Manager's Office.

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Page 656 of 2531

National Guard Region South
Industrial Hygiene Office
510 Plaza Drive, Suite 1530
College Park, GA 30349

MEMORANDUM FOR: Tennessee Army National Guard, Attn: Non-Responsive Elizabethton Armory, Elizabethton, TN.

SUBJECT: Employee Notification of Noise Survey Sampling Results.

1. DA regulation requires employees to be notified of their exposure results from Industrial Hygiene surveys. The following results are from noise surveys performed at the Elizabethton Armory on 8 May 2014.

EMPLOYEE	NOISE EXPOSURE
Non-Responsive	8-Hour TWA 74.7 dBA

2. Statistical calculations of the employee's exposures indicate levels are below the Department of Defense noise standard of 85 dBA. Therefore this employee should be included in the LA ARNG Hearing Conservation Program.

3. According to the noise survey performed, you are required by the DA's Hearing Conservation Policy, DA PAM 40-501, to:

a. Wear either earplugs or noise muffs whenever noise levels are greater than or equal to 85 dBA.

b. Be enrolled in a Hearing Conservation Program.

c. Obey warning signs throughout the installation in noise hazardous areas and on equipment which require personnel to wear hearing protection.

d. Have a copy of this notification letter placed in your employee file.

4. For additional information see Report regarding this survey.

5. If you have any questions regarding this matter contact the TN Occupational Safety and Health Manager's Office.

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Released by National Guard Bureau
Page 657 of 2531

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NOISE SURVEY

(Sound Level Meter Survey)

1. DATE *(YYYYMMDD)*: 20140508

2. TYPE SURVEY *(Enter code)*: 2 — 1 - INITIAL SURVEY 2 - RE-SURVEY 3 - OTHER

3. SOUND LEVEL METER		4. MICROPHONE		5. CALIBRATOR	
a. MANUFACTURER: Quest		a. MANUFACTURER: Quest		a. MANUFACTURER: Quest	
b. MODEL: 2700	c. SERIAL NO.	b. MODEL	c. SERIAL NO.	b. MODEL: QC-10	c. SERIAL NO.
d. LAST ELECTROACOUSTIC CALIB DATE *(YYYYMMDD)*: 20131229		d. LAST ELECTROACOUSTIC CALIB DATE *(YYYYMMDD)*		d. LAST ELECTROACOUSTIC CALIB DATE *(YYYYMMDD)*: 20131229	

6. WIND SCREEN *(X one)*: [X] USED [ ] NOT USED

7. MEASUREMENTS OBTAINED *(X one)*: [X] INDOORS [ ] OUTDOORS

8. DESCRIPTION OF AREAS/DUTIES WHERE NOISE SURVEY CONDUCTED *(Illustrate on additional sheet and attach to form)*

TN ARNG Elizabethton Armory - Elizabethton, TN - Survey conducted outside of the maintenance bays

9. PRIMARY SOURCE OF NOISE

Motor vehicles

10. SECONDARY SOURCE OF NOISE

11. SOUND LEVEL DATA / **12. PROTECTION REQUIRED** *(re: dBA - Level)*

a. LOCATION	b. METER ACTION	c. dBC	d. dBA	e. RISK ASSESSMENT CODE	a. NONE *(Less than 85)*	b. PLUG OR MUFF *(85-108)*	c. PLUG AND MUFF *(108-118)*	d. PLUG + MUFF + TIME LIMIT *(Greater than 118)*
Crane - moving	S		91.2	IIB		X		
Crane - lifting material	S		78.9	IVD	X			
PLS - idling	S		84.6	IVC	X			
PLS - off loading FRS	S		90.6	IIB		X		
					X			

NOTES: Range of levels noted by /; i.e., 102/109. At operator stations, measure at ear level.
METER ACTION: Enter F for fast meter action and S for slow meter action.

13. REMARKS *(i.e., Area and equipment posted, hearing protection in use, etc.)*

No vechicle maintenance performed on day of survey. Hearing protection devices are available for use in the facility. Appropriate signage posted at doorways

14. MORE DETAILED NOISE EVALUATION REQUIRED: [ ] YES [X] NO *(If "YES," identify type evaluation needed.)*

15. NAME(S) OF PERSON(S) IDENTIFIED FOR AUDIOMETRIC MONITORING *(Use additional sheet if more space is needed and attach to form)*

Donny Basinger, Coy Kellems, Jim Sams & Bryan Lee - audiometric monitoring conducted

16. SUPERVISOR OF NOISE-HAZARDOUS AREA OR OPERATION

a. NAME *(Last, First, Middle Initial)*	b. TELEPHONE *(Include area code)*	c. ORGANIZATION
		N ARNG

RVATION MONITOR *(Last Name, First Name, MI)*

Non-Responsive

DD FORM 2214, JAN 2000 PREVIOUS EDITION MAY BE USED. Adobe Professional 7.0

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Page 658 of 2531

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INSTRUCTIONS

(Refer to DoD Component Instructions for Additional Guidance)

PURPOSE: This form is intended to record noise survey results for the identification of potentially noise-hazardous environments.

GENERAL: Print all information in ink. Only medical, industrial hygiene, safety, or engineering personnel who meet training requirements specified by the DOD components will make sound level measurements.

1. Date - Enter date noise survey conducted (e.g., if Jan. 14, 1999, enter 19990114).

2. Type, Survey - Enter appropriate numeric code in box (e.g., enter "1" if area or operation not surveyed before or no available records of previous survey; enter "2" if resurvey conducted at regular intervals (such as once each 12 months); or enter "3" if noise being reevaluated to confirm validity of previously obtained measurements or for purposes other than indicated).

3. Sound Level Meter:
   a. Mfgr - Enter name of company that produced sound level meter.
   b. Model - Enter manufacturer's designation.
   c. Serial No. - Enter manufacturer's serial number.
   d. Last Electroacoustic Calib Date - Enter year, month, day (see Item 1) of last comprehensive calibration required by DOD component. Not to include calibration checks made with acoustical calibrator.

4. Microphone (Fill in this section if microphone is detachable from sound level meter)
   a. Manufacturer - Enter name of company that produced microphone.
   b. Model - Enter manufacturer's designation.
   c. Serial No. - Enter manufacturer's serial number.
   d. Last Electroacoustic Calib Date - Enter year, month, and day (see Item 1) of last comprehensive calibration as required by DOD component.

5. Calibrator:
   a. Manufacturer - Enter name of company that produced calibrator.
   b. Model - Enter manufacturer's designation.
   c. Serial Number. Enter manufacturer's serial number.
   d. Last Electroacoustic Calib Date. Enter year, month, and day (see Item 1) of last comprehensive calibration as required by DoD component.

6. Wind Screen - Check appropriate box indicating if manufacturer's device to reduce wind noise is mounted over microphone assembly.

7. Measurements Obtained - Check appropriate box indicating if measurements obtained indoors or outdoors.

8. Description of Areas/Duties Where Noise Survey Conducted - Include building number(s), name of activity and/or operation, identify specific microphone locations, performance conditions and descriptions of machinery (e.g., rpm, load, etc). Where applicable, include noise-hazard contours of area. On additional sheet make simple line drawing of area and identify noise sources and locations of measurement.

9. Primary Source of Noise - If possible, identify the location(s) of the highest dBA value.

10. Secondary Source of Noise - If possible, identify all other noise sources when the primary noise source is off (e.g. background noise sources and other noise sources that may or may not be noise hazardous).

11. Sound Level Data
   a. Location - Position where measurement is obtained should correspond with those identified, or illustrated on form.
   b. Meter Action - See Notes in Sound Level Data Sec. levels measured with weighting switch of meter in "C" position.
   c. dBC - If required by DOD component, enter sound levels measured with weighting switch of meter in "C" position.
   d. dBA - Enter sound levels measured with weighting switch of meter in "A" position. See NOTES in Sound Level Data Section.
   e. Risk Assessment Code - Enter expression of risk that combines elements of hazard severity and mishap probability. Hazard severity categories shall be assigned by roman numeral as follows:
   (1) Category I - Catastrophic: May cause death or loss of a facility (Code I).
   (2) Category II - Critical: May cause severe injury, e.g., severe occupational illness, or major property damage (Code II).
   (3) Category III - Marginal: May cause minor injury, e.g., minor occupational illness, or minor property damage (Code III).
   (4) Category IV - Negligible: Probably would not affect personnel safety or health, but is nevertheless in violation of specific criteria (Code IV). Mishap probability shall be assigned capital letter according to following criteria:
   (a) Subcategory A: Likely to occur immediately or within a short period of time (Code A).
   (b) Subcategory B: Probably will occur in time (Code B).
   (c) Subcategory C: May occur in time (Code C).
   (d) Subcategory D: Unlikely to occur (Code D).
   Enter codes as IIB, IIIC, etc. Refer to DOD Instruction 6055.1/DOD component instructions for specific definitions and guidance.

12. Protection Required (re: dBA Level)
   a. None (less than 85): If dBA levels less than 85, check this column. No hearing protectors required.
   b. Plug or Muff (85 - 108): If dBA levels 85 - 108 inclusive, check this column. Earplugs, ear muffs, ear-canal caps, or noise-attenuating helmet required.
   c. Plug and Muff (108 - 118): If dBA levels over 108 to 118 inclusive, check this column. Earplugs worn in combination with ear muffs or noise-attenuating helmet required.
   d. Plug, Muff & Time: If dBA levels over 118, check this column. Earplugs worn in combination with ear muffs or noise-attenuating helmet and time limit (to be determined by DOD component) required.

13. Remarks - Enter type of hearing protection in use, whether area and equipment posted with appropriate caution signs, etc.

14. More Detailed Noise Evaluation Required - Check "yes" box if more detailed noise evaluation is required; check "no" box if not. Specify the type of evaluation needed (e.g., octave band analysis, etc.).

15. Name(s) of Persons Identified for Audiometric Monitoring - List names of individuals routinely exposed to noise in preceding locations.

16. Supervisor of Noise - Hazardous Area or Operation - Enter name (surname, given name, & middle initial) of the first-echelon (immediate) supervisor of the location (and personnel) surveyed.

17. Survey Performed by - Enter name (surname, given name & middle initial) of individual performing survey & signature.

18. Hearing Conservation Monitor - Enter name of individual reviewing survey results & signature. Usually local surgeon or designated representative.

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FOIA Requested Record #J-15-0085 (TN)
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Page 659 of 2531

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APPENDIX D

LEAD SURFACE MONITORING RESULTS

Elizabethton Armory
Elizabethton, TN
May 8, 2014

Sample Number	Location	Quantity reported	Concentration (ug/ft^2)[1]	Exposure Limit (ug/ft^2)[1, 2]
050814-1	Range – overhead metal work above firing position #4 – horizontal surface	1250 ug/0.5 ft^2	2500	200
050814-2	Range – right side wall approximately 30 feet down range at 6 foot height	107 ug/0.25 ft^2	428	200

Footnotes:

1. ug/ft^2 denotes micrograms per square foot of surface area
2. Departments of the Army and the Air Force, National Guard Bureau, "Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges," NG Pam 420-15, 3 November 2006, clearance level of 200 ug/ft^2.

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Page 660 of 2531

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ANALYTICAL ENVIRONMENTAL SERVICES, INC.

AES

May 22, 2014

Non-Responsive

TEL:
FAX:

RE: TN ARNG Elizabethton Armory

Dear Non-Responsive

Order No: 1405E64

Analytical Environmental Services, Inc. received 3 samples on 5/14/2014 10:30:00 AM for the analyses presented in following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.
AES' certifications are as follows:
-NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/13-06/30/14.
-AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) effective until 09/01/15.

These results relate only to the items tested. This report may only be reproduced in full.

If you have any questions regarding these test results, please feel free to call.

Non-Responsive

3080 Presidential Drive • Atlanta, Georgia 30340 • Tel: 770.457.8177 • Fax: 770.457.8188 • Toll Free: 800.972.4889
www.aesatlanta.com

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Released by National Guard Bureau
Page 661 of 2531

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 662 of 2531

ANALYTICAL ENVIRONMENTAL SERVICES, INC
3785 Presidential Parkway, Atlanta GA 30340-3704
AES
TEL.: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

Work Order: 1405E69

Date: MAY 10, 2014 Page 1 of 1

COMPANY: PHASE ASSOCIATES LLC

ADDRESS: 316 EISENHOWER RAMP
LIVINGSTON, NJ 07039

PHONE:

FAX:

SAMPLED BY:

SIGNATURE:

ANALYSIS REQUESTED: LEAD

Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.

#	SAMPLE ID	SAMPLED DATE	SAMPLED TIME	Grab	Composite	Matrix (See codes)	PRESERVATION (See codes)	REMARKS	No # of Containers
1	050814-1 FIRING POSITION	5/8/14				GHOST WIPE	X		1
2	050814-2 DOWN RANGE	5/8/14				"	X		1
3	050814-3 BLANK	5/8/14				"	X		1
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									

[redacted] Non-Responsive

DATE/TIME: 5/14/14 10:30

PROJECT INFORMATION

PROJECT NAME: TN ARNG ELIZABETHTON ARMORY

PROJECT #:

SITE ADDRESS: 128 JUDGE DON LEWIS BLVD. ELIZABETHTON TN 37643

SEND REPOR[redacted] Non-Responsive

INVOICE TO: ARNG REGION SOUTH TN OFFICE
(IF DIFFERENT FROM ABOVE)

QUOTE #: PO#:

RECEIPT

Total # of Containers: 3

Turnaround Time Request
- [X] Standard 5 Business Days
- [ ] 2 Business Day Rush
- [ ] Next Business Day Rush
- [ ] Same Day Rush (auth req.)
- [ ] Other

STATE PROGRAM (if any):

E-mail? Y / N; Fax? Y / N

DATA PACKAGE: [ ] I [ ] II [ ] III [ ] IV

SPECIAL INSTRUCTIONS/COMMENTS:

SHIPMENT METHOD

OUT 05/12/2014 VIA: FEDEX

IN / / VIA:

[ ] CLIENT [ ] FedEx [ ] UPS [ ] MAIL [ ] COURIER

[ ] GREYHOUND [ ] OTHER

SAMPLES RECEIVED AFTER 3PM OR ON SATURDAY ARE CONSIDERED RECEIVED THE NEXT BUSINESS DAY; IF NO TAT IS MARKED ON COC AES WILL PROCEED WITH STANDARD TAT.

SAMPLES ARE DISPOSED OF 30 DAYS AFTER COMPLETION OF REPORT UNLESS OTHER ARRANGEMENTS ARE MADE.

MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Water (Blanks) WW=Wastewater DW=Drinking Water O = Other (specify)

PRESERVATIVE CODES: H+I = Hydrochloric acid + ice I = Ice only N = Nitric acid S+I = Sulfuric acid + ice S/M+I = Sodium Bisulfate/Methanol + ice O = Other (specify) NA = None

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Analytical Environmental Services, Inc Date: 22-May-14

Lab Order:	1405E64
Client:	Phase Associates LLC
Project:	TN ARNG Elizabethton Armory
Matrix:	Wipe
Date Received:	5/14/2014 10:30:00 AM

LEAD ON WIPES (N7082)

N7082

Laboratory ID	Client Sample ID	Result	Units	Reporting Limit	DF	Qual	Date Collected	Date Analyzed	Analyst
1405E64-001A	050814-1 Firing Position	1250	ug, Total	117	5.84		05/08/2014	05/19/2014	JS
1405E64-002A	050814-2 Down Range	107	ug, Total	20	1		05/08/2014	05/19/2014	JS
1405E64-003A	050814-3 Blank	BRL	ug, Total	20	1		05/08/2014	05/19/2014	JS

Qualifiers: BRL - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank

DF - Dilution Factor

Results are blank corrected unless noted otherwise.

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Page 663 of 2531

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Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client GA Army Nat'l guard Work Order Number 1405E764

Non-Responsive

Checklist completed by [redacted] 5/16/14
Si Date

Carrier name: FedEx ✓ UPS __ Courier __ Client __ US Mail __ Other _____

Shipping container/cooler in good condition? Yes ✓ No __ Not Present __

Custody seals intact on shipping container/cooler? Yes __ No __ Not Present ✓

Custody seals intact on sample bottles? Yes __ No __ Not Present ✓

Container/Temp Blank temperature in compliance? (4°C±2)* Yes ✓ No __ RB 5/16/14

Cooler #1 Ambient Cooler #2 _____ Cooler #3 _____ Cooler #4 _____ Cooler#5 _____ Cooler #6 _____

Chain of custody present? Yes ✓ No __

Chain of custody signed when relinquished and received? Yes ✓ No __

Chain of custody agrees with sample labels? Yes ✓ No __

Samples in proper container/bottle? Yes ✓ No __

Sample containers intact? Yes ✓ No __

Sufficient sample volume for indicated test? Yes ✓ No __

All samples received within holding time? Yes ✓ No __

Was TAT marked on the COC? Yes ✓ No __

Proceed with Standard TAT as per project history? Yes __ No __ Not Applicable ✓

Water - VOA vials have zero headspace? No VOA vials submitted ✓ Yes __ No __

Water - pH acceptable upon receipt? Yes __ No __ Not Applicable ✓

Adjusted? _____ Checked by _____

Sample Condition: Good ✓ Other(Explain) _____

(For diffusive samples or AIHA lead) Is a known blank included? Yes ✓ No __

See Case Narrative for resolution of the Non-Conformance.

* Samples do not have to comply with the given range for certain parameters.

L\Quality Assurance\Checklists Procedures Sign-Off Templates\Checklists\Sample Receipt Checklists\Sample_Cooler_Receipt_Checklist

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Page 664 of 2531

APPENDIX E

HEALTH HAZARD INFORMATION MODULES – INDUSTRIAL HYGIENE SURVEY FORMS

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May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 665 of 2531

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HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

ARLOC 47000	INSTALLATION ELIZABETHTON ARMORY	BLDG/RM NO.
LOCATION/CODE GS	OPERATION/CODE DHP	
SURVEY DATE 8-MAY 2014	Non-Responsive	
MACOM/CODE NG	SUBMACOM/CODE XX	Non-Responsive

Non-Responsive	UNIT/ORGANIZATION TNRNG		RAC 5	FREQUENCY (hrs/day) 2
0	NO. MIL 3	NO. CONTRACTORS 0	NO. LOC(S) 1	NO. OTHER 0

SECTION 2: FACILITY DATA

LAB HOODS 0	VAPOR DEGREASERS 0	SPRAY BOOTHS 0
MAINTENANCE BAYS 2	OPEN SURFACE TANKS 0	VENTILATION UNITS 2

SECTION 3: SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS
OTH			NONE	

PERSONAL PROTECTIVE EQUIPMENT (R= REQUIRED; U = UTILIZED)

GLOVES	R/U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R/U
ACID	/	AIR LINE			/
COLD SURFACES	/	ABRASIZE BLASTING HOOD			/
HOT SURFACES	/	DISPOSABLE			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	X/	1/2 FACE AIR PURIFYING			/
SOLVENTS	/	1/4 FACE AIR PURIFYING			/
SURGICAL GLOVES	/	SELF CONTAINED			

EYES/FACE	R/U	HEARING	R/U	BODY	R/U	HEAD/FIT	R/U
CHEMICAL SPLASH	/	CANAL CAPS	/	APRONS	/	COLD WEATHER BOOTS/HATS	/
FULL FACE SHEILD	/	EARPLUGS	/	COLD WEATHER CLOTHING	/	HARD HATS	/
CHEMICAL/SAFETY	/	HELMETS	/	COVERALLS	X/	IMPERMEABLE BOOTS	/
SAFETY/IMPACT	X/	MUFFS	/	FULL BODY SUIT	/	SAFETY/CONDUCTIVE SHOES	/
WELDING HELMET	/	MUFF/EARPLUG COMBO	/	HEAT REFELECTIVE VEST/SUIT	/	SAFETY/NCN-CONDUCTIVE SHOES	/
		MUFF/EARPLUG W/TIME LIMIT	/	SAFETY BELT/HARNESS	/		/

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
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Page 666 of 2531

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HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

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(CONTINUATION)
SECOND PAGE

ARLOC	INSTALLATION	BLDG/RM NO.
47000	ELIZABETHTON ARMORY	

LOCATION/CODE	OPERATION/CODE
GS	DHP

SURVEY DATE
8-MAY 2014

Non-Responsive

SECTION 4: HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
COLUBEOIL	Petroleum and contaminant components	2	B

SECTION 5: PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

(CONTINUATION)
THIRD PAGE

ARLOC	INSTALLATION	BLDG/RM NO.
47000	ELIZABETHTON ARMORY	

LOCATION/CODE	OPERATION/CODE
GS	DHP

SURVEY DATE	EVALUATOR
8-MAY 2014	Non-Responsive

SECTION 6: COMMENTS

X☐This operation was explained to the evaluators, but was not actually observed.

☐ No comments

☐ There is a noise data sheet attached to this form

☐ There is a ventilation data sheet attached to this form

See attached sheet
2

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Page 668 of 2531

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HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

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ARLOC 47000	INSTALLATION ELIZABETHTON ARMORY	BLDG/RM NO. MAINTENANCE SHOP
LOCATION/CODE GS	OPERATION/CODE PTO	
SURVEY DATE 8-MAY 2014	Non-Responsive	
MACOM/CODE NG	SUBMACOM/CODE XX	Non-Responsive

Non-Responsive NO.	UNIT/ORGANIZATION TNRNG		RAC 4	FREQUENCY (hrs/day) <1
NO. CIV(S) 0	NO. MIL 3	NO. CONTRACTORS 0	NO. LOC(S) 1	NO. OTHER 0

SECTION 2: FACILITY DATA

LAB HOODS 0	VAPOR DEGREASERS 0	SPRAY BOOTHS 0
MAINTENANCE BAYS 2	OPEN SURFACE TANKS 0	VENTILATION UNITS 2

SECTION 3: SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS
HEARING PROTECTION	84.6 – 102.7	DBA	HEARING PROTECTION	UTILIZED

PERSONAL PROTECTIVE EQUIPMENT (R= REQUIRED; U = UTILIZED)

GLOVES	R/U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R/U
ACID	/	AIR LINE			/
COLD SURFACES	/	ABRASIZE BLASTING HOOD			/
HOT SURFACES	/	DISPOSABLE			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	1/2 FACE AIR PURIFYING			/
SOLVENTS	/	1/4 FACE AIR PURIFYING			/
SURGICAL GLOVES	/	SELF CONTAINED			/

EYES/FACE	R/U	HEARING	R/U	BODY	R/U	HEAD/FIT	R/U
CHEMICAL SPLASH	/	CANAL CAPS	X/	APRONS	/	COLD WEATHER BOOTS/HATS	/
FULL FACE SHEILD	/	EARPLUGS	X/	COLD WEATHER CLOTHING	/	HARD HATS	/
CHEMICAL/SAFETY	/	HELMETS	/	COVERALLS	/	IMPERMEABLE BOOTS	/
SAFETY/IMPACT	X/	MUFFS	X/	FULL BODY SUIT	/	SAFETY/CONDUCTIVE SHOES	/
WELDING HELMET	/	MUFF/EARPLUG COMBO	/	HEAT REFELECTIVE VEST/SUIT	/	SAFETY/NCN-CONDUCTIVE SHOES	/
		MUFF/EARPLUG W/TIME LIMIT	/	SAFETY BELT/HARNESS	/		/

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Released by National Guard Bureau
Page 669 of 2531

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HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

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(CONTINUATION)
SECOND PAGE

ARLOC	INSTALLATION	BLDG/RM NO.
47000	ELIZABETHTON ARMORY	

LOCATION/CODE	OPERATION/CODE
GS	PTO

SURVEY DATE
8-MAY 2014

Non-Responsive

SECTION 4: HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
P0NOISECO	Noise from tool operation	2	D

SECTION 5: PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY
					VG-10
					VG-10
					VG-10
					VG-10

Non-Responsive

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY
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Page 670 of 2531

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(CONTINUATION)
THIRD PAGE

ARLOC 47000	INSTALLATION KINGSPORT/ MT. CARMEL FMS #17	BLDG/RM NO.

LOCATION/CODE GS	OPERATION/CODE PTO

SURVEY DATE 6-MAY 2014	Non-Responsive

SECTION 6: COMMENTS

□This operation was explained to the evaluators, but was not actually observed.
□ No comments

□ There is a noise data sheet attached to this form
□There is a ventilation data sheet attached to this form

1. Hearing protection devices are available for us in the work place.
2. Noise survey and sound dosimetry conducted and results are included in the full report for this facility.

See attached sheet
2

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Page 671 of 2531

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HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

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ARLOC	INSTALLATION	BLDG/RM NO.
47000	ELIZABETHTON ARMORY	

LOCATION/CODE	OPERATION/CODE
GS	ACP

SURVEY DATE	EVALUATOR
8-MAY 2014	Non-Responsive

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
NG	XX	Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
Non-Responsive	TNRNG	5	<1

NO. CIV(S)	NO. MIL	NO. CONTRACTORS	NO. LOC(S)	NO. OTHER
0	3	0	1	0

SECTION 2: FACILITY DATA

LAB HOODS	VAPOR DEGREASERS	SPRAY BOOTHS
0	0	0
MAINTENANCE BAYS	**OPEN SURFACE TANKS**	**VENTILATION UNITS**
2	0	2

SECTION 3: SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS
GMV			GMV OR ADM	MINOR PAINTING CONDUCTED WITH EITHER MECHANICAL OR NATURAL VENTILATION

PERSONAL PROTECTIVE EQUIPMENT (R= REQUIRED; U = UTILIZED)

GLOVES	R/U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R/U
ACID	/	AIR LINE			/
COLD SURFACES	/	ABRASIZE BLASTING HOOD			/
HOT SURFACES	/	DISPOSABLE			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	1/2 FACE AIR PURIFYING			/
SOLVENTS	X/	1/4 FACE AIR PURIFYING			/
SURGICAL GLOVES	/	SELF CONTAINED			/

EYES/FACE	R/U	HEARING	R/U	BODY	R/U	HEAD/FIT	R/U
CHEMICAL SPLASH	/	CANAL CAPS	/	APRONS	/	COLD WEATHER BOOTS/HATS	/
FULL FACE SHEILD	/	EARPLUGS	/	COLD WEATHER CLOTHING	/	HARD HATS	/
CHEMICAL/SAFETY	/	HELMETS	/	COVERALLS	/	IMPERMEABLE BOOTS	/
SAFETY/IMPACT	X/	MUFFS	/	FULL BODY SUIT	/	SAFETY/CONDUCTIVE SHOES	/
WELDING HELMET	/	MUFF/EARPLUG COMBO	/	HEAT REFELECTIVE VEST/SUIT	/	SAFETY/NCN-CONDUCTIVE SHOES	/
		MUFF/EARPLUG W/TIME LIMIT	/	SAFETY BELT/HARNESS	/		/

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Released by National Guard Bureau
Page 672 of 2531

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

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(CONTINUATION)
SECOND PAGE

ARLOC	INSTALLATION	BLDG/RM NO.
47000	ELIZABETHTON ARMORY	

LOCATION/CODE	OPERATION/CODE
GS	ACP

SURVEY DATE	EVALUATOR
68MAY 2014	Non-Responsive

SECTION 4: HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
	Propellants, paint components	0	A

SECTION 5: PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY
(For use of this form, see HHIM User's Guide)

(CONTINUATION)
THIRD PAGE

ARLOC 47000	INSTALLATION ELIZABETHTON ARMORY	BLDG/RM NO.
LOCATION/CODE GS	OPERATION/CODE ACP	
SURVEY DATE 8-MAY 2014	EVALUATOR Non-Responsive	

SECTION 6: COMMENTS

xThis operation was explained to the evaluators, but was not actually observed.

□No comments

It was reported that only minor touch-up painting or the marking of vehicles with stencils occurs. Large paint tasks are sent to other locations.

□ There is a noise data sheet attached to this form

□There is a ventilation data sheet attached to this form

See attached sheet
2

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HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

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[redacted]

ARLOC	INSTALLATION	BLDG/RM NO.
47000	ELIZABETHTON ARMORY	MAINTENANCE SHOP

LOCATION/CODE	OPERATION/CODE
GS	TAT

SURVEY DATE	EVALUATOR
8-MAY 2014	Non-Responsive

MACOM/CODE	SUBMACOM/CODE	[redacted]
NG	XX	Non-Responsive

[redacted]	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
Non-Responsive	TNRNG	4	8

NO. CIV(S)	NO. MIL	NO. CONTRACTORS	NO. LOC(S)	NO. OTHER
0	3	0	1	0

SECTION 2: FACILITY DATA

LAB HOODS	VAPOR DEGREASERS	SPRAY BOOTHS
0	0	0
MAINTENANCE BAYS	**OPEN SURFACE TANKS**	**VENTILATION UNITS**
2	0	2

SECTION 3: SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS
LEV	64.6 – 83	CFM	LEV – INCREASED FLOW RATE	DOES NOT MEET MINIMUM AIRFLOW REQUIREMENTS

PERSONAL PROTECTIVE EQUIPMENT (R= REQUIRED; U = UTILIZED)

GLOVES	R/U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R/U
ACID	/	AIR LINE			/
COLD SURFACES	/	ABRASIZE BLASTING HOOD			/
HOT SURFACES	/	DISPOSABLE			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	1/2 FACE AIR PURIFYING			/
SOLVENTS	X/U	1/4 FACE AIR PURIFYING			/
SURGICAL GLOVES	/	SELF CONTAINED			/

EYES/FACE	R/U	HEARING	R/U	BODY	R/U	HEAD/FIT	R/U
CHEMICAL SPLASH	/	CANAL CAPS	X/	APRONS	/	COLD WEATHER BOOTS/HATS	/
FULL FACE SHEILD	/	EARPLUGS	X/U	COLD WEATHER CLOTHING	/	HARD HATS	/
CHEMICAL/SAFETY	/	HELMETS	/	COVERALLS	/	IMPERMEABLE BOOTS	/
SAFETY/IMPACT	X/	MUFFS	X/U	FULL BODY SUIT	/	SAFETY/CONDUCTIVE SHOES	/
WELDING HELMET	/	MUFF/EARPLUG COMBO	/	HEAT REFELECTIVE VEST/SUIT	/	SAFETY/NCN-CONDUCTIVE SHOES	/
		MUFF/EARPLUG W/TIME LIMIT	/	SAFETY BELT/HARNESS	/		/

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

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(CONTINUATION)
SECOND PAGE

ARLOC	INSTALLATION	BLDG/RM NO.
47000	ELIZABETHTON ARMORY	MAINTENANCE SHOP

LOCATION/CODE	OPERATION/CODE
GS	TAT

SURVEY DATE	EVALUATOR
8-MAY 2014	Non-Responsive

SECTION 4: HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
P0NOISECO	Noise from engine operation	2	D
7446-09-5	SOx	3	A
100224-97-2	NOx	3	A
50-00-0 + others	Aldehydes	3	A
1333-86-4	Carbon – diesel fume particulate	3	A
50-32-8 + others	PAHs	2	A
630-08-0	CO	3	A
POHEATSTR	Heat from open bays and field work	2	F

SECTION 5: PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

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Page 676 of 2531

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HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

(CONTINUATION)
THIRD PAGE

ARLOC 47000	INSTALLATION ELIZABETHTON ARMORY	BLDG/RM NO. MAINTENANCE SHOP
LOCATION/CODE GS		OPERATION/CODE TAT
SURVEY DATE 8-MAY 2014	Non-Responsive	

SECTION 6: COMMENTS

X☐ This operation was explained to the evaluators, but was not actually observed.
☐ No comments

1 Hearing protection devices available in the workplace.
2 LEV systems reportedly utilized; open bay doors afford natural ventilation
3. Noise survey, sound dosimetry and ventilation survey conducted and included in full report on this facility

☐ There is a noise data sheet attached to this form
☐ There is a ventilation data sheet attached to this form

See attached sheet
2

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 677 of 2531

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HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

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[redacted]

ARLOC	INSTALLATION	BLDG/RM NO.
47000	ELIZABETHTON ARMORY	MAINTENCE SHOP

LOCATION/CODE	OPERATION/CODE
GS	WAV

SURVEY DATE	EVALUATOR
8-MAY 2014	Non-Responsive

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
NG	XX	Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
Non-Responsive	TNRNG	5	<1

NO. CIV(S)	NO. MIL	NO. CONTRACTORS	NO. LOC(S)	NO. OTHER
0	3	0	1	0

SECTION 2: FACILITY DATA

LAB HOODS	VAPOR DEGREASERS	SPRAY BOOTHS
0	0	0
MAINTENANCE BAYS	**OPEN SURFACE TANKS**	**VENTILATION UNITS**
2	0	2

SECTION 3: SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS
HEARING PROTECTION			HEARING PROTECTION	
			EYE/FACE SHIELD	

PERSONAL PROTECTIVE EQUIPMENT (R= REQUIRED; U = UTILIZED)

GLOVES	R/U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R/U
ACID	/	AIR LINE			/
COLD SURFACES	/	ABRASIZE BLASTING HOOD			/
HOT SURFACES	/	DISPOSABLE			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	X/	1/2 FACE AIR PURIFYING			/
SOLVENTS	/	1/4 FACE AIR PURIFYING			/
SURGICAL GLOVES	/	SELF CONTAINED			

EYES/FACE	R/U	HEARING	R/U	BODY	R/U	HEAD/FIT	R/U
CHEMICAL SPLASH	/	CANAL CAPS	/	APRONS	/	COLD WEATHER BOOTS/HATS	/
FULL FACE SHEILD	X/	EARPLUGS	X/	COLD WEATHER CLOTHING	/	HARD HATS	/
CHEMICAL/SAFETY	/	HELMETS	/	COVERALLS	X/	IMPERMEABLE BOOTS	/
SAFETY/IMPACT	X/	MUFFS	X/	FULL BODY SUIT	/	SAFETY/CONDUCTIVE SHOES	/
WELDING HELMET	/	MUFF/EARPLUG COMBO	/	HEAT REFELECTIVE VEST/SUIT	/	SAFETY/NCN-CONDUCTIVE SHOES	/
		MUFF/EARPLUG W/TIME LIMIT	/	SAFETY BELT/HARNESS	/		/

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Page 678 of 2531

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HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

(CONTINUATION)
SECOND PAGE

ARLOC	INSTALLATION	BLDG/RM NO.
47000	ELIZABETHTON	MAINTENANCE SHOP

LOCATION/CODE	OPERATION/CODE
GS	WAV

SURVEY DATE	EVALUATOR
8-MAY2014	Non-Responsive

SECTION 4: HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
	Detergents, road debris	0	0
P0NOISECO	Noise from power washers	0	0

SECTION 5: PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

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HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

(CONTINUATION)
THIRD PAGE

ARLOC	INSTALLATION	BLDG/RM NO.
47000	ELIZABETHTON ARMORY	MAINTENANCE SHOP

LOCATION/CODE	OPERATION/CODE
GS	WAV

SURVEY DATE	EVALUATOR
8-MAY2014	Non-Responsive

SECTION 6: COMMENTS

xThis operation was explained to the evaluators, but was not actually observed.

☐ No comments

☐There is a noise data sheet attached to this form
☐There is a ventilation data sheet attached to this form

See attached sheet
2

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 680 of 2531

BEST AVAILABLE COPY

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

ARLOC 47000	INSTALLATION ELIZABETHTON ARMORY	BLDG/RM NO. MAINTENANCE SHOP
LOCATION/CODE GS	OPERATION/CODE WEL	
SURVEY DATE 8-MAY 2014	EVALUATOR Non-Responsive	
MACOM/CODE NG	SUBMACOM/CODE XX	SUPERVISOR Non-Responsive

TELEPHONE/DSN NO Non-Responsive	UNIT/ORGANIZATION TNRNG		RAC 4	FREQUENCY (hrs/day) <1
NO. CIV(S) 0	NO. MIL 3	NO. CONTRACTORS 0	NO. LOC(S) 1	NO. OTHER 0

SECTION 2: FACILITY DATA

LAB HOODS 0	VAPOR DEGREASERS 0	SPRAY BOOTHS 0
MAINTENANCE BAYS 2	OPEN SURFACE TANKS 0	VENTILATION UNITS 2

SECTION 3: SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS
OTH				SHADED WELDING HELMET/GOOGLES USED

PERSONAL PROTECTIVE EQUIPMENT (R= REQUIRED; U = UTILIZED)

GLOVES	R/U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R/U
ACID	/	AIR LINE			/
COLD SURFACES	/	ABRASIZE BLASTING HOOD			/
HOT SURFACES	X/	DISPOSABLE			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	1/2 FACE AIR PURIFYING			/
SOLVENTS	/	1/4 FACE AIR PURIFYING			/
SURGICAL GLOVES	/	SELF CONTAINED			/

EYES/FACE	R/U	HEARING	R/U	BODY	R/U	HEAD/FIT	R/U
CHEMICAL SPLASH	/	CANAL CAPS	/	APRONS	/	COLD WEATHER BOOTS/HATS	/
FULL FACE SHEILD	/	EARPLUGS	/	COLD WEATHER CLOTHING	/	HARD HATS	/
CHEMICAL/SAFETY	/	HELMETS	/	COVERALLS	X/	IMPERMEABLE BOOTS	/
SAFETY/IMPACT	X/	MUFFS	/	FULL BODY SUIT	/	SAFETY/CONDUCTIVE SHOES	X/
WELDING HELMET	X/	MUFF/EARPLUG COMBO	/	HEAT REFELECTIVE VEST/SUIT	/	SAFETY/NCN-CONDUCTIVE SHOES	/
		MUFF/EARPLUG W/TIME LIMIT	/	SAFETY BELT/HARNESS	/		/

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

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(CONTINUATION)
SECOND PAGE

ARLOC	INSTALLATION	BLDG/RM NO.
47000	ELIZABETHTON ARMORY	MAINTENANCE SHOP

LOCATION/CODE	OPERATION/CODE
GS	WEL

SURVEY DATE	EVALUATOR
8-MAY 2014	Non-Responsive

SECTION 4: HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
P0NIORADI	Non-ionizing light, metal fumes	3	A
C0WELDFUM	Metal fumes	0	A

SECTION 5: PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

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May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 682 of 2531

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(CONTINUATION)
THIRD PAGE

ARLOC 47000	INSTALLATION ELIZABETHTON ARMORY	BLDG/RM NO. MAINTENANCE SHOP
LOCATION/CODE GS	OPERATION/CODE WEL	
SURVEY DATE 8-MAY 2014	EVALUATOR Non-Responsive	

SECTION 6: COMMENTS

xThis operation was explained to the evaluators, but was not actually observed.

xNo comments

☐ There is a noise data sheet attached to this form

☐There is a ventilation data sheet attached to this form

See attached sheet
2

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 683 of 2531

APPENDIX F

REFERENCES

1. "Industrial Ventilation – A Manual of Recommended Practice," 25th Edition, American Conference of Governmental Industrial Hygienists
2. Occupational Safety and Health Administration, 29 Code of Federal Regulations, 1910 – General Industry
3. Army National Guard, DG 415-5, "General Facilities Information Design Guide"
4. "American National Standard for Office Lighting,"RP-1-04, Illumination Engineering Society of North America
5. "Recommended Practice for Industrial Lighting," RP-7-01, Illumination Engineering Society of North America
6. Department of Defense Instruction 6055.12, Hearing Conservation Program, May 2004
7. Department of Defense Instruction 6055.1, Occupational Safety and Health Program, August 1998
8. National Guard Regulation 385-10, September 2008, Army National Guard Safety and Occupational Health Program.

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 684 of 2531

APPENDIX G

PHOTOGRAPH INDEX AND SITE PHOTOGRAPHS

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 685 of 2531

PHOTOGRAPH INDEX

1. Acoustic Tile – wall & ceiling of firing range
2. Lead Remediation – Containment Plastic remaining in range
3. POL Storage containers (secondary containers) without hazard warning labels

Posted to NGB FOIA Reading Room
May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 686 of 2531

1. Acoustic Tile – wall & ceiling of firing range.

2. Lead Remediation – Containment Plastic remaining in range

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 687 of 2531

BEST AVAILABLE COPY

3. POL Storage containers (secondary containers) without hazard warning labels

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 688 of 2531

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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-AVN-SI

May 18, 2001

MEMORANDUM FOR: Adjutant General TN ARNG, ATTN: State Safety Manager, P O Box 41502, Nashville, TN 37204-1502.

SUBJECT: Transmittal of Industrial Hygiene Indoor Firing Range Inspection/Evaluation Report Gallatin Armory Hygiene Indoor Firing Range, Gallatin, TN.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, 30 August 1986, Medical Service, Preventive Medicine.

c. National Guard Regulation (NGR) 385-10, 1988, Army National Guard Safety and Occupational Health Program.

d. AR 11-34, The Army Respiratory Protection Program, 15 February 1990.

e. TB MED 502, Occupational and Environmental Health Respiratory Protection Program, February 1982.

f. TB MED 503, 1 February 1985, The Army Industrial Hygiene Program.

g. DA PAM 40-501, 27 August 1991, Hearing Conservation (Updates TB MED 501, 15 March 1980, Hearing Conservation).

h. Guide to Occupational Exposure Values 2000, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, ACGIH, Cincinnati, Ohio.

j. USAEHA TG-141, 5 Mar. 1991, Guidelines for Air Sampling and Bulk sample Collection.

k. Title 29, Code of Federal Regulations (CFR), part 1910, Occupational Safety and Health Health Standards.

l. National Guard Regulation, NGR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and use of ARNG Indoor Firing Ranges, Draft March 2000.

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m. Army National Guard Guidelines for Housekeeping, Rehabilitation and Conversion of Indoor Firing Ranges, Draft NGB Pam 385-15.

n. OSHA Standards 29 CFR (Code of Federal Regulations), 1910.1025, Lead Standard

o. OSHA Standards 29 CFR (Code of Federal Regulations), 1926.62, Construction Standard

p. Report dated October March 23, 2001, Industrial Hygiene Survey, Tammer Sciences, Inc.

2. General.

a. At the request of Non-Responsive TN ARNG Occupational Health Office, an Industrial Hygiene Service was put together to conduct IH evaluation of the Gallatin Armory Hygiene Indoor Firing Range, Gallatin, TN.

b. The survey was conducted by Tammer Sciences, Inc., 3744 Lawrence Drive, Napperville, IL 60564

3. Findings. All findings are listed in the enclosed report (See ATTACHEMENT 1).

4. Recommendations.

a. Follow all recommendations made in the enclosed report.

b. At the time when the range is safe for use contact this office to evaluate it again. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY2001 IHIP.

c. Have all HHIM data entered into the HHIM computer module.

d. Contact the State Occupational Health Nurse, Non-Responsive for any medical Surveillance that may be needed.

e. To execute your responsibilities in correcting all deficiencies, coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

Non-Responsive

CF: NBG-AVN-SH
State Occupational Health Office, P O Box 41502, Nashville, TN 37204-1502.
ENCL.
as

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Indoor Firing Range Inspection/Evaluation Survey Report

For

Tennessee Army National Guard
(TNANG)

At

Gallatin Armory Indoor Firing Range
Gallatin, Tennessee

Prepared by:

Tammer Sciences, Inc.
3744 Lawrence Drive
Naperville, IL 60564

For
National Guard Bureau
Army National Guard
Region South Industrial Hygiene Office
Airport Plaza Suite 1530
510 Plaza Drive
College Park, GA 30349

March 23, 2001

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May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau

BEST AVAILABLE COPY

Table of Contents

I. Executive Summary ..... page 1

II. Findings and Recommendations Summary ..... page 2

III. Background ..... page 3

a. Introduction
b. Site Description
c. Scope of Work
d. Health effects and hazard determination
e. Methodology and Assessment Criteria

IV. Findings and Recommendations ..... page 6

a. Building envelope
b. Range lighting
c. Bullet traps
d. Targets and target carriers
e. Range use
f. Range maintenance
g. Personal protective equipment
h. Posting of signs
i. Range sop
j. Record keeping
k. Ventilation
l. Air sampling

Appendices

A. References

B. Risk Assessment Codes (RAC) Table

C. IFR Checklist and Photographs

D. Range Layout Drawing and Ventilation Measurements

E. Air Sampling Results and Laboratory Sample Analysis Report

F. Air Sampling Notification Letters

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I. EXECUTIVE SUMMARY

At the request of the Tennessee Army National Guard (TNARNG), field personnel representing the National Guard Bureau, Region South Industrial Hygiene Office, conducted an inspection/evaluation of the Gallatin Armory indoor firing range (IFR) located in Gallatin, Tennessee on 29 November 2000. This survey was conducted as part of the TNARNG occupational safety and health program to evaluate potential health hazards associated with air contaminants generated during firing. The survey consisted of conducting a physical inspection of the range, collecting air samples, evaluating the ventilation system, measuring the lighting levels, and reviewing the range operating procedures

Five personal samples and two area air samples were collected during a simulated thirty-two minute weapons firing qualification test. Four out of the five personal sample results exceeded the Army National Guard recommended limit of 0.03 mg/m^3. However, the equivalent eight-hour time weighted average were below the regulated Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (PEL) of 0.05 mg/m^3. Area air sampling results were well below the recommended limit of 0.03 mg/m^3, indicating that the exposure is limited to the firing line area. This finding was confirmed by the results of the air velocity measurements and smoke testing. The average air velocity at the firing line was below the recommended 50 feet per minute. Average velocities ranged from 13 feet per minute in lane 4 to 71 feet per minute in lane 5 indicating uneven air distributions throughout the range. Smoke testing showed excessive turbulence at the firing line. In addition to air sampling and ventilation measurements, illumination readings in critical areas were below the recommended levels. Detailed findings and recommendations regarding this range can be found in the following table and report.

In conclusion and based on the findings of this inspection/evaluation, the Gallatin firing range is classified as unsafe for use based on deficiencies in ventilation, lighting and building envelope. Based on air sampling results, this range is classified as limited use. Considerations should be given to implementing the recommendations listed herein.

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 693 of 2531

II. FINDINGS and RECOMMENDATIONS SUMMARY

Findings	Recommendations	RAC
This range has been classified as unsafe due to building envelope, range lighting, and ventilation system deficiencies.	Further use of this range is restricted until deficiencies in the building envelope, range lighting, and ventilation system have been corrected, reinspected, and approved, and further air sampling is performed.	RAC 2
Building envelope		
Access doors are not weather-stripped.	Access doors should be weather-stripped and the locks should be fixed so that the door closes and locks properly.	RAC 2
Range lighting		
Lighting causes shadows and glare.	Consult FMO to resolve shadow and glare	RAC 4
Range lighting is below the recommended 100 FC at the firing line and 30 FC in all other areas.	Upgrade lighting to meet these requirements.	RAC 3
Emergency lighting is not provided.	Emergency and exit lights should be provided behind the firing line.	RAC 3
Range use		
A BC Type II fire extinguisher is provided in the range.	An ABC type fire extinguisher should be kept at the firing line in case of emergencies.	RAC 3
Personal Protective Equipment		
All personnel were observed wearing hearing protection only	All personnel should wear approved hearing AND eye protection during firing.	RAC 2
Posting of signs		
All appropriate warning signs were not posted in the range.	Post appropriate signs in the vicinity of the range and on the entrance door.	RAC 2
Range SOP		
Gallatin Armory does not have an approved standing operation procedure	Develop and implement a standing operation procedure	RAC 2
Recordkeeping		
No records of range training, maintenance, or cleaning are maintained.	Maintain appropriate records regarding range operations and procedures	RAC 2
Ventilation		
Supply and exhaust fans are not interlocked with range lighting.	Interlock supply and exhaust fans with range lighting.	RAC 3
Ventilation flow rates averaged below 50 fpm in Lanes 1, 2, and 4.	Holes in the plenum wall should be one inch in diameter and extended over the entire surface of the plenum wall.	RAC 2
Flow rates at the plenum wall were less than the required 400 to 600 fpm	Holes in the plenum wall should be one inch in diameter and extended over the entire surface of the plenum wall.	RAC 2
More than 10 to 15% of the plenum wall is open.	Holes in the plenum wall should be one inch in diameter and extended over the entire surface of the plenum wall.	RAC 2
Smoke tests revealed turbulence at the firing line observable in three and four.	Correct ventilation system deficiencies to provide a uniform and even flow rate.	RAC 2
Air sampling		
Air sampling results ranged from <0.0022 to 0.11 mg/m³.	Range is classified as limited use based on results of air sampling. Appropriate records must be kept for all persons using the range.	RAC 2

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 694 of 2531

III. BACKGROUND

a.) Introduction: At the request of Non-Responsive [redacted] of the National Guard Bureau Region South Industrial Hygiene Office, an inspection/evaluation survey was performed at the Gallatin Indoor Firing Range in Gallatin, Tennessee. Non-Responsive and Non-Responsive [redacted] contract industrial hygienists, conducted the survey on 29 November 2000. The purpose of the survey was to evaluate range characteristics, ventilation, and quantify employee exposure to lead dust.

b.) Site Description: The Gallatin Indoor Firing Range measures approximately 75 feet long, 23 feet wide, and 12 feet high and is used for weapons firing and qualification. The range has five firing lanes and an inclined steel plate bullet trap. An exhaust fan, which is rated at 16,600 cubic feet per minute draws air through the bullet trap and exhausts it to the rear of the building. 100 percent outside air is supplied through a plenum that extends across the back wall.

c.) Scope of Work: The work consisted of a physical inspection of the range and an evaluation of the building envelope, range lighting levels, bullet traps condition, targets and target carriers, the use of personal protective equipment, posting of signs, range standard operating procedures (SOP), record keeping, the ventilation system, range use and maintenance. In addition personal and area air samples were collected during firing to evaluate the airborne exposures to the range users. A range inspection checklist found in National Guard Regulation 385-15, which addresses Indoor Firing Range use and maintenance was completed for the range. Smoke candles were utilized to observe airflow patterns in the range. Air velocities were also measured at the firing line. Air sampling and ventilation measurements were performed to quantify performance of the range and its effectiveness in reducing employee exposure to lead dust.

d.) Health Effects and Hazard Determination: The most significant hazard present to employees and users of the indoor firing range is lead dust. Shooters using ammunition with lead primers or bullets manufactured with lead are potentially exposed to lead fumes and dust during the firing process. Furthermore, the lead found in the primer, the melting of the bullet base by hot powder gasses, the shaving and abrasion of the bullet during firing, and fragmentation of the bullet at the point of impact are all potential sources for lead. Exposure to lead may also occur during cleaning of the range, guns, or bullet trap where lead dust is deposited.

Lead affects the nervous, circulatory, digestive, excretory, and reproductive systems of both men and women. If the amount of lead absorbed and stored in the body exceeds the body's ability to expel it, lead can accumulate in the body affecting the blood, heart, and immune systems. Pregnant women overexposed to lead are more prone to spontaneous abortions or may give birth to babies with a low birth weight and slowed postnatal neurological development. Results of overexposure in children are slowed cognitive development and reduced growth.

e.) Methodology and Assessment Criteria: Personal air sampling was conducted during a simulated weapons firing qualification test, which lasted over a thirty-two minute period. Area air samples were collected during the firing and one and half hour to two hours after the firing ended. Gilian air sampling pumps, Model Number GilAir5, Serial Numbers 13248, 13249, 13250, 13251, 13252, 13521, 13522, 13523, 13524, 13525 were used to collect the personal and area air samples. Each pump was calibrated prior to sampling and at the end of each sampling

Posted to NGB FOIA Reading Room
May, 2018
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 695 of 2531

BEST AVAILABLE COPY

period using a pre-calibrated rotameter, which was calibrated against a bubble meter. The sampling flow rate was set at approximately 2 liters per minute (lpm). Samples were sent to NATLSCO laboratory, which is accredited by the American Industrial Hygiene Association (AIHA), for analysis.

An Alnor CompuFlow Air Velocity Meter, Model Number 8570, Serial Number 99097037, was used to measure air velocities at the firing line. A total of nine velocity readings were taken at each firing lane. Three measurements were taken at each of three positions; standing, kneeling, and prone positions for a total of nine readings. Details of locations where ventilation measurements were made can be found in Appendix D.

Lighting measurements were taken at the firing line, target line, and intermediate areas to determine luminance levels in these areas. Approximately fifteen to twenty readings were taken throughout the range using a Minolta Light Meter Model Number TL-1, Serial Number 90480727.

Air sampling, ventilation and illumination readings were compared to the NGR 385-15 Policy Responsibilities, and Procedures for Inspection/Evaluation and use of ARNG Indoor Firing Ranges.

Risk Assessment Codes (RACs) are included in this report to quantify the risk of particular operations to employees and to establish funding priorities for corrective actions. RACs are assigned with regard to hazard severity and mishap probability. The type, length, and route of exposure are taken into consideration, as are the medical effects that would occur with such exposures. RAC criteria can be found in Appendix B.

IV. FINDINGS, DISCUSSION, AND RECOMMENDATIONS

a. Building Envelope. This indoor firing range measures 55 feet from the firing line to the bullet trap, 23 feet wide, and 12 feet high. Each firing lane is the appropriate width and all pipes, conduits, and projecting surfaces are adequately baffled. No open drains exist in the range and roof and walls provide ballistic security. The access door to the range is not adequately weather-stripped.

Recommendation: Weather-strip all access doors to the range to prevent leakage of lead dust and debris into outlying areas. [385-15 2-2a(2)(b)] **(RAC 2)**

b. Range Lighting. Range lighting is not uniform and causes shadows. Lighting measures an average 14 footcandles (FC) at the targets and 20.1 FC in all other areas. Baffles adequately protect all lighting fixtures. Emergency lighting is not provided behind the firing line.

Recommendations:

1. Consult the FMO to resolve shadows and glare caused by lighting. **(RAC 4)**
2. Increase lighting to the recommended 100 FC at the targets and 30 FC in all other areas. [NGR 385-15, 1-17c(1)(d)] **(RAC 3)**
3. Emergency and exit lights should be provided behind the firing line to adequately protect personnel from shooting accidents and to guide them out of the range in the case of an emergency or power outage. [CEHND 110-1-18, 3-4c(c)] **(RAC 3)**

c. Bullet Traps. An inclined plate bullet trap is permanently installed and is designed for .22 caliber use, which is all that is permitted for firing on this range. The bullet trap measures ¼" thick and adequately prevents ricochets. The bullet trap is in good shape and is smooth without any seams or overlapping.

Recommendations:

1. The bullet trap should be adequately maintained. Rust or paint chips may cause ricochets. A thin coating of oil should be applied every 3 months for moderate firing, sooner if heavy firing occurs (10W30 or 3 in 1). **DO NOT APPLY GREASE. (RAC 3)**
2. Bullet collection bins should not be allowed to get over ¾ full. Contact the TN ARNG State Environmental Office prior to emptying for disposal instructions. **(RAC 3)**

d. Targets and Target Carriers. Target retrieval systems were provided for each lane and are in good working order. Paper targets are used for personnel during firing procedures.

Recommendation: None at this time.

e. ***Range Use.*** The range is used for no purpose other than firing and no equipment or additional items are stored in the plenum. A BC Type II fire extinguisher is provided in the range.

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 697 of 2531

Recommendations:

1. No items should be stored in the firing range at any time. Stored items can become contaminated with lead dust and will increase the exposure to anyone who moves or touches stored items. [NGR 385-15 2-3a, 2-4h] **(RAC 2)**
2. No items should be stored in front of the plenum wall, which will disturb airflow while the ventilation system is running. [NGR 385-15 2-4a] **(RAC 2)**
3. A hand held ABC-type fire extinguisher should be kept at the firing line in case of emergencies. [DG 415-1, App. A, 4-5] **(RAC 3)**

f. ***Range Maintenance.*** No dry sweeping occurs in the range and a range custodian has been appointed for this area.

Recommendations:

1. The indoor firing range should be cleaned with the ventilation system operating to prevent dust and debris from migrating into other work areas and to minimize exposure to the cleaners. Floor areas behind the firing line and 15 feet downrange should be cleaned after firing or at least every three months if the range is not used as often. [NIOSH 76-130, p.24, II, 1] **(RAC 2)**
2. Dry sweeping and cleaning bullet traps by pouring or shoveling bullet debris into waste buckets causes settled lead dust to become airborne and inhaled by the workers. **Dry sweeping of indoor firing ranges is prohibited.** A High Efficiency Particulate Air (HEPA) filtered vacuum system is recommended for lead dust and particles cleanup only (no bullet casings). If a HEPA vacuum cannot be acquired, a wet method should be used which includes a solution of detergent and hot water. Two containers should be used: one to wet the area, and the other to rinse the applicator after the dust has been wiped from the surface. Water should be changed often to prevent reapplication of contaminated water. Wastewater should be left to evaporate and the residue and any applicators should be disposed under guidance from the TN ARNG Environmental Office. [29 CFR 1910.1025(h)(ii), NIOSH 76-130, P.24, II, 2] **(RAC 2)**
3. One person, preferably the range custodian, should be responsible for cleaning the range and discarding debris. The range should be cleaned **ONLY** with a HEPA vacuum system or utilizing a wet method. [29 CFR 1910.1025(h)(ii)] **(RAC 2)**

g. ***Personal Protective Equipment (PPE).*** Personnel were observed wearing appropriate hearing protection only.

Recommendation: All personnel should wear ANSI approved hearing and eye protection. Additional eye and hearing protection should be available for those users that do not have their own. [NGR 385-15, 2-5a, 2-5 b, 29 CFR 1910.133 (a-b), 29 CFR 1910.95 a]. **(RAC 2)**

h. ***Posting of Signs.*** Warning signs are posted and instruct users about the regulations and requirements of the range. No signs were present to instruct personnel that dry sweeping is prohibited or that storage of furniture and other items is prohibited in the range. The entrance door to the range is not posted as a Lead Hazard Area and does not prohibit pregnant women

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 698 of 2531

from entering the area. No illuminated warning sign is interlocked with the range ventilation switch to alert individuals that the range is in use.

Recommendations.

1. The following signs should be posted in or in the vicinity of the range and of the access door to the bullet trap. [NGR 385-15 3-6a,b] **(RAC 2)**:

   a. Eating, drinking, and Smoking are Prohibited
   b. Dry Sweeping is Prohibited
   c. Wash Hands and Face Immediately Following Firing
   d. The Following Ammunition is Authorized for use on this Range
   e. Hearing Protection Must Be Properly Worn During Firing
   f. Proper Safety Glasses/Goggles Must Be Worn During Firing
   g. No Furniture or Storage of Items Permitted in the Range

2. The following signs must be posted on the entrance door to the range and to the access door of the bullet trap:

   a. Noise Hazardous Area
   b. Danger Lead Hazard Area
   c. Pregnant Females are Not Permitted in this Area

3. An illuminated sign should be interlocked with the range ventilation switch and located outside of the firing range to alert individuals outside when the range is in use. [NGR 385-15 2-6c] **(RAC 4).**

4. Each firing line should be clearly numbered at the firing line and bullet trap. [NGR 385-15 1-21C] **(RAC 4)**

i. Range Standing Operation Procedure (SOP). A range SOP is available for the facility however: it does not meet all requirements as stated in NGR 385-15 and approved by the State Safety Office.

Recommendations.

A Range Standing Operation Procedure should be written for this facility and should include the following **(RAC 2)**:

1. Requirements for establishment and maintenance of a visitor's log indicating date, age, and ammunition fired
2. Requirements for safety briefing for all individuals before entrance to the range given by a designated range safety officer
3. Work practices
4. Instructive guidance
5. Personnel responsibilities for performing, supervising, reviewing, and updating the SOP
6. Authorized ammunition

Posted to NGB FOIA Reading Room BEST AVAILABLE COPY FOIA Requested Record #J-15-0085 (TN)
May, 2018 Released by National Guard Bureau
Page 699 of 2531

7. Posting of signs
8. Cleaning and maintenance requirements
9. PPE requirements for maintenance, firing, and cleaning of the range.

j. ***Recordkeeping.*** Records kept by the range custodian are: A visitor's log with name and age of firer, organization and sign in and sign out times. The type of ammunition used is not documented. An initial inspection report including air-sampling data is available. No OSHA compliance program is in place. A range custodian has been designated but has not been trained on lead hazards specific to firing and cleaning of the range.

Recommendations.

1. A visitor's log must be maintained that contains the name and age of firer, organization, sign in and out time, and type of ammunition, and number of rounds fired. [NGR 385-15 1-16c] **(RAC 2)**
2. A copy of this and any other inspections should be maintained. [NGR 385-15 3-6] **(RAC 2)**
3. An OSHA compliance program must be established and maintained to document how engineering (i.e. ventilation) and work practice controls will be put in place to reduce exposure to or below the permissible exposure limit. The written plan should include a description of the operation, ammunition and weapons used, existing controls, groups using the firing range, employee job responsibilities, operating procedures and maintenance practices. A record of previous inspections and air sampling data must also be retained. [29 CFR 1910.1025(e)(3)(i-ii)]. **(RAC 2)**
4. All individuals utilizing the range must be provided with a copy of the SOP or have been briefed on the unit's requirements and must sign an agreement to follow the rules. [NGR 385-15 1-15h] **(RAC 2)**
5. State maintenance officers and custodians must be fully trained on an annual basis on the health effects from exposure to lead dust and the appropriate precautions that must be taken. Records verifying this training must be kept by the range custodian. Each employee who works in a place in which there is a potential exposure to airborne lead at any level shall be informed of the Content of Appendix A Substance Data Sheet for Occupational Exposure to Lead, and Appendix B Employee Standard Sumraary of OSHA regulation 1910.1025. Initial training should be performed at least 180 days from date of initial job assignment and annually thereafter. [29 CFR 1910.1025(l)(1)(i-iv). 29 CFR 1910.1200(h)] **(RAC 2)**
6. A range safety officer and custodian should be designated in writing. [NGR 385-15 1-17d] **(RAC 2)**

k. ***Ventilation.*** The range is equipped with an operational ventilation system, with 100% of the make-up air exhausted behind the bullet trap. Supply and exhaust fans are not interlocked with range lighting. Average velocity readings in lanes 1, 2, and 4 were below the required 50 feet per minute (fpm). Air velocities were found below 50 fpm in the standing positions in lanes 1, 2, and 4 and in the kneeling position in lanes 1 and 4. Refer to Table D-1 in Appendix D. The exhaust fan is rated for 16600 CFM, which when divided by the cross sectional area of the range would result in a calculated average velocity of 60 fpm. The measured average velocity of all

Posted to NGB FOIA Reading Room
May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 700 of 2531

the readings was 44 fpm. The difference between the measured and calculated average velocities is due to the high turbulence at the firing line. Furthermore, the measured average velocity in lane 5 was 71 fpm while in lane 4 the average velocity was 13 fpm. This large difference between the two velocities in adjacent lanes is an indication of uneven distribution of airflow through the firing line. A properly designed plenum wall located at least 15 feet behind the firing line is meant to reduce turbulence and distribute the air evenly and uniformly downrange.

The plenum wall extends across the entire back wall and flow rates at the plenum wall did not have the required 400 to 600 fpm. More than 10-15% of the plenum wall is open. Smoke tests revealed turbulence at the firing line, with the smoke curling back behind the firing line, which would result in the lead dust blowing back into the breathing zone during firing.

Results of ventilation and smoke tests indicated that sufficient air velocities are being provided by the fan but the air flow is not evenly and uniformly distributed to move lead dust downrange and away from the firer's breathing zone.

Recommendations:

1. Interlock supply and exhaust fans with range lighting so that the ventilation system operates at all times during occupancy of the range. [CEHND 110-1-18, 3-4a] **(RAC 3)**
2. The plenum wall should be retrofitted so that the holes are one inch in diameter, and evenly distributed across the surface of the plenum wall and centered in a four-inch square area. The plenum wall should also be approximately 15 feet behind the firing line to allow the air enough time to straighten out over the entire area. The airflow must measure at least 50 fpm at all positions in the firing lane. **(RAC 2)**

l. ***Air Sampling.*** Area and personal air sampling was conducted to simulate weapons qualifications. Five personal samples were collected from personnel firing for about 32 minutes. Two area samples were also collected simultaneously; one inside the range behind the firing line, and the other outside. The firing was restricted to a single qualification time period because of the air turbulence found at the firing line and the uneven air distribution. This 32-minute qualification period is representative of the expected exposure for personnel using the range. Personal sampling results ranged from 0.02 to 0.11 mg/m^3 for the 32 minute sampling period. Except for one personal sample, results exceeded the Army National Guard Occupational Exposure Limit of 0.03 mg/m^3. Assuming no exposure for the remainder of an eight-hour period, the equivalent 8-hour time weighted average for the five personal samples ranged from 0.0013 to 0.007 mg/m^3. These equivalent results are lower than the OSHA PEL, NIOSH REL, and ACGIH TLV, on an eight-hour time weighted average basis. However, if firing were continued for the eight-hour period, airborne lead levels would exceed the regulated OSHA limit of 0.05 mg/m^3. Area air sampling results were less than 0.0025 mg/m^3 for the two and one half hour sampling period. Area air sampling results indicate that the airborne lead exposure is limited to the firing line area and downstream from the firing line.

Air sampling result indicated that overexposure to lead is reasonably expected while using the range for an extended period of time. Reducing the air turbulence at the firing line and stream lining the air flow as recommended herein should reduce the exposure to less than the ANG recommended limit of 0.03 mg/m^3. According to National Guard regulations, Guardsmen

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May, 2018 Released by National Guard Bureau
Page 701 of 2531

exposed to hazards in the range less than thirty days per year are permitted to use the range up to two and a half hours per day. Guardsmen utilizing the range for over thirty days per year and all non-military personnel are limited to one and a half hours per day. Range users under 17 are not permitted.

Recommendations:

1. This range is classified as unsafe based on sampling results collected during the survey, and the results of the ventilation survey. **(RAC 2)**
2. A record must be maintained for time spent on the range for all personnel using limited use firing ranges as recorded by the range custodian. [NGR 385-15 1-15 b] **(RAC 2)**
3. Air sampling should again be conducted after changes required in the ventilation system have been made. [NGR 385-15 1-27 c] **(RAC 2)**

m. ***Range Status.*** This range has been classified as unsafe due to building envelope, range lighting, air sampling, and ventilation deficiencies.

Recommendation: Further use of this range is restricted until deficiencies in the building envelope, range lighting, and ventilation system are corrected, reinspected, and approved and further air sampling has been accomplished. **(RAC 2)**

Non-Responsive

[redacted]

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APPENDIX A

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau

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REFERENCES

1. American Conference of Governmental Industrial Hygienists (ACGIH), Industrial Ventilation, A Manual of Recommended Practice, 23rd Edition, 1998.

2. American Conference of Governmental Industrial Hygienists (ACGIH), Threshold Limit Values for Chemical Substances and Physical Agents and Biological Indices for 2000.

3. Army Regulations - AR 40-5, Preventative Medicine, 15 October 1990.

4. Army Regulations - AR 385-10, The Army Safety Program, 23 May 1988.

5. National Safety Council, Fundamentals of Industrial Hygiene, 4th edition, 1996.

6. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, 29 December 1989.

7. National Guard Regulation (NGR) 385-15 Policy Responsibilities, and Procedures for Inspection/Evaluation and use of ARNG Indoor Firing Ranges, 18 September 2000..

8. National Guard Pamphlet (NG PAM) 385-16, Guidelines for Converting Firing Ranges to Other Uses, 31 January 1994.

9. National Institute for Occupational Safety and Health, Pocket Guide to Chemical Exposures, 2000.

10. TB MED 503, The Army Industrial Hygiene Program, February 1985.

11. TB MED 502, Occupational Safety and Health Respiratory Protection Program..

12. Title 29 Code of Federal Regulations (CFR) 1910.1025, Lead.

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APPENDIX B

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DERIVING RISK ASSESSMENT CODES (RACs) FOR HEALTH HAZARDS (Ref: DOD Instruction 6055.1)

STEP 1. Using the following procedures to assess points, determine the health hazard severity category (HHSC). The HHSC reflects the magnitude of exposure to a physical, chemical, or biological agent and the medical effects of exposure.

A. Exposure Points Assessed

		Exposure Conditions			
		<CT	Occasionally - >CT Always - <STD	>CT =STD	>STD
AER	NO	0	3	5	7
POSSIBLE?	YES	1-2	4	6	8

AER = Alternate exposure route, such as skin absorption, ingestion
CT = DoD component threshold that triggers surveillance actions, such as microWatts/cm^2, dB, parts per million
STD = DoD exposure limit, such as Threshold Limit Value and Permissible Exposure Limit

B. Medical Effects Points Assessed

Condition	Points
No medical effect, such as nuisance noise and nuisance odor	0
Temporary reversible illness requiring supportive treatment, such as eye irritation and sore throat	1-2
Temporary reversible illness with a variable but limited period of disability such as metal fume fever	3-4
Permanent, nonsevere illness or loss of capacity, such as permanent hearing loss	5-6
Permanent, severe, disabling, irreversible illness or death, such as asbestosis and lung cancer	7-8

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C. Determine the HHSC by totaling the points assessed and using the following guide:

Total Points (sum of A and B, above)	HHSC
13-16	I
9-12	II
5-8	III
0-4	IV

STEP 2. Using the following guides to assess points, determine the mishap probability category (MPC) for health hazards. The probability of mishap reflects the duration of exposure and the number of exposed personnel.

A. Duration of Exposure Points Assessed

		Length of Exposure		
		1-8 hr/wk	>8 hr/wk not continuous	continuous
Type of Exposure	Irregular, intermittent	1-2	4-6	-
	Regular, periodic	2-3	5-7	8

B. Number of Exposed Personnel Points Assessed

Number of Exposed Personnel	Points
<5	1-2
5 to 9	3-4
to 49	5-6
>49	7-8

C. Determine the MPC for health hazards by totaling the points assessed and using the following guide:

Total Points (sum of A and B, above)	MPC
14-16	A
10-13	B
5-9	C
<5	D

STEP 3. Determine the RAC for health hazards by using the following matrix to measure health hazard severity and mishap probability factors.

		MISHAP PROBABILITY			
		A	B	C	D
HAZARD SEVERITY	I	1	1	2	3
	II	1	2	3	4
	III	2	3	4	5
	IV	3	4	5	5

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APPENDIX C

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Needs checklist w/ approp. guidan

FIGURE 1-2

INDOOR FIRING RANGE INSPECTION CHECKLIST

See paragraphs 1-23 through 1-25 of this regulation for inspection requirements. For the range to be considered safe each of the following statements shall be true and air-sampling results shall be below the standard for Lead. The information in parentheses after each statement denotes the location of the requirement in this or other regulations.

Location of the Range Gallatin Armory Date 29 Nov 00

Range Custodian [redacted]

Part 1, Physical Safety Inspection

A. Building Envelope

✓ 1. Each firing lane is at least 4 feet wide. [1-17a(1)(a)]

Yes 2. Pipes, conduits, and other projecting surfaces are baffled or covered by a material that shall protect these items and prevent ricochets. [1-17a(1)(b)]

Yes 3. No windows or doors are located in front of the firing line. (Except access door to the back of the bullet trap) [1-17a(1)(d)]

Yes 4. There are no open floor drains in the range. [1-17a(2)(c)]

Yes 5. There is no carpet, drapes or other fiber-like material in the range. [1-17a(2)(d)] Acoustical Panels

Yes 6. Pipes, conduits and walls are sealed to prevent leakage of Lead dust from the range into other areas. [1-17a(2)(b)]

Yes 7. The interior surfaces or the range floor, walls, and ceiling have no protruding edges or devices. [DG 415-1, App.A, 3-1d]

Yes 8. The roof provides ballistic security. [DG 415-1, App. A, 3-1e(1)]

Yes 9. The walls provide ballistic security. (DG 415-1, App. A, 3-1f(1))

Yes 10. Interior mortar joints are flush with the interior surface. (DG 415-1, App. A, 3-1f(2))

Yes 11. The plenum wall is adequately supported and thick enough to avoid flexing. (DG 415-1, App. A, 3-1f(4))

No 12. The entrance door to the range is weather-stripped unless the door acts as passive make-up air intake. (DG 415-1, App. A, 3-1h)

One Exit door is weather strip

Posted to NGB FOIA Reading Room
May, 2018

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Gallatin
FOIA Requested Record #J-13-0085 (TN)
Released by National Guard Bureau
Page 710 of 2531

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B. Range Lighting

No 1. Lighting is uniform, non-glaring and does not cause shadows. [1-17c(1)(a)]

No 2. Illumination is at least 100 foot candles on the targets and 30 foot candles in all other areas. [1-17c(1)(b)]

Yes 3. All lighting is protected by baffles and placed so that the shooter has an unobstructed view down range. [1-17c(1)(c)]

No 4. Downrange lighting begins approximately 18 feet from the firing line and ends approximately 8 feet from the target line. [1-17c(1)(d)]

No 5. Emergency lights are provided behind the firing line and are in working condition. [1-17c(1)(e)]

Yes 6. Exit lights are provided and working as required. [1-17c(1)(f)]

No 7. Lighting of at least 30 foot-candles is provided behind the bullet trap for maintenance (if applicable). [1-17c(1)(g)]

No 8. No known electrical hazards exist in the range. [1-17c(2)(c)]

C. Bullet traps

Yes 1. A bullet trap is permanently installed in the range. [1-17d(1)(a)]

____ 2. Bullet traps are of a commercial design, which is in compliance with the requirements of CEHND 1110-1-18, NGB-ARI, NG PAM 385-16, Chapter 4 and this regulation. [1-17d(1)(b)]

____ 3. The thickness of inclined plate/sand trap type bullet trap shall be adequate to attenuate the maximum caliber of ammunition authorized to be fired on the range. [1-17d(1)(c)] 1/4"

Yes 4. All plate/sand trap type bullet traps are designed to prevent ricochets by directing the projectiles in the same direction they are traveling. [1-17d(1)(d)]

Yes 5. Sandpits in plate/sand trap type backstops extend to a point directly below the leading edge of the sloped plate. [1-17d(1)(e)]

N/A 6. Forward edges in a louver or venetian blind type bullet trap are maintained in a knife edge condition to prevent ricochets. [1-17d(1)(f)]

No 7. Steel bullet traps are not bowed, punctured or severely pitted. [1-17d(2)(a)]

Yes 8. Plates in the bullet trap are flush with the other plates. Mold seams are ground smooth. [1-17d(2)(b)]

D. Targets and target carriers

Yes 1. A target retrieval system is operable in all lanes. [1-17e(1)(a)]
(Any one firing lane without a retrieval system shall not be used for firing)

Yes 2. The target retrieval system is constructed in such a manner as to minimize flat surfaces exposed to the firing line. [1-17e(1)(a)]

Yes 3. Only paper targets are used in the range. [1-17e(1)(b)]

Gallatin

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 711 of 2531

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E. Range use

Yes 1. The range is not used for any purpose other than firing. [1-18a]

Yes 2. No equipment or furniture is stored or maintained in the range, plenum area or behind the bullet trap. [1-17d]

Yes 3. No additional clothing or equipment is brought into the range. [1-19h]

Yes 4. Personnel are *not* permitted in the plenum area during firing even if designed for observation. [1-19a]

Yes 5. Individuals other than maintenance and inspection personnel are not allowed to walk downrange. (Except in regularly cleaned area as needed to pick up brass) [1-19f]

Yes 6. All areas directly in front of the plenum walls are kept clear at all times. [1-19c]

Yes 7. Pellets, BBs, magnum and armor piercing rounds are not used in the range. [1-19g]

Yes 8. The ventilation system is in operation at all times during firing or cleaning. [1-18c]

No 9. A hand-held ABC-type fire extinguisher is located in a recessed cabinet near the entrance door, inside of the firing range. [DG 415-1, App. A 4-5] type BC II ~~ABC~~ extinguisher

F. Range maintenance

Yes 1. Dry sweeping does not occur in the range. [1-19e]

Yes 2. No brooms are located in the range. [1-19e]

Yes 3. A range custodian is appointed for the range who is fully trained and aware of his/her responsibilities. [1-13c]

G. Personnel protective equipment

No ~~Yes~~ 1. All personnel in the range during firing wear ANSI approved eye protection. [1-20a]

Yes 2. All personnel in the range during firing wear ANSI approved hearing protection. [1-20b]

H. Posting of signs

____ 1. The following signs are posted in or in the vicinity of the range: [1-21a]
- ✓ a. Eating, Drinking and Smoking are *Prohibited*
- No b. Dry Sweeping is *Prohibited*
- ✓ c. Wash Hands and Face Immediately Following Firing
- ✓ d. The Following Ammunition is authorized for use on this Range: ____
- ✓ e. Hearing Protection *shall be* Properly worn during firing
- ✓ f. Proper Safety Glasses/Goggles *shall be* worn during firing
- No g. No Furniture or Storage of Items Permitted in the Range

____ 2. The following signs are posted on the entrance door to the range: [1-21b]
- ✓ a. Noise Hazardous Area
- No b. Danger Lead Hazard Area
- No c. Pregnant women are *not* permitted in this Area

No 3. An illuminated warning sign, which is interlocked with the range ventilation switch, is located outside of the firing range to alert individuals that the range is in use. [1-21c]

No 4. Each firing lane is numbered at the firing line and at the bullet trap visible to all shooters. [1-21c] Numbers are at the target line but worn off

N/A 5. A warning sign is posted outside of the access door to the bullet trap, which warns personnel not to enter. [1-21e]

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 712 of 2531

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I. Range SOP

_____ 1. The indoor firing range has a written SOP, which is approved by the State Safety and Occupational Health Office. [1-10e]

_____ 2. The range SOP includes as a minimum the following: [1-22b]

_____ a. The requirement for establishment and maintenance of a log of visitors for the indoor firing range.

_____ b. The requirement for and contents of a mandatory safety briefing for all individuals prior to entering the range to be given by a designated competent range safety officer.

_____ c. Work practices including required, recommended, permissible and banned practices as specified by this regulation.

_____ d. Instructive guidance for all range procedures.

_____ e. Personnel responsibilities for performing the procedures, for supervising them, and reviewing and updating the SOP.

_____ f. Authorized ammunition for the range.

_____ g. The requirement for posting of signs IAW section 1-21 of this regulation.

_____ h. Cleaning and maintenance requirements.

_____ i. Personal protective equipment requirements for maintenance, firing and cleaning.

J. Recordkeeping

_____ 1. A visitors log is maintained which includes the following information for all visitors/shooters: [1-14c]

✓ a. Name and age of shooter. Just name no Age

✓ b. Organization (if civilian, include address and phone number).

✓ c. Sign in and sign out times.

No d. Type of ammunition used and number of rounds fired.

✓ 2. Copies of initial and other previous inspections are available. [1-24a] 1st 86 88

Yes 3. The initial inspection report includes air-sampling data. [1-24b]

Yes

_____ 4. An OSHA compliance program is in place, which covers the required aspects. [1-30a]

No

No 5. All individuals using the indoor firing range have been provided with a copy of the range SOP or been briefed on the requirements of the SOP, and have signed an agreement to follow the rules stated therein. [1-13h]

No 6. State maintenance officers/custodians have documentation to show that they have been educated to the health effects from exposure to Lead dust. [29 CFR 1910.1200 and 29 CFR 1910.1025]

Yes 7. Range safety officer(s) is/are designated. [1-13c]

K. New and Renovated Ranges

_____ 1. No doors are installed in the plenum wall.

_____ 2. Plenum area is at least 4 feet deep.

_____ 3. An access door is installed behind the bullet trap.

_____ 4. Only escalator or rubber bullet traps are installed.

Gallatin 6

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 713 of 2531

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INDOOR FIRING RANGE INSPECTION CHECKLIST

Part 2, Ventilation Inspection

A. Existing Ranges

Yes 1. The range has an operational mechanical ventilation system. [1-17b(1)(a)]

No 2. The minimum ventilation rate at the firing line in each firing lane is 50 fpm at all levels. [1-17b(1)(b)] See measurement [illegible]

Yes 3. 100% of air is exhausted at or behind the bullet trap. [1-17b(1)(c)]

Yes 4. Make-up air is introduced into the range behind the shooters. [1-17b(1)(d)]

Yes 5. Air that is introduced through vents into the plenum does not exceed a velocity of 600 fpm. [1-17b(1)(e)]

No 6. Air exiting through holes in the plenum wall has a velocity between 400 and 600 fpm. [1-17b(1)(f)]

Yes 7. The ventilation system is so constructed that air exhausted from the indoor firing range does not enter into another part of the building or any other air supply system. [1-17b(1)(g)]

Yes 8. The exhaust exceeds the make-up air by approximately 10% to form a negative air pressure in the range in relation to adjoining areas. [1-17b(1)(h)]

NA 9. If air is recirculated in the range, it is installed with a HEPA filter with a reliable back-up filter. [29 CFR 1910.1025(e)(4)(ii)]

NA 10. If air is recirculated in the range, controls to monitor the concentration of Lead and Carbon Monoxide levels are installed and programmed to bypass the recirculation system automatically if the filter system fails.
[29 CFR 1910.1025(e)(4)(ii)]

Yes 11. The fan(s) in the ventilation system is a single speed fan only. [DG 415-1, App. A, 3-2a]

No 12. A smoke test of the range shows laminar air flow and no turoulence in the range. (See NG PAM 385-16, Appendix E for troubleshooting guidance) [1-18b(1)(k)]

NA 13. In non-powered systems, the supply air louvers and exhaust fan are electrically interlocked. [1-17b(1)(l)]

Yes 14. In power systems, the supply and exhaust fans are electrically interlocked. The make-up air fan should start slightly after the exhaust fan. [1-17b(1)(m)]

____ 15. Range air temperature is between 65 degrees and 80 degrees Fahrenheit. [1-17b(1)(n)] Meets [illegible]

B. New and Renovated Ranges

____ 1. A manometer is installed leading into the exhaust fan, which is capable of measuring at least 20 inches of static pressure.

____ 2. Supply and exhaust fans are electrically interlocked with the downrange lighting.

____ 3. The face velocity on supplied make-up and exhaust ducts does not exceed 2000 cfm per square foot of duct space.

____ 4. Passive supply systems have opposing blade louvers.

____ 5. Turning vanes are installed in all duct elbows, which have between 60° and 90° angles.

Gallaher

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May, 2018

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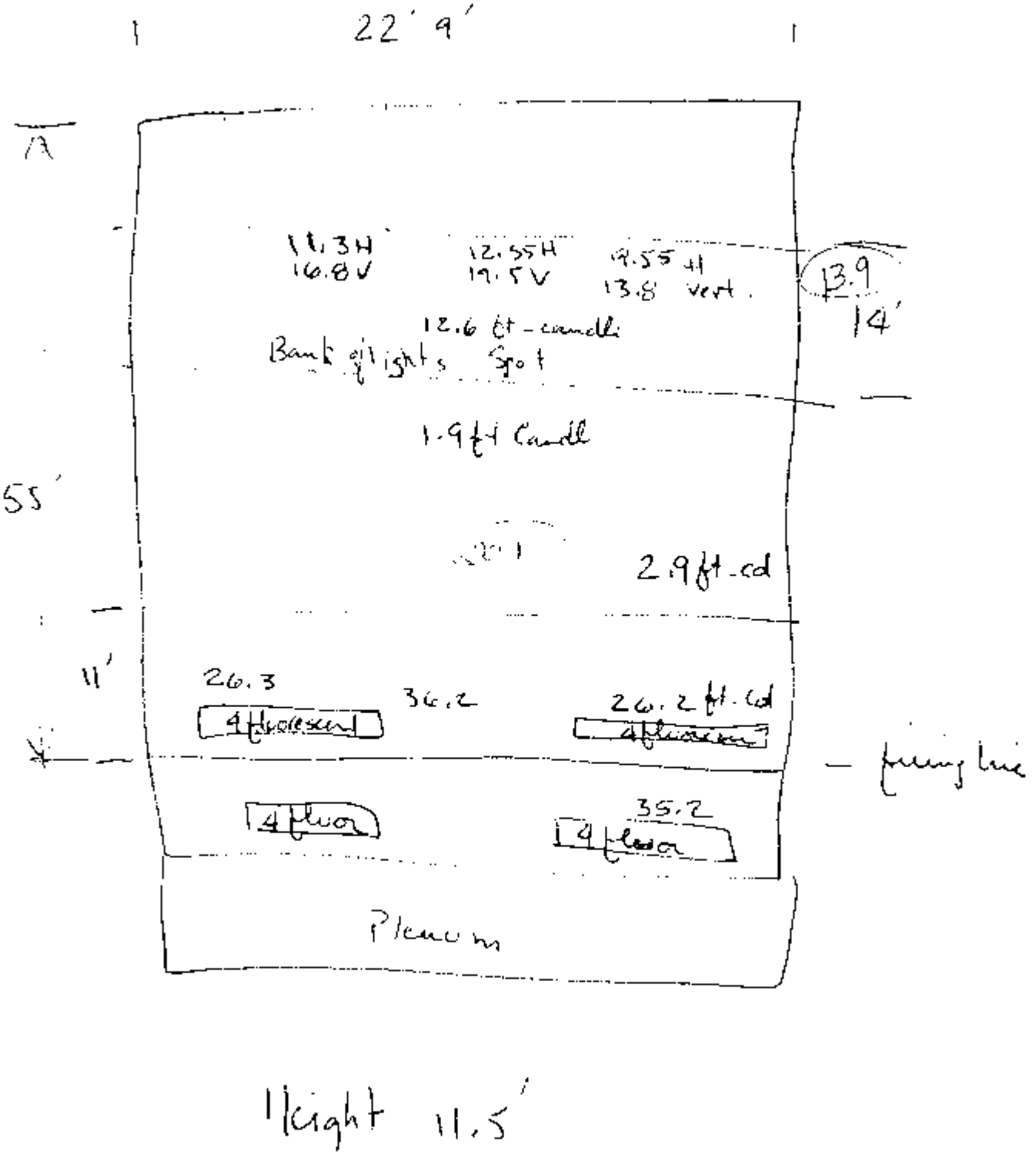
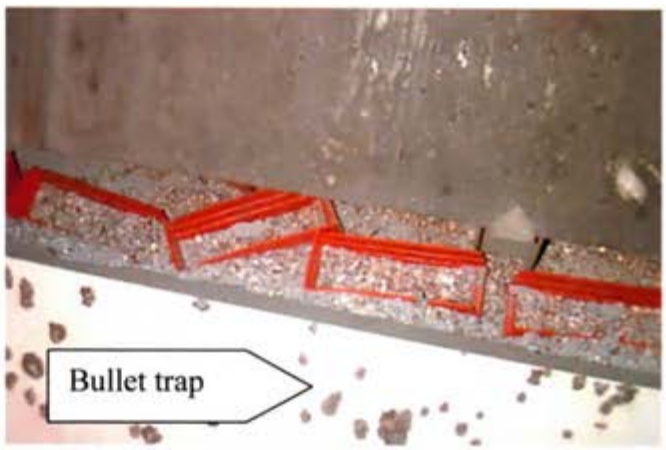
FOIA Requested Record #J-15-0085 (TM)
Released by National Guard Bureau
Page 714 of 2531

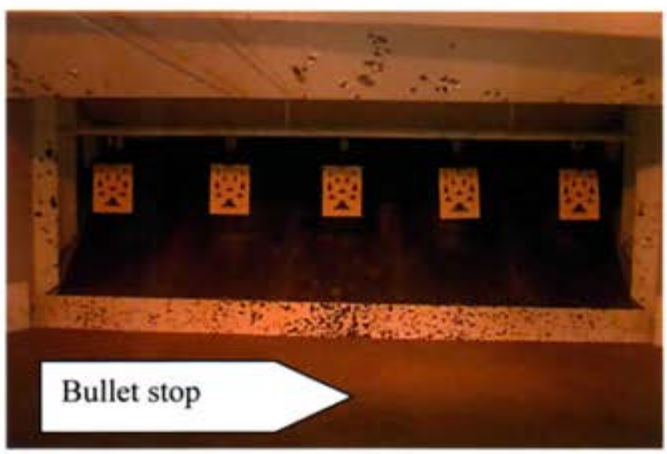

22' 9'
17
11.3H
16.8V
12.55H
19.5V
9.55 H
13.8 vert.
13.9
14'
12.6 ft-candle
Bank of lights Spot
1.9 ft Candle
55'
2.9 ft-cd
11'
26.3
36.2
26.2 ft-cd
4 fluorescent
4 fluor
35.2
4 fluor
Plenum
firing line

Height 11.5'

Gallatin Indoor Firing Range

Signs posted on
entrance door


Bullet trap


Bullet stop

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APPENDIX D

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May, 2018

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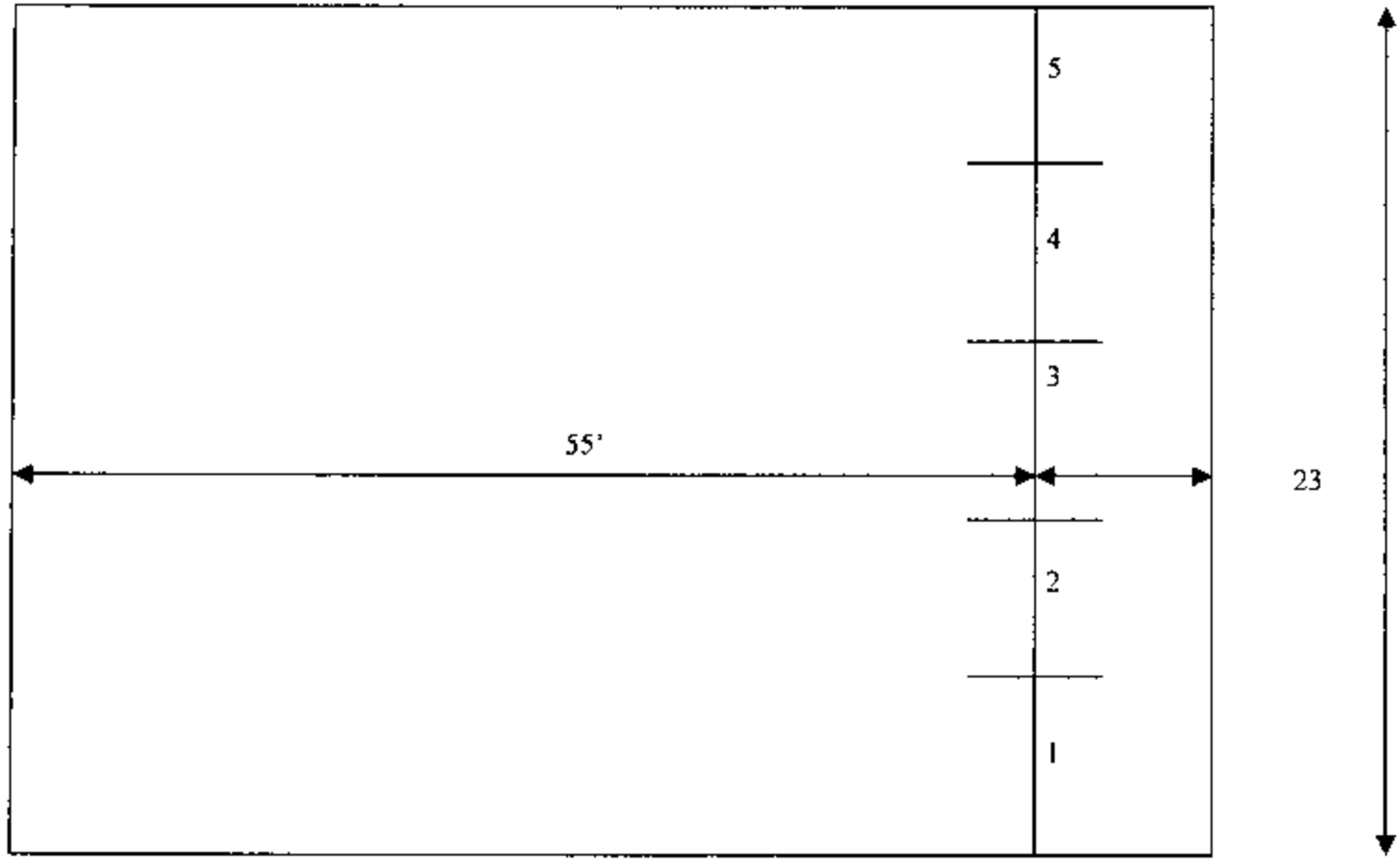

Figure D-1: Firing Range Dimensions and Lane Configuration

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 719 of 2531

Posted to NGB FOIA Reading Room
May, 2018

Table D-1
Ventilation Measurements
Indoor Firing Range Lanes

Lane 1			Average FPM	Lane 2			Average FPM	Lane 3			Average FPM	Lane 4			Average FPM	Lane 5			Average FPM
55	78	15	49	14	45	87	49	79	50	30	53	11	12	14	12	32	31	125	63
41	70	26	46	15	64	79	53	83	55	29	56	7	4	15	9	35	50	135	73
38	17	25	27	10	20	51	27	70	57	12	46	15	14	29	19	62	51	116	76
41 FPM				43 FPM				52 FPM				13 FPM				71 FPM			

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 720 of 2531
Posted to NGB FOIA Reading Room
May, 2018

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APPENDIX E

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 722 of 2531

Table E-1
Personal and Area Air Sampling Results for Lead and Total Dust
Gallatin Indoor Firing Range
Gallatin, TN
29 NOV 2000

Sample # Type	Contaminant	Sampling Time in Minutes	Result mg/m³	OSHA PEL-TWA	NIOSH REL-TWA	ACGIH TLV-TWA	ANG OEL
GT-01	Lead in Air	225	<0.0022	0.05	0.09	0.05	0.03
Area	Total Dust		<0.22	15	15	15	15
GT-02	Lead in Air	220	<0.0023	0.05	0.09	0.05	0.03
Area	Total Dust		<0.23	15	15	15	15
GT-03	Lead in Air	32	0.11	0.05	0.09	0.05	0.03
Personal	Total Dust		2.3	15	15	15	15
GT-04	Lead in Air	32	0.022	0.05	0.09	0.05	0.03
Personal	Total Dust		1.6	15	15	15	15
GT-05	Lead in Air	32	0.059	0.05	0.09	0.05	0.03
Personal	Total Dust		<1.6	15	15	15	15
GT-06	Lead in Air	32	0.041	0.05	0.09	0.05	0.03
Personal	Total Dust		<1.6	15	15	15	15
GT-07	Lead in Air	32	0.039	0.05	0.09	0.05	0.03
Personal	Total Dust		<1.6	15	15	15	15
GT-B	Lead in Air	N/A	<1.0 microgram				
Field Blank	Total Dust		<100 microgram				

Notes:
mg/m³ = Milligrams per cubic meter
OSHA PEL = Occupational Safety and Health Administration Permissible Exposure Limit (1989 PEL Values)
NIOSH REL = National Institute of Occupational Safety and Health Recommended Exposure Level
ACGIH TLV = American Conference of Governmental Industrial Hygienists Threshold Limit Value
ANG-OEL =National Guard Bureau Occupational Exposure Limit
TWA = Time Weighted Average, [C] means a Ceiling Value
STEL = Short Term Exposure Limit
LFC Lowest Feasible Concentration
All Limits are in milligram per meter cube

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May, 2018

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Gallatin

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REPORT DATE DEC 27, 2000
SAMPLES REC'D DEC 19, 2000
REQUEST NUMBER 358461
PAGE NUMBER 12 OF 21

TO: Non-Responsive [redacted] IL 60564

1-GTB

SAMPLE	AIR VOLUME / ANALYSIS REQUESTED	MEDIA TYPE / RESULTS	
-1	450 Liters	37mm 0.8 Micron Matched Mixed Cellulose Ester Filter	
		micrograms	mg/m3
	LEAD IN AIR	< 1.0	< 0.0022
	TOTAL DUST	< 100	< 0.22
2	441 Liters	37mm 0.8 Micron Matched Mixed Cellulose Ester Filter	
		micrograms	mg/m3
	LEAD IN AIR	< 1.0	< 0.0023
	TOTAL DUST	< 100	< 0.23
3	64 Liters	37mm 0.8 Micron Matched Mixed Cellulose Ester Filter	
		micrograms	mg/m3
	LEAD IN AIR	6.9	0.11
	TOTAL DUST	150	2.3
4	64 Liters	37mm 0.8 Micron Matched Mixed Cellulose Ester Filter	
		micrograms	mg/m3
	LEAD IN AIR	1.4	0.022
	TOTAL DUST	100	1.6

MMENTS:

PRESENT, DE MEANS DESORPTION EFFICIENCY

spectfully submitted,

Non-Responsive [redacted] DUSTRIAL HYGIENE ASSOCIATION

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REPORT DATE DEC 27, 2000
SAMPLES REC'D DEC 19, 2000
REQUEST NUMBER 358461
PAGE NUMBER 13 OF 21

TO: Non-Responsive [redacted]

SAMPLE	AIR VOLUME / ANALYSIS REQUESTED	MEDIA TYPE / RESULTS	
5	64 Liters	37mm 0.8 Micron Matched Mixed Cellulose Ester Filter	
		micrograms	mg/m3
	LEAD IN AIR	3.8	0.059
	TOTAL DUST	< 100	< 1.6
6	64 Liters	37mm 0.8 Micron Matched Mixed Cellulose Ester Filter	
		micrograms	mg/m3
	LEAD IN AIR	2.6	0.041
	TOTAL DUST	< 100	< 1.6
7	64 Liters	37mm 0.8 Micron Matched Mixed Cellulose Ester Filter	
		micrograms	mg/m3
	LEAD IN AIR	2.5	0.039
	TOTAL DUST	< 100	< 1.6

MMENTS:

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spectfully submitted,

Non-Responsive [redacted]

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REPORT DATE DEC 27, 2000
SAMPLES REC'D DEC 19, 2000
REQUEST NUMBER 358461

TO: Non-Responsive [redacted]

SAMPLE	AIR VOLUME / ANALYSIS REQUESTED	MEDIA TYPE / RESULTS
B		37mm 0.8 Micron Matched Mixed Cellulose Ester Filter
		micrograms
	LEAD IN AIR (BLANK)	< 1.0
		SUBTRACTED
	TOTAL DUST (BLANK)	< 100
		AVERAGED AND SUBTRACTED.

MMENTS:

PRESENT, DE MEANS DESORPTION EFFICIENCY

spectfully submitted,

Non-Responsive [redacted]

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APPENDIX F

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INDUSTRIAL HYGIENE
SAMPLING RESULT NOTIFICATION SHEET

DATA REQUIRED BY THE PRIVACY ACT

AUTHORITY: Sections 133, 1071 87, 3012, 5031, and 8012, title 10, United States Code, Executive Order 9397 and AR 40 5.

PRINCIPAL PURPOSE: The Social Security Number of the individual is required to identify, record, and retrieve occupational medical surveillance records.

ROUTINE USE: The primary use of this information is to provide, plan, and coordinate occupational health medical surveillance and care.

DISCLOSURE: In the case of military personnel and Federal employees, the requested information is mandatory because of the need to document all occupational injuries and illnesses in view of future rights and benefits. If the requested information is not furnished comprehensive medical surveillance may not be possible, but AUTHORIZED CARE WILL NOT BE DENIED.

NAME:	SOCIAL SECURITY NO.:	OPERATION:	BLDG:	DIRECTORATE/COLLOCATED ACTV:
Non-Responsive [redacted]		apons Firing	Gallatin In	door Firing Range

Air sampling took place on November 29, 2000 to determine workplace exposure to:

SUBSTANCE	PERMISSIBLE EXPOSURE LIMIT	YOUR RESULTS	EXP CATEGORY (See Below)
1. Lead	0.050 mg/m3 (OSHA)	<0.0001 mg/m3	1
2.			
3.			
4.			
5.			
6.			

EXPOSURE CATEGORY

1. Airborne levels are below permissible limits: no work changes necessary.
2. Airborne levels are close to permissible limits: additional sampling necessary; temporary use of respiratory protection during this operation.
3. Airborne levels are above permissible limits and the following actions are indicated (where feasible) to prevent overexposure:
   a. Ventilation system improvements required (general and/or local exhaust).
   b. Engineering controls required.
   c. Employee work practices need improvement.
   d. Improve housekeeping.
   e. Personal protective equipment mandatory until exposure is below permissible limits.

COMMENTS:

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INDUSTRIAL HYGIENE
SAMPLING RESULT NOTIFICATION SHEET

DATA REQUIRED BY THE PRIVACY ACT

AUTHORITY: Sections 133, 1071 87, 3012, 5031, and 8012, title 10, United States Code, Executive Order 9397 and AR 40 5.

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DISCLOSURE: In the case of military personnel and Federal employees, the requested information is mandatory because of the need to document all occupational injuries and illnesses in view of future rights and benefits. If the requested information is not furnished comprehensive medical surveillance may not be possible, but AUTHORIZED CARE WILL NOT BE DENIED.

NAME:	SOCIAL SECURITY NO.	OPERATION:	BLDG:	DIRECTORATE/COLLOCATED ACTV
Non-Responsive [redacted]		Weapons Firing	Gallatin	Indoor Firing Range

Air sampling took place on November 29, 2000 to determine workplace exposure to:

SUBSTANCE	PERMISSIBLE EXPOSURE LIMIT	YOUR RESULTS	EXP CATEGORY (See Below)
1. Lead	0.050 mg/m3 (OSHA)	<0.007 mg/m3	1
2.			
3.			
4.			
5.			
6.			

EXPOSURE CATEGORY

1. Airborne levels are below permissible limits; no work changes necessary.
2. Airborne levels are close to permissible limits: additional sampling necessary; temporary use of respiratory protection during this operation.
3. Airborne levels are above permissible limits and the following actions are indicated (where feasible) to prevent overexposure:
   a. Ventilation system improvements required (general and/or local exhaust).
   b. Engineering controls required.
   c. Employee work practices need improvement.
   d. Improve housekeeping.
   e. Personal protective equipment mandatory until exposure is below permissible limits.

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DISCLOSURE: In the case of military personnel and Federal employees, the requested information is mandatory because of the need to document all occupational injuries and illnesses in view of future rights and benefits. If the requested information is not furnished comprehensive medical surveillance may not be possible, but AUTHORIZED CARE WILL NOT BE DENIED.

NAME:	SOCIAL SECURITY NO.:	OPERATION:	BLDG:	DIRECTORATE/COLLOCATED ACTV:
Non-Responsive [redacted]		Weapons Firing	Gallatin In	door Firing Range

Air sampling took place on November 29, 2000 to determine workplace exposure to:

SUBSTANCE	PERMISSIBLE EXPOSURE LIMIT	YOUR RESULTS	EXP CATEGORY (See Below)
1. Lead	0.050 mg/m3 (OSHA)	<0.003 mg/m3	1
2.			
3.			
5.			
6.			

EXPOSURE CATEGORY

1. Airborne levels are below permissible limits; no work changes necessary.
2. Airborne levels are close to permissible limits; additional sampling necessary; temporary use of respiratory protection during this operation.
3. Airborne levels are above permissible limits and the following actions are indicated (where feasible) to prevent overexposure:
   a. Ventilation system improvements required (general and/or local exhaust).
   b. Engineering controls required.
   c. Employee work practices need improvement.
   d. Improve housekeeping.
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COMMENTS:

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INDUSTRIAL HYGIENE
SAMPLING RESULT NOTIFICATION SHEET

DATA REQUIRED BY THE PRIVACY ACT

AUTHORITY: Sections 133, 1071 87, 3012, 5031, and 8012, title 10, United States Code, Executive Order 9397 and AR 40 5.

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NAME:	SOCIAL SECURITY NO.:	OPERATION:	BLDG:	DIRECTORATE/COLLOCATED ACTV
Non-Responsive		Weapons Firing	Gallatin	Indoor Firing Range

Air sampling took place on November 29, 2000 to determine workplace exposure to:

SUBSTANCE	PERMISSIBLE EXPOSURE LIMIT	YOUR RESULTS	EXP CATEGORY (See Below)
1. Lead	0.050 mg/m3 (OSHA)	<0.001 mg/m3	1
2.			
3.			
5.			
6.			

EXPOSURE CATEGORY

1. Airborne levels are below permissible limits; no work changes necessary.
2. Airborne levels are close to permissible limits: additional sampling necessary; temporary use of respiratory protection during this operation.
3. Airborne levels are above permissible limits and the following actions are indicated (where feasible) to prevent overexposure:
   a. Ventilation system improvements required (general and/or local exhaust).
   b. Engineering controls required.
   c. Employee work practices need improvement.
   d. Improve housekeeping.
   e. Personal protective equipment mandatory until exposure is below permissible limits.

COMMENTS:

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INDUSTRIAL HYGIENE
SAMPLING RESULT NOTIFICATION SHEET

DATA REQUIRED BY THE PRIVACY ACT

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NAME:	SOCIAL SECURITY NO.:	OPERATION:	BLDG:	DIRECTORATE/COLLOCATED ACTV
Non-Responsive		Weapons Firing	Gallatin	Indoor Firing Range

Air sampling took place on November 29, 2000 to determine workplace exposure to:

SUBSTANCE	PERMISSIBLE EXPOSURE LIMIT	YOUR RESULTS	EXP CATEGORY (See Below)
1. Lead	0.050 mg/m3 (OSHA)	0.004 mg/m3	1
2.			
3.			
5.			
6.			

EXPOSURE CATEGORY

1. Airborne levels are below permissible limits; no work changes necessary.
2. Airborne levels are close to permissible limits: additional sampling necessary; temporary use of respiratory protection during this operation.
3. Airborne levels are above permissible limits and the following actions are indicated (where feasible) to prevent overexposure:
   a. Ventilation system improvements required (general and/or local exhaust).
   b. Engineering controls required.
   c. Employee work practices need improvement.
   d. Improve housekeeping.
   e. Personal protective equipment mandatory until exposure is below permissible limits.

COMMENTS:

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NATIONAL GUARD REGION SOUTH
INDUSTRIAL HYGIENE OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

NGB-ARS-SEIH

November 20, 2007

MEMORANDUM FOR: Non-Responsive RN, Occupational Health Nurse, Tennessee State Safety and Occupational Health Office, 250 8th Avenue, Smyrna, Tennessee 37167.

SUBJECT: Gallatin Tennessee National Guard Armory, 1250 Hartsville Pike, Gallatin, Tennessee.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 22 July 2005.

c. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, 1988.

d. AR 385-10, The Army Safety Program, 29 February 2000.

e. NGR Pam 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006.

f. NGR 385-15, Policy and Responsibilities, Evaluation and Operation of Army National Guard Indoor Firing Ranges, 3 November 2006.

g. DA PAM 40-503, The Army Industrial Hygiene Program, 30 October 2000.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2003, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. Title 29, Code of Federal Regulations (CFR), 2001 rev., part 1910, Occupational Safety and Health Standards.

2. General.

a. As requested by Non-Responsive Tennessee Occupational Health Office, personnel with the National Guard Region South Office performed a visual inspection at the referenced site. The apparent objective of the inspection was to collect surface wipe samples from the former Indoor Firing Range for analysis of total lead.

b. Non-Responsive with the National Guard Region South Industrial Hygiene Office in College Park Georgia performed the site visit.

3. Findings.

General Information

At the time of the sampling activity, the interior of the Gallatin Armory Indoor Firing Range was emptied of the bullet stop and firing line. The surface areas were observed to be constructed of cinder-block walls with concrete floors and ceilings. The system appeared to be closed and the former range appeared to be generally cleaned of debris.

Sampling Activities

Based on the number of surfaces observed, samples were collected in accordance with National Guard Bureau Pamphlet 420-15. Ghost Wipe™ is pre-moistened media made of non-woven polyvinyl alcohol fiber and approved by American Industrial Hygiene Association (AIHA) for lead sampling. The wipes also meet all American Standards Testing Materials (ASTM) Designation E1792-96E specifications for sampling materials for lead in surface dust.

The surface samples were collected by placing a 1 square foot sampling template on the surface area and wiping the outlined area with a Ghost Wipe™. After the area inside the template was wiped, each individual sampling media was placed into separate, labeled re-sealable plastic bags and sealed. After each sample collection, a new surface area template was used and new disposable gloves were donned. A total of 18 samples were collected, three from each surface area for submittal to Analytical Environmental Services, Inc. (AES) in Atlanta, Georgia for subsequent analysis of total lead. In addition, one wipe was placed into a re-sealable bag and submitted as a blank sample for analysis.

Laboratory Results

The results of the lead dust sampling activities are summarized in the following table.

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 733 of 2531

Sample Number	Sample Location	Laboratory Results[1]
TNGA-01	Lower Wall, Bullet Stop	152
TNGA-02	Middle Wall, Bullet Stop	2,620
TNGA-03	Upper Wall, Bullet Stop	178
TNGA-04	Lower Right Wall	9,430
TNGA-05	Middle Right Wall	BRL[2]
TNGA-06	Upper Right Wall	BRL
TNGA-07	Lower Rear Wall	245
TNGA-08	Middle Rear Wall	159
TNGA-09	Upper Rear Wall	47
TNGA-10	Lower Left Wall	42
TNGA-11	Middle Left Wall	BRL
TNGA-12	Upper Left Wall	57
TNGA-13	Floor at Bullet Stop	3,640
TNGA-14	Middle Floor	1,940
TNGA-15	Floor at Rear Wall	4,200
TNGA-16	Ceiling at Bullet Stop	1,120
TNGA-17	Middle Ceiling	BRL
TNGA-18	Ceiling at Rear Wall	145
TNGA-B1	Field Blank	BRL

[1] Results reported in micrograms per square feet ($\mu g/ft^2$)
[2] BRL = Below Reportable Limits

The laboratory results indicate lead concentrations detected above the IFR post cleaning standard. In accordance with the National Guard Bureau Pamphlet 420-15, the Lebanon Armory IFR cannot be converted for other uses until the lead dust levels are reduced to $200\mu g/ft^2$ or lower depending on local requirement.

The laboratory results are attached for review.

4. Recommendations.

a. Prior to initiating decontamination activities and in accordance with 29 CFR 1910.1025, perform and conduct training for employees exposed to lead concentrations above the standard or who may suffer skin or eye irritation from exposure to lead.

b. Review NG Bureau Pamphlet 420-15 prior to conducting decontamination of the IFR and conduct cleaning activities in accordance with the regulatory document. Keep in mind that EPA (40 CFR 745 Subpart D) and your state may have lead reduction levels lower than the levels recommended in Pamphlet 420-15.

c. Ensure that appropriate personal protective equipment is worn during decontamination activities.

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 734 of 2531

d. Consult with local Environmental Agency for guidance on proper disposal of materials used in decontaminating the IFR.

e. Upon completion of the decontamination activities, contact the Regional IH office for evaluation and collection of confirmatory lead dust samples.

Non-Responsive

CC: Non-Responsive CFMO, 3041 Sidco Drive, Nashville, Tennessee 37204-1504

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Analytical Environmental Services, Inc.

Date: 10/31/2007

LEAD ON WIPES (N9100/7082)
N7082

CLIENT: National Guard Bureau Region-South IH
Project: GALLATIN TN ARMORY
Delivery Order:
PO No:

Lab Order: 0710D53
Date Received: 10/24/2007 12:55 PM
Matrix: Wipe

Laboratory ID	Client Sample ID	Results	Units	Report Limit	DF	Date Collected	Date Analyzed	Analyst
0710D53-001A	TNGA-01	152	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D53-002A	TNGA-02	2620	µg/ft²	61	3.07	10/18/2007	10/26/2007	JY
0710D53-003A	TNGA-03	178	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D53-004A	TNGA-04	9430	µg/ft²	1000	50	10/18/2007	10/26/2007	JY
0710D53-005A	TNGA-05	BRL	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D53-006A	TNGA-06	BRL	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D53-007A	TNGA-07	245	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D53-008A	TNGA-08	159	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D53-009A	TNGA-09	47	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D53-010A	TNGA-10	42	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D53-011A	TNGA-11	BRL	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D53-012A	TNGA-12	57	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D53-013A	TNGA-13	3640	µg/ft²	79	3.93	10/18/2007	10/26/2007	JY
0710D53-014A	TNGA-14	1940	µg/ft²	61	3.05	10/18/2007	10/26/2007	JY
0710D53-015A	TNGA-15	4200	µg/ft²	165	8.24	10/18/2007	10/26/2007	JY
0710D53-016A	TNGA-16	1120	µg/ft²	43	2.16	10/18/2007	10/26/2007	JY
0710D53-017A	TNGA-17	BRL	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D53-018A	TNGA-18	145	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D53-019A	TNGA-B-1	BRL	µg, Total	20	1	10/18/2007	10/26/2007	JY

Qualifiers: BRL - Not Detected at the Reporting Limit DF - Dilution Factor

Results are blank corrected where applicable

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Page 736 of 2531

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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-AVN-SI January 12, 2005

MEMORANDUM FOR: ADJUTANT GENERAL TN ARNG, ATTN.: State Safety and Occupational Health Office, P O Box 41502, Nashville, TN 37204-1502

SUBJECT: Transmittal of the Survey Reports for Clarksville Armory, Gallatin Armory, Lafayette Armory, Lebanon Armory, Springfield Armory, TN.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, 30 August 1986, Medical Service, Preventive Medicine.

c. National Guard Regulation (NGR) 385-10, 1988, Army National Guard Safety and Occupational Health Program.

d. AR 11-34, The Army Respiratory Protection Program, 15 February 1990.

e. TB MED 502, Occupational and Environmental Health Respiratory Protection Program, February 1982.

f. DA PAM 40-503, 30 October 2000, The Army Industrial Hygiene Program.

g. DA PAM 40-501, 10 December 1998, Hearing Conservation.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2001, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

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k. Title 29, Code of Federal Regulations (CFR), 2000 rev., part 1910, Occupational Safety and Health Standards.

l. Reports dated 21 October 2004 (Gallatin & Lebanon), 22 Oct 2004 (Clarksville & Springfield) and 12 November 2004 (Lafayette), Industrial Hygiene Survey, Environmental Management Solutions, Dallas, GA.

2. General.

a. At the request of the TN ARNG Safety and Occupational Health Office, an Industrial Hygiene Service was put together to conduct Health Hazard Information module (HHIM) Field surveys and industrial hygiene sampling of the Clarksville Armory, Gallatin Armory, Lafayette Armory, Lebanon Armory, Springfield Armory, TN.

b. Environmental Management Solutions, 247 Mary Lane, Dallas, GA conducted the survey.

3. Findings. All Health Hazard information collected are on the survey findings of the report. (See enclosure 1)

4. Recommendations.

a. Follow all recommendations made in reference 1.l., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Conduct an air sampling survey in the areas in and around those identified with elevated lead dust levels in page 4 in each report of reference 1.l, to ensure that the lead dust present is not airborne and that employees in these areas are not exposed above the action level where applicable.

c. Control water infiltration in the armory and/or replace or repair damaged surfaces or components (ceiling and floor tiles). Building conditions that present IAQ concerns or problems not only exacerbates normally minor health issues but also tend to promote or accelerate building deterioration.

d. The recommendations given in the comment section and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-05. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-06 IHIP.

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e. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present survey, especially if this will help eliminate health hazards and reduce medical surveillance cost.

f. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

g. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

5. If additional information is needed about the industrial hygiene survey or air sample

Non-Responsive

CF:
NBG-AVN-SH
State Occupational Health Office, P O Box 41502, Nashville, TN 37204-1502.

Encl
as

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ENVIRONMENTAL MANAGEMENT SOLUTIONS
INDUSTRIAL HYGIENE CONSULTING

TENNESSEE ARMY NATIONAL GUARD

GALLATIN ARMORY
GALLATIN, TENNESSEE

247 MARY LANE, DALLAS, GEORGIA 30157
PHONE: 404.425.3103 • FAX: 770 234 6297

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EXECUTIVE SUMMARY 1

SUBJECT 2

BACKGROUND 2

INTRODUCTION 2
SITE DESCRIPTION 2
SCOPE OF WORK 2
METHODOLOGY 3

FINDINGS AND DISCUSSION 4

LEAD WIPE SAMPLES 4
ASBESTOS SUSPECT BUILDING MATERIAL 5
NOISE SURVEY 5
ILLUMINATION SURVEY 5
BUILDING CONDITION 6
HAZARD COMMUNICATION 6
RADIATION PROTECTION PROGRAM 6
ERGONOMICS 6
PERSONAL PROTECTIVE EQUIPMENT 6

RECOMMENDATIONS 7

TECHNICAL ASSISTANCE 9

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 741 of 2531

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EXECUTIVE SUMMARY

An initial baseline industrial hygiene survey was conducted at the Gallatin Armory on 21 October 2004 as part of the Tennessee Army National Guard Occupational Health Program to identify potential health hazards in the workplace. The survey consisted of collecting lead wipe samples and bulk asbestos samples as needed, conducting a noise and illumination survey and an evaluation of the condition of the building as it related to indoor air quality. A review of the Hazard communication program, ergonomics, and personal protective equipment was also performed.

The following table summarizes the survey findings and recommendations for each topic surveyed.

TOPIC	SUMMARY OF FINDINGS	RECOMMENDATIONS
Lead Wipe Samples	49 to 1510 micrograms. Indoor firing range is contaminated and not suitable for stored items. Drill hall and supply areas also show higher than recommended levels of lead contamination.	Clean surfaces in the supply and drill hall areas, decontaminate all contaminated items, and follow good hygiene and housekeeping practices. The indoor firing range cannot be used as a storage area, any items currently stored in the area must be decontaminated and removed according to Army National Guard All States Log Number 1901-0075, **Policies and Responsibilities for Inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges (IFR) and Guidelines for IFR Rehabilitation, Conversion, and Cleaning**
Asbestos Bulk Samples	No findings	No action
Noise Survey	Under 85 dBA	No action
Illumination Survey	3 to 69 foot-candles	Upgrade lighting to appropriate levels.
Building Condition	Water damage in weight room and bathroom	Develop a housekeeping schedule to identify, repair, and prevent any leaks or standing water.
Hazard Communication	Chemicals used at this facility include cleaning supplies	Material Safety Data Sheets should be updated for cleaning supplies used by facility.
Ergonomics	Poor workstations design in some offices	Complete ergonomics survey on all personnel and offer ergonomic training or awareness to employees who spend the majority of their time working on a computer terminal
Personal Protective Equipment	No findings	No action

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MEMORANDUM FOR

Tennessee Army National Guard
Gallatin Armory
Commander
1250 Hartsville Pike
Gallatin, Tennessee 37066-4607

SUBJECT

Initial Baseline Industrial Hygiene Survey of the Gallatin Armory performed 21 October 2004 in Gallatin, Tennessee.

BACKGROUND

INTRODUCTION

At the request of Non-Responsive of the National Guard Bureau Region South Industrial Hygiene Office, an initial baseline industrial hygiene survey was performed at the Gallatin Armory in Gallatin, Tennessee. Environmental Management Solutions conducted the survey on 21 October 2004. The purpose of the survey was to perform an initial baseline industrial hygiene survey to evaluate potential health hazards present at the armory.

SITE DESCRIPTION

The facility houses the Det. 1, Troop L, 3/278th Armored ACR. All personnel from this unit are deployed. The one story building contains several administrative offices, one classroom, a drill hall, and a kitchen. An indoor firing range is present and has been closed since December 2002. See building layout in Appendix C. Soldiers perform weapons cleaning approximately twice per year in the drill hall area or outside. The armory is rented out approximately once per month to the city and local residents for private functions.

SCOPE OF WORK

The work included collecting wipe samples for lead, bulk samples for suspect asbestos containing building material, noise readings, illumination levels, and an evaluation of the ventilation system as it pertains to indoor air quality. A list of occupational health programs and procedures were verbally covered with the armory personnel.

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May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 743 of 2531

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METHODOLOGY

Lead wipe samples were collected from surfaces that showed signs of lead contamination in armories that have a renovated, inactive, or closed indoor firing range (IFR), kitchen or mess hall storage areas, indoor drill halls, and storage rooms with weapons vaults. The samples were collected in accordance to instructions published by Region South National Guard Bureau, which required the use of unscented baby wipes to wipe one square foot of surface. Samples were then placed in a sealed plastic bag and sent to an American Industrial Hygiene Associations (AIHA) accredited laboratory for analysis. Asbestos bulk samples and lead paint chips were collected from suspect friable and damaged building material. Each bulk sample was placed in a sealed bag and sent to an AIHA laboratory for analysis. All instruments used for assessment were factory calibrated and calibrated prior to the survey as applicable. Illumination readings were taken on work surfaces and approximately four feet from the floor.

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 744 of 2531

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FINDINGS AND DISCUSSION

LEAD WIPE SAMPLES

Eight wipe samples were collected from areas of the supply room, kitchen, drill hall, and converted indoor firing range areas.

SAMPLE NUMBER	SAMPLE LOCATION	MICROGRAMS OF LEAD (µg) PER SQUARE FOOT
GL-01	Kitchen Floor	BRL
GL-02	Supply Area, Floor near Storage Cages	**49.0**
GL-03	Supply Area, Vault Floor	**253**
GL-04	Drill Hall, Near Coke Machine	BRL
GL-05	Drill Hall, Near roll up door	**132**
GL-06	IFR, Bathroom floor	88.0
GL-07	IFR, Floor	**1510**
GL-08	IFR, Storage Room	**269**

*Below Detection Limit

The Army National Guard All States Log Number P01-0075, **Policies and Responsibilities for Inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges (IFR) and Guidelines for IFR Rehabilitation, Conversion, and Cleaning** requires a limit of 200 micrograms per square foot for surface contamination in and around indoor firing ranges closed or converted for other uses. Lead results in and around the indoor firing range areas were above required limits. Any items stored in the range are then contaminated from lead dust that has settled on stored items. Personnel are at risk as they handle any items in this area.

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 745 of 2531

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The Environmental Protection Agency standards (40 CFR 745) indicate lead in dust levels above 40 micrograms per square foot on bare and carpeted floors is considered dangerous for common areas. Lead results in the drill hall and supply areas were above regulated standards.

ASBESTOS SUSPECT BUILDING MATERIAL

Sampling for asbestos was limited to damaged material or material that could pose an exposure risk. No friable suspect material was found.

NOISE SURVEY

Area noise levels are well within the Army National Guard limit of 85 dBA and the Occupational Safety and Health Administration (OSHA) regulated limit of 90 dBA over an eight-hour period.

ILLUMINATION SURVEY

Lighting levels throughout the armory ranged between 3 foot-candles to 69 foot-candles. Specific readings are listed in the table below.

AREA	AVERAGE FOOT-CANDLES
Sections Platoon Supply Area	20
Supply	26
Drill Hall	**21**
Orderly Room	**41**
Library	55
Platoon Sergeants	69
Kitchen	45
Kitchen Maintenance	**18**

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May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 746 of 2531

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Storage Room	**3**
Classroom	**45**

Readings in bold-faced type are not within the Army Design Guide (DG 415-2) minimum illumination level of 50 foot-candles for office areas and 20 foot-candles for parts storage/supply. The American National Standard Institute/Industrial Engineering Society (ANSI/IES) recommends a minimum illumination of 50 to 100 foot-candles for administrative and kitchen areas, and 20 to 50 foot-candles for storage areas. Luminance of 50 to 100 foot-candles is recommended for performance of visual tasks of medium contrast or small size such as reading, pencil handwriting, and poorly printed, or reproduced material. Depending of the type of display, background luminance of 30 to 60 foot-candles is recommended for computer work.

BUILDING CONDITION

The building was constructed in 1984. The building is in good condition and housekeeping is very good. A water leak, most likely caused by a toilet, was observed in the bathroom area and the carpeting in the weight room was wet as a result of the bathroom leak. Other signs of water damage could be seen in the weight room as well. Personnel did not have any specific complaints about the indoor air quality. The armory has central heating and cooling.

HAZARD COMMUNICATION

No chemical use, other than routine cleaning chemicals are present at this facility.

RADIATION PROTECTION PROGRAM

There are no radioactive materials stored at this facility.

ERGONOMICS

The full time employees in the supply or office areas did not express any ergonomic concerns. However, many workstations were not set up to provide neutral postures and appropriate ergonomically correct positions. Consideration should be given to providing all full time employees that spend the majority of their working time at a computer terminal ergonomic training or awareness. Such awareness should emphasize the importance of proper posture and set-up of the workstation to fit the user.

PERSONAL PROTECTIVE EQUIPMENT

Normal duties of full time employees at the armory do not require the use of personal protective equipment (PPE).

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 747 of 2531

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RECOMMENDATIONS

1) All items that are contaminated with lead should be thoroughly decontaminated with a detergent and water solution. Care should be taken to wipe down tables where weapons are issued and cleaned. Kitchen areas should be thoroughly cleaned on a regular basis and especially before serving personnel.

2) Personnel should be prohibited from eating, drinking, smoking, chewing tobacco or gum, or applying cosmetics in supply areas and should be instructed to clean hands with soap and water before doing any of these. Remove all refrigerators, cups, and other eating utensils from supply areas.

3) **Lead results indicate that the indoor firing range is grossly contaminated. An indoor firing range should not be used for any purpose other than firing until it has been appropriately cleaned and converted.** Consult the Army National Guard All States Log Number P01-0075, Policies and Responsibilities for inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges (IFR) and Guidelines for IFR Rehabilitation, Conversion, and Cleaning on guidelines for cleaning and converting Indoor Firing Range. **Immediately,** follow requirements to decontaminate and remove all items until the range has been properly cleaned and converted.

4) Upgrade lighting measurements as required. Lighting can be upgraded in the following ways:

   - Replace blown or broken lighting
   - Paint walls and floors white or similar light color
   - Clean existing light fixtures
   - Rearrange furniture to make better used of available light
   - Provide supplemental or task lighting

5) Develop a housekeeping schedule to identify, repair, and prevent any leaks or standing water. Proper and immediate repairs and maintenance of the building infrastructure and interior surfaces can prevent water damage and moisture buildup which may lead to further indoor air quality issues.

6) When water damage occurs:
   - Inventory all water damaged areas, building materials, and furnishings.

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 748 of 2531

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- Remove and dispose of all wet ceiling tiles within 24-48 hours of water damage. Spray the back of the water damaged tile with a dilute bleach solution. Place tile in garbage bag. If the ceiling tile has become wet due to a small stream leak and the shape of the tile has not been altered, the ceiling tile can be air-dried and reused.

- Upholstered furniture that has become wet due to floods; roof leaks sewage backup and ground water infiltration should be disposed.

- Hardwood furniture or laminate furniture whole laminate is intact should be air dried and cleaned with a solution of ¼ to ½ cup bleach per gallon of water.

- Laminate furniture whole laminate has become delaminated should be disposed of as pressed wood under the laminate absorbs water readily and is hard to dry.

- Furniture made of particleboard or pressed wafer board should be discarded after water damage.

7) If carpet is wet for less than 48 hours:

- Remove all materials such as furniture, file cabinets, paperwork form the carpet.

- Use a wt vacuum to remove as much water from the carpet as possible

- Shampoo the carpet with a dilute surfactant.

- Soak with a ¼ to ½ cup bleach/water solution. The maximum concentration should not exceed 1 part bleach to 10 parts water.

- Rinse and extract the carpet with clean water to remove detergent/bleach residues.

- Commercial steam cleaning can be used in place of bleach as long as the water used to steam the carpet is heated above the boiling point.

- Dry the carpet within 12-24 hours of treatment. After work is completed, increase the room temperature, and use commercial dehumidifiers, floor and or exhaust fans to aid in drying the carpet.

- If carpet is wet for more than 45 hours during the wintertime, the above protocol can be used to manage the carpet and salvage it, provided it became wet with relatively clean water.

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 749 of 2531

BEST AVAILABLE COPY

- If carpet is wet for more than 48 hours during the summertime, disposal of water-damaged carpets especially in humid environments is often the best option.

7) Material Safety Data Sheets (MSDS) are required to be kept at the primary workplace facility and to be easily accessible in case of emergency. Material Safety Data Sheets for cleaning materials should be kept by the facility as well. Personnel responsible for these items should receive annual training in the requirements of the Hazardous Communication Program and the appropriate keeping and storage of all MSDS.

8) An ergonomics survey should be completed for all supply and administrative personnel as a preventative measure to document and address any and all ergonomic concerns or problems. Provide ergonomics training and awareness to all employees who spend the majority of their time working at a computer terminal.

TECHNICAL ASSISTANCE

Non-Responsive

Non-Responsive

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 750 of 2531

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APPENDICES

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 752 of 2531

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- Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 1990.
- Army Regulation (AR) 40-5, Preventative Medicine, 15 October 1990.
- Army Regulation (AR) 385-10, The Army Safety Program, 29 Feb 2000.
- NGR 385-10, Army National Guard Safety and Occupational Health Program, 7 October 1988.
- TB MED 503, The Army Industrial Hygiene Program, February 1985.
- Title 29, Code of Federal Regulations (CFR), 1999, revision, Part 1910, Occupational Safety and Health Standards.
- TG 022, US Army Environmental Hygiene Agency (YSAEHA), Industrial Hygiene Evaluation Guide, October 1975.
- TG 141, US Army for Health Promotion and Preventative Medicine (USACHPPM) Industrial Hygiene Air Sampling Guide, November 1997.

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Released by National Guard Bureau
Page 753 of 2531

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APPENDIX B

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 754 of 2531

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May, 2018

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HHIMS Industrial Hygiene Survey Form

Front page

AIRLOC

Installation: [redacted]

Building

Room Number

Location: A A

Operation: A D D

Survey Date: month 04 day 02

Evaluator: [redacted]

Macom: N G

Submacom: X X

Unit / Organization (45)

Supervisor: Mr. [redacted] Ms. [redacted] Rank [redacted]

RAC

Supervisor, or Point of Contact Telephone Number

DSN [redacted] Commercial [redacted]

Frequency (hr/day): 0 0 8

No. CIVs

No. MIL: 0 0

Contractors: 0 0

No. LOCs: 0 0

Lab Hoods: 0 0

Vapor Degreasers: 0 0

Spray Booths: 0 0

Open Surface Tanks: 0 0

Ventilation Units: 0 0

Controls Present (if >5, continue in comments)(25): OTH

Evaluation (25 characters max): N1-55

Unit code: F T C

Controls Required (25 characters max): 50-100 FTC

Manufacturer's Description (10 characters max)

NIOSH TC # or Foreign equivalent (10 characters max)

Gloves	e*	R	U
acid			
cold surfaces			
hot surfaces			
NBC agents			
oil			
solvents			
surgical gloves			
leather / cotton			
other			

Respirator	e*	R	U
airline			
abrasive blasting hood			
disposable			
full face air purifying			
1/2 face air purifying			
powered air purifying			
1/4 face air purifying			
self-contained			
other			

Eyes and Face	e*	R	U
chemical splash			
full face shield			
chem/safety impact			
safety impact			
welding helmet			
sunglasses			
welding goggles/glasses			
laser eye protection			
other			

Hearing	e*	R	U
canal caps			
(>85-108 dBA steady) earplugs			
helmets w/ muffs			
muffs alone			
(108-118)muff/earplug comb			
muffs and earplugs with time limit			
(118 or >)			
other			
other			

Body	e*	R	U
aprons			
cold weather clothing			
coveralls			
full body suit			
heat reflective vest/suit			
safety belt/harness			
special purp. clothing			
other			

Head and Feet	e*	R	U
cold weather boots/hat			
hard hats			
impermeable boots			
safety shoes (conductive)			
safety (nonconductive)			
other			
other			
other			
other			

* = evaluator's recommendation or agreement

Reminders: ergonomics - dermatitis - physical agents - flammable storage
EYE (permanent) ____ - EYE (portable) ____ - SHW - GMV - LEV

ACD ADM DSA DSN LAB LCK
RAD ECR FBI BUS PPS [illegible]

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 755 of 2531

HHIMS Industrial Hygiene Survey Form

Back page

	CAS code	PAC	EPC	Hazard Description
PONOISECO	POVDTXXXX	2	A	Computer use/video display Terminal
POFOOTHAZ	POSTRESSX	3	F	Ergonomics/Physical stress.
POFLYPROJ				
POEYEHAZA				
POFLAMHAZ				
POLIFTING				
POSHARPOB				
POHOTOBJE				
POELSHOCK				
COLUBEOIL				

Social Security Number or Unique Identifier	Last Name (20 characters max)	First Name (20 characters max)	MI	Sex	Category
	[redacted] Non-Responsive	[redacted] Non-Responsive			

☐ Personnel data provided by the facility is attached to this form

Insert Privacy Act Statement

Comments

Operation described is administrative operations to include typing, filing, phone and computer use.
Some workstations were not set up to allow employees to work with neutral postures.
Some workspaces cramped with little space.
Duties of administrative personnel vary, so that micrbreaks can be taken as needed.

☐ (comments continued on attached)

☐ This operation was explained to the evaluators, but was not actually observed.

There is a noise data sheet attached to this form ☐

There is a ventilation data sheet attached to this form ☐

2/8/95 CHPMBACK.XLS

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 756 of 2531

Posted to NGB FOIA Reading Room
May, 2018

HHIMS Industrial Hygiene Survey Form

Front page

AHLOC

Installation: [illegible]

Building

Room Number

Location: SA

Operation: A21

Survey Date: month 04, day 21

Evaluator: [redacted]

Macom: NG

Submacom: XX

Unit / Organization (45)

Supervisor: Mr. [redacted]

Ms. [redacted] Rank [redacted]

RAC

Supervisor, or Point of Contact Telephone Number

DSN [redacted] Commercial [redacted]

Frequency (hrs/day): 08

No. CIVs

No. MIL: 00

Contractors: 00

No. LOCs: 00

Lab Hoods: 00

Vapor Degreasers: 00

Spray Booths: 00

Open Surface Tanks: 00

Ventilation Units: 00

Controls Present (if >6, continue in comments)(25): OTH

Evaluation (25 characters max): ~~[illegible]~~ 20-26

Unit code: F T C

Controls Required (25 characters max): 50-100 (Admin) 20-50 (Storage)

Manufacturer's Description (10 characters max)

NIOSH TC # or Foreign equivalent (10 characters max)

Gloves	e*	R	U
acid	[redacted]		
cold surfaces	[redacted]		
hot surfaces	[redacted]		
NBC agents	[redacted]		
oil	[redacted]		
solvents	[redacted]		
surgical gloves	[redacted]		
leather / cotton	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]

Respirator	e*	R	U
airline	[redacted]		
abrasive blasting hood	[redacted]		
disposable	[redacted]		
full face air purifying	[redacted]		
1/2 face air purifying	[redacted]		
powered air purifying	[redacted]		
1/4 face air purifying	[redacted]		
self-contained	[redacted]		
other	[redacted]	[redacted]	[redacted]

Eyes and Face	e*	R	U
chemical splash	[redacted]		
full face shield	[redacted]		
chem/safety impact	[redacted]		
safety impact	[redacted]		
welding helmet	[redacted]		
sunglasses	[redacted]		
welding goggles/glasses	[redacted]		
laser eye protection	[redacted]		
other	[redacted]	[redacted]	[redacted]

Hearing	e*	R	U
canal caps	[redacted]		
(>85-108 dBA steady) earplugs	[redacted]		
helmets w/ muffs	[redacted]		
muffs alone	[redacted]		
(108-118) muff/earplug comb	[redacted]		
muffs and earplugs with time limit (118 or >)	[redacted]		
other	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]

Body	e*	R	U
aprons	[redacted]		
cold weather clothing	[redacted]		
coveralls	[redacted]		
full body suit	[redacted]		
heat reflective vest/suit	[redacted]		
safety belt/harness	[redacted]		
special purp. clothing	[redacted]		
other	[redacted]	[redacted]	[redacted]

Head and Feet	e*	R	U
cold weather boots/hat	[redacted]		
hard hats	[redacted]		
impermeable boots	[redacted]		
safety shoes (conductive)	[redacted]		
safety (nonconductive)	[redacted]		
other	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]

* evaluator's recommendation or agreement

Reminders: ergonomics - dermatitis - physical agents - flammable storage
EYE (permanent) ____ - EYE (portable) ____ - SHW - GMV - LEV

ACO ADM DSA DSN LAB LCK

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HHIMS Industrial Hygiene Survey Form

Back page

	CAS code	PAC	EPC	Hazard Description
POHOISECO	PONDIXXXX	2	A	Computer use, video display terminal
POFOOTHAZ	POSTRESSX	3	F	Ergonomics/Physical Stress
POFLYPROJ	POLIFTING	2	A	Heavy lifting
POEYEHAZA	14391-92-1	3	A	Lead
POFLAMHAZ				
POLIFTING				
POSHARPOB				
POHOTOBJE				
POELSHOCK				
COLUBEOIL				

Social Security Number or Unique identifier	Last Name (20 characters max)	First Name (20 characters max)	MI	Sex	Category

☐ Personnel data provided by the facility is attached to this form

Insert Privacy Act Statement

Comments

Operation described is receive, inventory, issue critical unit items to include weapons and ammunition

☐ This operation was explained to the evaluators, but was not actually observed.

☐ (comments continued on attached)

There is a noise data sheet attached to this form ☐

There is a ventilation data sheet attached to this form ☐

2/8/95 CHPMBACK.XLS

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 758 of 2531

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APPENDIX C

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May, 2018

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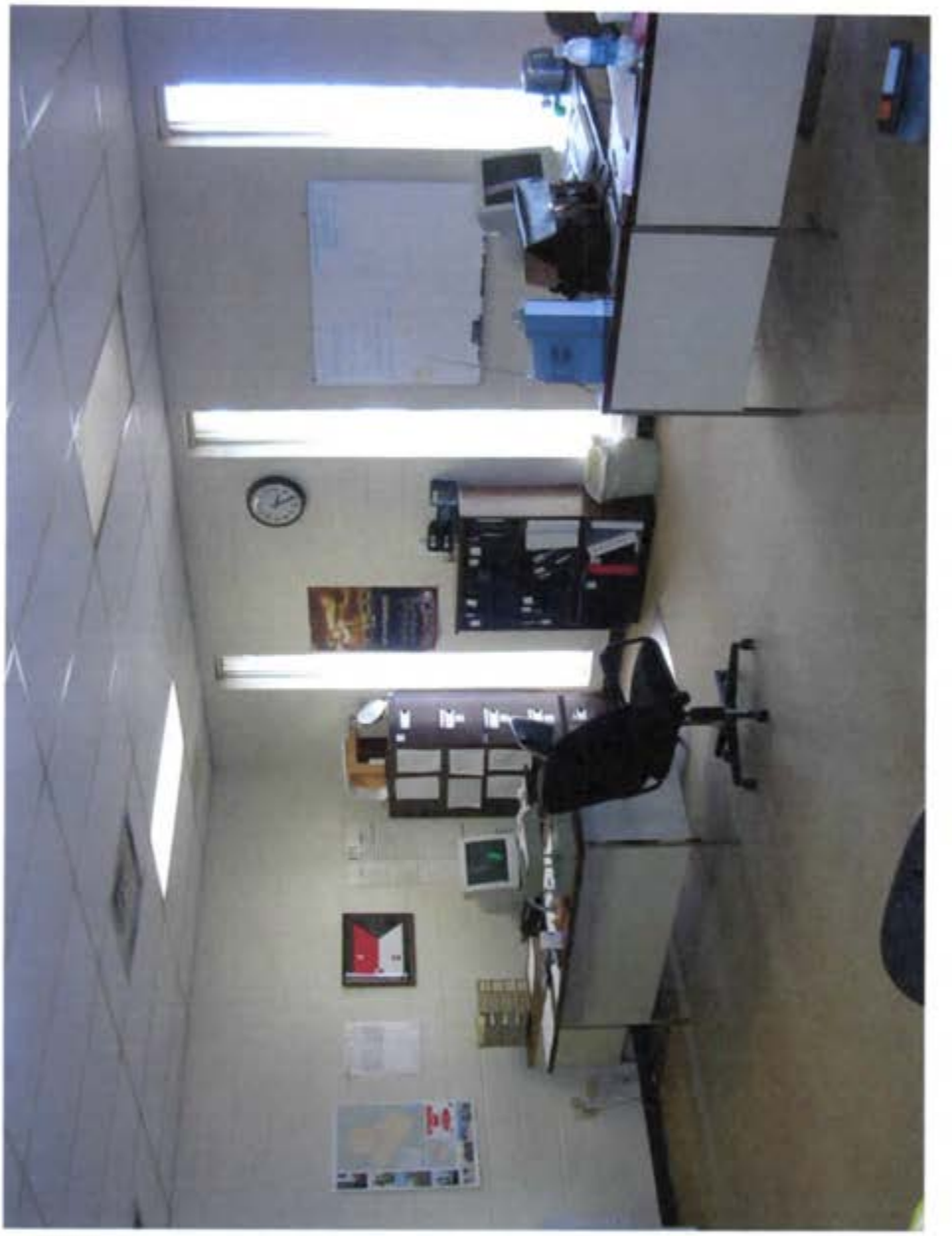
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 759 of 2531



Gallatin Armory

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Water Damage

Classroom

Kitchen

Drill Hall

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Supply Area, Storage

Indoor Firing Range, Entrance Door

Indoor Firing Range

Indoor Firing Range

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 762 of 2531

Storage

HVAC

HVAC

HVAC

Storage

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May, 2018

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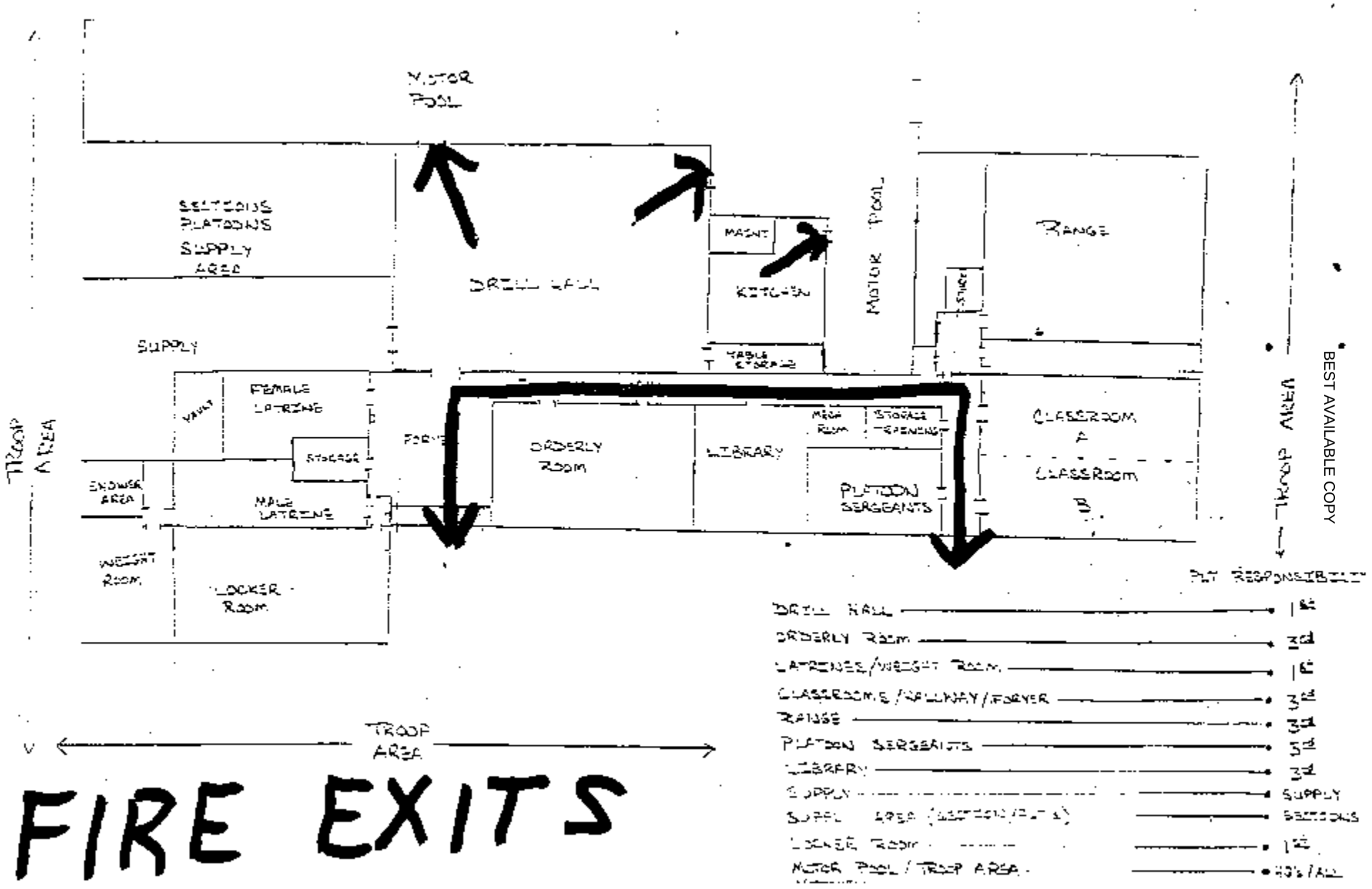

FIRE EXITS

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APPENDIX D

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 765 of 2531

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Analytical Environmental Services, Inc.

TOTAL LEAD IN WIPE SAMPLES
N7087

CLIENT: National Guard Bureau Region-South II
Project: TN01-102004
Delivery Order: TN01-102004

Lab Order: [illegible]
Date Received: 10/27/2004 3:25
Matrix: Wipe

Laboratory ID	Client Sample ID	Results	Units	Report Limit	DF	Date Collected	Date Analyzed	Analyst
0410C03-001A	CV-01	BRL	ug/Total	20.0	1	10/22/2004	11/1/2004	FM
0410C03-002A	CV-02	37.0	ug/Total	20.0	1	10/22/2004	11/1/2004	FM
0410C03-003A	CV-03	BRL	ug/Total	20.0	1	10/22/2004	11/1/2004	FM
0410C03-004A	CV-04	170	ug/Total	20.0	1	10/22/2004	11/1/2004	FM
0410C03-005A	CV-05	60.0	ug/Total	20.0	1	10/22/2004	11/1/2004	FM
0410C03-006A	CV-06	710	ug/Total	20.0	1	10/22/2004	11/1/2004	FM
0410C03-007A	CV-07	BRL	ug/Total	20.0	1	10/22/2004	11/1/2004	FM
0410C03-008A	CV-08	98.0	ug/Total	20.0	1	10/22/2004	11/1/2004	FM
0410C03-009A	CV-09	90.0	ug/Total	20.0	1	10/22/2004	11/1/2004	FM
0410C03-010A	CV-010	100	ug/Total	20.0	1	10/22/2004	11/1/2004	FM
0410C03-011A	CV-011	70.0	ug/Total	20.0	1	10/22/2004	11/1/2004	FM
0410C03-012A	CV-012	245	ug/Total	20.0	1	10/22/2004	11/1/2004	FM
0410C03-013A	LB-01	BRL	ug/Total	20.0	1	10/21/2004	11/1/2004	FM
0410C03-014A	LB-02	385	ug/Total	20.0	1	10/21/2004	11/1/2004	FM
0410C03-015A	LB-03	BRL	ug/Total	20.0	1	10/21/2004	11/1/2004	FM
0410C03-016A	LB-04	576	ug/Total	20.0	1	10/21/2004	11/1/2004	FM
0410C03-017A	LB-05	670	ug/Total	20.0	1	10/21/2004	11/1/2004	FM
0410C03-018A	LB-06	307	ug/Total	20.0	1	10/21/2004	11/1/2004	FM
0410C03-019A	LB-07	70.0	ug/Total	20.0	1	10/21/2004	11/1/2004	FM
0410C03-020A	LB-08	23.0	ug/Total	20.0	1	10/21/2004	11/1/2004	FM
0410C03-021A	SF-01	BRL	ug/Total	20.0	1	10/21/2004	11/1/2004	FM
0410C03-022A	SF-02	BRL	ug/Total	20.0	1	10/21/2004	11/1/2004	FM
0410C03-023A	SF-03	190	ug/Total	20.0	1	10/21/2004	11/1/2004	FM
0410C03-024A	SF-04	130	ug/Total	20.0	1	10/21/2004	11/1/2004	FM
0410C03-025A	SF-05	90.0	ug/Total	20.0	1	10/21/2004	11/1/2004	FM
0410C03-026A	SF-06	BRL	ug/Total	20.0	1	10/21/2004	11/1/2004	FM
0410C03-027A	SF-07	580	ug/Total	20.0	1	10/21/2004	11/1/2004	FM
0410C03-028A	SF-08	BRL	ug/Total	20.0	1	10/21/2004	11/1/2004	FM
0410C03-029A	SF-09	BRL	ug/Total	20.0	1	10/21/2004	11/1/2004	FM
0410C03-030A	SF-010	0.0	ug/Total	20.0	1	10/21/2004	11/1/2004	FM
0410C03-031A	SF-011	BRL	ug/Total	20.0	1	10/21/2004	11/1/2004	FM

Qualifiers: ND - Not Detected at the Reporting Limit DF - Dilution Factor

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FOIA Requested Record #J-15-0085 (TN)
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Page 766 of 2531

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Analytical Environmental Services, Inc.

TOTAL LEAD IN WIPE SAMPLES
N7082

CLIENT: National Guard Bureau Region-South III
Project: TN01-102004
Delivery Order: TN01-102004

Lab Order: 0410C03
Date Received: 10/27/2004 3:25
Matrix: Wipe

Laboratory ID	Client Sample ID	Results	Units	Report Limit	DF	Date Collected	Date Analyzed	Analyst
0410C03-032A	SE-012	BRL	ug. Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-033A	SE-013	BRL	ug. Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-034A	GL-01	BRL	ug. Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-035A	GL-02	49.0	ug. Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-036A	GL-03	253	ug. Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-037A	GL-04	BRL	ug. Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-038A	GL-05	132	ug. Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-039A	GL-06	88.0	ug. Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-040A	GL-07	2510	ug. Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-041A	GL-08	264	ug. Total	20.0	1	10/21/2004	11/1/2004	EM

Qualifiers: ND - Not Detected at the Reporting Limit

Results are blank corrected where applicable

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FOIA Requested Record #J-15-0085 (TN)
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Page 767 of 2531

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NATIONAL GUARD REGION SOUTH
INDUSTRIAL HYGIENE OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

NGB-ARS-SEIH

November 30, 2007

MEMORANDUM FOR: Non-Responsive RN, Occupational Health Nurse, Tennessee State Safety and Occupational Health Office, 250 8th Avenue, Smyrna, Tennessee 37167.

SUBJECT: Gordonsville National Guard Armory, Lead Sampling Survey, 101 Transport Drive, Gordonsville, Tennessee.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 22 July 2005.

c. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, October 1988.

d. AR 385-10, The Army Safety Program, 29 February 2000.

e. National Guard Pam 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006.

f. NGR 385-15, Policy and Responsibilities, Evaluation and Operation of Army National Guard Indoor Firing Ranges, 3 November 2006.

g. DA PAM 40-503, The Army Industrial Hygiene Program, 30 October 2000.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2003, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. Title 29, Code of Federal Regulations (CFR), 2001 rev., part 1910, Occupational Safety and Health Standards.

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2. General.

a. As requested by Non-Responsive Tennessee Occupational Health Office, personnel with the National Guard Region South Industrial Hygiene Office performed an inspection at the referenced site. The apparent objective of the inspection was to collect surface wipe samples from the former Indoor Firing Range (IFR) for analysis of total lead to confirm/deny the presence of lead dust.

b. Non-Responsive with the National Guard Region South Industrial Hygiene Office in College Park Georgia performed the site visit.

3. Findings.

General Information

At the time of the sampling activity, the interior of the Gordonsville Armory IFR was emptied of all equipment including the bullet trap and firing line. The surface areas were observed to be constructed of cinder-block walls with concrete floors and ceilings. The supply vent serving the IFR was observed to be closed and the former range appeared to be generally cleaned of debris. The former bullet trap location was identified along what was referred to as the front wall and the firing line was previously located at the rear wall.

Sampling Activities

Based on the number of surfaces observed, samples were collected in accordance with National Guard Bureau Pamphlet 420-15. Ghost Wipe™ is pre-moistened media made of non-woven polyvinyl alcohol fiber and approved by American Industrial Hygiene Association (AIHA) for lead sampling. The wipes also meet all American Standards Testing Materials (ASTM) Designation E1792-96E specifications for sampling materials for lead in surface dust.

The surface samples were collected by placing a 1 square foot sampling template on the surface area and wiping the outlined area with a Ghost Wipe™. After the area inside the template was wiped, each individual sampling media was placed into separate, labeled re-sealable plastic bags and sealed. After each sample collection, a new surface area template was used and new disposable gloves were donned. A total of 18 samples were collected, three from each surface area for submittal to Analytical Environmental Services, Inc. (AES) in Atlanta, Georgia for subsequent analysis of total lead. In addition, one wipe was placed into a re-sealable bag and submitted as a blank sample for analysis.

Laboratory Results

The results of the lead dust sampling activities are summarized in the following table.

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 770 of 2531

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Sample Number	Sample Location	Laboratory Results[1]
TNG-01	Lower Front Wall	BRL
TNG-02	Middle Front Wall	BRL
TNG-03	Upper Front Wall	BRL
TNG-04	Lower Right Wall	BRL
TNG-05	Middle Right Wall	BRL
TNG-06	Upper Right Wall	BRL
TNG-07	Lower Rear Wall	BRL
TNG-08	Middle Rear Wall	BRL
TNG-09	Upper Rear Wall	BRL
TNG-10	Lower Left Wall	BRL
TNG-11	Middle Left Wall	BRL
TNG-12	Upper Left Wall	BRL
TNG-13	Floor Front Wall	80
TNG-14	Middle Floor	40
TNG-15	Floor at Rear Wall	98
TNG-16	Ceiling at Front Wall	BRL
TNG-17	Middle Ceiling	BRL
TNG-18	Ceiling at Rear Wall	BRL
TNG-Blank	Field Blank	BRL

[1] **Results reported in micrograms per square feet ($\mu g/ft^2$)**
[2] **BRL = Below Reportable Limits**

The laboratory results indicate the presence of lead concentrations detected below the IFR post cleaning standard of less than $200\mu g/ft^2$. In accordance with the National Guard Bureau (NGB) Pamphlet 420-15, the former IFR is considered clean based on the laboratory results. The laboratory results for the collected wipe samples are attached for review.

4. Recommendations.

a. In accordance with NGB Pamphlet 420-15 the surfaces of the IFR are ready for the application of a lead dust encapsulant. The encapsulant can be either a liquid or adhesive. Conventional paint can not be used as an encapsulant. The floor will be tiled or covered with linoleum after the application has dried. It should be noted that the referenced guidance document does not address coating the ceiling, it is recommended that the ceiling also be coated to prevent potential lead migration from occurring.

b. When applying an encapsulant, you must follow the manufacturer's specifications for thickness of application. If the encapsulant is not applied to the recommended thickness, abatement and compliance are not achieved, and warranties are void.

c. Upon completion of the former IFR surface sealing activities, complete the conversion activities in accordance with OSHA and local standard practices as well as other nationally accepted Industrial Hygiene practices.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 772 of 2531

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d. After the former IFR is converted and in accordance with NGB Pamphlet 420-15, continue lead testing on an annual basis to verify that lead has not migrated from the substrate. Also, it is recommended that the Gordonsville Armory IFR be removed from your list of inactive IFRs.

Non-Responsive

CC: Non-Responsive CFMO, 3041 Sidco Drive, Nashville, Tennessee 37204-1504

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 774 of 2531

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Photo 1: View of the Gordonsville, Tennessee Armory.

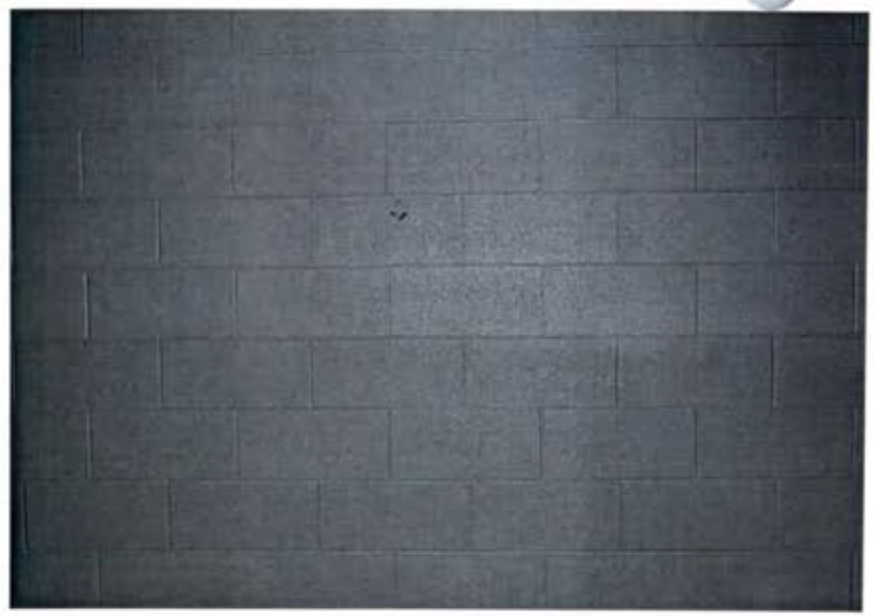

Photo 2: View of the wall at the front of the former IFR adjacent to the former bullet stop.

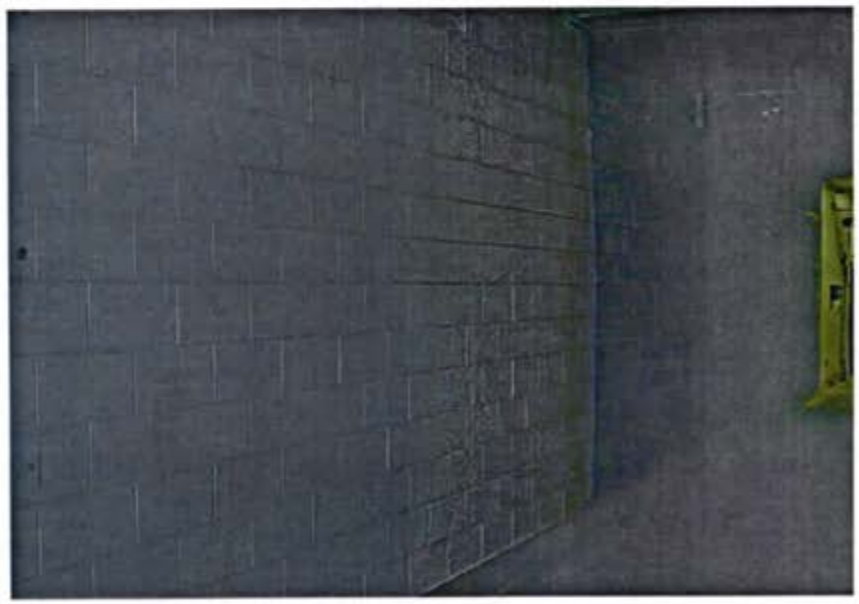

Photo 3: View of right wall of the former IFR.

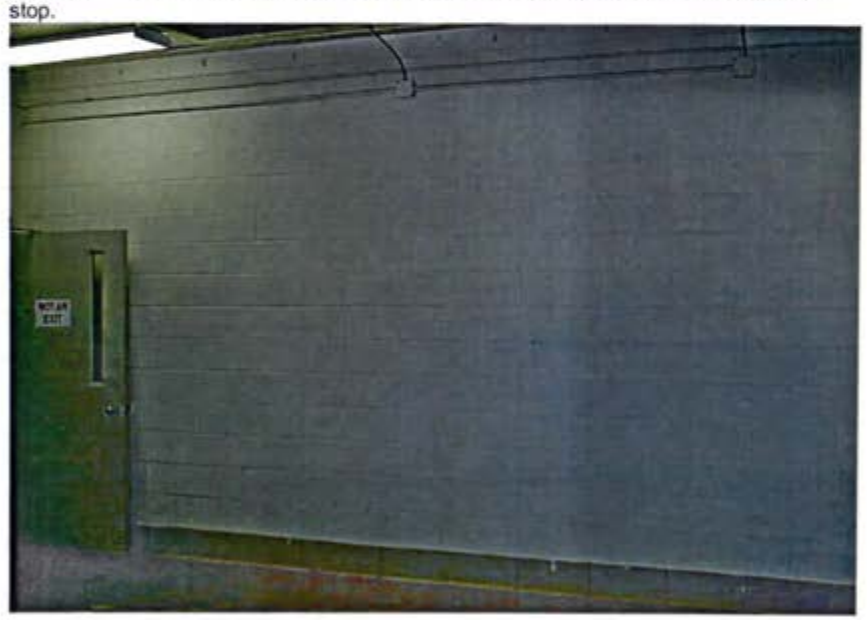

Photo 4: View of rear wall of the former IFR.

Project Name: Gordonsville Tennessee Armory

Date Photos Taken: 15 November 2007

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May, 2018

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Photo 5: View of the left wall of the former IFR.

Photo 7: View of IFR ceiling.

Photo 6: View of floor of the former IFR

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Project Name: Gordonsville Tennessee Armory

Date Photos Taken: 15 November 2007

FOIA Requested Record #J-15-0085 (TN)
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Analytical Environmental Services, Inc.

Date: 11/27/2007

LEAD ON WIPES (N9100/7082)
N7082

CLIENT: National Guard Bureau Region-South III
Project: Gordonsville TN Armory
Delivery Order:
PO No:

Lab Order: 0711A82
Date Received: 11/16/2007 2:00 PM
Matrix: Wipe

Laboratory ID	Client Sample ID	Results	Units	Report Limit.	DF	Date Collected	Date Analyzed	Analyst
0711A82-001A	TNG-01	BRL	µg/ft²	20	1	11/15/2007	11/21/2007	TAA
0711A82-002A	TNG-02	BRL	µg/ft²	20	1	11/15/2007	11/21/2007	TAA
0711A82-003A	TNG-03	BRL	µg/ft²	20	1	11/15/2007	11/21/2007	TAA
0711A82-004A	TNG-04	BRL	µg/ft²	20	1	11/15/2007	11/21/2007	TAA
0711A82-005A	TNG-05	BRL	µg/ft²	20	1	11/15/2007	11/21/2007	TAA
0711A82-006A	TNG-06	BRL	µg/ft²	20	1	11/15/2007	11/21/2007	TAA
0711A82-007A	TNG-07	BRL	µg/ft²	20	1	11/15/2007	11/21/2007	TAA
0711A82-008A	TNG-08	BRL	µg/ft²	20	1	11/15/2007	11/21/2007	TAA
0711A82-009A	TNG-09	BRL	µg/ft²	20	1	11/15/2007	11/21/2007	TAA
0711A82-010A	TNG-10	BRL	µg/ft²	20	1	11/15/2007	11/21/2007	TAA
0711A82-011A	TNG-11	BRL	µg/ft²	20	1	11/15/2007	11/21/2007	TAA
0711A82-012A	TNG-12	BRL	µg/ft²	20	1	11/15/2007	11/21/2007	TAA
0711A82-013A	TNG-13	80	µg/ft²	20	1	11/15/2007	11/21/2007	TAA
0711A82-014A	TNG-14	40	µg/ft²	20	1	11/15/2007	11/21/2007	TAA
0711A82-015A	TNG-15	98	µg/ft²	20	1	11/15/2007	11/21/2007	TAA
0711A82-016A	TNG-16	BRL	µg/ft²	20	1	11/15/2007	11/21/2007	TAA
0711A82-017A	TNG-17	BRL	µg/ft²	20	1	11/15/2007	11/21/2007	TAA
0711A82-018A	TNG-18	BRL	µg/ft²	20	1	11/15/2007	11/21/2007	TAA
0711A82-019A	TNG-BLANK	BRL	µg/ft²	20	1	11/15/2007	11/21/2007	TAA

Qualifiers: BRL - Not Detected at the Reporting Limit DF - Dilution Factor

Results are blank corrected where applicable

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
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Page 780 of 2531

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NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE COLLEGE PARK, GA 30349

NGB-ARS-SEIH July 25, 2012

MEMORANDUM FOR: Tennessee Army National Guard, ATTN: DET 1 Co F (FSC-RSS) 278 Armored Cavalry Regiment, 101 Transport Drive, Gordonsville, TN 37066-9666

THRU: Non-Responsive Deputy State Surgeon, TNARNG, HQS, ATTN-DCSPER-DDS, P.O. Box 41502, Houston Barracks, Nashville, TN 37204-1501

SUBJECT: Industrial Hygiene Survey Gordonville National Guard Armory, Gordonville, TN.

1. **References.**
   a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

   b. EPA, Guidance for Controlling Asbestos Containing Materials in Buildings, June 1985.

   c. MEMORANDUM SGPS-PSP, OTSG, subject: AMEDD Role Supporting Asbestos Abatement/ Asbestos Management Programs, 19 January 1989.

   d. TB MED 513, Guidelines for the Evaluation and Control of Asbestos Exposure, 15 December 1986. [10/2007 Under Revision as DA PAM 40-513]

   e. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 22 July 2005.

   f. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, 1988.

   g. DA PAM 40-503, The Army Industrial Hygiene Program, 30 October 2000.

   h. Title 29, Code of Federal Regulations (CFR), 2011 rev., part 1910, Occupational Safety and Health Standards.

2. **General.**
   a. An Industrial Hygiene survey was conducted at DET 1 Co F 278 Armored Calvary Regiment, National Guard Armory July 12, 2012. The purpose of

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this visit was to conduct a formal walk through while identifying hazards and making recommendations regarding those hazards. The day to day operation is to provide administrative support to M-day soldiers as well as have the potential to give support by supplying fuel and ammunition.

b. Non-Responsive [redacted] Industrial Hygiene Technicians, performed the survey.

3. **Instrumentation.** The following instrumentation was used to determine ventilation rates, illumination measurements, and photographically document findings.

a. Extech Light Meter, Model 407026, S/N:Q009471, Calibrated: 07/20/2011
b. Canon camera, PowerShot A2200, S/N: 282063093333

4. **Findings.**

a. **Indoor Firing Range**

i. There are wholes in the roof allowing water to enter into the area. Because of this when it rains poodles form on the floor causing the paint to peel. Lockers were seen in the area these are the same lockers that were there prior to the conversion of the IFR began. The lockers were not cleaned before they were brought back into the converted area.

b. **Roof leaking**

i. Throughout the facility watermarks were seen on the ceiling tile. In room 104, efflorescence was seen coming through the wall and lifting the paint. Because of the leaks coming from the roof mold formation was seen throughout the building on walls, ceilings, and on vents.

c. **General Information**

i. Lighting in the drill hall, supply room, locker rooms, kitchen, latrine, and library were below recommended levels. All fire extinguishers in the facility were not up to date (01/2010). Also the air conditioning system had been replaced but not working on one side of the facility.

5. **Illumination.**

Location	Number of Fixtures/ Lights per Fixture	Number of burned out tubes	Illumination Foot Candles (FC)
Classroom A	10 Fixture, 4 each	19 Bulbs out	11.0-39.3
Admin Office	1 Fixture, 4 each		26.5-134.4
Readiness Office	1 Fixture, 4 each		15.0-46.8
Orderly Room	4 Fixture, 4 each		67.0-98.5
Platoon Office	4 Fixture, 4 each	2 Fixture out/ 2	68.1-75.5

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		Bulbs out	
Restroom	2 Fixture, 2 each		15.9-19.7
FRG	4 Fixture, 4 each	5 Bulbs out	17.3-27.2
Supply Room	11 Fixture, 2 each	4 Fixture out	5.3-24.5
Supply Vault	2 Fixture, 2 each		13.7-21.9
Supply Office	2 Fixture, 2 each	1 Fixture out	11.1-48.1
Kitchen	4 Fixture, 4 each	1 Fixture out	9.8-23.3
Weight Room	8 Fixture, 2 each		0.2-6.1
Locker Room	6 Fixture, 2 each	4 Fixture out	0.4-15.9
FRG Storage	1 Fixture, 1 each		4.5-5.7
Conference Room	6 Fixture, 4 each	6 Bulbs out	21.4-30.7
Maintenance Room	1 Fixture, 2 each		26.0-30.0
Storage Room	2 Fixture, 2 each		14.6-15.3
Classroom B/C	12 Fixture, 4 each	1 Fixture out/ 8 Bulbs out	13.8-54.9
Library	1 Fixture, 2 each		13.1-14.5
Drill Hall	20 Fixture, 1 each	9 Fixture out	3.9-9.3

According to the IES Lighting Handbook, Volume 1995, working spaces where visual tasks are conducted should have a range of illumination between 20- 50 FC. Illumination in areas where visits are temporary should range from 5- 10 FC.

6. Lead.

a. Laboratory findings show there was no lead present above the reporting limit.

The results are illustrated in the chart below.

Sample Number	**Sample Location**	**Laboratory Results (ug)**
MMN- REF- 278- 106	Indoor Firing Range	Not Detected
MMN- REF- 278- 107	Indoor Firing Range	Not Detected
MMN- REF- 278- 108	Indoor Firing Range	Not Detected
MMN- REF- 278- 109	Indoor Firing Range	Not Detected
MMN- REF- 278- 110	Indoor Firing Range	Not Detected
MMN- REF- 278- 111	Indoor Firing Range	Not Detected
MMN- REF- 278- 112	Indoor Firing Range	Not Detected
MMN- REF- 278- 113	Indoor Firing Range	Not Detected
MMN- REF- 278- 114	Indoor Firing Range	Not Detected
MMN- REF- 278- 115	Vault	Not Detected
MMN- REF- 278- 116	Vault	Not Detected
MMN- REF- 278- 117	Vault	Not Detected
MMN- REF- 278- 118	Vault	Not Detected

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MMN- REF- 278- 119	Vault	Not Detected
MMN- REF- 278- 120	Drill Hall Floor	Not Detected
MMN- REF- 278- 121	Drill Hall Floor	Not Detected
MMN- REF- 278- 122	Drill Hall Floor	Not Detected
MMN- REF- 278- 123	Drill Hall Floor	Not Detected

7. Discussions.

a. Efflorescence was seen in numerous amounts in room 104. Efflorescence occurs when water soluble salt minerals seep from cement. Water moving through the material carries the salts to the surface. The water evaporates and leaves the white powder behind.

b. Watermarks on ceiling suggest there is a water leak of some sort in the facility. Due to the watermarks which suggest a leak around the unclean vents it can create an unhealthy environment for those working in the area.

c. Rooms that are not adequately lighted can cause an area to become a hazard. Depending on the type of work performed in each area lighting should be at a level of at least 20 FC. Replacing bulbs that are not working will help to ensure optimal lighting in all areas. If that does not work request someone inspect the wiring.

8. Recommendations.

a. Follow TG 277 & TG 278 when performing mold remediation task. Find the origin of the leak and repair it. Ensure all vents are clean. Clean all walls where mold is present this can be done by using a mold fighting cleaning agent such a bleach solution on a regular basis.

b. Ensure good housekeeping practices by completing the following: light bulbs that are not working should be replaced. Ceiling panels that are not secure should be secured or replace. Air conditioning unit should be fixed immediately to ensure the safety of soldiers. Ensure a professional come out to inspect and recharge the fire extinguishers in the facility.

9. If additional information is needed in regards to the above report, please contact

Non-Responsive

[redacted]

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NGB-ARS-SEIH July 25, 2012

SUBJECT: Industrial Hygiene Survey Gordonville National Guard Armory, Gordonville, TN

CF: Non-Responsive TNARNG Occupational Health Office, Building 250 8th Avenue, Smyrna, TN 37167

Non-Responsive tate Surgeon, TNARNG, HQS, ATTN-DCSPER-DDS, P.O. s, Nashville, TN 37204-1501

d Occupational Health Manager, Tennessee State Safety and Occupational Health Manager, 3401 Sidco Drive, Nashville, TN 37204-1504

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Indoor Firing Range

Indoor Firing Range

Efflorescence in Room 104

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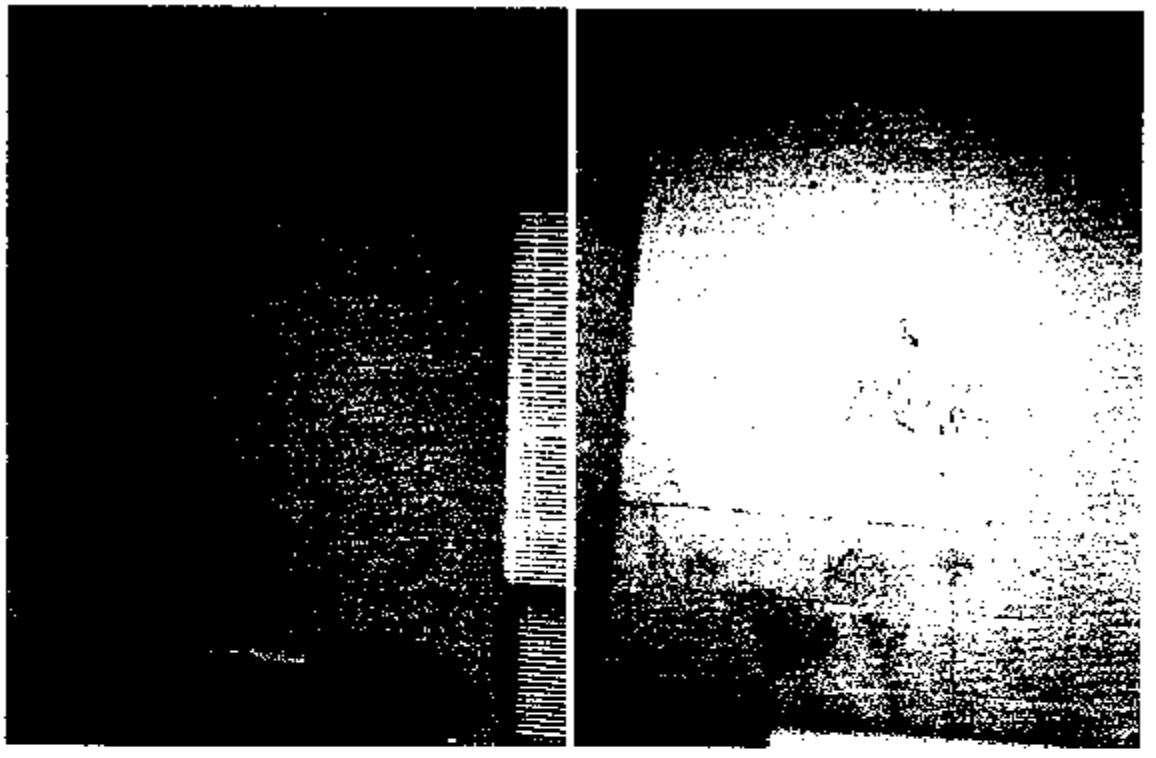
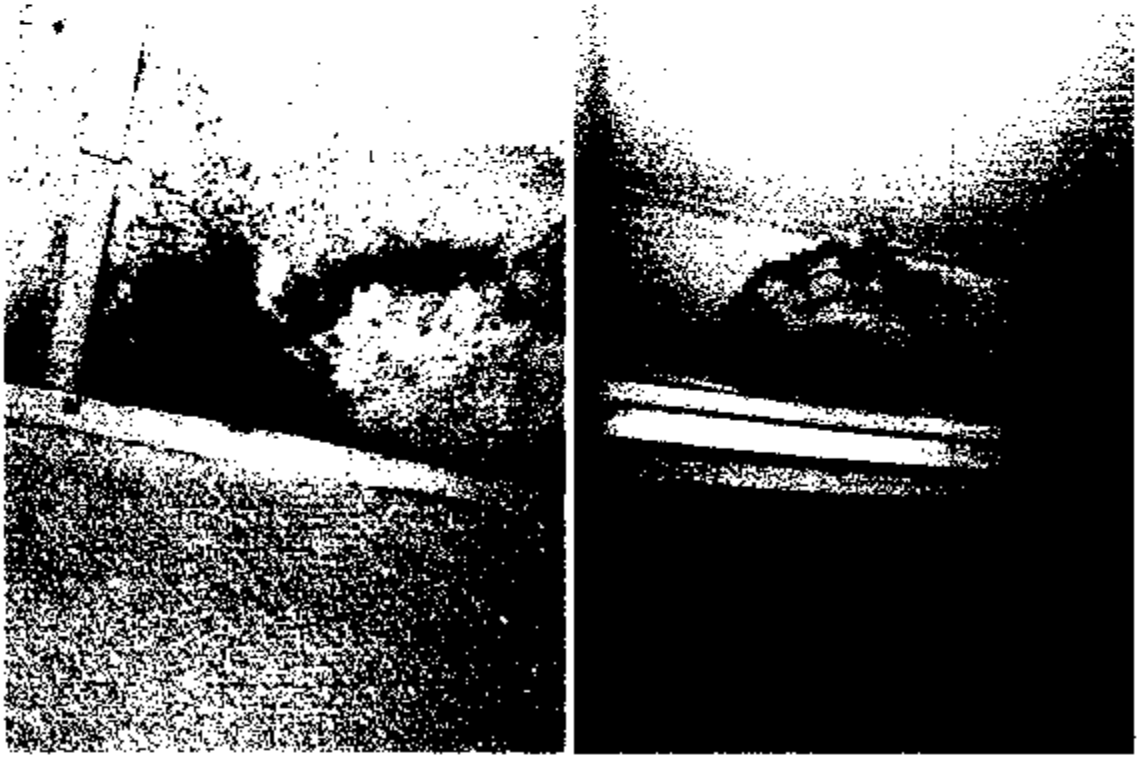


Watermarks/Mold



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Analytical Environmental Services, Inc

Date: 28-Jul-12

Lab Order:	1207E67
Client:	National Guard Bureau Region-South IH
Project:	REF 278
Matrix:	Wipe
Date Received:	7/19/2012 12:55:00 PM

LEAD ON WIPES (N9100/7082)

N7082

Laboratory ID	Client Sample ID	Result	Units	Reporting Limit	DF	Qual	Date Collected	Date Analyzed	Analyst
1207E67-001A	MMN REF 278-106	BRL	ug, Total	20	1		07/12/2012	07/23/2012	MW
1207E67-002A	MMN REF 278-107	BRL	ug, Total	20	1		07/12/2012	07/23/2012	MW
1207E67-003A	MMN REF 278-108	BRL	ug, Total	20	1		07/12/2012	07/23/2012	MW
1207E67-004A	MMN REF 278-109	BRL	ug, Total	20	1		07/12/2012	07/23/2012	MW
1207E67-005A	MMN REF 278-110	BRL	ug, Total	20	1		07/12/2012	07/23/2012	MW
1207E67-006A	MMN REF 278-111	BRL	ug, Total	20	1		07/12/2012	07/23/2012	MW
1207E67-007A	MMN REF 278-112	BRL	ug, Total	20	1		07/12/2012	07/23/2012	MW
1207E67-008A	MMN REF 278-113	BRL	ug, Total	20	1		07/12/2012	07/23/2012	MW
1207E67-009A	MMN REF 278-114	BRL	ug, Total	20	1		07/12/2012	07/23/2012	MW
1207E67-010A	MMN REF 278-115	BRL	ug, Total	20	1		07/12/2012	07/23/2012	MW
1207E67-011A	MMN REF 278-116	BRL	ug, Total	20	1		07/12/2012	07/23/2012	MW
1207E67-012A	MMN REF 278-117	BRL	ug, Total	20	1		07/12/2012	07/23/2012	MW
1207E67-013A	MMN REF 278-118	BRL	ug, Total	20	1		07/12/2012	07/23/2012	MW
1207E67-014A	MMN REF 278-119	BRL	ug, Total	20	1		07/12/2012	07/23/2012	MW
1207E67-015A	MMN REF 278-120	BRL	ug, Total	20	1		07/12/2012	07/23/2012	MW
1207E67-016A	MMN REF 278-121	BRL	ug, Total	20	1		07/12/2012	07/23/2012	MW
1207E67-017A	MMN REF 278-122	BRL	ug, Total	20	1		07/12/2012	07/23/2012	MW
1207E67-018A	MMN REF 278-123	BRL	ug, Total	20	1		07/12/2012	07/23/2012	MW

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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-AVS-SEIH 26 October 2006

MEMORANDUM THRU Non-Responsive Deputy State Surgeon, Tennessee National Guard, HQS, TNARNG STARC, Attn: AGTN-DCSPER-DSS, P.O. Box 41502, Houston Barracks, Nashville, Tennessee 37204-1501

TO: ATTN: Non-Responsive State Occupational Health Office, P O Box 41502, Nashville, TN 37204-1502.

SUBJECT: Transmittal of Survey Reports for the Johnson City Armory, Johnson City, TN, Kingsport Armory, Kingsport, TN, and Greenville Armory, Greenville, TN

1. References.

a. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1996 rev.

b. AR 40-5, Preventive Medicine, 22 July 2005.

c. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.

d. AR 385-10, 29 February 2000, Army Safety Program.

e. TB MED 503, The Army Industrial Hygiene Program, 30 October 2000.

f. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.

g. Industrial Ventilation, 25th, 2004, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

h. Title 29 Code of Federal Regulation (CFR), Part 1910.1025 Lead.

i. Reports dated Oct 5, 2006, Industrial Hygiene Survey, Angel M. Guardiola, Fayetteville, GA.

2. General.

a. At the request of the TN ARNG Safety and Occupational Health Office, an Industrial Hygiene Service was put together to conduct Health Hazard Information module (HHIM) Field surveys and industrial hygiene sampling of the Dayton, TN Armory, Cookeville, TN Armory, and Bolivar, TN Armory.

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b. Non-Responsive [redacted] conducted the surveys.

3. Findings. All Health Hazard information is on the survey findings of the report. (See enclosure 1)

4. Recommendations.

a. Follow all recommendations made in reference 1.l., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Control water infiltration in the armory and/or replace or repair damaged surfaces or components (ceiling and floor tiles). Building conditions that present IAQ concerns or problems not only exacerbates normally minor health issues but also tend to promote or accelerate building deterioration.

c. The recommendations given in the comment section and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-06. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-07 IHIP.

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present survey, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

f. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

5. If additional information is needed about the industrial hygiene survey or air

Non-Responsive [redacted]

CF:
NBG-IH
Non-Responsive [redacted] Tennessee State Safety and Occupational Health Manager, 3041 Sidco Drive, Nashville, TN 37204-1504
as

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Non-Responsive

October 5, 2006

Non-Responsive
TN Army National Guard Armory
1030 Hal Henard Rd.
Greeneville, TN 37743

RE: Baseline Industrial Hygiene Survey

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FINAL REPORT

FOR

BASELINE INDUSTRIAL HYGIENE SURVEY

TENNESSEE ARMY NATIONAL GUARD

GREENEVILLE ARMORY

GREENEVILLE, TN

DATE:

SEPTEMBER 22, 2006

PREPARED BY

Non-Responsive

[redacted]

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CONTENTS

1.0 INTRODUCTION

2.0 INSTRUMENTATION

3.0 FINDINGS

4.0 REFERENCES

Attachment 1 HHIM Forms

Attachment 2 Laboratory Reports: Weapons Vault Racks, IFR Drill Hall and Supply Room

Attachment 3 Photographs of the Facility

Attachment 4 Weapons Vault and IFR Sampling areas

Attachment 5 Schematic Drawing of Facility

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1.0 INTRODUCTION

At the request of the National Guard Bureau South Region Industrial Hygiene Office, Non-Responsive performed a Baseline Industrial Hygiene Survey at the TN ARNG Kingsport Armory. The purpose of the survey was to perform a baseline survey to evaluate health hazards, controls present in the work site, collect lead swipe samples from renovated/inactive or closed Indoor Firing Ranges, Weapons Vault, A/C-Heating System, illumination survey and to make recommendations regarding health hazards associated with the work at the Kingsport Armory.

The building was constructed in 1980. The facility houses the Troop C 2/278th ARS. The armory is used by the troops of the Troop C 2/278th ARS for their monthly weekend drills.

The Troop C 2/278th ARS with about 85 troops had 3 full time AGR personnel at the time of the survey. The employees are assigned to perform administrative duties Monday-Friday 8:00am-4: 30pm. The facility houses administrative areas, classroom, supply room with a weapons vault, a deactivated indoor firing range, a kitchen and a drill hall. There is an oil shed at the rear of the building with no warning sign on the outside. Only oil was stored in the shed the day of the survey. A schematic drawing of the facility can be found in Attachment 5.

The facility was visually examined and personnel consulted to assess potential hazards present. Health Hazard Information Modules were completed. Illumination survey was performed throughout the facility.

2.0 INSTRUMENTATION/CALIBRATION

The following instrumentation was used to obtain light measurements. The instrument used has been calibrated and was operated according to the manufacturer's recommendations:

- SPER SCIENTIFIC Light Meter
- GHOST WIPE, Lead wipes, Manufactured:8/04, Expiration 2/07

3.0 FINDINGS

Illumination

Illumination levels were recorded in administration offices, classroom, training room, the drill hall and the supply room. Light reading was below IES guidelines at the CO office and in the Orderly Room. There were three light fixtures with two bulbs out each and another fixture completely out in the Orderly Room. Also one fixture was out and another had two bulbs out in the CO office. One bulb was out in the Drill Hall and 9 light fixtures (Two bulb fixtures) in the Supply Room storage area. Consideration should be given to replace burn out bulbs and provide auxiliary lighting in the office that was below the recommended standard. See Light Readings Table at the end of this section.

Administration

Personnel perform administrative duties that consist of reading, handling and generating paper work and personnel support in the areas of pay, orders, training and schools. Computer use comprises a large portion of the working day, four to five hours per day. This continuous use of computers can in the long run lead to eyestrain and hand/wrist soreness. One personnel was away on training and another was on vacation. The other personnel interviewed reported no health problems at the time of the survey.

Motor Pool

The Kingsport armory motor pool at the survey consisted of two Bradley vehicles and a 2.5T truck. The unit is schedule to receive more vehicles in the next few months. The vehicles are kept in a locked area behind the building. The truck was inside the drill hall while the equipment that was brought the day before was unloaded. Personnel reported that as soon the vehicle is unloaded it is removed from the drill hall. PMCS are performed at the monthly weekend drills. When major repairs are needed the vehicles are taken to the FMS # 17 located in Kingsport.

Drill Hall

There Drill Hall is located at the center of the building. It is used for formation when the weather is bad, loading and unloading supplies, for training and to eat on weekend drills. Personnel reported that the truck inside the Drill Hall the day of the survey was there while equipment brought from Nashville was unloaded. It will be moved as soon as the task of unloading was finished. There also were many soldiers' bags next to the roll up door. This is equipment that is ready to be returned. He also reported that the weapons have not been used or cleaned at the facility since the returned from Iraq. The Drill Hall was used to clean weapons about two times a year. Weapons are distributed from the vault and counter top in

the Supply Room. They use a cleaning machine outside and then finish the task on tables set up in the Drill Hall, close to the supply room, used only to clean weapons using rags with CLP. Personnel reported that that he is not sure how the used rags are disposed of. One wipe sample (Sample No. 5) was taken from the top of one of the tables. Result: BRL (See Sample # 5 in Lab. Report attachment). Another wipe sample (Sample No. 6) was taken from the top of the counter in the supply room where weapons are distributed. Result: BRL (See Sample # 6 in Lab. Report attachment).The is no exhaust ventilation fans in the room. The Drill Hall is rented occasionally for outside activities such as tool sales, clothing sales, traveling circus and school science fairs.

Kitchen

The facility has not been used since before the unit was deployed. Even though it has not been used, it was clean the day of the survey. A contract service for meals by a catering business has been used to provide meals on weekend drills. After the meals, the tables and chairs are cleaned, folded and stored.

Deactivated Indoor Firing Range

There is deactivated Indoor Firing Range (IFR) at this facility. It is located at the rear of the building. It has been used for tool and equipment storage and as a maintenance area with divided metal cages on the left side and the front. There is no backstop and the floor is concrete covered all the way to the front. The US environmental Protection Agency (EPA), under a new standard issued in 2000, considers lead dust as a hazard if levels are greater than 40 micrograms of lead in dust per square foot on floors. The National Guard Bureau recommends a limit of 200 micrograms per square foot for surface contamination. Seven wipe samples were taken from the front and surrounding areas, midway towards the back and floor next to the exit door. Five of the samples were above the EPA clearance level of 40ug/ft2 and three were above the NG Bureau limit of 200ug/ft2.

Table 1

Sample Number	Sample Location	Results	
7	Concrete floor, where bullet backstop would have been.	53ug	74ug/ft2
8	Bottom metal shelf, right front area.	160ug	2240ug/ft2
9	Top of metal cabinet, front left area.	304ug	425ug/ft2
10	Floor in front of metal shelves cabinet, in front of where backstop would be.	148ug	207ug/ft2

11	Floor left side, a few feet back of where backstop would be.	90ug	126ug/ft2
12	Floor halfway up the room in front of metal cages.	BRL	BRL
13	Floor, next to rear door	BRL	BRL
14	Blank	BRL	BRL

Weapons Vault

The Greeneville Armory has a weapon storage vault located in the supply room. Personnel stated that accountability and issuing of weapons would be performed in this area through a counter in the supply room. There were not many weapons stored in the vault the day of the survey. Personnel stated that he has brought replacement weapons from Nashville in the truck that was parked in the Drill Hall. As stated in the Drill Hall section, weapons have not been used or cleaned since they returned from Iraq. Personnel also reported that the Drill Hall was used to clean weapons about two times a year. (See Drill Hall section for details).The de-humidifier in the vault was working at the time of the survey. A pipe is connected to the unit to drain the water through a floor draining connection. All lead samples were taken using a 10 inch by 10 inch template. The US environmental Protection Agency (EPA), under a new standard issued in 2000, considers lead dust as a hazard if levels are greater than 40 micrograms of lead in dust per square foot on floors. The National Guard Bureau recommends a limit of 200 micrograms per square foot for surface contamination. Four wipe samples were taken from the weapons vault racks and floor (Table 2). All of the samples were above the EPA clearance level of 40ug/ft2 and none was above the NG Bureau limit of 200ug/ft2. See table 2 for results.

Table 2

Sample Number	Sample Location	Results	
1	Weapons Vault Racks (1)	183ug	256ug/ft2
2	Weapons Vault Racks (2)	62ug	86ug/ft2
3	Weapons Vault Racks (3)	108ug	151ug/ft2
4	Weapons Vault Racks (4)	48ug	67ug/ft2

18	Blank	BRL	BRL

A/C System

There is no central A/C-Heating system at the facility. Individual A/C wall units are used to cool the administration offices, the classroom and the training room. There is a small A/C window unit in the supply room. These units were working well at the time of the survey (Heating and cooling). Some of them are newer units. A new metal boiler was installed in 2005. It is a natural gas unit that heats the rest of the armory. It was also reported that the heating system work well to keep the armory warm during the winter months Table 3 below for results.

Material Safety Data Sheets

The supply room located next to the drill hall. It has a vault and storage areas. Personnel present the day of that survey reported that there was an MSDS Book in the facility. He was unable to locate the book that day. The supply Sgt. was away in training. Supply Sgt. was contacted by phone later and said that there is an MSDS book in the supply room and that he is in the process of updating it. There was no flammables storage cabinet inside the supply room. There is an oil shed located at the rear of the building. Oil was the only product stored inside the day of the survey. There was no warning sign outside the shed. There was no Hazardous Materials Inventory List found in the shed.

Light Readings

Light measurements were taken in various locations throughout the facility. The results were compared to guidelines recommended by the Illuminating Engineering Society (IES). The results of the survey are shown in Table 3.

Table 3

Location	Light Reading (footcandles)	IES Recommendation (footcandles)
ADO Orderly Room	9-51 (Avg. 32)	50-100
ADO Recruiter Office	69-125 (Avg. 91)	50-100
Family Assistance Office	70-123 (Avg. 88)	50-100
Training Room	51-78 (Avg. 64)	50-100
Classroom	42-85 (Avg. 67)	50-100

Supply Room (Storage)	**1-36 (Avg. 20)**	**20**
Commander Office	**21-40 (Avg. 32)**	**50-100**
Drill Hall	**27-92 (Avg. 50)**	**30**

Light reading was below IES guidelines at the CO office and in the Orderly Room. There were three light fixtures with two bulbs out each and another fixture completely out in the Orderly Room. Also one fixture was out and another had two bulbs out in the CO office. One bulb was out in the Drill Hall and 9 light fixtures (Two bulb fixtures) in the Supply Room storage area. Consideration should be given to replace burn out bulbs and provide auxiliary lighting if necessary in the offices that were below the recommended standard. ANSI RP7-1991.

4. REFERENCES

- Guide to Occupational Exposure 2000, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.
- American National Standards Institute (ANSI), /Illuminating Engineering Society (IES), Industrial Lighting 1991.
- Title 29, Code of Federal Regulations (CFR). 2000, revision, Part 1910. Occupational Safety and Health Standards
- AR 40-5, Preventative Medicine, 15 October 1990.
- AR 385-10, The Army Safety Program, 23 May 1988.
- National Safety Council, Fundamentals of Industrial Hygiene, 4th edition, 1996.
- AR 385-16, National Guard Pamphlet, Safety Guidelines for Converting Indoor Firing Ranges to Other uses.
- TB MED 40-503, The Army Industrial Hygiene Program, 30 October 2000.
- Department of the Army Pamphlet (DA PAM) 40-501, 10 December 1998, Hearing Conservation.
- Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.

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RECOMMENDATIONS

- Consideration should be given to provide supplemental lighting at the location that was below the recommended standards (Orderly room and CO office) and to replace burned out bulbs in the Drill Hall. CO office and the Supply room storage area. See Light Readings Section.

- Recommend that when using computers for extended periods of time, personnel should take occasional breaks and change position to minimize the possibility of eyes and/or hands/wrist injury.

- Continue to ensure that weapon maintenance and cleaning is done in a well-ventilated area. Continue to practice good personal hygiene by washing hands after handling and cleaning weapons and ammunition. Ensure that the weapons racks are well cleaned before placing them back in the vault.

- Ensure that after the unit resume weapons cleaning, the used rags are properly disposed of through a contractor or an FMS facility.

- Recommend a hazardous material warning sign be placed outside the oil shed. Also that a Hazardous Materials Inventory List be made and placed in the oil shed.

- Recommend that the Occupational Safety and Health office or the appropriate state office review the lead wipe clearance sample results of this facility to determine if the IFR will need further decontamination.

- Ensure that when new chemical products are received, the MSDS forms are added to the MSDS book.

- Ensure that personnel and troops have knowledge of the location of the MSDS book. And is enrolled hazardous materials safety training.

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ATTACHMENT 1

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(For use of this form, see IHRM User's Instructions.)

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SECTION 1. DEMOGRAPHIC DATA

a. ARLOC _____ b. INSTALLATION Greenville, TN Armory c. BLDG/RM NUMBER Admin Office ~~Orderly Room~~

d. LOCATION/CODE AA / e. OPERATION/CODE ABD / f. DESCRIPTION Training NCO, Admin. Scout - MOS. Computer work about 4-6 hrs/day

g. MACOM/CODE NG / h. [redacted] CODE _____ / i. SUPERVISO[redacted]

j. TELEPHONE/AUTOVON NUMBER [redacted] k. RAC _____ l. FREQUENCY (Hrs Per Day) _____

m. NO CIV(S) _____ n. NO MIL _____ o. NO CONTRACTOR(S) _____ p. NO LOC(S) _____ q. NO OTHER _____

Non-Responsive

SECTION 2. IH STAFFING DATA

a. LAB HOODS _____ b. VAPOR DEGREASERS _____ c. MAINTENANCE BAYS _____ d. SPRAY BOOTHS _____

e. OPEN SURFACE TANKS _____ f. VENTILATION UNITS _____

SECTION 3. SURVEY DATA

a. SURVEY DATE 9-22-06 b. EVALUATOR (INITIALS [redacted]

Non-Responsive

c. CONTROLS PRESENT	d. EVALUATION	e. UNIT CODE	f. CONTROLS REQUIRED	g. STATUS
Lighting - Office	9-51; Avg 32	FC	30-100	Inadqt

h. PERSONAL PROTECTIVE EQUIPMENT (R=REQUIRED; A=AVAILABLE)

1. RESPIRATOR	MANUFACTURER	NIOSH TC NO	R/A
DISPOSABLE			
½ FACE AIR PURIFYING			
½ FACE AIR PURIFYING			
FULL FACE AIR PURIFYING			
POWERED AIR PURIFYING			
AIRLINE			
SELF-CONTAINED			
ABRASIVE BLASTING HOOD			

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	R/A
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	
OIL	/	SAFETY/IMPACT	/	EARPLUGS	/	COVERALLS	/	IMPERMEABLE BOOTS	
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCTIVE SHOES	
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/ HARNESS	/	SAFETY/NONCONDUCTIVE SHOES	
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/								

SECTION 4. HAZARD INVENTORY DATA

a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC or EPC	d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO)
PARDT	Eye strain. Daily use of computers for long periods of time.	3	

SAMPLING DATA

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a. HAZARD	b. SAMPLE TYPE	c. RESULTS	d. REMARKS

SECTION 6. PERSONNEL DATA

Non-Responsive

					CATEGORY
					AGR

SECTION 7. COMMENTS (Add blank sheet of paper if necessary)

① Has been in the guard 17 yrs. The last 3 yrs at the Greenville Armory
② Deployed to Iraq Feb Jan 2004 - Nov. 2005.
③ No health problems reported as of now.

* PRIVACY ACT STATEMENT

Title 5 U.S. Code, Section 301; Executive Order 9397 authorizes the use of your Social Security Number as a identification number. The purpose of this information is to identify and monitor data relating each DA civilian employee exposed to a hazardous workplace or operation. The use of this information is to provide histories of exposure for any given worker.

Disclosure of your Social Security Number is not mandatory; however, nondisclosure may result in untimely provision of proper medical monitoring.

Signature

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Page 804 of 2531

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ATTACHMENT 2

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Analytical Environmental Services, Inc.

Date: 10/4/2006

TOTAL LEAD IN WIPE SAMPLES
N7082

CLIENT: Non-Responsive
Project: Greenville, TN Armory
Delivery Order:
PO No:

Lab Order: 0609C95
Date Received: 9/25/2006 11:54 AM
Matrix: Wipe

Laboratory ID	Client Sample ID	Results	Units	Report Limit.	DF	Date Collected	Date Analyzed	Analyst
0609C95-001A	1	183	µg, Total	20	1	9/22/2006	9/27/2006	AO
0609C95-002A	2	62	µg, Total	20	1	9/22/2006	9/27/2006	AO
0609C95-003A	3	108	µg, Total	20	1	9/22/2006	9/27/2006	AO
0609C95-004A	4	48	µg, Total	20	1	9/22/2006	9/27/2006	AO
0609C95-005A	5	BRL	µg, Total	20	1	9/22/2006	9/27/2006	AO
0609C95-006A	6	BRL	µg, Total	20	1	9/22/2006	9/27/2006	AO
0609C95-007A	7	53	µg, Total	20	1	9/22/2006	9/27/2006	AO
0609C95-008A	8	160	µg, Total	20	1	9/22/2006	9/27/2006	AO
0609C95-009A	9	304	µg, Total	20	1	9/22/2006	9/27/2006	AO
0609C95-010A	10	148	µg, Total	20	1	9/22/2006	9/27/2006	AO
0609C95-011A	11	90	µg, Total	20	1	9/22/2006	9/27/2006	AO
0609C95-012A	12	BRL	µg, Total	20	1	9/22/2006	9/27/2006	AO
0609C95-013A	13	BRL	µg, Total	20	1	9/22/2006	9/27/2006	AO
0609C95-014A	14	BRL	µg, Total	20	1	9/22/2006	9/27/2006	AO

Qualifiers: BRL - Not Detected at the Reporting Limit DF - Dilution Factor

Results are blank corrected where applicable

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Page 806 of 2531

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ATTACHMENT 3

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GREENEVILLE, TN
ARMORY

DRILL HALL

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**DRILL HALL,
TABLES & CHAIRS**

**DRILL HALL,
EQUIPMENT TO BE
RETURNED**

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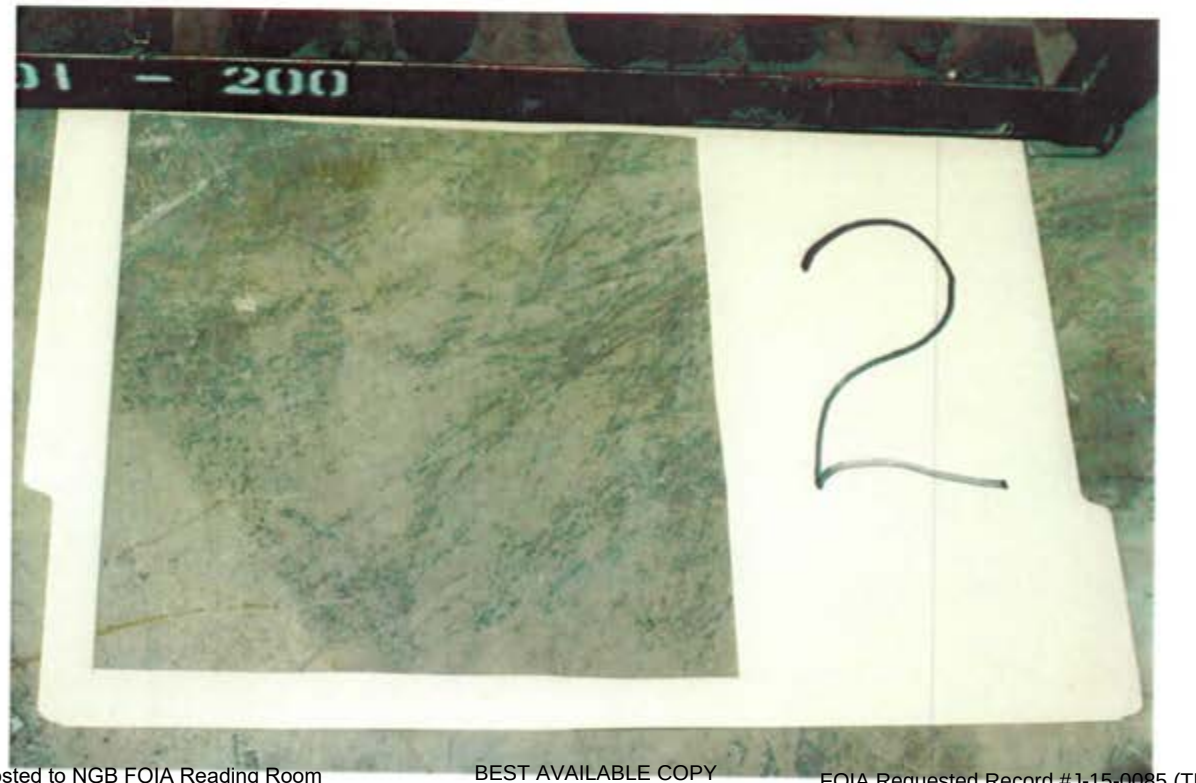
WEAPONS VAULT SAMPLE 1, BOTTOM OF RACK & FLOOR

WEAPONS VAULT SAMPLE 2, FLOOR IN FRONT OF RACK



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WEAPONS VAULT SAMPLE 3, FLOOR & BOTTOM OF RACK

WEAPONS VAULT SAMPLE 4, FLOOR & BOTTOM OF RACK

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IFR, FRONT VIEW

IFR, REAR VIEW

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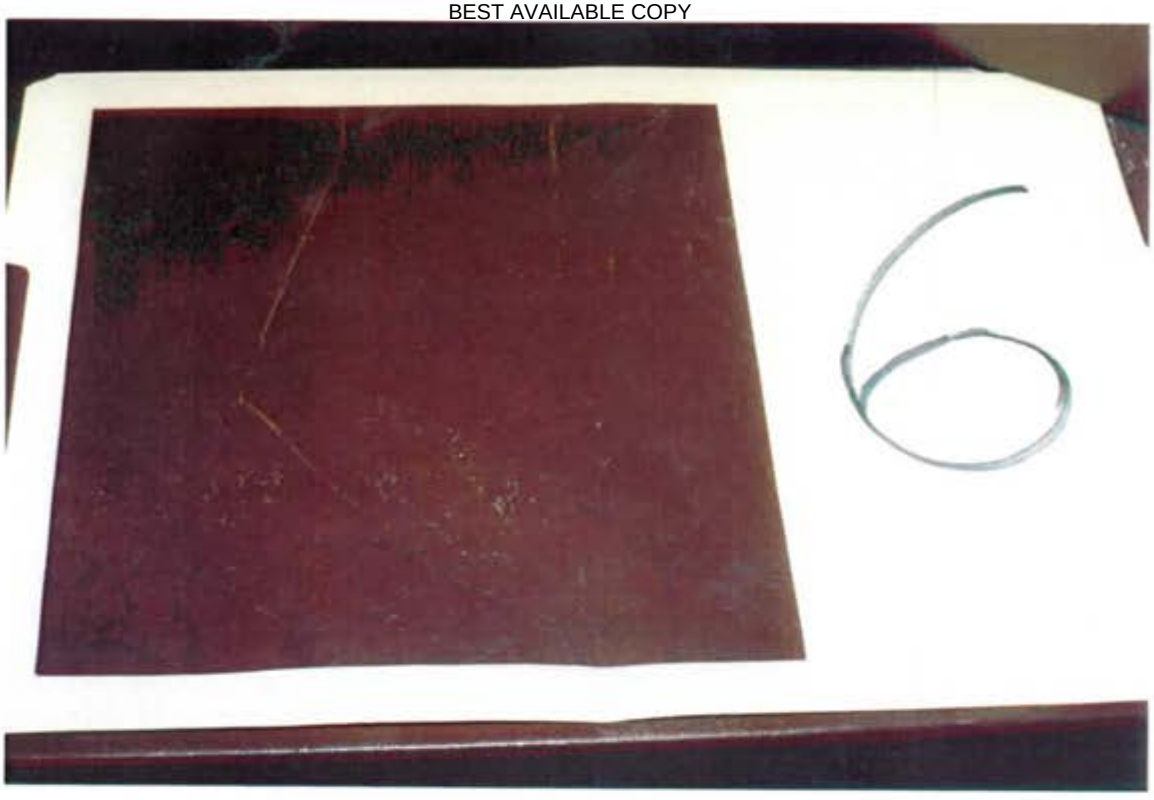

SAMPLE 6 SUPPLY ROOM COUNTER, WHERE WEAPONS WOULD BE DISTRIBUTED

IFR SAMPLE 7, CONCRETE FLOOR IN FRONT OF WHERE BACKSTOP WOULD BE LOCATED

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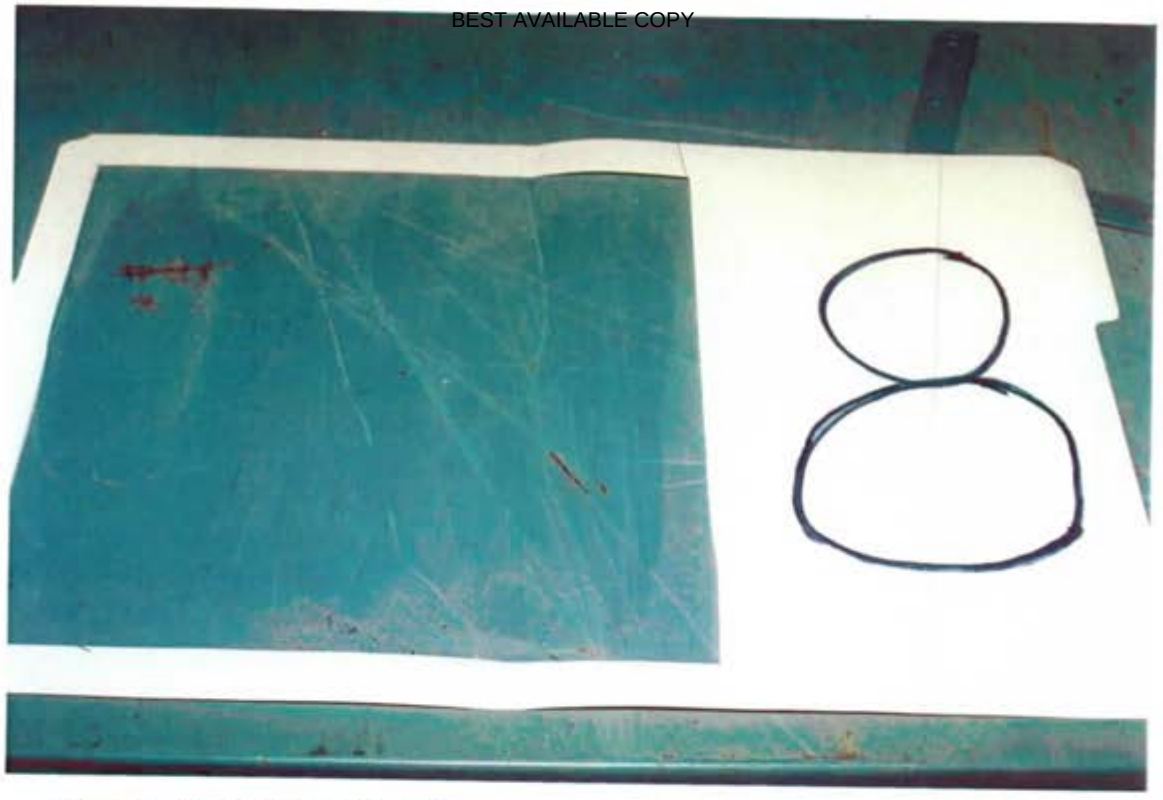

IFR SAMPLE 8, BOTOOM METAL SHELF (RIGHT) WHERE BACKSTOP WOULD BE LOCATED

IFR SAMPLE 9, TOP OF METAL CABINET (LEFT) WHERE BACKSTOP WOULD BE LOCATED

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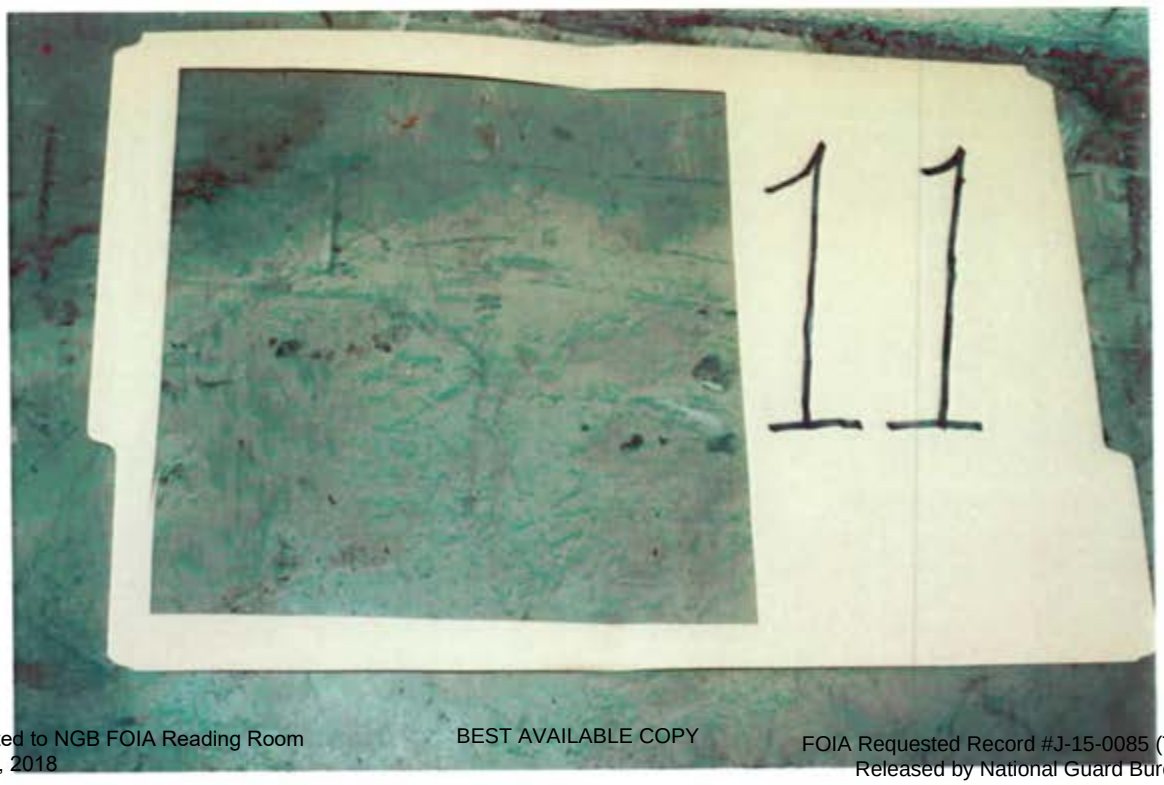
IFR SAMPLE 10, FLOOR IN FRONT OF METAL SHELF CABINET (RIGHT) AND IN FRONT OF WHERE BACKSTOP WOULD BE

IFR SAMPLE 11, FLOOR IN FRONT (LEFT) OF WHERE BACKSTOP WOULD BE LOCATED



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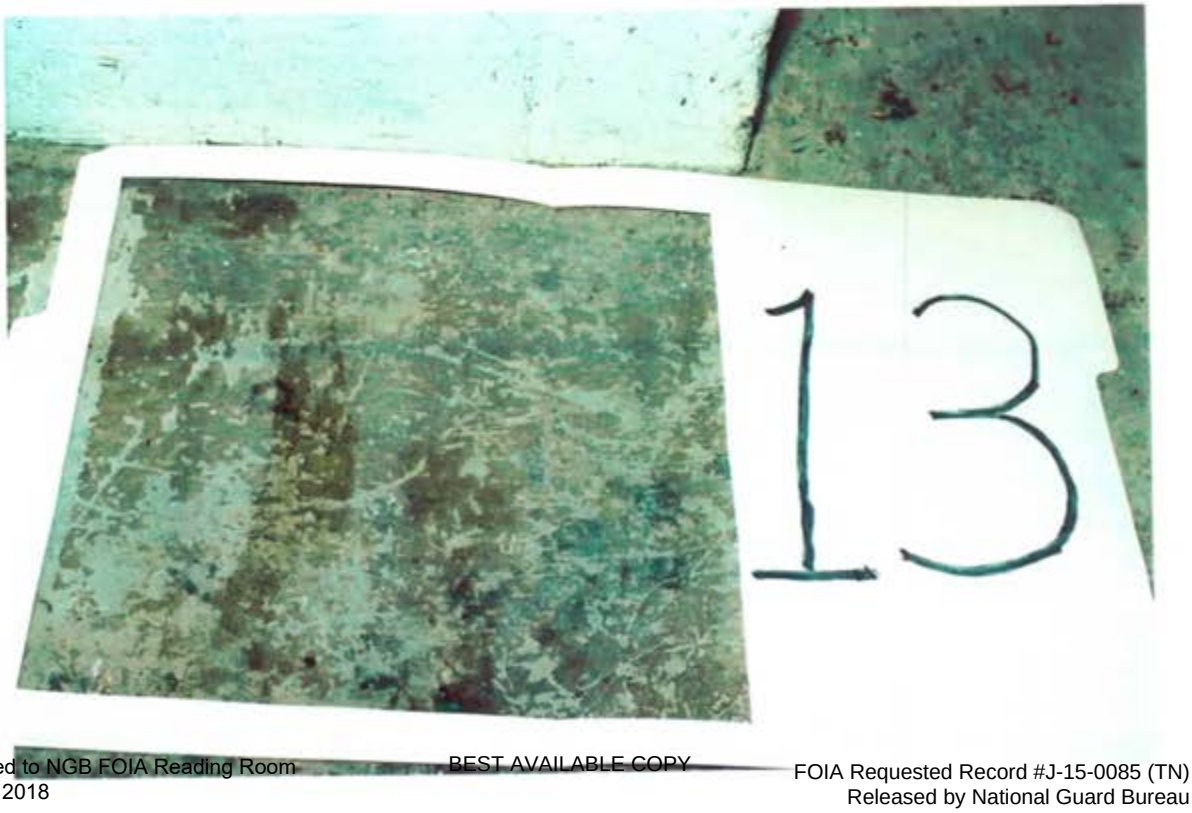
IFR SAMPLE 12, FLOOR IN FRONT OF CAGES (LEFT) HALFWAY TOWARD REAR

IFR SAMPLE 13, FLOOR NEXT TO EXIT/ENTRANCE DOOR



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OIL SHED

WEAPONS VAULT, DEHUMIDIFIER

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ATTACHMENT 4

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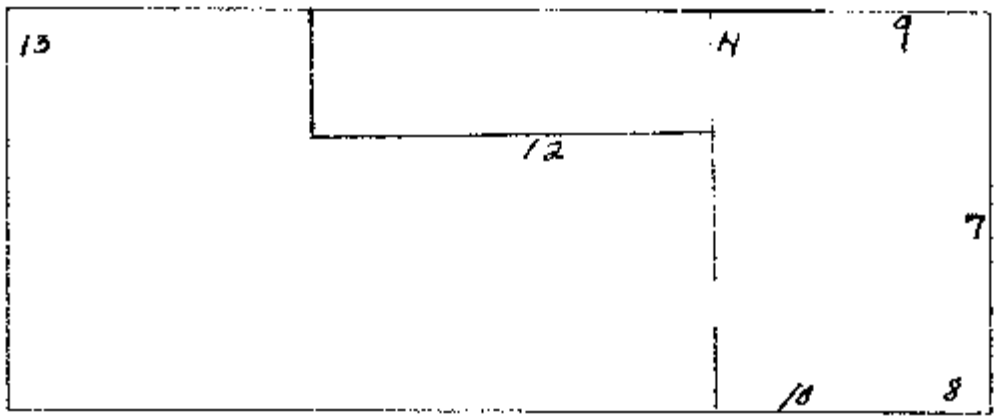
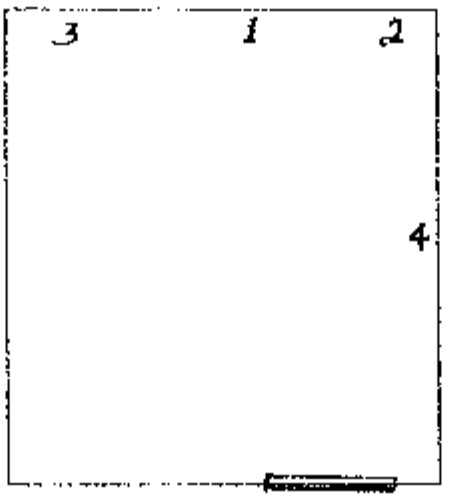


IFR Sampling



Weapons Vault Sampling

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ATTACHMENT 5

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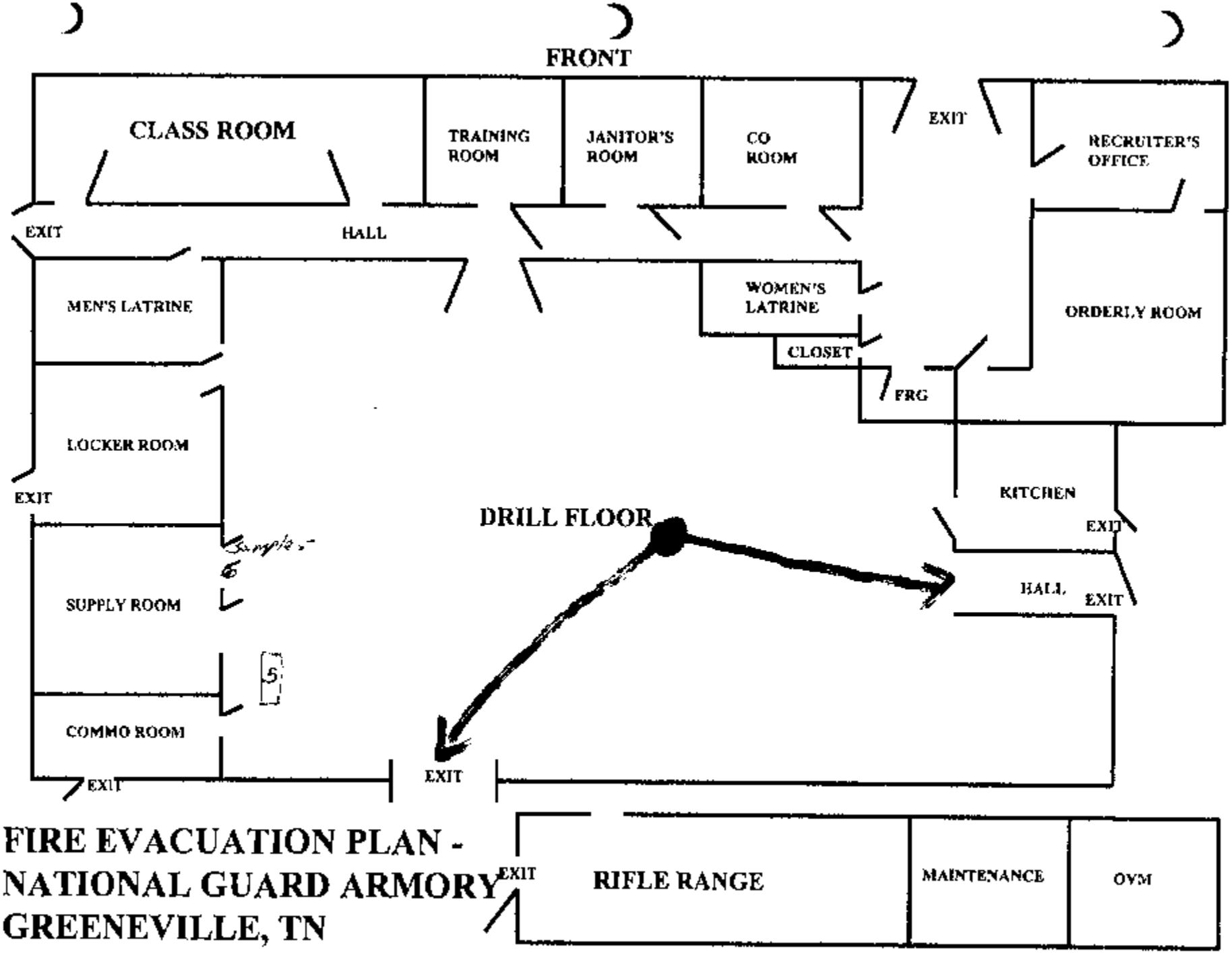

FIRE EVACUATION PLAN - NATIONAL GUARD ARMORY GREENEVILLE, TN

Not to Scale

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NATIONAL GUARD REGION SOUTH
INDUSTRIAL HYGIENE OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

ARNG-CSG-P (40-5f) 27 October 2010

MEMORANDUM FOR THE ADJUTANT GENERAL OF TENNESSEE, ATTN: [redacted] Non-Responsive DET 1 771st Support Maintenance Company, 1177 West Main Street, Hohenwald, Tennessee 38462.

THRU Non-Responsive, Deputy State Surgeon, Tennessee National Guard, HQS, AGTN-DCSPER-DSS, P.O. Box 41502, Houston Barracks, Nashville, Tennessee 37204-1501.

SUBJECT: Industrial Hygiene Survey the Hohenwald Army National Guard Armory, Hohenwald, Tennessee 38462.

1. References.

a. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1996 rev.

   a. Title 29, Code of Federal Regulations (CFR), 2009 rev., part 1910, Occupational Safety and Health Standards.

   b. Title 29 CFR, General Industry, revised 1996 rev. Part 1940

   c. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 25 May 2007

   d. AR 385-10, The Army Safety Program, 23 August 2007.

   e. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.

   f. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, 12 September 2008.

   g. TB MED 503, The Army Industrial Hygiene Program, 30 October 2000.

   h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2010 American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

   i. Industrial Ventilation, 26th rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

   j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

   k. NG PAM 420-15, 03 November 2006, Facilities Engineering, Rehabilitation and Conversion of Indoor Firing Ranges.

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ARNG-CSG-P (40-5f) 27 October 2010
SUBJECT: Industrial Hygiene Survey the Hohenwald Army National Guard Armory, Hohenwald, Tennessee 38462.

1. Report Industrial Hygiene Survey, SE Safety Solutions, Hampton Cove, AL.

2. General.

a. At the request of Non-Responsive N, of the Tennessee National Guard Occupational Health Office, an Industrial Hygiene Survey was put together to conduct a Health Hazard Information module (HHIM) Field survey of the s and industrial hygiene sampling of the Hohenwald National Guard Armory.

b. The surveys were conducted by Non-Responsive of SE Safety Solutions, Hampton Cove, AL.

3. Findings. All Health Hazard information is on the survey findings of the report. (See enclosure 1). Operations of very short duration were not sampled due to the requirements of the sampling method. If the operation changes or if the length of the operation is increased, contact this office to schedule sampling if it is deemed needed then.

4. Recommendations. Understand that all findings found in the enclosed report have been reviewed by the Regional Industrial Hygienist and the following recommendations are the ones to be followed.

a. Use the guidance given in the enclosed report as good IH practices, requesting industrial hygiene (IH) services where needed. The recommendations that follow are based on the survey findings as reported:

i. Ensure to perform semi-annual inventories and updates of MSDS's on all chemicals in the facility. Ensure all hazardous materials are stored in appropriate locations **(RAC 3)**

ii. Due to the lead dust wipe results, it is recommended that the vault floor and Old Indoor Range floor is clecontaminated. The floors should be thoroughly wiped down and or wet mopped with an industrial cleaner using tri-phosphates, Mr. Clean or Spic-n-Span. For additional lead cleaning measures, see Enclosure 6 of the report. **(RAC 2)**.

iii. Repair or replace the water fountain in the Drill Hall. **(RAC 3)**

b. The recommendations given in the comment section of the HHIM data sheets and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-10. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-11 IHIP.

c. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present survey, especially if this will help eliminate health hazards and reduce medical surveillance cost.

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ARNG-CSG-P (40-5f) 27 October 2010
SUBJECT: Industrial Hygiene Survey the Hohenwald Army National Guard Armory, Hohenwald, Tennessee 38462.

d. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance, also provided a corrective action plan to the OHN within 30 days of receipt of this report.

e. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

5. If additional information is needed about the industrial hygiene survey or air sample

Non-Responsive

[redacted]

CF: ARNG-CSG-P
Safety and Occupational Health Manager, Tennessee State Safety and Occupational Health Manager, 3041 Sidco Drive, Nashville, TN 37204-1504

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Industrial Hygiene Report
For
Tennessee Army National Guard
(TN ARNG)
At
Hohenwald Armory
1177 West Main Street
Hohenwald, Tennessee 38462

Prepared for:
National Guard Bureau
Regional Industrial Hygiene Office
Region South
510 Plaza Drive, Suite 1530
College Park, Georgia 30349
By
Non-Responsive
[redacted]

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FOIA Requested Record #J-15-0085 (TN)
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Table of Contents

Subject ..... Page 1

Background ..... Page 1
- Introduction
- Site Description
- Scope of Work
- POC

Instrumentation ..... Page 1

Findings
- DET 1 771st Sup Maint Co ..... Page 1
- Lead Wipe Results ..... Page 2
- Area Deficiencies ..... Page 2
- Illumination Readings ..... Page 3

Recommendations: ..... Page 5

Enclosures:

1. Health Hazard Information Module (HHIM) Survey Form
2. Listing of hazardous chemicals/materials at the facility
3. Analytical Lead Wipe Results
4. Personnel Roster
5. Design Floor Plan
6. Lead Clean Up Procedures
7. References
8. Pictures: 1-24

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SESS September 15, 2010

MEMORANDUM FOR: Tennessee Army National Guard, ATTN: Non-Responsive DET 1 771st Support Maintenance Company, 1177 West Main Street, Hohenwald, Tennessee 38462

SUBJECT: Industrial Hygiene Consultation and Health Hazard Information Module (HHIM) Survey, 771st SPT MAT CO

1. REFERENCES: See Enclosure 7.

2. BACKGROUND: At the request of Non-Responsive National Guard Bureau Regional Industrial Hygienist, Atlanta, Georgia, an Industrial Hygiene Consultation and Health Hazard Information Module Field Survey were performed at the Tennessee National Guard Armory, 1177 West Main Street, Hohenwald, Tennessee 38462 on September 15, 2010. The POC was Non-Responsive The primary mission of DET 1 771st SPT MAT CO is area Support Maintenance on vehicles and equipment. The purpose of the survey was to perform lead wipe samples; a ventilation survey, an Illuminations survey, and complete HHIM field survey forms on all industrial operations at the facility (see Encl 1 for completed HHIM Survey Form).

3. INSTRUMENTATION: The following survey instrumentation was provided by the contractor and was used to obtain lead wipe dust samples and illumination measurements. All other instrumentation was operated according to manufacturer recommendations.

   a) Reed LM-81LX, Light Meter, S/N: Q303521, calibrated: 12/15/2009
   b) Ghost Lead Dust Wipes, Manufactured: February 2, 2010, Expiration: 08/2013

4. FINDINGS:

   a) DET 1 771st SPT MAT Company and Supply:

      i) Administrative duties included pay, promotions, schools, family support, assignments, and supplies. The supply area was broken down into Class 2 items of clothing and equipment. The supply area was also responsible for maintaining some TA 50.

      ii) Sixty M-Day soldiers trained at the facility.

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b) General Area Armory Information:

i) Material Safety Data Sheets (MSDS) were located in the facility. All employees must be initially trained in the Federal Hazardous Communication Program IAW 1910.1200 (see Encl 2 for a listing of hazardous chemicals/materials at the facility).

ii) Twelve lead dust wipe samples were taken, using a 12 inch by 12 inch template. One sample was above the federal standard of 40μg/ft². One sample contained low levels of lead at 21μg/ft². No sample was above the National Guard Standard of 200μg/ft². Pictures of the lead sample wipes were taken (see Encl. 8, photos M336 to M347). The analytical lead result sheet included the sampled locations and corrected results. The following table notes where the samples were taken, the surveyor's field number, and the lead results:

Location:	Surveyor's Field No:	Results:
Drill Hall Floor N.E. Side	M336	BRL
Drill Hall Floor N.W. Side	M337	BRL
Drill Hall Floor S.E. Side	M338	BRL
Drill Hall Floor S.W. Side	M339	BRL
Drill Hall Floor Center	M340	BRL
Kitchen Food Prep Counter	M341	BRL
Wall locker stored in Drill Hall	M342	BRL
Vault Floor	M343	113
Weapons Issue Countertop	M344	BRL
Old ID Range Fl. were bul stp was	M345	21
Rear wall of Old ID Range	M346	BRL
Rear Door of Old ID Range	M347	BRL
Blank		

Note 1:μg/ft² refers to micrograms or one millionth of a gram per sq ft.
Note 2: BRL means Not Detected at the Reporting Limit.

iii) Drill Hall: Conducting classes and drill formations is the main purpose in the hall. (See Encl. 8, photo 13). Illumination levels ranged from 18 to 27 FC's.

iv) Furnace/General Mechanical Ventilation: Good.

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Page 828 of 2531

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v) The following table identifies area deficiencies:

AREA	DEFICIENCIES
Entrance Hallway	Water stain around air vents
Drill Hall	Water Fountain need repairing

vi) Due to the low noise levels (administrative areas) there was no requirement for a Hearing Conservation Program. The only requirement would be when the M-Day troops were firing their weapons. All M-Day and full-time soldiers had earplugs.

vii) A listing of DET 1 771st SPT MAT CO personnel is attached as Encl. 4.

viii) A design floor plan of the armory is attached as Encl. 5. Illumination levels are listed below in Paragraph 5.

5. ILLUMINATION SURVEY RESULTS:

a) Illumination Levels: The following additional illumination level readings were taken during the survey and are reported below in foot candles (FC's).

AREA/LOCATION	FOOT CANDLES (FC)
Front Entrance Hallway	46-51
Commander's Office	46-67
Orderly Room	61-74
Kitchen	73-76
Storage	16-20
Female Latrine	35-56
Male Latrine	28-40
Vault	29-47
Class Room	55-60
Recruiting Office	74-80
Library	52-65
Utility	42-47
Drill Hall	18-27
Old Inactive Indoor Range Area	0-8
Supply Room	15-36

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 829 of 2531

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SESS
SUBJECT: Industrial Hygiene Consultation and Health Hazard Information Module

As indicated in the IES Lighting Handbook, Application Volume 1987, Offices: 20-50 FC's, Supply and Publication Areas: 20-50 FC's, Assembly 20-50 FC's, Restrooms: 5-10 FC's, Classrooms: 50-100 FC's, Kitchen: 20-50 FC's, FC's, Library: 50-100 FC's, Storage Rooms: 10-20 FC's, Mail Room: 20-50 FC's.

6. TECHNICAL ASSISTANCE:

POC for further assistance concerning this evaluation Non-Responsive [redacted]

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 830 of 2531

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7. RECOMMENDATIONS:

a) The Material Safety Data Sheets (MSDS) binder is kept in the Drill Hall where all soldiers may have access to it. Also conduct semi-annual inventories and update MSDS's on all chemicals in the facility. **(RAC 3)**

b) Due to the lead dust wipe results, it is recommended that the vault floor and Old Indoor Range floor is cleaned IAW NGB (AR) 385-15 Appendix C. The floors should be thoroughly wiped down and or wet mopped with an industrial cleaner using tri-phosphates, Mr. Clean or Spic-n-Span. For additional lead cleaning measures, see Enclosure 6. **(RAC 2)**

c) Submit a work order to the Facilities Maintenance Office (FMO) to repair water leaks around the air vents in the Entrance Hallway of the building. (See encl 8. photos 15 & 16) **(RAC 3)**

d) Perform monthly checks on fire extinguishers (Not being checked). Each month, ensure that the devices are checked, recorded, turn upside down and tapped with a rubber mallet to loosen any material at the bottom. Have the local fire department conduct annual inspections of fire extinguishers. **(RAC 3)**

e) Submit a work order to FMO requesting that the water fountain in the Drill Hall be repaired or replaced (see encl 8, photo 17) **(RAC 3)**

f) If work practices change, a new assessment should be made on the controls in Place.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 831 of 2531

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HHIMS Industrial Hygiene Survey Form

Front page

ARLOC	Installation	Building	Room Number
	[illegible]		

Location	Operation	Survey Date (month / day)	Evaluator	Macom	Submacom	Unit / Organization (45)
AA	ADC	10 09 15		NG	XX	

Supervisor	Mr.	Ms.	Rank	RAC

Supervisor, or Point of Contact Telephone Number	DSN	Commercial	Frequency (hrs/day)	No. CIVs	No. MIL	Contractors	No. LOCs
			008		00	00	00

Lab Hoods	Vapor Degreasers	Spray Booths	Open Surface Tanks	Ventilation Units
00	00	00	00	00

Controls Present (If >6, continue in comments)(25)	Evaluation (25 characters max)	Unit code	Controls Required (25 characters max)
OH	C-8	FTC	20-50 FTC
OH	18-27	FTC	20-50 FTC

Gloves	e*	R	U
acid			
cold surfaces			
hot surfaces			
NBC agents			
oil			
solvents			
surgical gloves			
leather / cotton			
other			

Respirator	e*	R	U	Manufacturer's Description (10 characters max)	NIOSH TC # or Foreign equivalent (10 characters max)
airline					
abrasive blasting hood					
disposable					
full face air purifying					
1/2 face air purifying					
powered air purifying					
1/4 face air purifying					
self-contained					
other					

Eyes and Face	e*	R	U
chemical splash			
full face shield			
chem/safety impact			
safety impact			
welding helmet			
sunglasses			
welding goggles/glasses			
laser eye protection			
other			

Hearing	e*	R	U
canal caps			
(>85-108 dBA steady) earplugs			
" helmets w/ muffs			
" muffs alone			
(108-118) muff/earplug comb			
muffs and earplugs			
(118 or >) with time limit			
other			
other			

Body	e*	R	U
aprons			
cold weather clothing			
coveralls			
full body suit			
heat reflective vest/suit			
safety belt/harness			
special purp. clothing			
other			

Head and Feet	e*	R	U
cold weather boots/hat			
hard hats			
impermeable boots			
safety shoes (conductive)			
safety (nonconductive)			
other			
other			
other			
other			

e* = evaluator's recommendation or agreement

Reminders: ergonomics - dermatitis - physical agents - flammable storage
EYE (permanent) ____ - EYE (portable) ____ - SHW - GMV - LEV

ACO ADM DSA DSN LAB LCK
RAD ECB EPL RHS SPR WEL

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 832 of 2531

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May, 2015

HHIMS Industrial Hygiene Survey Form

Back page

	CAS code	PAC	EPC	Hazard Description
PONOISECO				
POFOOTHAZ				
POFLYPROJ				
POEYEHAZA				
POFLAMHAZ				
POLIFTING				
POSHARPOB				
POHOTOBJE				
POELSHOCK				
COLUBEOIL				

Social Security Number or Unique Identifier

Last Name (20 characters max)

First Name (20 characters max)

MI

Sex

Category

☐ Personnel data provided by the facility is attached to this form

Insert Privacy Act Statement

Comments

Operation described is PERSONNEL AND ADMINISTRATIVE DUTIES, RECORD KEEPING, PROMOTIONS + EXTENSIONS

☐ This operation was explained to the evaluators, but was not actually observed.

(comments continued on attached

There is a noise data sheet attached to this form ☐

There is a ventilation data sheet attached to this form ☐

2/8/95 CHPMBACK.XLS

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Page 833 of 2531

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May 2018

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DEPARTMENT OF THE ARMY
HEADQUARTERS, TENNESSEE ARMY NATIONAL GUARD
ENVIRONMENTAL DIVISION

TITLE HAZARDOUS MATERIALS INVENTORY LIST

Purpose Document the type, quantity, and location of hazardous materials at the facility

Instructions The storage areas and containers should be inventoried monthly. The inspection log should be conspicuously posted in the storage area to verify that inspections have been performed. Inventory List should be updated monthly or when new material is received whichever comes first. Additionally the updated log should be forwarded to the appropriate Emergency Response Unit(s).

Facility Location	Hohenwald, Tn 38462-2326	Page Number 1 of 2
Storage Area	[redacted]	
Inspector Signature	[redacted]	Date 28 Feb 08

Non-Responsive

Item	Trade Name/ Nomenclature	National Stock Number	Container Size/ Type	Quantity on Hand	Location
1	Waste oil Drum		55 gal.	1	Floor
2	Lube oil 15W40	9150-01-152-4114	55 gal.	1	Floor
3	Grease, Auto & Artillery	9150-01-197-7692	5 gal.	1	Shelf 2
4	Grease, Ball & Roller Bearing	9150-01-095-5512	14oz can	2	Shelf 2
5	Grease, Auto & Artillery	9150-01-197-7693	14oz tube	0	Shelf 2
6	Cleaner, Lube & Preservative	9150-01-053-6688	1 gal. jug	1	Shelf 2
7	BFS Brake Fluid, Silicone	9150-01-102-9459	1 gal. jug	2	Shelf 2
8	Hydraulic Fluid Auto Trans	9150-00-698-2382	1 qt. can	0	Shelf 2
9	Hydraulic Fluid Auto Trans	9150-00-698-2382	1 qt. sq. can	0	Shelf 2
10	Hydraulic Fluid Auto Trans	9150-00-157-4959	5 gal can	1	Shelf 2
11	Lube Oil, Engine 15/40	9150-01-438-6076	1 qt	1	Shelf 4
12	Lube Oil, Engine 15/40	9150-01-152-4117	1 qt. rd. can	3	Shelf 4
13	Lube Oil, Engine 85/140	9150-01-035-5395	5 gal.	2	Shelf 4
14	Lube Oil, Gear 15/40	9150-01-152-4118	5 gal.		Shelf 4
15	Coolant/Antifreeze	6850-01-464-9125	1 gal.	1	Shelf 4

Comments:

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DEPARTMENT OF THE ARMY
HEADQUARTERS, TENNESSEE ARMY NATIONAL GUARD
ENVIRONMENTAL DIVISION

TITLE

HAZARDOUS MATERIALS INVENTORY LIST

Purpose

Document the type, quantity, and location of hazardous materials at the facility

Instructions

The storage areas and containers should be inventoried monthly. The inspection log should be conspicuously posted in the storage area to verify that inspections have been performed. Inventory List should be updated monthly or when new material is received whichever comes first. Additionally the updated log should be forwarded to the appropriate Emergency Response Unit(s).

Facility Location	Hohenwald, Tn 38462-2326	Page Number 2 of 2	
Storage Area	OIL HOUSE BACK OF ARMORY		
Inspector Signature		Date	

Item	Trade Name/ Nomenclature	National Stock Number	Container Size/ Type	Quantity on Hand	Location
1	Coolant/Antifreeze	6850-01-464 9137	5 gal.	2	Shelf 4
2	Fuel System Icing Inhibitor	6850-01-377-5074	5 gal.	[illegible]	Shelf 5
3	Petroleum Response Kit	70-0706-1179-6	31 gal.	1	Shelf 5
4	Corrosion Prevent WD40	8030-01-418-9009	11oz spray	11	shelf 2
5	Distilled Water	6810-00-356-4936	5 gal	2	shelf 3
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Comments:

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Analytical Environmental Services, Inc

Date: 23-Sep-10

Lab Order: 1009E27
Client: SES
Project: Hohenwald, TN Armory
Matrix: Wipe
Date Received: 9/17/2010 11:45:00 AM

LEAD ON WIPES (N9100/7082)

N7082

Laboratory ID	Client Sample ID	Result	Units	Reporting Limit	DF	Qual	Date Collected	Date Analyzed	Analyst
1009E27-001A	M336	BRL	ug, Total	20	1		09/15/2010	09/22/2010	TA
1009E27-002A	M337	BRL	ug, Total	20	1		09/15/2010	09/22/2010	TA
1009E27-003A	M338	BRL	ug, Total	20	1		09/15/2010	09/22/2010	TA
1009E27-004A	M339	BRL	ug, Total	20	1		09/15/2010	09/22/2010	TA
1009E27-005A	M340	BRL	ug, Total	20	1		09/15/2010	09/22/2010	TA
1009E27-006A	M341	BRL	ug, Total	20	1		09/15/2010	09/22/2010	TA
1009E27-007A	M342	BRL	ug, Total	20	1		09/15/2010	09/22/2010	TA
1009E27-008A	M343	113	ug, Total	20	1		09/15/2010	09/22/2010	TA
1009E27-009A	M344	BRL	ug, Total	20	1		09/15/2010	09/22/2010	TA
1009E27-010A	M345	21	ug, Total	20	1		09/15/2010	09/22/2010	TA
1009E27-011A	M346	BRL	ug, Total	20	1		09/15/2010	09/22/2010	TA
1009E27-012A	M347	BRL	ug, Total	20	1		09/15/2010	09/22/2010	TA
1009E27-013A	BLANK	BRL	ug, Total	20	1		09/15/2010	09/22/2010	TA

Qualifiers: BRL - Not Detected at the Reporting Limit; DF - Dilution Factor

B - Analyte detected in the associated Method Blank

Results are Blank corrected where applicable

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Page 836 of 2531

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Hohenwald, TN Armory

SUBJECT: Personnel Roster

NAME	RANK	POSITION
Non-Responsive		

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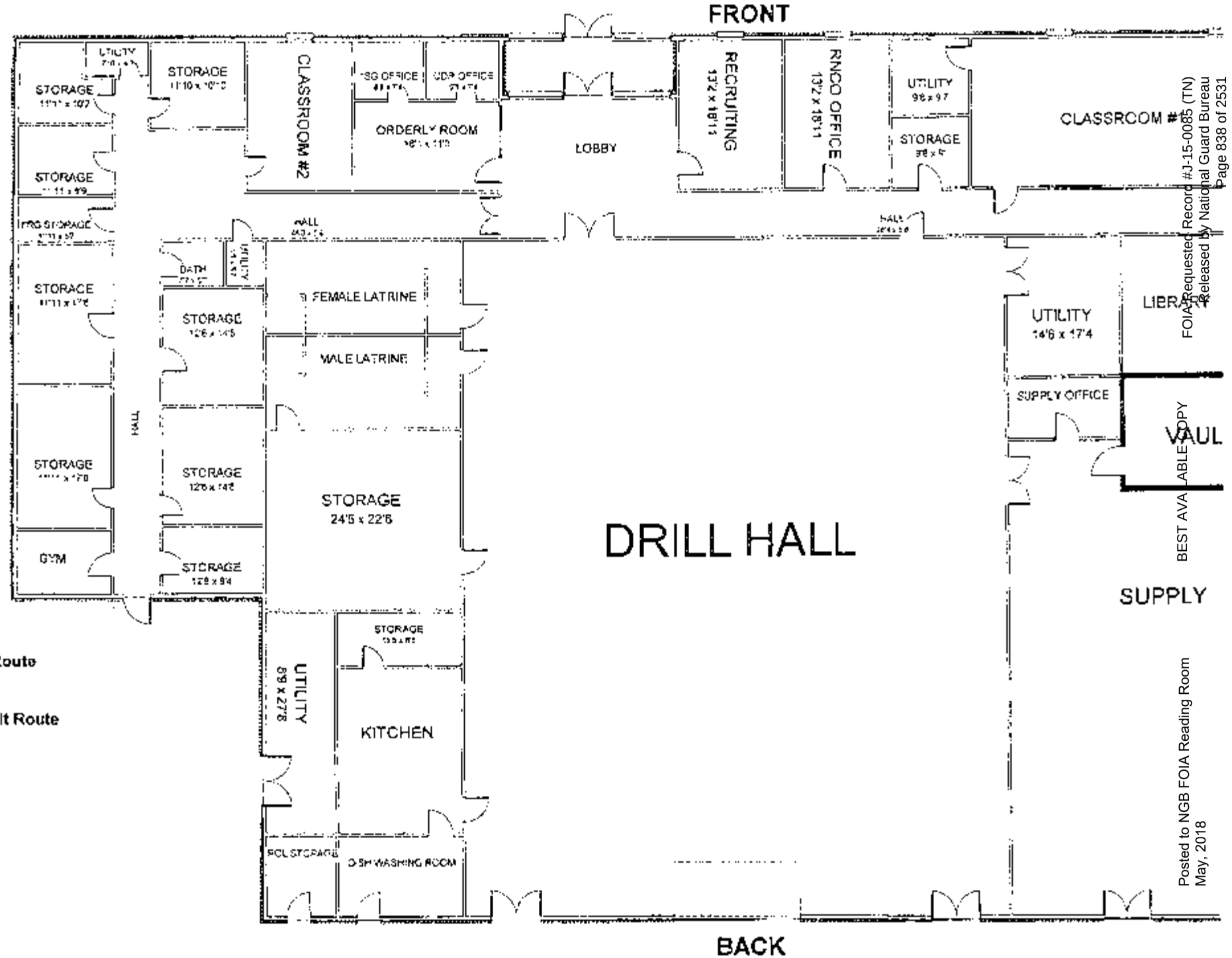

Primary Exit Route

Secondary Exit Route

Fire Evacuation Plan: In the event of a fire exit the building and assemble in front of Armory between road an

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Page 838 of 2531

Posted to NGB FOIA Reading Room
May, 2018

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ENCLOSURE 6

ARMORY CLEANUP REQUIREMENTS

High Test Results

If the public utilizes your facility and the test results for lead came back above 40 $\mu g/ft^2$ you are responsible for cleaning this area and adjoining areas to meet the 40 $\mu g/ft^2$ or less, unless:

1. You can guarantee that no children under the age of 7 will come into your facility.

2. Your state public health has other guidance, for example, signage is required to warn personnel who are pregnant or of child bearing age, or under the age of 7 years old.

3. Signs stating "No smoking, drinking, eating, or applications of cosmetics without washing of hands prior to activity" are properly installed in your facility.

1. Cleaning of Building.

Before proceeding into the cleanup mode, first discuss with your Environmental Office what procedures are recommended and then coordinate your cleanup efforts with local agencies, if warranted.

a. The building, as well as the dusty materials and equipment in it, should be cleaned one time to reach the lead dust levels that are appropriate for the function of the facility, for example, facilities used by full-time personnel only, utilized by adults or children 7 years old or older children only, or not utilized by pregnant individuals and/or children under the age of 7. **NOTE:** This type of cleaning implies that this is not at a facility that has an active Indoor Firing Range. For facilities with active ranges, these facilities should be monitored with wipe samples taken over the drill floor area by the Range Custodian quarterly, to ascertain that the level of lead is at the required level for your particular facility and situation.

   1. This cleanup can be accomplished using a HEPA vacuum (a very tedious and time-consuming operation) and then by utilizing a wet method with "Spic n Span" or something equivalent to this detergent – using wet rags to wipe down surfaces and mops soaked in this solution to do the entire floor area. **NOTE: Personal protective gloves, rubber boots, or protective disposable shoe/boot covers should be used during this procedure and personnel who have performed the cleanup should wash their clothing separately from their family's clothing.**

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 839 of 2531

ENCLOSURE 6

especially if they have young children at home. Personnel should wash their hands after performing this operation to assure that lead contaminates are not ingested.

2. Frequent changing out of the water used for cleaning is vital. Disposal of this hazardous waste water and rags/mop heads, Personal Protective Equipment (PPE), etc., should be coordinated with your Environmental office.

b. Clean all ductwork where lead was found. EPA has a protocol specifically for replacing or cleaning lead in dust form in HVAC systems. EPA Office of Pollution Prevention and Toxics, "*Renovate Right – Important Lead Hazard Information for Families, Child Care Providers and Schools*". http://www.epa.gov/lead/pubs/rrpamph.pdf .

c. Continue to enforce good housekeeping and hygiene practices. These measures make good sense to minimize exposures to any toxic chemicals in the workplace.

d. Provide lead awareness training to the general workforce and any occupants of your facility.

***NOTE:* Before you start any new procedures or practices be aware of the local city and state regulations in your area.**

ENCLOSURE 6

ARMORY

CLEANUP & FOLLOW-UP HOUSEKEEPING RECOMMENDATIONS

Materials Needed:

1. Cloth Mop head(s) & Mop head holder(s) with handle.
2. Mop bucket(s) with wringer.
3. Clean cotton rags and sponges.
4. Disposable gloves.
5. Large barrel (55 gallon) to store wastewater in after changing out of dirty scrub water.
6. Disposable overshoes or rubber boots. Personnel conducting cleaning operations should not take clothes, boots, etc. home for laundering.
7. HEPA vacuum
8. Six (6) mill plastic bags to dispose of waste.
9. Wastewater containers.

Disposal of Waste Water and Cleaning Materials:

1. ***NOTE:*** Consult with the Local Army National Guard Environmental Office prior to taking any collection, disposal, or commencement of wiping activities. Each state and territory may have additional regulatory guidance regarding the collection, storage, and disposal of wastewater.

2. Mop heads should be disposed of after initial cleaning, unless otherwise advised by Environmental Office personnel. ***NOTE:*** **Thorough cleaning of mop heads may be sufficient enough to permit subsequent reuse on future Armory cleanups, but check with the local Environmental Office before reuse.**

3. Disposable gloves should be treated as hazardous waste material.

4. Soiled cotton rags should be treated as hazardous waste material.

5. Wash water contaminated with lead may be collected and allowed to slowly evaporate leaving lead deposits/sludge that may be collected in plastic containers, placed in metal drums, and stored for future delivery to an authorized hazardous waste disposal site.

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 841 of 2531

ENCLOSURE 6

a. Drums shall be properly labeled to identify contents in accordance with (IAW) Federal, state, and local regulatory guidance.

b. Disposal of containerized waste shall be coordinated IAW state hazardous waste program requirements.

c. The Environmental Office shall coordinate removal and disposal of all containerized hazardous waste through established waste streams.

Post-Cleanup Precautionary Measures:

1. Thoroughly wash hands with soap and water.

2. Rinse off rubber boots with soap and water, capturing wastewater for collection into the established waste stream. If personnel have chosen to use overshoes for protection, dispose of the used overshoes into the established waste stream. ***NOTE***: **This recommendation is for initial cleanup activities; PPE requirements may be reduced after it has been determined that non-hazardous levels of lead have been achieved.**

3. Wash BDU's or personal clothing separately from children's clothes.

IMPORTANT NOTES:

1. **No eating, drinking or application of cosmetics is allowed during cleanup procedures (these may be allowed after washing of hands/face and done outside of cleanup area).**

2. **Avoid blowing, shaking or like actions which could potentially disperse lead dust. Dry sweeping, dusting, wiping, or blowing with compressed air shall not be permitted.**

Initial Armory Cleanup:

1. Use a vacuum cleaner equipped with a HEPA exhaust filter. HEPA vacuum all surfaces in room (ceiling, wall trim, and floors). Start with the ceiling and work down, moving toward the entry door. **Completely clean each room before moving on.**

2. Prepare water and detergent for the wipe down phase, according to manufacturer's recommendations.

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 842 of 2531

ENCLOSURE 6

3. Wet wipe, with cotton rags or sponge, any horizontal, diagonal or vertical surfaces up six (6) feet from floor surfaces using hot water and "Spic-n-Span" or an equivalent product.

***NOTE*: If walls to be cleaned show signs of deterioration, for example, chipping or crumbling paint in which wiping, scrubbing, or disrupting might potentially increase or spread contamination, then this portion of the cleanup should be avoided.**

4. Now prepare water and detergent (for example. Spic n Span, Mr. Clean, Pine Sol) for the mopping phase, according to manufacturer's recommendations. which should be found on the product's label for general clean up.

    a. Change out water and detergent frequently (when water appears dirty)

    b. Rinse out mop heads frequently to prevent contamination of dirty water.

5. Cover entire drill floor surface with above prescribed water and detergent.

6. Final rinse should be with clean water only – after mop heads have been cleaned.

Recommended Follow-up Housekeeping Practices ***after Clearance sampling of cleaned area is performed by certified personnel:***

1. Floor cleaning and dusting should be accomplished using the wet cleaning described in Initial Armory Cleanup SOP.

NOTE: The only exception to these wet cleaning procedures is the use of an approved chemically treated dust floor mop. This can be used for follow-up armory cleaning by sweeping of large particles of dirt and paper.

    a. Use of a pre-treated (chemically treated) dust floor mop will prevent lead dust particles from being disbursed into the surrounding atmosphere.

    b. If a pre-treated dust mop is used – Do Not Shake Mop Head – have mop head laundered after use. **Always keep used dust mop heads in sealed double plastic bags when stored at an armory or facility.** Shaking of a pre-treated mop head may release unwanted contaminants into surrounding atmosphere.

2. Frequency of Cleanup – Armories will vary. according to usage and how often they should be cleaned. The following cleaning schedule is provided:

    a. Only full-time technicians and traditional soldiers using facility during the month. (Cleaned Monthly.)

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 843 of 2531

ENCLOSURE 6

b. Occasional activities taking place during the month, for example, 1-2 classes or volleyball games, etc. (Cleaned Twice Monthly.)

c. Used regularly by soldiers or outside agencies/personnel. (Cleaned Regularly – at least Weekly)

IMPORTANT NOTES:

1. **Armories with adjoining Indoor Firing Ranges (IFR) should be cleaned more than weekly, again depending on the use of the Armory and IFR.**

2. **Clearance sampling/testing is to be accomplished by certified IH personnel after these cleanup procedures are followed. If the area is an average Armory, occupied by adults only, for whom you are cleaning and is not a converted IFR space, you may continue to utilize the Armory space before officials re-test this space. Please notify your Safety and/or Occupational Health personnel of the completion of this cleaning regime and they will notify the proper officials of the sampling/testing requirements needed.**

3. **If lead cleanup work was contracted out, a third party should do the clearance sampling.**

4. **If young children and pregnant females are, or may be present, signs shall be posted on all facilities, warning of the potential danger of exposure to lead dust.**

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 844 of 2531

BEST AVAILABLE COPY

References

Army Regulation (AR) 11-34, The Army Respiratory Protection Program.

Army Regulation (AR) 40-5, Preventative Medicine.

Army Regulation (AR) 385-10, The Army Safety Program.

NGR 385-10, Army National Guard Safety and Occupational Health Program.

TB MED 503, The Army Industrial Hygiene Program.

Title 29, Code of Federal Regulations (CFR), 1999, revision, Part 1910, Occupational Safety and Health Standards.

TG 022, US Army Environmental Hygiene Agency (YSAEHA), Industrial Hygiene Evaluation Guide.

TG 141, US Army for Health Promotion and Preventative Medicine (USACHPPM) Industrial Hygiene Air Sampling Guide.

IES Lighting Handbook

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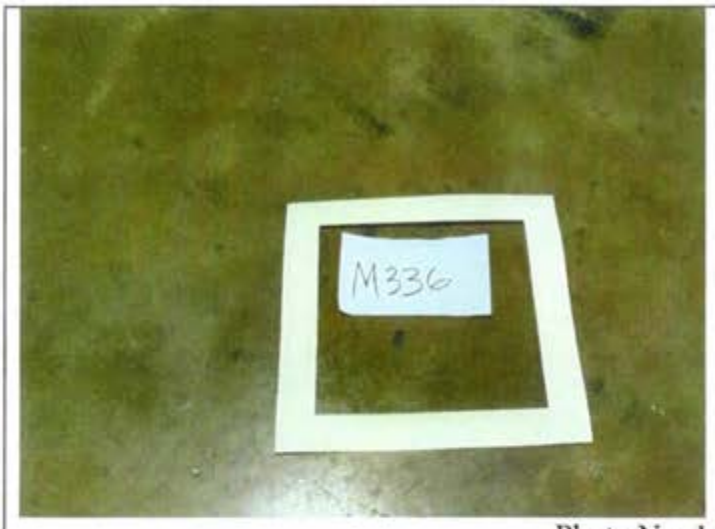

Photo No. 1

Photo No. 2

Photo No.3

Photo No.4

Photo No.5

Photo No.6

ENCLOSURE 8
Page 1 of 5

Photo No.7

Photo No.8

Photo No.9

Photo No.10

Photo No.11

Photo No.12

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau

BEST AVAILABLE COPY

Photo No.13

Photo No.14

Photo No.15

Photo No.16

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 848 of 2531

BEST AVAILABLE COPY

Photo No.17

Photo No.18

Photo No.19

Photo No. 20

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 849 of 2531

BEST AVAILABLE COPY

Photo No.21

Photo No.22

Photo No.23

Photo No. 24

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 850 of 2531

BEST AVAILABLE COPY

DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-AVN-SI May 18, 2001

MEMORANDUM FOR: Adjutant General TN ARNG, ATTN: State Safety Manager, P O Box 41502, Nashville, TN 37204-1502.

SUBJECT: Transmittal of Industrial Hygiene Indoor Firing Range Inspection/Evaluation Report Hohenwald Armory Hygiene Indoor Firing Range, Hohenwald, TN.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, 30 August 1986, Medical Service, Preventive Medicine.

c. National Guard Regulation (NGR) 385-10, 1988, Army National Guard Safety and Occupational Health Program.

d. AR 11-34, The Army Respiratory Protection Program, 15 February 1990.

e. TB MED 502, Occupational and Environmental Health Respiratory Protection Program, February 1982.

f. TB MED 503, 1 February 1985, The Army Industrial Hygiene Program.

g. DA PAM 40-501, 27 August 1991, Hearing Conservation (Updates TB MED 501, 15 March 1980, Hearing Conservation).

h. Guide to Occupational Exposure Values 2000, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, ACGIH, Cincinnati, Ohio.

j. USAEHA TG-141, 5 Mar. 1991, Guidelines for Air Sampling and Bulk sample Collection.

k. Title 29, Code of Federal Regulations (CFR), part 1910, Occupational Safety and Health Health Standards.

l. National Guard Regulation, NGR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and use of ARNG Indoor Firing Ranges, Draft March 2000.

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m. Army National Guard Guidelines for Housekeeping, Rehabilitation and Conversion of Indoor Firing Ranges, Draft NGB Pam 385-15.

n. OSHA Standards 29 CFR (Code of Federal Regulations), 1910.1025, Lead Standard

o. OSHA Standards 29 CFR (Code of Federal Regulations), 1926.62, Construction Standard

p. Report dated October March 23, 2001, Industrial Hygiene Survey, Tammer Sciences, Inc.

2. General.

a. At the request of Non-Responsive [redacted] TN ARNG Occupational Health Office, an Industrial Hygiene Service was put together to conduct IH evaluation of the Hohenwald Armory Hygiene Indoor Firing Range, Hohenwald, TN.

b. The survey was conducted by Tammer Sciences, Inc., 3744 Lawrence Drive, Napperville, IL 60564

3. Findings. All findings are listed in the enclosed report (See ATTACHEMENT 1).

4. Recommendations.

a. Follow all recommendations made in the enclosed report.

b. At the time when the range is safe for use contact this office to evaluate it again. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY2001 IHIP.

c. Have all HHIM data entered into the HHIM computer module.

d. Contact the State Occupational Health Nurse, Non-Responsive [redacted] for any medical Surveillance that may be needed.

e. To execute your responsibilities in correcting all deficiencies, coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

[redacted]
Non-Responsive

CF: NBG-AVN-SH
State Occupational Health Office, P O Box 41502, Nashville, TN 37204-1502.
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as

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Indoor Firing Range Inspection/Evaluation Survey Report

For

Tennessee Army National Guard
(TNANG)

At

Hohenwald Armory Indoor Firing Range
Hohenwald, Tennessee

Prepared by:

Tammer Sciences, Inc.
3744 Lawrence Drive
Naperville, IL 60564

For
National Guard Bureau
Army National Guard
Region South Industrial Hygiene Office
Airport Plaza Suite 1530
510 Plaza Drive
College Park, GA 30349

March 23, 2001

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau

BEST AVAILABLE COPY

Table of Contents

I. Executive Summary ..... page 1

II. Findings and Recommendations Summary ..... page 2

III. Background ..... page 4

a. Introduction
b. Site Description
c. Scope of Work
d. Health effects and hazard determination
e. Methodology and Assessment Criteria

IV. Findings and Recommendations ..... page 6

a. Building envelope
b. Range lighting
c. Bullet traps
d. Targets and target carriers
e. Range use
f. Range maintenance
g. Personal protective equipment
h. Posting of signs
i. Range sop
j. Record keeping
k. Ventilation
l. Air sampling

Appendices

A. References

B. Risk Assessment Codes (RAC) Table

C. IFR Checklist and Photographs

D. Range Layout Drawing and Ventilation Measurements

E. Air Sampling Results and Laboratory Sample Analysis Report

F. Air Sampling Notification Letters

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I. EXECUTIVE SUMMARY

At the request of the Tennessee Army National Guard (TNARNG), field personnel representing the National Guard Bureau, Region South Industrial Hygiene Office, conducted an inspection/evaluation of the Hohenwald Armory indoor firing range (IFR) located in Hohenwald, Tennessee on 30 November 2000. This survey was conducted as part of the TNARNG occupational safety and health program to evaluate potential health hazards associated with air contaminants generated during firing. The survey consisted of conducting a physical inspection of the range, collecting air samples, evaluating the ventilation system, measuring the lighting levels, and reviewing the range operating procedures

Five personal samples and two area air samples were collected during a simulated 39-minute weapons firing qualification test. Three out of the five personal sample results were below the Army National Guard recommended limit of 0.03 mg/m^3. However, the equivalent eight-hour time weighted average for all the personal samples were below the regulated Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (PEL) of 0.05 mg/m^3. Area air sampling results were well below the recommended limit of 0.03 mg/m^3, indicating that the exposure is limited to the firing line area. The average air velocities in all firing lanes and at all positions were above the recommended 50 feet per minute. Smoke testing showed little turbulence at the firing line. In addition to air sampling and ventilation measurements, illumination readings in critical areas were below the recommended levels. Detailed findings and recommendations regarding this range can be found in the following table and report.

In conclusion and based on the findings of this inspection/evaluation, the Hohenwald firing range is classified as unsafe for use based on deficiencies in lighting and building envelope. The range may qualify for a limited use status once these deficiencies have been corrected, due to air sampling results and the ventilation system evaluation. Considerations should be given to implementing the recommendations listed herein.

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 856 of 2531

BEST AVAILABLE COPY

II. FINDINGS and RECOMMENDATIONS SUMMARY

Findings	Recommendations	RAC
This range has been classified as unsafe due to building envelope and lighting deficiencies.	Further use of this range is restricted until deficiencies in the building envelope and lighting have been corrected. Once these items have been corrected, the range may go to limited use status based on air sampling results.	RAC 2
Building envelope		
There is one open floor drain in the area	The floor drain should be immediately sealed to prevent toxic dusts from seeping into the sewer system.	RAC 2
Sandbags and rugs were found near the door.	All fibrous materials should be thoroughly decontaminated and removed from the area.	RAC 2
Access doors are not weather-stripped.	Access doors should be weather-stripped and the locks should be fixed so that the door closes and locks properly.	RAC 2
Range lighting		
Range lighting is below the recommended 100 FC at the firing line and 30 FC in all other areas.	Upgrade lighting to meet these requirements.	RAC 3
Bullet trap		
One plate in the bullet trap needs to be put in alignment	Replace steel plate so that it is flush with the other plates in the trap	RAC 3
Range use		
Chairs and tables were found stored in the range.	No items should be stored in the firing range at any time. Stored should be decontaminated and removed.	RAC 2
Stored items were found in front of the plenum wall.	All items should be removed from in front of the plenum wall	RAC 2
A fire extinguisher is not provided in the range.	An ABC type fire extinguisher should be kept at the firing line in case of emergencies.	RAC 3
Posting of signs		
Not all appropriate warning signs were posted in the range.	Post appropriate signs in the vicinity of the range and on the entrance door.	RAC 2
Range SOP		
Hohenwald Armory does not have an approved standing operation procedure	Develop and implement a standing operation procedure	RAC 2
Recordkeeping		
No records of range training, maintenance, or cleaning are maintained. All appropriate records regarding visitors is not logged.	Maintain appropriate records regarding range operations and procedures	RAC 2
A range custodian has been appointed but has not been trained	A range custodian should be appointed to the range who will be responsible for cleaning the range and discarding debris	RAC 3
Ventilation		
Supply and exhaust fans are not interlocked with range lighting.	Interlock supply and exhaust fans with range lighting.	RAC 3
Ventilation flow rates were above the recommended 50 to 75 fpm and no turbulence was noted during smoke tests.	Ventilation rates, though above the recommended 75 fpm, provide adequate ventilation for the range.	RAC 2
Flow rates at the plenum wall were less than the required 400 to 600 fpm	Holes in the plenum wall should be one inch in diameter and extended over the entire surface of the plenum wall.	RAC 2
More than 10 to 15% of the plenum wall is open.	Holes in the plenum wall should be one inch in diameter and extended over the entire surface of the plenum wall.	RAC 2

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 857 of 2531

BEST AVAILABLE COPY

Findings	Recommendations	RAC
Air sampling		
Air sampling results ranged from <0.0037 to 0.060 mg/m³.	Range is classified as limited use based on results of air sampling. Appropriate records must be kept for all persons using the range.	RAC 2

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 858 of 2531

BEST AVAILABLE COPY

III. BACKGROUND

a.) Introduction: At the request of Non-Responsive of the National Guard Bureau Region South Industrial Hygiene Office, an inspection/evaluation survey was performed at the Hohenwald Indoor Firing Range at the Hohenwald Armory in Tennessee. Non-Responsive contract industrial hygienist, conducted the survey on 30 November 2000. The purpose of the survey was to evaluate range characteristics, ventilation, and quantify employee exposure to lead dust.

b.) Site Description: The Hohenwald Indoor Firing Range measures approximately 75 feet long, 23 feet wide, and 12 feet high and is used for weapons firing and qualification. The range has five firing lanes and an inclined steel plate bullet trap. Two exhaust fans, which are rated at 3,700 cubic feet per minute each, draw air through the bullet trap and exhaust it to the rear of the building. 100 percent outside air is supplied through a plenum that extends across the back wall.

c.) Scope of Work: The work consisted of a physical inspection of the range and an evaluation of the building envelope, range lighting levels, bullet trap condition, targets and target carriers, the use of personal protective equipment, posting of signs, range standard operating procedures (SOP), record keeping, the ventilation system, range use and maintenance. In addition personal and area air samples were collected during firing to evaluate the airborne exposures to the range users. A range inspection checklist found in National Guard Regulation 385-15, which addresses Indoor Firing Range use and maintenance was completed for the range. Smoke candles were utilized to observe airflow patterns in the range. Air velocities were also measured at the firing line. Air sampling and ventilation measurements were performed to quantify performance of the range and its effectiveness in reducing employee exposure to lead dust.

d.) Health Effects and Hazard Determination: The most significant hazard present to employees and users of the indoor firing range is lead dust. Shooters using ammunition with lead primers or bullets manufactured with lead are potentially exposed to lead fumes and dust during the firing process. Furthermore, the lead found in the primer, the melting of the bullet base by hot powder gasses, the shaving and abrasion of the bullet during firing, and fragmentation of the bullet at the point of impact are all potential sources for lead. Exposure to lead may also occur during cleaning of the range, guns, or bullet trap where lead dust is deposited.

Lead affects the nervous, circulatory, digestive, excretory, and reproductive systems of both men and women. If the amount of lead absorbed and stored in the body exceeds the body's ability to expel it, lead can accumulate in the body affecting the blood, heart, and immune systems. Pregnant women overexposed to lead are more prone to spontaneous abortions or may give birth to babies with a low birth weight and slowed postnatal neurological development. Results of overexposure in children are slowed cognitive development and reduced growth.

e.) Methodology and Assessment Criteria: Personal air sampling was conducted during a simulated weapons firing qualification test, which lasted over a thirty-nine minute period. Area air samples were collected during the firing and one and half hour to two hours after the firing ended. Gilian air sampling pumps, Model Number GilAir5, Serial Numbers 13248, 13249, 13250, 13251, 13252, 13521, 13522, 13523, 13524, 13525 were used to collect the personal and area air samples. Each pump was calibrated prior to sampling and at the end of each sampling

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 859 of 2531

BEST AVAILABLE COPY

period using a pre-calibrated rotameter, which was calibrated against a bubble meter. The sampling flow rate was set at approximately 2 liters per minute (lpm). Samples were sent to NATLSCO laboratory, which is accredited by the American Industrial Hygiene Association (AIHA), for analysis.

An Alnor CompuFlow Air Velocity Meter, Model Number 8570, Serial Number 99097037, was used to measure air velocities at the firing line. A total of nine velocity readings were taken at each firing lane. Three measurements were taken at each of three positions; standing, kneeling, and prone positions for a total of nine readings. Details of locations where ventilation measurements were made can be found in Appendix D.

Lighting measurements were taken at the firing line, target line, and intermediate areas to determine luminance levels in these areas. Approximately fifteen to twenty readings were taken throughout the range using a Minolta Light Meter Model Number TL-1, Serial Number 90480727.

Air sampling, ventilation and illumination readings were compared to the NGR 385-15 Policy Responsibilities, and Procedures for Inspection/Evaluation and use of ARNG Indoor Firing Ranges.

Risk Assessment Codes (RACs) are included in this report to quantify the risk of particular operations to employees and to establish funding priorities for corrective actions. RACs are assigned with regard to hazard severity and mishap probability. The type, length, and route of exposure are taken into consideration, as are the medical effects that would occur with such exposures. RAC criteria can be found in Appendix B.

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 860 of 2531

BEST AVAILABLE COPY

IV. FINDINGS, DISCUSSION, AND RECOMMENDATIONS

a. Building Envelope. This indoor firing range measures 48 feet from the firing line to the bullet trap, 23 feet wide, and 12 feet high. Each firing lane is the appropriate width and all pipes, conduits, and projecting surfaces are adequately baffled. There is one open floor drain in the range. Sandbags and rugs were found by the access door. The access door to the range is not adequately weather-stripped.

Recommendations:

1. There should be no open floor drains in the area, which allows lead toxic dust to seep into the sewer system. Immediately close up all drains in the area. [NGR 385-15 1-17a(1)(b)] **(RAC 2)**
2. No carpet, drapes, or other fiber-like material should be stored in the range that will allow collection of lead dust. All items such as sandbags and rugs should be thoroughly decontaminated and removed. Porous items such as canvas tents or other fabrics may be laundered at companies, which specialize in industrial laundry services. Office partitions and carpeting present during firing should be considered grossly contaminated and disposed of as hazardous waste. Consult the Environmental office before removing and disposing of items. [NGR 385-15 1-17s(2)(d)] **(RAC 2)**
3. Weather-strip all access doors to the range to prevent leakage of lead dust and debris into outlying areas. [NGR 385-15 2-2a(2)(b)] **(RAC 2)**

b. Range Lighting. Range lighting is relatively uniform and does not cause shadows. Lighting measures an average 23.5 FC at the targets and 11.3 FC in all other areas. Baffles adequately protect all lighting fixtures. Emergency lights and exit lighting is provided and is in good working condition.

Recommendation: Increase lighting to the recommended 100 FC at the targets and 30 FC in all other areas. [NGR 385-15, 1-17c(1)(d)] **(RAC 3)**

c. Bullet Traps. An inclined plate bullet trap is permanently installed and is designed for .22 caliber use, which is all that is permitted for firing on this range. The bullet trap measures ¼ " thick and adequately prevents ricochets. The bullet trap is in good shape and is smooth without any seams or overlapping. One plate in the bullet trap needs to be put in place so that it is flush with all the other plates.

Recommendations:

1. Replace steel plate so that it is flush with the other plates in the trap. [NGR 385-15 1-17d(2)(b)] **(RAC 3)**
2. The bullet trap should be adequately maintained. Rust or paint chips may cause ricochets. A thin coating of oil should be applied every 3 months for moderate firing, sooner if heavy firing occurs (10W30 or 3 in 1). **DO NOT APPLY GREASE. (RAC 3)**
3. Bullet collection bins should not be allowed to get over ¾ full. Contact the TN ARNG State Environmental Office prior to emptying for disposal instructions. **(RAC 3)**

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 861 of 2531

BEST AVAILABLE COPY

d. Targets and Target Carriers. Target retrieval systems were provided for each lane and are in good working order. Paper targets are used for personnel during firing procedures.

Recommendation: None at this time.

e. Range Use. Chairs and tables were stored in the range in front of the plenum but were removed prior to firing. Personnel site the reason for storing items in the ranges are lack of space in the facility. An appropriate fire extinguisher is not provided in the range. Additional clothing and equipment is brought into the range by firers. A fire extinguisher is provided in the hallway outside of the range.

Recommendations:

1. No items should be stored in the firing range at any time. Stored items can become contaminated with lead dust and will increase the exposure to anyone who moves or touches stored items. [NGR 385-15 2-3a, 2-4h] **(RAC 2)**

2. No items should be stored in front of the plenum wall, which will disturb airflow while the ventilation system is running. [NGR 385-15 2-4a] **(RAC 2)**

3. A hand held ABC-type fire extinguisher should be kept at the firing line in case of emergencies. [DG 415-1, App. A, 4-5] **(RAC 3)**

f. Range Maintenance. This indoor firing range has not been cleaned. Brooms are used to clean up spent shells.

Recommendations:

1. The indoor firing range should be cleaned with the ventilation system operating to prevent dust and debris from migrating into other work areas and to minimize exposure to the cleaners. Floor areas behind the firing line and 15 feet downrange should be cleaned after firing or at least every three months if the range is not used as often. [NIOSH 76-130, p.24, II, 1] **(RAC 2)**
2. Dry sweeping and cleaning bullet traps by pouring or shoveling bullet debris into waste buckets causes settled lead dust to become airborne and inhaled by the workers. **Dry sweeping of indoor firing ranges is prohibited.** A High Efficiency Particulate Air (HEPA) filtered vacuum system is recommended for lead dust and particles cleanup only (no bullet casings). If a HEPA vacuum cannot be acquired, a wet method should be used which includes a solution of detergent and hot water. Two containers should be used; one to wet the area, and the other to rinse the applicator after the dust has been wiped from the surface. Water should be changed often to prevent reapplication of contaminated water. Wastewater should be left to evaporate and the residue and any applicators should be disposed under guidance from the TN ARNG Environmental Office. [29 CFR 1910.1025(h)(ii), NIOSH 76-130, P.24, II, 2] **(RAC 2)**
3. One person, preferably the range custodian, should be responsible for cleaning the range and discarding debris. The range should be cleaned **ONLY** with a HEPA vacuum system or utilizing a wet method. [29 CFR 1910.1025(h)(ii)] **(RAC 2)**

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 862 of 2531

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g. Personal Protective Equipment (PPE). Personnel were observed wearing appropriate hearing protection. One person was observed without adequate eye protection during firing.

Recommendation: All personnel should wear ANSI approved hearing and eye protection. Additional eye and hearing protection should be available for those users that do not have their own. [NGR 385-15, 2-5a, 2-5 b, 29 CFR 1910.133 (a-b), 29 CFR 1910.95 a]. **(RAC 2)**

h. Posting of Signs. Warning signs are posted and instruct users about the regulations and requirements of the range. Warnings include those against eating, drinking, and smoking, authorized ammunition, and hearing protection required. No signs were present to instruct personnel that dry sweeping is prohibited or that storage of furniture and other items is prohibited in the range. The entrance door to the range is not posted as a Lead Hazard Area and does not prohibit pregnant women from entering the area. No illuminated warning sign is interlocked with the range ventilation switch to alert individuals that the range is use. Each firing lane is numbered only at the firing line.

Recommendations.

1. The following signs should be posted in or in the vicinity of the range and of the access door to the bullet trap. [NGR 385-15 3-6a.b] **(RAC 2)**:

   a. Eating, drinking, and Smoking are Prohibited
   b. Dry Sweeping is Prohibited
   c. Wash Hands and Face Immediately Following Firing
   d. The Following Ammunition is Authorized for use on this Range
   e. Hearing Protection Must Be Properly Worn During Firing
   f. Proper Safety Glasses/Goggles Must Be Worn During Firing
   g. No Furniture or Storage of Items Permitted in the Range

2. The following signs must be posted on the entrance door to the range and to the access door of the bullet trap:

   a. Noise Hazardous Area
   b. Danger Lead Hazard Area
   c. Pregnant Females are Not Permitted in this Area

3. An illuminated sign should be interlocked with the range ventilation switch and located outside of the firing range to alert individuals outside when the range is in use. [NGR 385-15 2-6c] **(RAC 4).**

4. Each firing line should be clearly numbered at the firing line and bullet trap. [NGR 385-15 1-21C] **(RAC 4)**

i. Range Standing Operation Procedure (SOP). A range SOP with all requirements is not available for this facility as approved by the State Safety Office.

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 863 of 2531

BEST AVAILABLE COPY

Recommendations:

A Range Standing Operation Procedure should be written for this facility and should include the following **(RAC 2)**:

1. Requirements for establishment and maintenance of a visitor's log indicating date, age, and ammunition fired
2. Requirements for safety briefing for all individuals before entrance to the range given by a designated range safety officer
3. Work practices
4. Instructive guidance
5. Personnel responsibilities for performing, supervising, reviewing, and updating the SOP
6. Authorized ammunition
7. Posting of signs
8. Cleaning and maintenance requirements
9. PPE requirements for maintenance, firing, and cleaning of the range.

j. Recordkeeping. Records kept at the range are a visitor's log with name and age of firer, organization and sign in and sign out times. The type of ammunition used is not documented. Copies of initial and previous inspections and any air-sampling data are not available. An OSHA compliance program is not in place. A range custodian has been appointed to the range but has not been trained on lead hazards specific to firing and cleaning of the range.

Recommendations.

1. A visitor's log must be maintained that contains the name and age of firer, organization, sign in and out time, and type of ammunition, and number of rounds fired. [NGR 385-15 1-16c] **(RAC 2)**
2. A copy of this and any other inspections should be maintained. [NGR 385-15 3-6] **(RAC 2)**
3. An OSHA compliance program must be established and maintained to document how engineering (i.e. ventilation) and work practice controls will be put in place to reduce exposure to or below the permissible exposure limit. The written plan should include a description of the operation, ammunition and weapons used, existing controls, groups using the firing range, employee job responsibilities, operating procedures and maintenance practices. A record of previous inspections and air sampling data must also be retained. [29 CFR 1910.1025(e)(3)(i-ii)]. **(RAC 2)**
4. All individuals utilizing the range must be provided with a copy of the SOP or have been briefed on the unit's requirements and must sign an agreement to follow the rules. [NGR 385-15 1-15h] **(RAC 2)**
5. State maintenance officers and custodians must be fully trained on an annual basis on the health effects from exposure to lead dust and the appropriate precautions that must be taken. Records verifying this training must be kept by the range custodian. Each employee who works in a place in which there is a potential exposure to airborne lead at any level shall be informed of the Content of Appendix A Substance Data Sheet for Occupational Exposure to Lead, and Appendix B Employee Standard Summary of OSHA regulation 1910.1025. Initial training should be performed at

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 864 of 2531

BEST AVAILABLE COPY

least 180 days from date of initial job assignment and annually thereafter. [29 CFR 1910.1025(l)(1)(i-iv), 29 CFR 1910.1200(h)] **(RAC 2)**

6. A range safety officer and custodian should be designated in writing. [NGR 385-15 1-17d] **(RAC 2)**

k. Ventilation. The range is equipped with an operational ventilation system, with 100% of the make-up air exhausted behind the bullet trap. Supply and exhaust fans are not interlocked with range lighting. Average velocity readings in each lane and in each position within the lane were above the required 50 feet per minute (fpm). Average velocities ranged from 79 to 142 fpm. Refer to Table D-1 in Appendix D. A smoke test of the range revealed laminar flow. The range temperature was below 65 degrees.

The plenum wall extends across the entire back wall and flow rates at the plenum wall met the required 400 to 600 fpm. More than 10-15% of the plenum wall is open. Smoke tests revealed laminar airflow and little turbulence at the firing line.

Recommendations:

1. Interlock supply and exhaust fans with range lighting so that the ventilation system operates at all times during occupancy of the range. [CEIIND 110-1-18, 3-4a] **(RAC 3)**
2. Holes in the plenum wall should be one inch in diameter and extended over the entire surface of the plenum wall to evenly distribute air flow. **(RAC 3)**
3. Range temperature should remain between 65 degrees and 80 degrees Fahrenheit. [NGR 385-15 1-17b(1)(n)] **(RAC 3)**

l. Air Sampling. Area and personal air sampling was conducted to simulate weapons qualifications. Five personal samples were collected from personnel firing for about 39 minutes. Two area samples were also collected simultaneously; one inside the range behind the firing line, and the other outside. The firing was restricted to a single qualification time period. This 39-minute qualification period is representative of the expected exposure for personnel using the range. Personal sampling results ranged from 0.013 to 0.06 mg/m^3 for the 39 minute sampling period. Except for two personal samples, results were below the Army National Guard Occupational Exposure Limit of 0.03 mg/m^3. Assuming no exposure for the remainder of an eight-hour period, the equivalent 8-hour time weighted average for the five personal samples ranged from 0.001 to 0.005 mg/m^3. These equivalent results are lower than the OSHA PEL, NIOSH REL, and ACGIH TLV, on an eight-hour time weighted average basis. However, if firing were continued for the eight-hour period, airborne lead levels would have exceeded the regulated OSHA limit of 0.05 mg/m^3. Area air sampling results were less than 0.004 mg/m^3 for the two-hour sampling period. Area air sampling results indicate that the airborne lead exposure is limited to the firing line area and downstream from the firing line.

Air sampling result indicated that overexposure to lead is reasonably expected while using the range for an extended period of time. According to National Guard regulations, Guardsmen exposed to hazards in the range less than thirty days per year are permitted to use the range up to five hours per day. Guardsmen utilizing the range for over thirty days per year and all non-military personnel are limited to three hours per day. Range users under 17 are limited to one-hour use per day.

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 865 of 2531

BEST AVAILABLE COPY

Recommendations:

1. This range is classified as limited use based on sampling results collected during the survey, and the results of the ventilation survey. **(RAC 2)**
2. A record must be maintained for time spent on the range for all personnel using limited use firing ranges as recorded by the range custodian. [NGR 385-15 1-15 b] **(RAC 2)**
3. Air sampling should again be conducted after changes required in the ventilation system have been made. [NGR 385-15 1-27 c] **(RAC 2)**

m. Range Status. This range is classified as unsafe due to building envelope and range lighting deficiencies. Once these items have been corrected, the range may be upgraded to a limited use status due to results in the ventilation system measurements and air sampling results.

Recommendation: Further use of this range is prohibited until building envelope and lighting deficiencies have been corrected. The range may go to a limited use status once these deficiencies have been corrected. Limited use status will remain until deficiencies in the ventilation system are corrected; re-inspected, and approved and further air sampling has been accomplished. **(RAC 2)**

Non-Responsive

Posted to NGB FOIA Reading Room
May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 866 of 2531

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Indoor Firing Range Inspection/Evaluation Survey Report

For

Tennessee Army National Guard
(TNANG)

At

Hohenwald Armory Indoor Firing Range
Hohenwald, Tennessee

Prepared by:

Environmental Management Solutions

For
National Guard Bureau
Army National Guard
Region South Industrial Hygiene Office
Airport Plaza Suite 1530
510 Plaza Drive
College Park, GA 30349

March 23, 2001

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 867 of 2531

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ENVIRONMENTAL MANAGEMENT SOLUTIONS
INDUSTRIAL HYGIENE CONSULTING

Hohenwald Indoor Firing Range
Tennessee Army National Guard

PO BOX 6893, DOUGLASVILLE, GEORGIA 30134
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau

BEST AVAILABLE COPY

Table of Contents

I. Executive Summary ..... page 1

II. Findings and Recommendations Summary ..... page 2

III. Background ..... page 4

a. Introduction
b. Site Description
c. Scope of Work
d. Health effects and hazard determination
e. Methodology and Assessment Criteria

IV. Findings and Recommendations ..... page 6

a. Building envelope
b. Range lighting
c. Bullet traps
d. Targets and target carriers
e. Range use
f. Range maintenance
g. Personal protective equipment
h. Posting of signs
i. Range sop
j. Record keeping
k. Ventilation
l. Air sampling

Appendices

A. References

B. Risk Assessment Codes (RAC) Table

C. IFR Checklist and Photographs

D. Range Layout Drawing and Ventilation Measurements

E. Air Sampling Results and Laboratory Sample Analysis Report

F. Air Sampling Notification Letters

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I. EXECUTIVE SUMMARY

At the request of the Tennessee Army National Guard (TNARNG), field personnel representing the National Guard Bureau, Region South Industrial Hygiene Office, conducted an inspection/evaluation of the Hohenwald Armory indoor firing range (IFR) located in Hohenwald, Tennessee on 30 November 2000. This survey was conducted as part of the TNARNG occupational safety and health program to evaluate potential health hazards associated with air contaminants generated during firing. The survey consisted of conducting a physical inspection of the range, collecting air samples, evaluating the ventilation system, measuring the lighting levels, and reviewing the range operating procedures

Five personal samples and two area air samples were collected during a simulated 39-minute weapons firing qualification test. Three out of the five personal sample results were below the Army National Guard recommended limit of 0.03 mg/m^3. However, the equivalent eight-hour time weighted average for all the personal samples were below the regulated Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (PEL) of 0.05 mg/m^3. Area air sampling results were well below the recommended limit of 0.03 mg/m^3, indicating that the exposure is limited to the firing line area. The average air velocities in all firing lanes and at all positions were above the recommended 50 feet per minute. Smoke testing showed little turbulence at the firing line. In addition to air sampling and ventilation measurements, illumination readings in critical areas were below the recommended levels. Detailed findings and recommendations regarding this range can be found in the following table and report.

In conclusion and based on the findings of this inspection/evaluation, the Hohenwald firing range is classified as unsafe for use based on deficiencies in lighting and building envelope. The range may qualify for a limited use status once these deficiencies have been corrected, due to air sampling results and the ventilation system evaluation. Considerations should be given to implementing the recommendations listed herein.

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 870 of 2531

BEST AVAILABLE COPY

II. FINDINGS and RECOMMENDATIONS SUMMARY

FINDINGS	RECOMMENDATIONS	RAC
This range has been classified as unsafe due to building envelope and lighting deficiencies.	Further use of this range is restricted until deficiencies in the building envelope and lighting have been corrected. Once these items have been corrected, the range may go to limited use status based on air sampling results	RAC 2
BUILDING ENVELOPE		
There is one open floor drain in the area	The floor drain should be immediately sealed to prevent toxic dusts from seeping into the sewer system.	RAC 2
Sandbags and rugs were found near the door.	All fibrous materials should be thoroughly decontaminated and removed from the area.	RAC 2
Access doors are not weather-stripped.	Access doors should be weather-stripped and the locks should be fixed so that the door closes and locks properly.	RAC 2
RANGE LIGHTING		
Range lighting is below the recommended 100 FC at the firing line and 30 FC in all other areas.	Upgrade lighting to meet these requirements	RAC 3
BULLET TRAP		
One plate in the bullet trap needs to be put in alignment	Replace steel plate so that it is flush with the other plates in the trap	RAC 3
RANGE USE		
Chairs and tables were found stored in the range.	No items should be stored in the firing range at any time. Stored should be decontaminated and removed.	RAC 2
Stored items were found in front of the plenum wall.	All items should be removed from in front of the plenum wall	RAC 2
A fire extinguisher is not provided in the range.	An ABC type fire extinguisher should be kept at the firing line in case of emergencies.	RAC 3
POSTING OF SIGNS		
Not all appropriate warning signs were posted in the range.	Post appropriate signs in the vicinity of the range and on the entrance door.	RAC 2
RANGE SOP		
Hohenwald Armory does not have an approved standing operation procedure	Develop and implement a standing operation procedure	RAC 2
RECORDKEEPING		
No records of range training, maintenance, or cleaning are maintained. All appropriate records regarding visitors is not logged.	Maintain appropriate records regarding range operations and procedures	RAC 2
A range custodian has been appointed but has not been trained	A range custodian should be appointed to the range who will be responsible for cleaning the range and discarding debris	RAC 3
VENTILATION		
Supply and exhaust fans are not interlocked with range lighting.	Interlock supply and exhaust fans with range lighting.	RAC 3
Ventilation flow rates were above the recommended 50 to 75 fpm and no turbulence was noted during smoke tests.	Ventilation rates, though above the recommended 75 fpm, provide adequate ventilation for the range.	RAC 2

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 871 of 2531

BEST AVAILABLE COPY

FINDINGS	RECOMMENDATIONS	RAC
Flow rates at the plenum wall were less than the required 400 to 600 fpm	Holes in the plenum wall should be one inch in diameter and extended over the entire surface of the plenum wall	RAC 2
More than 10 to 15% of the plenum wall is open.	Holes in the plenum wall should be one inch in diameter and extended over the entire surface of the plenum wall.	RAC 2
	AIR SAMPLING	
Air sampling results ranged from <0.0037 to 0.060 mg/m^3.	Range is classified as limited use based on results of air sampling. Appropriate records must be kept for all persons using the range.	RAC 2

Posted to NGB FOIA Reading Room
May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 872 of 2531

BEST AVAILABLE COPY

III. BACKGROUND

a.) Introduction: At the request of Non-Responsive of the National Guard Bureau Region South Industrial Hygiene Office, an inspection/evaluation survey was performed at the Hohenwald Indoor Firing Range at the Hohenwald Armory in Tennessee. Non-Responsive Non-Responsive contract industrial hygienist, conducted the survey on 30 November 2000. The purpose of the survey was to evaluate range characteristics, ventilation, and quantify employee exposure to lead dust.

b.) Site Description: The Hohenwald Indoor Firing Range measures approximately 75 feet long, 23 feet wide, and 12 feet high and is used for weapons firing and qualification. The range has five firing lanes and an inclined steel plate bullet trap. Two exhaust fans, which are rated at 3,700 cubic feet per minute each, draw air through the bullet trap and exhaust it to the rear of the building. 100 percent outside air is supplied through a plenum that extends across the back wall.

c.) Scope of Work: The work consisted of a physical inspection of the range and an evaluation of the building envelope, range lighting levels, bullet trap condition, targets and target carriers, the use of personal protective equipment, posting of signs, range standard operating procedures (SOP), record keeping, the ventilation system, range use and maintenance. In addition personal and area air samples were collected during firing to evaluate the airborne exposures to the range users. A range inspection checklist found in National Guard Regulation 385-15, which addresses Indoor Firing Range use and maintenance was completed for the range. Smoke candles were utilized to observe airflow patterns in the range. Air velocities were also measured at the firing line. Air sampling and ventilation measurements were performed to quantify performance of the range and its effectiveness in reducing employee exposure to lead dust.

d.) Health Effects and Hazard Determination: The most significant hazard present to employees and users of the indoor firing range is lead dust. Shooters using ammunition with lead primers or bullets manufactured with lead are potentially exposed to lead fumes and dust during the firing process. Furthermore, the lead found in the primer, the melting of the bullet base by hot powder gasses, the shaving and abrasion of the bullet during firing, and fragmentation of the bullet at the point of impact are all potential sources for lead. Exposure to lead may also occur during cleaning of the range, guns, or bullet trap where lead dust is deposited.

Lead affects the nervous, circulatory, digestive, excretory, and reproductive systems of both men and women. If the amount of lead absorbed and stored in the body exceeds the body's ability to expel it, lead can accumulate in the body affecting the blood, heart, and immune systems. Pregnant women overexposed to lead are more prone to spontaneous abortions or may give birth to babies with a low birth weight and slowed postnatal neurological development. Results of overexposure in children are slowed cognitive development and reduced growth.

e.) Methodology and Assessment Criteria: Personal air sampling was conducted during a simulated weapons firing qualification test, which lasted over a thirty-nine minute period. Area air samples were collected during the firing and one and half hour to two hours after the firing

Posted to NGB FOIA Reading Room
May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 873 of 2531

BEST AVAILABLE COPY

ended. Gilian air sampling pumps, Model Number GilAir5, Serial Numbers 13248, 13249, 13250, 13251, 13252, 13521, 13522, 13523, 13524, 13525 were used to collect the personal and area air samples. Each pump was calibrated prior to sampling and at the end of each sampling period using a pre-calibrated rotameter, which was calibrated against a bubble meter. The sampling flow rate was set at approximately 2 liters per minute (lpm). Samples were sent to NATLSCO laboratory, which is accredited by the American Industrial Hygiene Association (AIHA), for analysis.

An Alnor CompuFlow Air Velocity Meter, Model Number 8570, Serial Number 99097037, was used to measure air velocities at the firing line. A total of nine velocity readings were taken at each firing lane. Three measurements were taken at each of three positions; standing, kneeling, and prone positions for a total of nine readings. Details of locations where ventilation measurements were made can be found in Appendix D.

Lighting measurements were taken at the firing line, target line, and intermediate areas to determine luminance levels in these areas. Approximately fifteen to twenty readings were taken throughout the range using a Minolta Light Meter Model Number TL-1, Serial Number 90480727.

Air sampling, ventilation and illumination readings were compared to the NGR 385-15 Policy Responsibilities, and Procedures for Inspection/Evaluation and use of ARNG Indoor Firing Ranges.

Risk Assessment Codes (RACs) are included in this report to quantify the risk of particular operations to employees and to establish funding priorities for corrective actions. RACs are assigned with regard to hazard severity and mishap probability. The type, length, and route of exposure are taken into consideration, as are the medical effects that would occur with such exposures. RAC criteria can be found in Appendix B.

Posted to NGB FOIA Reading Room
May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 874 of 2531

BEST AVAILABLE COPY

IV. FINDINGS, DISCUSSION, AND RECOMMENDATIONS

a. Building Envelope. This indoor firing range measures 48 feet from the firing line to the bullet trap, 23 feet wide, and 12 feet high. Each firing lane is the appropriate width and all pipes, conduits, and projecting surfaces are adequately baffled. There is one open floor drain in the range. Sandbags and rugs were found by the access door. The access door to the range is not adequately weather-stripped.

Recommendations:

1. There should be no open floor drains in the area, which allows lead toxic dust to seep into the sewer system. Immediately close up all drains in the area. [NGR 385-15 1-17a(1)(b)] **(RAC 2)**
2. No carpet, drapes, or other fiber-like material should be stored in the range that will allow collection of lead dust. All items such as sandbags and rugs should be thoroughly decontaminated and removed. Porous items such as canvas tents or other fabrics may be laundered at companies, which specialize in industrial laundry services. Office partitions and carpeting present during firing should be considered grossly contaminated and disposed of as hazardous waste. Consult the Environmental office before removing and disposing of items. [NGR 385-15 1-17s(2)(d)] **(RAC 2)**
3. Weather-strip all access doors to the range to prevent leakage of lead dust and debris into outlying areas. [NGR 385-15 2-2a(2)(b)] **(RAC 2)**

b. Range Lighting. Range lighting is relatively uniform and does not cause shadows. Lighting measures an average 23.5 FC at the targets and 11.3 FC in all other areas. Baffles adequately protect all lighting fixtures. Emergency lights and exit lighting is provided and is in good working condition.

Recommendation: Increase lighting to the recommended 100 FC at the targets and 30 FC in all other areas. [NGR 385-15, 1-17c(1)(d)] **(RAC 3)**

c. Bullet Traps. An inclined plate bullet trap is permanently installed and is designed for .22 caliber use, which is all that is permitted for firing on this range. The bullet trap measures ¼ " thick and adequately prevents ricochets. The bullet trap is in good shape and is smooth without any seams or overlapping. One plate in the bullet trap needs to be put in place so that it is flush with all the other plates.

Recommendations:

1. Replace steel plate so that it is flush with the other plates in the trap. [NGR 385-15 1-17d(2)(b)] **(RAC 3)**
2. The bullet trap should be adequately maintained. Rust or paint chips may cause ricochets. A thin coating of oil should be applied every 3 months for moderate firing, sooner if heavy firing occurs (10W30 or 3 in 1). **DO NOT APPLY GREASE. (RAC 3)**

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 875 of 2531

BEST AVAILABLE COPY

3. Bullet collection bins should not be allowed to get over ¾ full. Contact the TN ARNG State Environmental Office prior to emptying for disposal instructions. **(RAC 3)**

d. Targets and Target Carriers. Target retrieval systems were provided for each lane and are in good working order. Paper targets are used for personnel during firing procedures.

Recommendation: None at this time.

e. Range Use. Chairs and tables were stored in the range in front of the plenum but were removed prior to firing. Personnel site the reason for storing items in the ranges are lack of space in the facility. An appropriate fire extinguisher is not provided in the range. Additional clothing and equipment is brought into the range by firers. A fire extinguisher is provided in the hallway outside of the range.

Recommendations:

1. No items should be stored in the firing range at any time. Stored items can become contaminated with lead dust and will increase the exposure to anyone who moves or touches stored items. [NGR 385-15 2-3a, 2-4h] **(RAC 2)**

2. No items should be stored in front of the plenum wall, which will disturb airflow while the ventilation system is running. [NGR 385-15 2-4a] **(RAC 2)**

3. A hand held ABC-type fire extinguisher should be kept at the firing line in case of emergencies. [DG 415-1, App. A, 4-5] **(RAC 3)**

f. Range Maintenance. This indoor firing range has not been cleaned. Brooms are used to clean up spent shells.

Recommendations:

1. The indoor firing range should be cleaned with the ventilation system operating to prevent dust and debris from migrating into other work areas and to minimize exposure to the cleaners. Floor areas behind the firing line and 15 feet downrange should be cleaned after firing or at least every three months if the range is not used as often. [NIOSH 76-130, p.24, II, 1] **(RAC 2)**
2. Dry sweeping and cleaning bullet traps by pouring or shoveling bullet debris into waste buckets causes settled lead dust to become airborne and inhaled by the workers. **Dry sweeping of indoor firing ranges is prohibited.** A High Efficiency Particulate Air (HEPA) filtered vacuum system is recommended for lead dust and particles cleanup only (no bullet casings). If a HEPA vacuum cannot be acquired, a wet method should be used which includes a solution of detergent and hot water. Two containers should be used; one to wet the area, and the other to rinse the applicator after the dust has been wiped from the surface. Water should be changed often to prevent reapplication of contaminated water. Wastewater should be left to evaporate

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 876 of 2531

BEST AVAILABLE COPY

and the residue and any applicators should be disposed under guidance from the TN ARNG Environmental Office. [29 CFR 1910.1025(h)(ii), NIOSH 76-130, P.24, II, 2] **(RAC 2)**

3. One person, preferably the range custodian, should be responsible for cleaning the range and discarding debris. The range should be cleaned **ONLY** with a HEPA vacuum system or utilizing a wet method. [29 CFR 1910.1025(h)(ii)] **(RAC 2)**

g. Personal Protective Equipment (PPE). Personnel were observed wearing appropriate hearing protection. One person was observed without adequate eye protection during firing.

Recommendation: All personnel should wear ANSI approved hearing and eye protection. Additional eye and hearing protection should be available for those users that do not have their own. [NGR 385-15, 2-5a, 2-5 b, 29 CFR 1910.133 (a-b), 29 CFR 1910.95 a]. **(RAC 2)**

h. Posting of Signs. Warning signs are posted and instruct users about the regulations and requirements of the range. Warnings include those against eating, drinking, and smoking, authorized ammunition, and hearing protection required. No signs were present to instruct personnel that dry sweeping is prohibited or that storage of furniture and other items is prohibited in the range. The entrance door to the range is not posted as a Lead Hazard Area and does not prohibit pregnant women from entering the area. No illuminated warning sign is interlocked with the range ventilation switch to alert individuals that the range is use. Each firing lane is numbered only at the firing line.

Recommendations.

1. The following signs should be posted in or in the vicinity of the range and of the access door to the bullet trap. [NGR 385-15 3-6a,b] **(RAC 2)**:

   a. Eating, drinking, and Smoking are Prohibited
   b. Dry Sweeping is Prohibited
   c. Wash Hands and Face Immediately Following Firing
   d. The Following Ammunition is Authorized for use on this Range
   e. Hearing Protection Must Be Properly Worn During Firing
   f. Proper Safety Glasses/Goggles Must Be Worn During Firing
   g. No Furniture or Storage of Items Permitted in the Range

2. The following signs must be posted on the entrance door to the range and to the access door of the bullet trap:

   a. Noise Hazardous Area
   b. Danger Lead Hazard Area
   c. Pregnant Females are Not Permitted in this Area

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May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 877 of 2531

BEST AVAILABLE COPY

3. An illuminated sign should be interlocked with the range ventilation switch and located outside of the firing range to alert individuals outside when the range is in use. [NGR 385-15 2-6c] **(RAC 4).**

4. Each firing line should be clearly numbered at the firing line and bullet trap. [NGR 385-15 1-21C] **(RAC 4)**

i. Range Standing Operation Procedure (SOP). A range SOP with all requirements is not available for this facility as approved by the State Safety Office.

Recommendations:

A Range Standing Operation Procedure should be written for this facility and should include the following **(RAC 2)**:

1. Requirements for establishment and maintenance of a visitor's log indicating date, age, and ammunition fired
2. Requirements for safety briefing for all individuals before entrance to the range given by a designated range safety officer
3. Work practices
4. Instructive guidance
5. Personnel responsibilities for performing, supervising, reviewing, and updating the SOP
6. Authorized ammunition
7. Posting of signs
8. Cleaning and maintenance requirements
9. PPE requirements for maintenance, firing, and cleaning of the range.

j. Recordkeeping. Records kept at the range are a visitor's log with name and age of firer, organization and sign in and sign out times. The type of ammunition used is not documented. Copies of initial and previous inspections and any air-sampling data are not available. An OSHA compliance program is not in place. A range custodian has been appointed to the range but has not been trained on lead hazards specific to firing and cleaning of the range.

Recommendations.

1. A visitor's log must be maintained that comains the name and age of firer, organization, sign in and out time, and type of ammunition, and number of rounds fired. [NGR 385-15 1-16c] **(RAC 2)**
2. A copy of this and any other inspections should be maintained. [NGR 385-15 3-6] **(RAC 2)**
3. An OSHA compliance program must be established and maintained to document how engineering (i.e. ventilation) and work practice controls will be put in place to reduce exposure to or below the permissible exposure limit. The written plan should include a description of the operation, ammunition and weapons used, existing controls, groups using the firing range, employee job responsibilities, operating procedures and

Posted to NGB FOIA Reading Room
May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 878 of 2531

BEST AVAILABLE COPY

maintenance practices. A record of previous inspections and air sampling data must also be retained. [29 CFR 1910.1025(e)(3)(i-ii)]. **(RAC 2)**

4. All individuals utilizing the range must be provided with a copy of the SOP or have been briefed on the unit's requirements and must sign an agreement to follow the rules. [NGR 385-15 1-15h] **(RAC 2)**
5. State maintenance officers and custodians must be fully trained on an annual basis on the health effects from exposure to lead dust and the appropriate precautions that must be taken. Records verifying this training must be kept by the range custodian. Each employee who works in a place in which there is a potential exposure to airborne lead at any level shall be informed of the Content of Appendix A Substance Data Sheet for Occupational Exposure to Lead, and Appendix B Employee Standard Summary of OSHA regulation 1910.1025. Initial training should be performed at least 180 days from date of initial job assignment and annually thereafter. [29 CFR 1910.1025(l)(1)(i-iv), 29 CFR 1910.1200(h)] **(RAC 2)**
6. A range safety officer and custodian should be designated in writing. [NGR 385-15 1-17d] **(RAC 2)**

k. Ventilation. The range is equipped with an operational ventilation system, with 100% of the make-up air exhausted behind the bullet trap. Supply and exhaust fans are not interlocked with range lighting. Average velocity readings in each lane and in each position within the lane were above the required 50 feet per minute (fpm). Average velocities ranged from 79 to 142 fpm. Refer to Table D-1 in Appendix D. A smoke test of the range revealed laminar flow. The range temperature was below 65 degrees.

The plenum wall extends across the entire back wall and flow rates at the plenum wall met the required 400 to 600 fpm. More than 10-15% of the plenum wall is open. Smoke tests revealed laminar airflow and little turbulence at the firing line.

Recommendations:

1. Interlock supply and exhaust fans with range lighting so that the ventilation system operates at all times during occupancy of the range. [CEHND 110-1-18, 3-4a] **(RAC 3)**
2. Holes in the plenum wall should be one inch in diameter and extended over the entire surface of the plenum wall to evenly distribute air flow. **(RAC 3)**
3. Range temperature should remain between 65 degrees and 80 degrees Fahrenheit. [NGR 385-15 1-17b(1)(n)] **(RAC 3)**

l. Air Sampling. Area and personal air sampling was conducted to simulate weapons qualifications. Five personal samples were collected from personnel firing for about 39 minutes. Two area samples were also collected simultaneously; one inside the range behind the firing line, and the other outside. The firing was restricted to a single qualification time period. This 39-minute qualification period is representative of the expected exposure for personnel using the range. Personal sampling results ranged from 0.013 to 0.06 mg/m^3 for the 39 minute sampling period. Except for two personal samples, results were below the Army National Guard Occupational Exposure Limit of 0.03 mg/m^3. Assuming no exposure for the remainder of an

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May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 879 of 2531

BEST AVAILABLE COPY

eight-hour period, the equivalent 8-hour time weighted average for the five personal samples ranged from 0.001 to 0.005 mg/m^3. These equivalent results are lower than the OSHA PEL, NIOSH REL, and ACGIH TLV, on an eight-hour time weighted average basis. However, if firing were continued for the eight-hour period, airborne lead levels would have exceeded the regulated OSHA limit of 0.05 mg/m^3. Area air sampling results were less than 0.004 mg/m^3 for the two-hour sampling period. Area air sampling results indicate that the airborne lead exposure is limited to the firing line area and downstream from the firing line.

Air sampling result indicated that overexposure to lead is reasonably expected while using the range for an extended period of time. According to National Guard regulations, Guardsmen exposed to hazards in the range less than thirty days per year are permitted to use the range up to five hours per day. Guardsmen utilizing the range for over thirty days per year and all non-military personnel are limited to three hours per day. Range users under 17 are limited to one-hour use per day.

Recommendations:

1. This range is classified as limited use based on sampling results collected during the survey, and the results of the ventilation survey. **(RAC 2)**
2. A record must be maintained for time spent on the range for all personnel using limited use firing ranges as recorded by the range custodian. [NGR 385-15 1-15 b] **(RAC 2)**
3. Air sampling should again be conducted after changes required in the ventilation system have been made. [NGR 385-15 1-27 c] **(RAC 2)**

m. Range Status. This range is classified as unsafe due to building envelope and range lighting deficiencies. Once these items have been corrected, the range may be upgraded to a limited use status due to results in the ventilation system measurements and air sampling results.

Recommendation: Further use of this range is prohibited until building envelope and lighting deficiencies have been corrected. The range may go to a limited use status once these deficiencies have been corrected. Limited use status will remain until deficiencies in the ventilation system are corrected; re-inspected, and approved and further air sampling has been accomplished. **(RAC 2)**

Non-Responsive

Posted to NGB FOIA Reading Room
May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 880 of 2531

BEST AVAILABLE COPY

Posted to NGB FOIA Reading Room
May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 881 of 2531

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APPENDIX A

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REFERENCES

1. American Conference of Governmental Industrial Hygienists (ACGIH), Industrial Ventilation, A Manual of Recommended Practice, 23rd Edition, 1998.

2. American Conference of Governmental Industrial Hygienists (ACGIH), Threshold Limit Values for Chemical Substances and Physical Agents and Biological Indices for 2000.

3. Army Regulations - AR 40-5, Preventative Medicine, 15 October 1990.

4. Army Regulations - AR 385-10, The Army Safety Program, 23 May 1988.

5. National Safety Council, Fundamentals of Industrial Hygiene, 4th edition, 1996.

6. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, 29 December 1989.

7. National Guard Regulation (NGR) 385-15 Policy Responsibilities, and Procedures for Inspection/Evaluation and use of ARNG Indoor Firing Ranges, 18 September 2000..

8. National Guard Pamphlet (NG PAM) 385-16, Guidelines for Converting Firing Ranges to Other Uses, 31 January 1994.

9. National Institute for Occupational Safety and Health, Pocket Guide to Chemical Exposures, 2000.

10. TB MED 503, The Army Industrial Hygiene Program, February 1985.

11. TB MED 502, Occupational Safety and Health Respiratory Protection Program..

12. Title 29 Code of Federal Regulations (CFR) 1910.1025, Lead.

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APPENDIX B

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DERIVING RISK ASSESSMENT CODES (RACs) FOR HEALTH HAZARDS (Ref: DOD Instruction 6055.1)

STEP 1. Using the following procedures to assess points, determine the health hazard severity category (HHSC). The HHSC reflects the magnitude of exposure to a physical, chemical, or biological agent and the medical effects of exposure.

A. Exposure Points Assessed

		Exposure Conditions			
		<CT	Occasionally - >CT Always - <STD	>CT =STD	>STD
AER	NO	0	3	5	7
POSSIBLE?	YES	1-2	4	6	8

AER = Alternate exposure route, such as skin absorption, ingestion
CT = DoD component threshold that triggers surveillance actions, such as microWatts/cm^2, dB, parts per million
STD = DoD exposure limit, such as Threshold Limit Value and Permissible Exposure Limit

B. Medical Effects Points Assessed

Condition	Points
No medical effect, such as nuisance noise and nuisance odor	0
Temporary reversible illness requiring supportive treatment, such as eye irritation and sore throat	1-2
Temporary reversible illness with a variable but limited period of disability such as metal fume fever	3-4
Permanent, nonsevere illness or loss of capacity, such as permanent hearing loss	5-6
Permanent, severe, disabling, irreversible illness or death, such as asbestosis and lung cancer	7-8

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C. Determine the HHSC by totaling the points assessed and using the following guide:

Total Points (sum of A and B, above)	HHSC
13-16	I
9-12	II
5-8	III
0-4	IV

STEP 2. Using the following guides to assess points, determine the mishap probability category (MPC) for health hazards. The probability of mishap reflects the duration of exposure and the number of exposed personnel.

A. Duration of Exposure Points Assessed

		Length of Exposure		
		1-8 hr/wk	>8 hr/wk not continuous	continuous
Type of Exposure	Irregular, intermittent	1-2	4-6	-
	Regular, periodic	2-3	5-7	8

B. Number of Exposed Personnel Points Assessed

Number of Exposed Personnel	Points
<5	1-2
5 to 9	3-4
to 49	5-6
>49	7-8

C. Determine the MPC for health hazards by totaling the points assessed and using the following guide:

Total Points (sum of A and B, above)	MPC
14-16	A
10-13	B
5-9	C
<5	D

STEP 3. Determine the RAC for health hazards by using the following matrix to measure health hazard severity and mishap probability factors.

		MISHAP PROBABILITY			
		A	B	C	D
HAZARD SEVERITY	I	1	1	2	3
	II	1	2	3	4
	III	2	3	4	5
	IV	3	4	5	5

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APPENDIX C

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30 Nov 00

1988
2x/year makeup air
Local P.D. 1x/year
New custodian in job - past couple of months

FIGURE 1-2

INDOOR FIRING RANGE INSPECTION CHECKLIST

See paragraphs 1-23 through 1-25 of this regulation for inspection requirements. For the range to be considered safe each of the following statements shall be true and air-sampling results shall be below the standard for Lead. The information in parentheses after each statement denotes the location of the requirement in this or other regulations.

Location of the Range Hohenwald Armory Date 30 Nov 2000

Range Custodian [redacted]
1177 West Main St
Hohenwald, TN 38462

Part 1, Physical Safety Inspection

A. Building Envelope

✓ 1. Each firing lane is at least 4 feet wide. [1-17a(1)(a)]

✓ 2. Pipes, conduits, and other projecting surfaces are baffled or covered by a material that shall protect these items and prevent ricochets. [1-17a(1)(b)]

✓ 3. No windows or doors are located in front of the firing line. (Except access door to the back of the bullet trap) [1-17a(1)(d)]

No 4. There are no open floor drains in the range. [1-17a(2)(c)]
Has open floor drain

No 5. There is no carpet, drapes or other fiber-like material in the range. [1-17a(2)(d)]
Sandbag rug by door

✓ 6. Pipes, conduits and walls are sealed to prevent leakage of Lead dust from the range into other areas. [1-17a(2)(b)]

✓ 7. The interior surfaces or the range floor, walls, and ceiling have no protruding edges or devices. [DG 415-1, App.A, 3-1d]

✓ 8. The roof provides ballistic security. [DG 415-1, App. A, 3-1e(1)]

✓ 9. The walls provide ballistic security. (DG 415-1, App. A, 3-1f(1))

✓ 10. Interior mortar joints are flush with the interior surface. (DG 415-1, App. A, 3-1f(2))

✓ 11. The plenum wall is adequately supported and thick enough to avoid flexing. (DG 415-1, App. A, 3-1f(4))

No 12. The entrance door to the range is weather-stripped unless the door acts as passive make-up air intake. (DG 415-1, App. A, 3-1h)

Hohenwald

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 889 of 2531

BEST AVAILABLE COPY

B. Range Lighting

✓ 1. Lighting is uniform, non-glaring and does not cause shadows. [1-17c(1)(a)]

No 2. Illumination is at least 100 foot candles on the targets and 30 foot candles in all other areas. [1-17c(1)(b)] No No

✓ 3. All lighting is protected by baffles and placed so that the shooter has an unobstructed view down range. [1-17c(1)(c)]

✓ 4. Downrange lighting begins approximately 18 feet from the firing line and ends approximately 8 feet from the target line. [1-17c(1)(d)] 23 10

✓ 5. Emergency lights are provided behind the firing line and are in working condition. [1-17c(1)(e)]

✓ 6. Exit lights are provided and working as required. [1-17c(1)(f)]

✓ 7. Lighting of at least 30 foot-candles is provided behind the bullet trap for maintenance (if applicable). [1-17c(1)(g)]

✓ 8. No known electrical hazards exist in the range. [1-17c(2)(c)]

C. Bullet traps

✓ 1. A bullet trap is permanently installed in the range. [1-17d(1)(a)]

___ 2. Bullet traps are of a commercial design, which is in compliance with the requirements of CEHND 1110-1-18, NGB-ARI, NG PAM 385-16, Chapter 4 and this regulation. [1-17d(1)(b)]

___ 3. The thickness of inclined plate/sand trap type bullet trap shall be adequate to attenuate the maximum caliber of ammunition authorized to be fired on the range. [1-17d(1)(c)] 1/4" steel

✓ 4. All plate/sand trap type bullet traps are designed to prevent ricochets by directing the projectiles in the same direction they are traveling. [1-17d(1)(d)]

NA 5. Sandpits in plate/sand trap type backstops extend to a point directly below the leading edge of the sloped plate. [1-17d(1)(e)]

NA 6. Forward edges in a louver or venetian blind type bullet trap are maintained in a knife edge condition to prevent ricochets. [1-17d(1)(f)]

✓ 7. Steel bullet traps are not bowed, punctured or severely pitted. [1-17d(2)(a)]

No 8. Plates in the bullet trap are flush with the other plates. Mold seams are ground smooth. [1-17d(2)(b)]

D. Targets and target carriers

✓ 1. A target retrieval system is operable in all lanes. [1-17e(1)(a)]
(Any one firing lane without a retrieval system shall not be used for firing)

✓ 2. The target retrieval system is constructed in such a manner as to minimize flat surfaces exposed to the firing line. [1-17e(1)(a)]

✓ 3. Only paper targets are used in the range. [1-17e(1)(b)]

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 890 of 2531

Holywood 2 of 6

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E. Range use

✓ 1. The range is not used for any purpose other than firing. [1-18a]

No 2. No equipment or furniture is stored or maintained in the range, plenum area or behind the bullet trap. table, chairs
[1-17d]

No 3. No additional clothing or equipment is brought into the range. [1-19h]

____ 4. Personnel are *not* permitted in the plenum area during firing even if designed for observation. [1-19a]

____ 5. Individuals other than maintenance and inspection personnel are not allowed to walk downrange. (Except in regularly cleaned area as needed to pick up brass) [1-19f]

No 6. All areas directly in front of the plenum walls are kept clear at all times. [1-19c] table chairs

✓ 7. Pellets, BBs, magnum and armor piercing rounds are not used in the range. [1-19g]

____ 8. The ventilation system is in operation at all times during firing or cleaning. [1-18c]

No 9. A hand-held ABC-type fire extinguisher is located in a recessed cabinet near the entrance door, inside of the firing range. [DG 415-1, App. A, 4-5]
outside in hallway

F. Range maintenance has not been cleaned

No 1. Dry sweeping does not occur in the range. [1-19e] to clean up spent shells

No 2. No brooms are located in the range. [1-19e] Brooms

No 3. A range custodian is appointed for the range who is fully trained and aware of his/her responsibilities. [1-13c]

G. Personnel protective equipment

✓ 1. All personnel in the range during firing wear ANSI approved eye protection. [1-20a]
All except one

✓ 2. All personnel in the range during firing wear ANSI approved hearing protection. [1-20b]

H. Posting of signs

____ 1. The following signs are posted in or in the vicinity of the range: [1-21a]

- ✓ a. Eating, Drinking and Smoking are *Prohibited*
- ____ b. Dry Sweeping is *Prohibited*
- ____ c. Wash Hands and Face Immediately Following Firing
- ✓ d. The Following Ammunition is authorized for use on this Range: ____ soft point cases velocities & energy under 2200 ft/sec 2200 ft. lbs
- ✓ e. Hearing Protection *shall be* Properly worn during firing
- ____ f. Proper Safety Glasses/Goggles *shall be* worn during firing
- ____ g. No Furniture or Storage of Items Permitted in the Range

____ 2. The following signs are posted on the entrance door to the range: [1-21b]

- ____ a. Noise Hazardous Area
- ____ b. Danger Lead Hazard Area
- ____ c. Pregnant women are *not* permitted in this Area

No 3. An illuminated warning sign, which is interlocked with the range ventilation switch, is located outside of the firing range to alert individuals that the range is in use. [1-21c]

____ 4. Each firing lane is numbered at the firing line and at the bullet trap visible to all shooters. [1-21c] Not at bullet trap

NA 5. A warning sign is posted outside of the access door to the bullet trap, which warns personnel not to enter. [1-21e]

Posted to NGB FOIA Reading Room
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FOIA Requested Record #J-15-0086(FN)
Released by National Guard Bureau
Page 891 of 2531
Hohenwald
5 of 6

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I. Range SOP

No 1. The indoor firing range has a written SOP, which is approved by the State Safety and Occupational Health Office. [1-10e]

NA 2. The range SOP includes as a minimum the following: [1-22b]

_____ a. The requirement for establishment and maintenance of a log of visitors for the indoor firing range.

_____ b. The requirement for and contents of a mandatory safety briefing for all individuals prior to entering the range to be given by a designated competent range safety officer.

_____ c. Work practices including required, recommended, permissible and banned practices as specified by this regulation.

_____ d. Instructive guidance for all range procedures.

_____ e. Personnel responsibilities for performing the procedures, for supervising them, and reviewing and updating the SOP.

_____ f. Authorized ammunition for the range.

_____ g. The requirement for posting of signs IAW section 1-21 of this regulation.

_____ h. Cleaning and maintenance requirements.

_____ i. Personal protective equipment requirements for maintenance, firing and cleaning.

J. Recordkeeping

No 1. A visitors log is maintained which includes the following information for all visitors/shooters: [1-14c]

_____ a. Name and age of shooter.

_____ b. Organization (if civilian, include address and phone number).

_____ c. Sign in and sign out times.

_____ d. Type of ammunition used and number of rounds fired.

No 2. Copies of initial and other previous inspections are available. [1-24a]

No 3. The initial inspection report includes air-sampling data. [1-24b]

No 4. An OSHA compliance program is in place, which covers the required aspects. [1-30a]

No 5. All individuals using the indoor firing range have been provided with a copy of the range SOP or been briefed on the requirements of the SOP, and have signed an agreement to follow the rules stated therein. [1-13h]

No 6. State maintenance officers/custodians have documentation to show that they have been educated to the health effects from exposure to Lead dust. [29 CFR 1910.1200 and 29 CFR 1910.1025]

Yes 7. Range safety officer(s) is/are designated. [1-13c] -custodian. Not fully trained on his duties

K. New and Renovated Ranges

_____ 1. No doors are installed in the plenum wall.

_____ 2. Plenum area is at least 4 feet deep.

_____ 3. An access door is installed behind the bullet trap.

_____ 4. Only escalator or rubber bullet traps are installed.

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May, 2018

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FOIA Requested Record #J-15-0085(TN)
Released by National Guard Bureau
Page 892 of 2531

Attachment 4 of 6

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INDOOR FIRING RANGE INSPECTION CHECKLIST

Part 2, Ventilation Inspection

A. Existing Ranges

✓ 1. The range has an operational mechanical ventilation system. [1-17b(1)(a)]

✓ 2. The minimum ventilation rate at the firing line in each firing lane is 50 fpm at all levels. [1-17b(1)(b)]

✓ 3. 100% of air is exhausted at or behind the bullet trap. [1-17b(1)(c)]

✓ 4. Make-up air is introduced into the range behind the shooters. [1-17b(1)(d)]

✓ 5. Air that is introduced through vents into the plenum does not exceed a velocity of 600 fpm. [1-17b(1)(e)]

✓ 6. Air exiting through holes in the plenum wall has a velocity between 400 and 600 fpm. [1-17b(1)(f)]

✓ 7. The ventilation system is so constructed that air exhausted from the indoor firing range does not enter into another part of the building or any other air supply system. [1-17b(1)(g)]

✓ 8. The exhaust exceeds the make-up air by approximately 10% to form a negative air pressure in the range in relation to adjoining areas. [1-17b(1)(h)]

NA 9. If air is recirculated in the range, it is installed with a HEPA filter with a reliable back-up filter. [29 CFR 1910.1025(e)(4)(ii)]

NA 10. If air is recirculated in the range, controls to monitor the concentration of Lead and Carbon Monoxide levels are installed and programmed to bypass the recirculation system automatically if the filter system fails.
[29 CFR 1910.1025(e)(4)(ii)]

✓ 11. The fan(s) in the ventilation system is a single speed fan only. [DG 415-1, App. A, 3-2a]

✓ 12. A smoke test of the range shows laminar air flow and no turbulence in the range. (See NG PAM 385-16, Appendix E for troubleshooting guidance) [1-18b(1)(k)]

✓ 13. In non-powered systems, the supply air louvers and exhaust fan are electrically interlocked. [1-17b(1)(l)]

NA 14. In power systems, the supply and exhaust fans are electrically interlocked. The make-up air fan should start slightly after the exhaust fan. [1-17b(1)(m)]

____ 15. Range air temperature is between 65 degrees and 80 degrees Fahrenheit. [1-17b(1)(n)]
Heater available 42° - heater does not work

B. New and Renovated Ranges

____ 1. A manometer is installed leading into the exhaust fan, which is capable of measuring at least 20 inches of static pressure.

____ 2. Supply and exhaust fans are electrically interlocked with the downrange lighting.

____ 3. The face velocity on supplied make-up and exhaust ducts does not exceed 2000 cfm per square foot of duct space.

____ 4. Passive supply systems have opposing blade louvers.

____ 5. Turning vanes are installed in all duct elbows, which have between 60° and 90° angles.

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May, 2018
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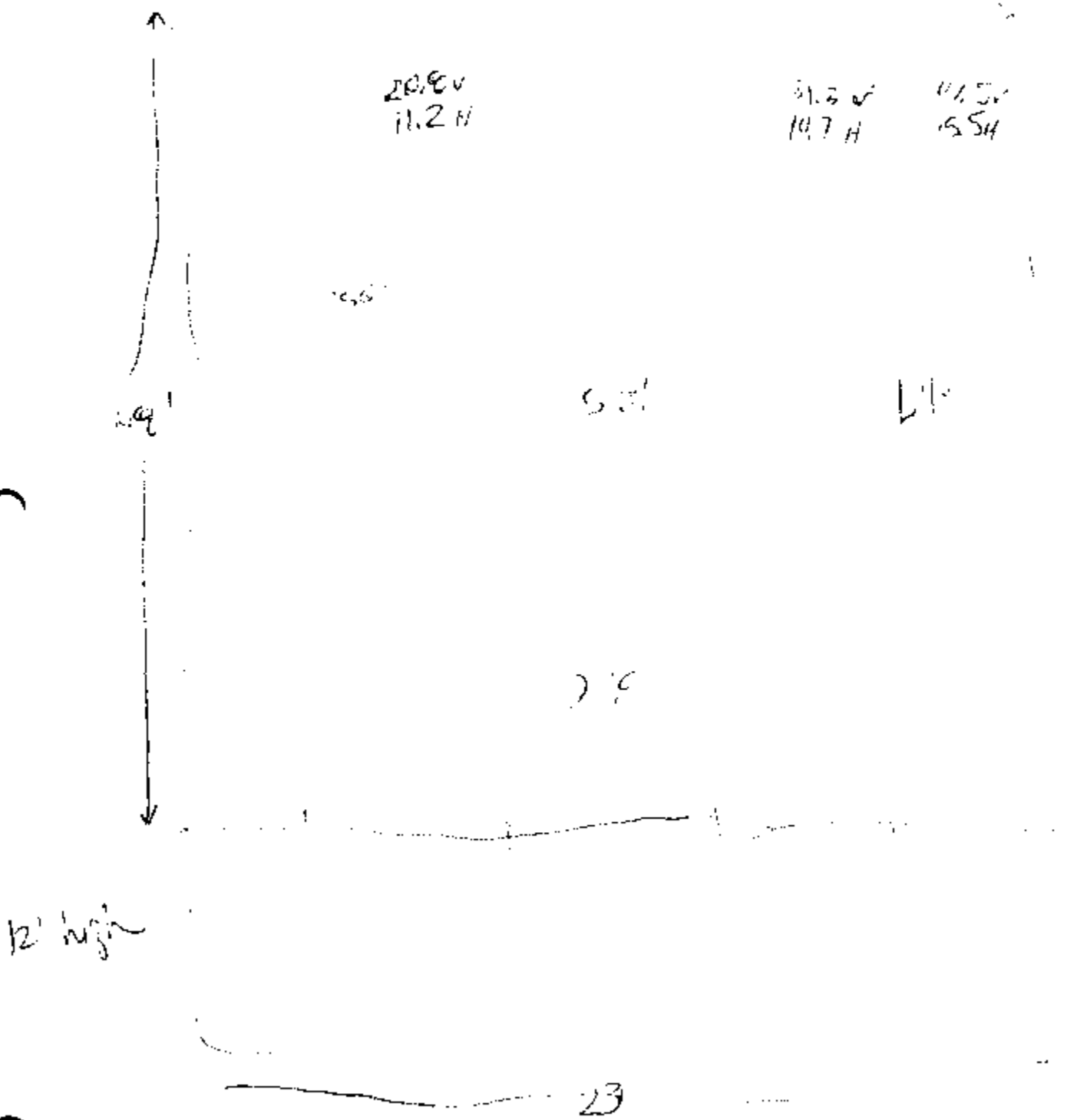
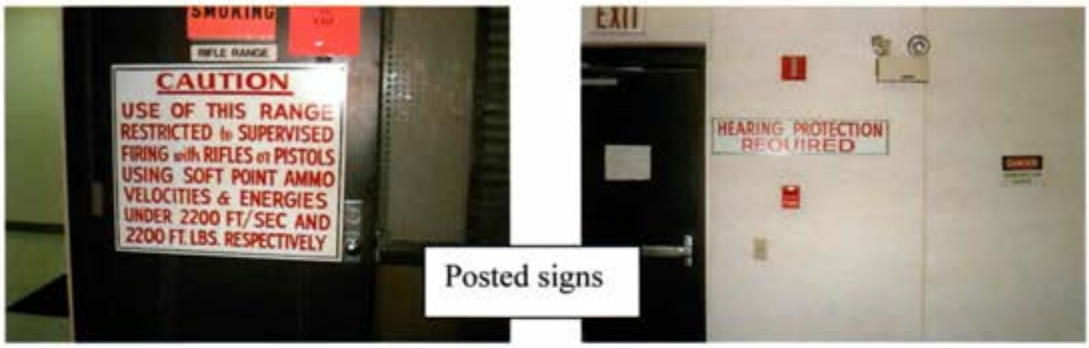
FOIA Requested Record #J-15-0085(TN)
Released by National Guard Bureau
Page 893 of 2531

Hohenwald



Hohenwald Indoor Firing Range



Firing lanes

Bullet stop

Downrange

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APPENDIX D

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 898 of 2531

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Table D-1
Ventilation Measurements
Indoor Firing Range Lanes

Lane 1			Average Velocity	Lane 2			Average Velocity	Lane 3			Average Velocity	Lane 4			Average Velocity	Lane 5			Average Velocity
158	82	55	98	41	63	72	59	109	125	113	116	127	134	69	110	50	64	77	64
141	106	41	96	77	67	86	77	129	160	172	154	101	102	62	88	66	83	91	80
164	124	118	135	105	117	85	102	143	163	166	157	147	146	133	142	173	128	130	144
110 FPM				79 FPM				142 FPM				113 FPM				96 FPM			

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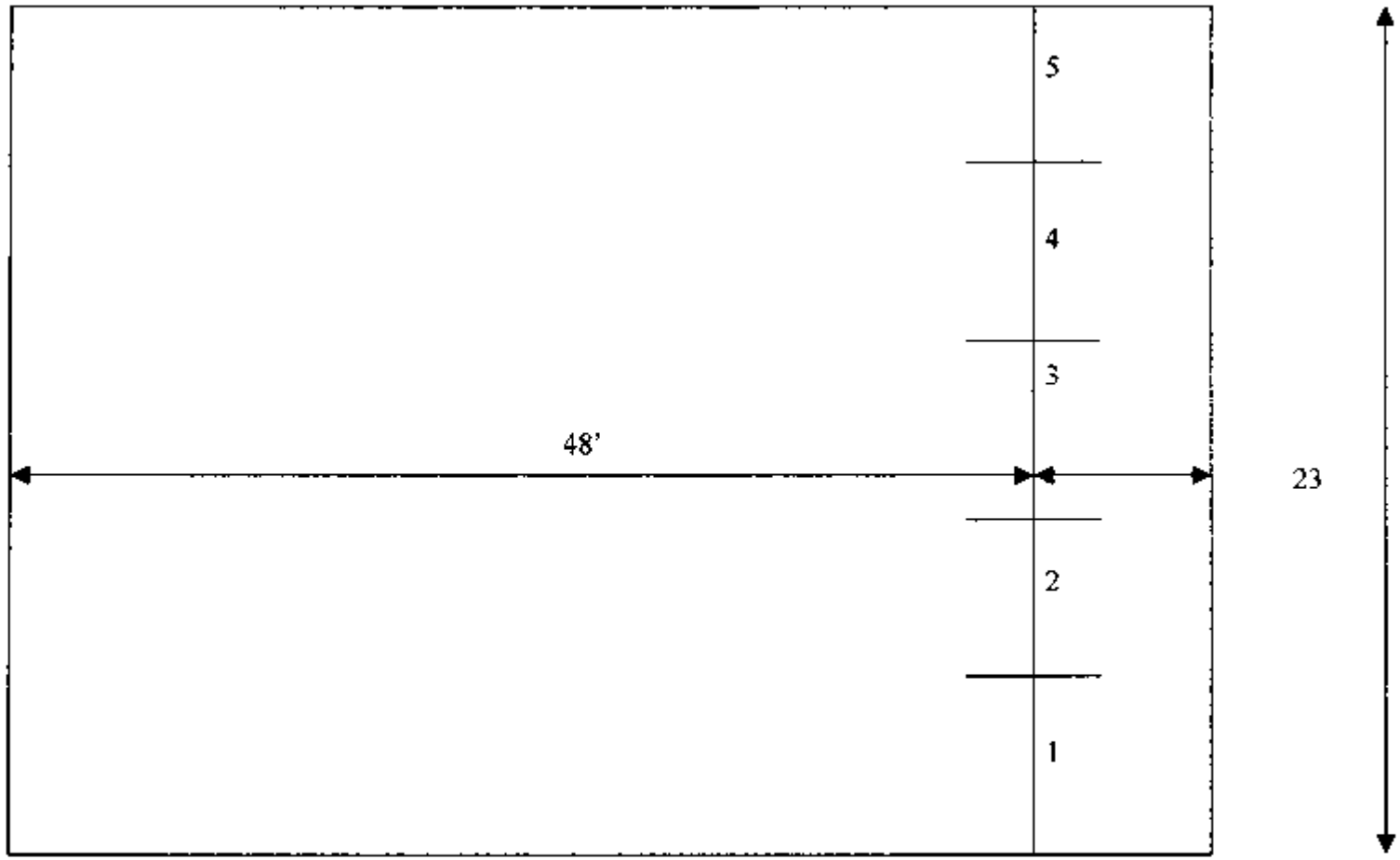

Figure D-1: Firing Range Dimensions and Lane Configuration

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FOIA Requested Record #J-15-0085 (TN)
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APPENDIX E

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FOIA Requested Record #J-15-0085 (TN)
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Page 901 of 2531

Table E-1
Personal and Area Air Sampling Results for Lead and Total Dust
Hohenwald Indoor Firing Range
Hohenwald, TN
29 NOV 2000

Sample # Type	Contaminant	Sampling Time in Minutes	Result mg/m^3	OSHA PEL-TWA	NIOSH REL-TWA	ACGIH TLV-TWA	ANG OEL
H1 Personal	Lead in Air	39	0.013	0.05	0.09	0.05	0.03
	Total Dust		1.4	15	15	15	15
H2 Area	Lead in Air	132	<0.0038	0.05	0.09	0.05	0.03
	Total Dust		0.68	15	15	15	15
H3 Personal	Lead in Air	39	0.056	0.05	0.09	0.05	0.03
	Total Dust		<1.3	15	15	15	15
H4 Personal	Lead in Air	40	<0.012	0.05	0.09	0.05	0.03
	Total Dust		<1.3	15	15	15	15
H5 Area	Lead in Air	135	<0.0037	0.05	0.09	0.05	0.03
	Total Dust		<0.37	15	15	15	15
H6 Personal	Lead in Air	39	0.06	0.05	0.09	0.05	0.03
	Total Dust		<1.3	15	15	15	15
H7 Personal	Lead in Air	39	<0.013	0.05	0.09	0.05	0.03
	Total Dust		<1.3	15	15	15	15
HB Field Blank	Lead in Air	N/A	<1.0 microgram				
	Total Dust		<100 microgram				

Notes:
mg/m^3 = Milligrams per cubic meter
OSHA PEL = Occupational Safety and Health Administration Permissible Exposure Limit (1989 PEL Values)
NIOSH REL = National Institute of Occupational Safety and Health Recommended Exposure Level
ACGIH TLV = American Conference of Governmental Industrial Hygienists Threshold Limit Value
ANG-OEL =National Guard Bureau Occupational Exposure Limit
TWA = Time Weighted Average, [C] means a Ceilmg Value
STEL = Short Term Exposure Limit
LFC Lowest Feasible Concentration
All Limits are in milligram per meter cube

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May, 2018

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ng-Grove, IL 60049-0075
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x ( ) 320-4331
ll Free (888) 576-7522

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Hovenwald

REPORT DATE DEC 27, 2000
SAMPLES REC'D DEC 19, 2000
REQUEST NUMBER 358460
PAGE NUMBER 4 OF 21

TO: Non-Responsive

H1-H6

SAMPLE	AIR VOLUME / ANALYSIS REQUESTED	MEDIA TYPE / RESULTS	
	78 Liters	**37mm 0.8 Micron Matched Mixed Cellulose Ester Filter**	
		micrograms	mg/m3
	LEAD IN AIR	1.0	0.013
	TOTAL DUST	110	1.4
	263 Liters	**37mm 0.8 Micron Matched Mixed Cellulose Ester Filter**	
		micrograms	mg/m3
	LEAD IN AIR	< 1.0	< 0.0038
	TOTAL DUST	180	0.68
	78 Liters	**37mm 0.8 Micron Matched Mixed Cellulose Ester Filter**	
		micrograms	mg/m3
	LEAD IN AIR	4.4	0.056
	TOTAL DUST	< 100	< 1.3
	80 Liters	**37mm 0.8 Micron Matched Mixed Cellulose Ester Filter**	
		micrograms	mg/m3
	LEAD IN AIR	< 1.0	< 0.012
	TOTAL DUST	< 100	< 1.3

MMENTS:

PRESENT, DE MEANS DESORPTION EFFICIENCY

spectfully submitted,

Non-Responsive

USTRIAL HYGIENE ASSOCIATION

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REPORT DATE DEC 27, 2000
SAMPLES REC'D DEC 19, 2000
REQUEST NUMBER 358460
PAGE NUMBER 5 OF 21

TO: Non-Responsive [redacted]

SAMPLE	AIR VOLUME / ANALYSIS REQUESTED	MEDIA TYPE / RESULTS	
	270 Liters	**37mm 0.8 Micron Matched Mixed Cellulose Ester Filter**	
		micrograms	mg/m3
	LEAD IN AIR	< 1.0	< 0.0037
	TOTAL DUST	< 100	< 0.37
	78 Liters	**37mm 0.8 Micron Matched Mixed Cellulose Ester Filter**	
		micrograms	mg/m3
	LEAD IN AIR	4.7	0.06
	TOTAL DUST	< 100	< 1.3
	78 Liters	**37mm 0.8 Micron Matched Mixed Cellulose Ester Filter**	
		micrograms	mg/m3
	LEAD IN AIR	< 1.0	< 0.013
	TOTAL DUST	< 100	< 1.3

MMENTS:

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spectfully submitted,

Non-Responsive [redacted]

[redacted]DUSTRIAL HYGIENE ASSOCIATION

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ll Free (888) 576-7522

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REPORT DATE DEC 27, 2000
SAMPLES REC'D DEC 19, 2000
REQUEST NUMBER 358460
PAGE NUMBER 6 OF 21

TO: Non-Responsive [redacted]

SAMPLE	AIR VOLUME / ANALYSIS REQUESTED	MEDIA TYPE / RESULTS
		37mm 0.8 Micron Matched Mixed Cellulose Ester Filter
		micrograms
	LEAD IN AIR (BLANK)	< 1.0
		SUBTRACTED
	TOTAL DUST (BLANK)	< 100
		AVERAGED AND SUBTRACTED.

MMENTS:

PRESENT, DE MEANS DESORPTION EFFICIENCY

spectfully submitted,

Non-Responsive [redacted]

CCREDITED BY THE AMERICAN INDUSTRIAL HYGIENE ASSOCIATION

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APPENDIX F

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INDUSTRIAL HYGIENE
SAMPLING RESULT NOTIFICATION SHEET

DATA REQUIRED BY THE PRIVACY ACT

AUTHORITY: Sections 133, 1071 87, 3012, 5031, and 8012, title 10, United States Code, Executive Order 9397 and AR 40 5.

PRINCIPAL PURPOSE: The Social Security Number of the individual is required to identify, record, and retrieve occupational medical surveillance records.

ROUTINE USE: The primary use of this information is to provide, plan, and coordinate occupational health medical surveillance and care.

DISCLOSURE: In the case of military personnel and Federal employees, the requested information is mandatory because of the need to document all occupational injuries and illnesses in view of future rights and benefits. If the requested information is not furnished comprehensive medical surveillance may not be possible, but AUTHORIZED CARE WILL NOT BE DENIED.

NAME:	SOCIAL SECURITY NO.:	OPERATION:	BLDG:	DIRECTORATE/COLLOCATED ACTV
Non-Responsive		Weapons Firing	Howenwald Indoor Firing Range	

Air sampling took place on November 30, 2000 to determine workplace exposure to:

SUBSTANCE	PERMISSIBLE EXPOSURE LIMIT	YOUR RESULTS	EXP CATEGORY (See Below)
1. Lead	0.050 mg/m3 (OSHA)	<0.001 mg/m3	1
2.			
3.			
4.			
5.			
6.			

EXPOSURE CATEGORY

1. Airborne levels are below permissible limits; no work changes necessary.
2. Airborne levels are close to permissible limits: additional sampling necessary; temporary use of respiratory protection during this operation.
3. Airborne levels are above permissible limits and the following actions are indicated (where feasible) to prevent overexposure:
   a. Ventilation system improvements required (general and/or local exhaust).
   b. Engineering controls required.
   c. Employee work practices need improvement.
   d. Improve housekeeping.
   e. Personal protective equipment mandatory until exposure is below permissible limits.

COMMENTS:

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INDUSTRIAL HYGIENE
SAMPLING RESULT NOTIFICATION SHEET

DATA REQUIRED BY THE PRIVACY ACT

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NAME:	SOCIAL SECURITY NO.:	OPERATION:	BLDG:	DIRECTORATE/COLLOCATED ACTV:
Non-Responsive		Weapons Firing	Howenwald	Indoor Firing Range

Air sampling took place on November 30, 2000 to determine workplace exposure to:

SUBSTANCE	PERMISSIBLE EXPOSURE LIMIT	YOUR RESULTS	EXP CATEGORY (See Below)
1. Lead	0.050 mg/m3 (OSHA)	0.005 mg/m3	1
2.			
3.			
4.			
5.			
6.			

EXPOSURE CATEGORY

1. Airborne levels are below permissible limits; no work changes necessary.
2. Airborne levels are close to permissible limits; additional sampling necessary; temporary use of respiratory protection during this operation.
3. Airborne levels are above permissible limits and the following actions are indicated (where feasible) to prevent overexposure:
   a. Ventilation system improvements required (general and/or local exhaust).
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NAME:	SOCIAL SECURITY NO.:	OPERATION:	BLDG:	DIRECTORATE/COLLOCATED ACTV:
Non-Responsive		Weapons Firing	Howenwald	Indoor Firing Range

Air sampling took place on November 30, 2000 to determine workplace exposure to:

SUBSTANCE	PERMISSIBLE EXPOSURE LIMIT	YOUR RESULTS	EXP CATEGORY (See Below)
1. Lead	0.050 mg/m3 (OSHA)	0.005 mg/m3	1
2.			
3.			
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6.			

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NAME:	SOCIAL SECURITY NO.:	OPERATION:	BLDG:	DIRECTORATE/COLLOCATED ACTV:
Non-Responsive		Weapons Firing	Howenwald	Indoor Firing Range

Air sampling took place on _____ to determine workplace exposure to:

SUBSTANCE	PERMISSIBLE EXPOSURE LIMIT	YOUR RESULTS	EXP CATEGORY (See Below)
1. Lead	0.050 mg/m3 (OSHA)	<0.001 mg/m3	1
2.			
3.			
4.			
5.			
6.			

EXPOSURE CATEGORY

1. Airborne levels are below permissible limits; no work changes necessary.
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COMMENTS:

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INDUSTRIAL HYGIENE
SAMPLING RESULT NOTIFICATION SHEET

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NAME:	SOCIAL SECURITY NO.	OPERATION:	BLDG:	DIRECTORATE/COLLOCATED ACTV.
Non-Responsive		Weapons Firing	Howenwald	Indoor Firing Range

Air sampling took place on November 30, 2000 to determine workplace exposure to:

SUBSTANCE	PERMISSIBLE EXPOSURE LIMIT	YOUR RESULTS	EXP CATEGORY (See Below)
1. Lead	0.050 mg/m3 (OSHA)	0.001 mg/m3	1
2.			
3.			
4.			
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EXPOSURE CATEGORY

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   b. Engineering controls required.
   c. Employee work practices need improvement.
   d. Improve housekeeping.
   e. Personal protective equipment mandatory until exposure is below permissible limits.

COMMENTS:

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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-AVN-SI

February 7, 2005

MEMORANDUM FOR: The Adjutant General of Tennessee, ATTN: [redacted] Non-Responsive State Occupational Health Office, 3041 Sidco Dr, P O Box 41502, Nashville, TN 37204-1502.

SUBJECT: Transmittal of Survey Reports for the ARNG Lawrenceburg Armory, the Hohenwald Armory, the Waynesboro Armory, the Savannah Armory, and the Selmer Armory in TN.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, 30 August 1986, Medical Service, Preventive Medicine.

c. National Guard Regulation (NGR) 385-10, 1988, Army National Guard Safety and Occupational Health Program.

d. AR 11-34, The Army Respiratory Protection Program, 15 February 1990.

e. TB MED 502, Occupational and Environmental Health Respiratory Protection Program, February 1982.

f. DA PAM 40-503, 30 October 2000, The Army Industrial Hygiene Program.

g. DA PAM 40-501, 10 December 1998, Hearing Conservation.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2001, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

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j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

k. Title 29, Code of Federal Regulations (CFR), 2000 rev., part 1910, Occupational Safety and Health Standards.

l. Reports dated 27-30 November, and 7 December-26 January 2004, Industrial Hygiene Technician, 1503 Zaiger Drive,Colorado Springs, CO 80915

2. General.

a. At the request of the TNARNG Safety and Occupational Health Office, an Industrial Hygiene Service was put together to conduct Health Hazard Information module (HHIM) Field surveys and industrial hygiene sampling of the ARNG Lawrenceburg Armory, the Hohenwald Armory, the Waynesboro Armory, the Savannah Armory, and the Selmer Armory in TN.

b. Non-Responsive Industrial Hygiene Technician, 1503 Zaiger Drive,Colorado Springs, CO 80915 conducted the surveys.

3. Findings. All HHIM field survey forms and survey findings of the reports. (See enclosure 1)

4. Recommendations.

a. Follow all recommendations made in reference 1.l., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Control water infiltration in the armory and/or replace or repair damaged surfaces or components (ceiling and floor tiles). Building conditions that present IAQ concerns or problems not only exacerbates normally minor health issues but also tend to promote or accelerate building deterioration.

c. The recommendations given in the comment section of the HHIM data sheets and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-05. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-06 IHIP.

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d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present survey, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

f. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

5. If additional information is needed about the industrial hygiene survey or air sample

Non-Responsive

[redacted]

CF:
NBG-AVN-SH

Encl
as

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Industrial Hygiene Report
For
Tennessee Army National Guard
Det 1, 771st Maintenance Company
1177 West Main Street
Hohenwald, TN 38462

Prepared for:
Department of the Army and Air Force
National Guard Bureau Regional
Industrial Hygiene Office
510 Plaza Drive
Suite 1530
College Park, GA 30349

By:
DBA: Non-Responsive

November 28, 2004

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
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Table of Contents

Subject ..... Page 1

Background ..... Page 1
- Introduction
- Site Description
- Scope of Work
- POC

Instrumentation ..... Page 1

Findings
- MSDS ..... Page 1
- Lead Wipe Results ..... Page 2
- Drill Hall ..... Page 2
- Indoor Firing Range ..... Page 2
- Kitchen ..... Page 3
- Mechanical Room, Mold Sample ..... Page 3
- Area Deficiencies ..... Page 3

ILLUMINATION SURVEY RESULTS
- Illumination ..... Page 4

Recommendations
- MSDS's ..... Enclosure 10
- Lead Cleanup Procedures ..... Enclosure 10
- Mold Cleanup Procedures ..... Enclosure 10
- Area Lighting ..... Enclosure 10
- Fire Extinguishers ..... Enclosure 10
- Restrooms ..... Enclosure 10

Enclosures
1. Health Hazard Information Module (HHIM) Survey Form
2. Analytical Lead & Mold Results/Submission Forms
3. Personnel Roster
4. Armory Building Floor Plan
5. Hazard Communication Sample Written Program
6. Hazardous Material Inventory List
7. Lead Cleanup Procedures
8. Mold Cleanup Procedures
9. References
10. Recommendations
11. Pictures: 1-11
12. Pictures: Lead Wipe Samples: M04579-M04602

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November 27, 2004

MEMORANDUM FOR: Tennessee Army National Guard, Attn: Non-Responsive Readiness NCO, 1177 West Main Street, Hohenwald, Tennessee 38462

SUBJECT: Industrial Hygiene Consultation and Health Hazard Information Module (HHIM) Survey, Hohenwald Army National Guard, Hohenwald, Tennessee

1. BACKGROUND: At the request of Non-Responsive National Guard Bureau Regional Industrial Hygienist, an Industrial Hygiene Consultation and Health Hazard Information Module Field Survey were performed at the Hohenwald Army National Guard Armory, Hohenwald, Tennessee on November 17, 2004. The POC was Non-Responsive His address was Det 1, 771st Maintenance Company, 1177 West Main Street, Hohenwald, Tennessee 38462. The facility was built in 1988. The purpose of the survey was to perform lead wipe samples; a noise survey, a ventilation survey, an Illuminations survey, and complete HHIM field survey forms on all industrial operations at the facility (See encl.1 for completed HHIM Survey Form).

2. INSTRUMENTATION: The following survey instrumentation was provided by the contractor and was used to obtain lead wipe dust samples and illumination measurements. All other instrumentation was operated according to manufacture recommendations.

a) Sper Scientific 840021, Light Meter, S/N: 02997, calibrated: 1-15-04
b) Ghost Lead Dust Wipes, Manufactured: December 1, 2003, Expiration: 06/06
c) TSI Velocicalc 8346, S/N: 00040107, calibrated: 01-12-04
d) Quest Model 2700, Sound Level Meter, S/N: HUC030020, calibrated: 4/28/04
e) Quest QC-10/QC-20, Acoustic Calibrator, S/N: Q10080144, calibrated: 6/16/04
f) Circuit Tester

3. Findings:

a) Detachment 1, 771st Maintenance Company:

i) Sixty-five M-Day soldiers were assigned to the unit. The company was a light rolling stock unit that was responsible for sending out a contact team to repair a broken down vehicle. If they could not fix the problem then a wrecker was called in to tow it back to OMS No.10 in Columbia. The company consisted of general mechanics, HVAC technicians, Comsec technicians; small arms repair technicians, and light wheel mechanics.

ii) The administration area was responsible to the battery in the area of readiness and personnel support such as pay, assignments, training, promotions, family support and schools. Soldiers were smoking in the area.

iii) Material Safety Data Sheets (MSDS) were readily available on all cleaning chemicals and hazards used in the facility. An update HAZCOM SOP was included in the report. There was no listing of chemicals in the binder. All employees must be initially trained in the Federal Hazardous Communication Program IAW 1910.1200.

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iv) Nineteen lead dust wipe samples were taken, using a 10 inch by 10 inch template. Eighteen samples were above the federal standard of 40μg/ft². Thirteen samples were above the Army National Guard standard of 200μg/ft². Pictures of the lead sample wipes were taken (See encl.12, photo's M04632 to M04650). The analytical lead result sheet included the sampled locations and the results. Also, the sample submission sheets were enclosed in the report (See enclosure 2). The following table notes where the samples were taken, the surveyor's field number, and the lead results:

Location:	Surveyor's Field No:	Results:
East End Floor, Old IFR	M04632	3700 μg/ft²
West End Floor, Old IFR	M04633	6800 μg/ft²
North End Floor, Near Backstop Old IFR	M04634	7900 μg/ft²
Collapsible Shelf, Old IFR	M04635	1300 μg/ft²
Plenum Floor, Old IFR	M04636	6900 μg/ft²
Service Section Floor (Break Room)	M04637	12000 μg/ft²
Metal Shelf, Service Section (Break Room)	M04638	9200 μg/ft²
Under Chair, Maint. Closet, Next to Drill Hall	M04639	33 μg/ft²
Vent Surface Screen, Classroom	M04640	550 μg/ft²
Vacuum Surface, Maintenance Closet	M04641	230 μg/ft²
Vault Floor, Next to Supply Room	M04642	1300 μg/ft²
Wooden Shelf, Supply Room	M04643	92 μg/ft²
Under Chair, Drill Hall	M04644	290 μg/ft²
Drill Hall Floor	M04645	71 μg/ft²
X-mas Tree Stand Surface, Storage Room	M04646	350 μg/ft²
Counter Shelf, Supply Room	M04647	260 μg/ft²
Kitchen Storage Shelf	M04648	66 μg/ft²
Shelf, Recruiter Office	M04649	40 μg/ft²
Carpet, Classroom	M04650	140 μg/ft²

Note 1: IFR refers to Indoor Firing Range
Note 2: μg/ft² refers to micrograms or one millionth of a gram per square foot
BDL: Below Detection Level

v) Drill Hall: Conducting drill and ceremonies in the large hall was its main purpose (see encl 11, photo1). There were only six halogen ceiling lamps illuminating the assembly area. Illumination levels ranged from 9 to 22 FC's.

vi) Old Indoor Firing Range: Five lamps and two fluorescent tubes were burned out. Illumination levels ranged from 1 to 13 FC's (see encl 11, photo 2). A warning was posted on door stating: "Unsafe and Unhealthy Working Conditions." (see encl 11, photo 3).

vii) Supply Room: The supply area or equipment storage room could hold TA-50, tents, support systems; M16A2's, M40 masks and basic class 7 and 8 items (see encl 11, photo 4). Six fluorescent ceiling tubes were burned out. Safety signs were posted near the flammable storage cabinet (see encl 11, photo 5 & 6). Illumination levels ranged from 2 to 31 FC's.

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viii) Boiler Room: Natural gas boilers were in the room. Two fluorescent ceiling tubes were burned out. The cinder block wall was wet, due to leak in roof. Illumination levels ranged from 4-29 FC's.

ix) Men's Restroom/Locker Area: The ceiling sheet rock had an opening due to an old roof leak (see encl 11, photo 7). The roof was repaired and the ceiling will eventually be replaced with sheet rock. Three fluorescent tubes were out. A flammable storage cabinet was in the locker room. Illumination levels ranged from 5 to 14 FC's.

x) Women's Restroom: Two fluorescent tubes were burned out. An "Out of Order" sign was placed on a toilet door. A work order was called in to fix it. Illumination levels ranged from 2 to 23 FC's.

xi) Restroom, next to Old Indoor Range: One bulb was burned out. Illumination levels ranged from 4-5 FC's.

xii) Kitchen: The grease trap, which looked like it hadn't been clean in awhile, was located outside of the kitchen area (see encl 11, photo 8). A contractor would break up the grease, vacuum out the grease contents and then spray it with a bacterial agent. Two fluorescent tubes were out in the wash room and two fluorescent tubes were out in the pantry. Illumination levels ranged from 23 to 87 FC's.

xiii) MST 4 Office: Four tubes were burned out. Shelving was detached from the wall (see encl 10, photo 9). Illumination levels ranged from 27 to 30 FC's.

xiv) Recruiter's Office: Four fluorescent tubes were burned out.

xv) Break Room: One fluorescent tube was out. Illumination levels ranged from 13-18 FC's.

xvi) Oil Room: Explosion proof lighting was in the room. One bulb was burned out.

xvii) Mechanical Room, Next to Classroom: A mold sample was taken from the furnace support unit (see encl 11, photo 10). The furnace units were dusty. The analytical mold result sheet included the sampled location and the result. Also, the sample submission sheets were enclosed in the report (See enclosure 2). The following table notes where the sample was taken, the surveyor's field number, and the mold result:

Area	Material Sampled	Field Number	Results
Furnace Room	Cloth	M04652	Stachybotrys 75-100%

xviii) Wash Rack: An oil water separator was near the wash rack (see encl 10, photo 11). It had recently been cleaned out (see encl 11, photo 12)

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xix) Due to the low noise levels (administrative areas) there was no requirement for a Hearing Conservation Program.

xx) Physical exams were performed in Lavinia.

xxi) A listing of Hohenwald Armory personnel was shown in encl. 3.

xxii) A building floor plan was attached as encl. 4.

xxiii) A Sample HAZCOM SOP was attached as encl. 5.

4. ILLUMINATION SURVEY RESULTS:

a) Illumination Levels: The following additional illumination level readings were taken during the survey and are reported below in foot candles (FC's).

AREA/LOCATION	FOOT CANDLES (FC)
Administration Area	36-58
Chaplin's Office	90-281
Drill Hall, Garage Door Closed	9-22
Kitchen Area	23-87
Kitchen Pantry	17-18
Retention Office	52-144
Supply Area/Equipment Storage	2-23
Vault, Supply Area	21-23
Publications/Tech Room	99-182
Classroom	40-180
Old Indoor Firing Range	1-19
Mechanical Closets	11-36
Exercise Room	50-71
Men's Restroom	5-14
Men's Locker Room	8-46
Boiler Room	18-23
Oil Room	30-32
GSE Office	50-53
MST Office	37-44

As indicated in the IES Lighting Handbook, Application Volume 1987, Offices: 20-50 FC's, Supply and Publication Areas: 20-50 FC's, Assembly 20-50 FC's, Restrooms: 5-10 FC's, Classrooms: 50-100 FC's, Kitchen: 20-50 FC's, FC's, Library: 50-100 FC's, Storage Rooms: 10-20 FC's, Mail Room: 20-50 FC's.

5. Recommendations: See enclosure 10

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6. TECHNICAL ASSISTANCE:

POC for further assistance concerning this evaluation is Non-Responsive [redacted]

CF:
Occupational Health Office
ATTN: Non-Responsive [redacted] TNANG,NC
Tennessee Army National Guard
AGTN-SAHO
Houston Barracks
3041 Sidco Drive
Nashville, TN 37204-1501

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Enclosure 1

HEALTH HAZARD INFORMATION MODULE FIELD SURVEY

*SEE PRIVACY ACT STATEMENT ON REVERSE.
(For use of this form, see IOHDR User's Instructions.)

SECTION 1. DEMOGRAPHIC DATA

a. ARLOC 47000 b. INSTALLATION TN NAT GUARD c. BLDG/RM NUMBER ARMORY HOHENWALD, TN
d. LOCATION/CODE AD 1 e. OPERATION/CODE AOD 1 f. DESCRIPTION DETACHMENT 1 771 MAINTENANCE COMPANY WAS RESPONSIBLE FOR TRAINING, SCHOOLS, PROMOTIONS, ASSIGNMENTS, FAMILY SUPPORT, AND SUPPLIES FOR 65 M-DAY TROOPS.
g. MACOM/CODE NG 1 [redacted]/CODE XX 1 i. SUPERVISOR [redacted]
j. TELEPHONE/AUTOVON NUMBER [redacted] k. RAC 3 l. FREQUENCY (Hrs Per Day) 9 HRS/DAY
m. NO CIV(S) ____ n. NO MIL 1 o. NO CONTRACTOR(S) ____ p. NO LOC(S) ____ q. NO OTHER ____

SECTION 2. IH STAFFING DATA

a. LAB HOODS 0 b. VAPOR DEGREASERS 0 c. MAINTENANCE BAYS 0 d. SPRAY BOOTHS 0
e. OPEN SURFACE TANKS 0 f. VENTILATION UNITS 0

SECTION 3. SURVEY DATA

a. SURVEY DATE 11-17-04 b. EVALUATOR (INITIALS) [redacted]

c. CONTROLS PRESENT	d. EVALUATION	e. UNIT CODE	f. CONTROLS REQUIRED	g. STATUS
OTH (DRILL HALL)	9-22 FC'S INSUFFICIENT	FTC	30 FTC'S	RECMD
ATH (SUPPLY AREA)	2-31 FC'S INSUFFICIENT	FTC	30 FTC'S	RECMD

h. PERSONAL PROTECTIVE EQUIPMENT (R=REQUIRED; A=AVAILABLE)

1. RESPIRATOR	MANUFACTURER	NIOSH TC NO	R/A
DISPOSABLE			
½ FACE AIR PURIFYING			/
½ FACE AIR PURIFYING -			/
FULL FACE AIR PURIFYING			/
POWERED AIR PURIFYING			/
AIRLINE			/
SELF-CONTAINED			/
ABRASIVE BLASTING HOOD			/

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	R/A
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	/
OIL	/	SAFETY/IMPACT	/	EARPLUGS	/	COVERALLS	/	IMPERMEABLE BOOTS	/
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	/
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/ HARNESS	/	SAFETY/NONCONDUCTIVE SHOES	/
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/					BDU'S	X/X		

SECTION 4. HAZARD INVENTORY DATA

a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC or EPC	d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO)
7439-92-1	LEAD, INORGANIC DUSTS + FUMES, AS PB	2B	YES

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SECTION 5 PERSONNEL

a. LAST NAME	b. FIRST NAME				d. CATEGORY
[redacted]					AGR

SECTION 6 COMMENTS (Add blank sheet of paper if necessary)

- DET 1, 771ST DIRECT SUPPORT MAINTENANCE COMPANY WAS A NON-DIVISIONAL UNIT THAT SENT OUT CONTACT TEAMS. THEY WERE THE 1ST RESPONDERS; IF COULDN'T FIX, A WRECKER WAS DISPATCHED WHERE THE VEHICLE WAS TOWED TO OMS No. 10 IN COLUMBIA.
- THE CONTACT TEAM WOULD SUBMIT WORK ORDERS ON DEAD LINED VEHICLES. THE UNIT CONSISTED OF GENERAL MECHANICS, HVAC MECHANICS, COMSEC MECHANICS, SMALL ARMS REPAIR MECHANICS, + LIGHT WHEEL MECHANICS. ALL WERE CATEGORIZED AS LIGHT ROLLING STOCK.
- THE POL STORAGE ROOM— TRANSMISSION FLUID, ENGINE OIL, BRAKE FLUID, ANTI-FREEZE, FUEL.

  VEHICLES WERE ALWAYS TOPPED OFF WITH FLUIDS TO PREVENT ANY SMALL QUANITIES FROM SITTING AROUND.
- AEROSOL PAINTS WERE USED TO TOUCH UP NUMBERS ON BUMPERS. WORK WAS PERFORMED OUTSIDE.
- 12 EAR MUFFS WERE MISSING
- THREE, PARTS WASHERS WERE NOT IN USED.
- CONTRACTORS CLEANED THE SEDIMENT/WASTE FROM THE OIL/WATER SEPARATO
- ONE TIRE CAGE; OUTSIDE GREASE TRAP (KITCHEN) WAS CLEANED OUT BY CONTRACTOR. (BREAKS UP, SUCKS OUT, SPRAYS & BACTERIAL AGENT
- VEHICLES STORED ON SITE INCLUDED HUMVEES, M818'S (5 TONS), M35A2'S (2½ TONS), HEMET'S, 5, 10, 15, + 30 KW GENERATORS.

PRIVACY ACT STATEMENT

Title 6 U.S. Code, Section 301; Executive Order #397 authorizes the use of your Social Security Number as a identification number. The purpose of this information is to identify and monitor data relating each DA civilian employee exposed to a hazardous workplace or operation. The use of this information is to provide histories of exposure for any given worker.

Disclosure of your Social Security Number is not mandatory; however, [illegible] result in [illegible]

Signature

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau

DATA CHEM LABORATORIES, INC.

Submitted To: Non-Responsive [redacted]
Colorado Springs, CO 80915

Reference Data:	**Lead**
Client Sample No.:	M04632 through M04651
P.O. No.:	BPA: W912JM-04-A-0007
Sample Location:	Hohenwald, TN Armory
Project No.:	2
Sample Type:	Ghost Wipe
Method Reference:	3050B/6010B
DCL Set ID No.:	04-S-6045
DCL Sample ID No.:	04-33915 through 04-33934
Sample Receipt Date:	11/22/2004
Preparation Date:	11/24/04
Analysis Date:	11/30/04

The samples were prepared in accordance with EPA method 3050B. Sample condition was acceptable upon receipt except where noted. The samples were then analyzed in accordance with EPA method 6010B using a Perkin Elmer 3000XL (ICP) purged spectrometer.

The results are provided in the enclosed data table. Results relate only to the items tested and are not blank corrected unless indicated in the data table.

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Non-Responsive [redacted]

CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3706
513 733-5336, FAX 513 733-5347

WEST COAST OFFICE
11 SANTA YORMA COURT
NOVATO, CALIFORNIA 94945
800 260-6071, FAX 415 893-9469

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DATA CHEM LABORATORIES, INC.

ANALYTICAL REQUEST FORM

☑ **REGULAR** Status (5 working days from receipt)

☐ **RUSH** Status Required - ADDITIONAL CHARGE

RESULTS REQUIRED BY _____ DATE

CONTACT DATACHEM LABS PRIOR TO SENDING SAMPLES

Date 11-17-04 Purchase Order No. _____

Company Name [redacted]

Address 1503 ZAIGER DRIVE

COLORADO SPRINGS, CO 80915

City

Person to [redacted]

Telephone [redacted]

Fax Telep [redacted]

Quote No. _____

Sample Collection

Sampling Site Hohenwald, TN ARMORY, PROJ. No. 2

Industrial Process N/A

Date of Collection 11-17-04

Time Collected 07:30 a.m.

Date of Shipment 11-19-04

QC Requ [redacted]

Collector [redacted]

Signatur [redacted]

REQUEST FOR ANALYSES

Laboratory Use Only	Client Sample Number	Media Type	Sample Volume (Liters)	ANALYSES REQUESTED - Use Method Number If Known
33915	M04632	GHOST WIPE	NON-APPLICABLE	LEAD - EAST END FLOOR, OLD INDOOR RANGE
33916	M04633	"	"	LEAD - WEST END FLOOR, OLD INDOOR RANGE
33917	M04634	"	"	LEAD - NORTH END FLOOR, NEAR BACKSTOP, IFR
33918	M04635	"	"	LEAD - COLLAPSIBLE SHELF, OLD IFR
33919	M04636	"	"	LEAD - PLENUM FLOOR
33920	M04637	"	"	LEAD - SERVICE SECTION FLOOR (BREAK ROOM)
33921	M04638	"	"	LEAD - SERVICE SECTION, METAL SHELF (BREAK ROOM)
33922	M04639	"	"	LEAD - UNDER CHAIR, MAINT. CLOSET - NX DN
33923	M04640	"	"	LEAD - VENT SCREEN, CLASSROOM
33924	M04641	"	"	LEAD - SURFACE VACUUM, MAINT. CLOSET - NX TO CLASSRM
33925	M04642	"	"	LEAD - VAULT FLOOR, NEXT TO SUPPLY RM
33926	M04643	"	"	LEAD - SUPPLY RM WOODEN SHELF
33927	M04644	"	"	LEAD - UNDER CHAIR - DRILL HALL

CHAIN OF CUSTODY

		Date / Time
Relinquished (Signature) [redacted]		11/18/04 1353
Relinquished (Signature) [redacted]		Date / Time

4388 Glendale Milford Road / Cincinnati, OH 45242 • 800-458-1483 or 513-733-5336 / Fax: 513-733-5347

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DATA CHEM LABORATORIES, INC.

ANALYTICAL REQUEST FORM

☑ REGULAR Status (5 working days from receipt)

☐ RUSH Status Required - ADDITIONAL CHARGE
RESULTS REQUIRED BY _____ DATE
CONTACT DATACHEM LABS PRIOR TO SENDING SAMPLES

Date 11-17-04 [redacted] Non-Responsive
Company Name [redacted]
Address 15[redacted]
Colorado[redacted]15
City
Person to Contact [redacted]
Telephone (719[redacted]
Fax Telephone ([redacted]
Billing Address (if different from above)
[redacted] Non-Responsive
NATIONAL GUARD BUREAU SO. COLLEGE PARK, GEORGIA

Quote No. _____
Sample Collection
Sampling Site HOHENWALD, TN ARMORY PROJ. No. 2
Industrial Process N/A
Date of Collection 11-17-04
Time Collected 07:20 a.m.
Date of Shipment 11-19-04
QC Require[redacted]
Collector's [redacted] Non-Responsive
Signature [redacted]
04-SW-0045

REQUEST FOR ANALYSES

Laboratory Use Only	Client Sample Number	Media Type*	Sample Volume (Liters)	ANALYSES REQUESTED - Use Method Number if Known
33928	M04645	GHOST WIPE	10in x 10in	LEAD- DRILL HALL FLOOR
33929	M04646	"	"	LEAD- X-MAS TREE STAND SURFACE-STORAGE RM
33930	M04647	"	"	LEAD- COUNTER SHELF, SUPPLY ROOM
33931	M04648	"	"	LEAD- KITCHEN STORAGE SHELF
33932	M04649	"	"	LEAD- RECRUITER RM SHELF
33933	M04650	"	"	LEAD- CARPET, CLASS ROOM
33934	M04651	"		LEAD- BLANK
33935	M04652	PLASTIC BAG		MOLD- TAKEN FROM FURNACE SUPPORT MOUNT

CHAIN OF CUSTODY

Relinquished (Signature) [redacted] Non-Responsive		Date / Time 11/22/04 1253
Relinquished (Signature)		Date / Time

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Results
Lead

Client #	DCL #	Total Area (ft^2)	µg/Wipe	µg/ft^2
M04632	04-33915	0.694	2600.	3700.
M04633	04-33916	0.694	4700.	6800.
M04634	04-33917	0.694	5500.	7900.
M04635	04-33918	0.694	930.	1300.
M04636	04-33919	0.694	4800.	6900.
M04637	04-33920	0.694	8600.	12000.
M04638	04-33921	0.694	6400.	9200.
M04639	04-33922	0.694	23.	33.
M04640	04-33923	0.694	380.	550.
M04641	04-33924	0.694	160.	230.
M04642	04-33925	0.694	900.	1300.
M04643	04-33926	0.694	64.	92.
M04644	04-33927	0.694	200.	290.
M04645	04-33928	0.694	49.	71.
M04646	04-33929	0.694	240.	350.
M04647	04-33930	0.694	180.	260.
M04648	04-33931	0.694	46.	66.
M04649	04-33932	0.694	28.	40.
M04650	04-33933	0.694	100.	140.
M04651	04-33934	0	ND	-
	Prep Blank		ND	
% Recovery	LCS 1		89.	
% Recovery	LCS 2		89.	
RPL			10.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

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DATA CHEM LABORATORIES, INC.

TEST REPORT
Page 1 of 2
12/2/04

Submitted To: Non-Responsive

Reference Data:	Mold
Sample Location:	Hohenwald, TN Armory Project No. 2
Sample Type:	Bulk
Client Sample No.:	M04652
PO #:	Not Available
Method Reference:	DCL SOP Method MC-AN-005
Sample Set ID#:	04-W-6045
DATACHEM Lab No.:	04-33935
DATACHEM Sample Receipt Date:	11/22/04
Analysis Date:	12/1/04

Sample condition was acceptable upon receipt except where noted.

The sample is mounted on a supportive glass slide, which is then prepared for viewing by the use of appropriate microbiological stains.

DCL SOP Method MC-AN-005 is used to identify fungal spore types at the genus level and to quantify spore concentrations. This procedure does not provide an exact spore count. It does provide a visual estimation of identifiable contamination and individual spore concentrations within a visual field using plain light microscopy under 630x magnification. Individual spherical spores lacking any distinguishing characteristics may be grouped and classified under the category "Amerospores." Total fungal spore particulate concentrations include both viable and non-viable estimates.

The results are provided in the enclosed data table.

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These analyses were conducted at DataChem Laboratories, Salt Lake City, UT.

Non-Responsive

CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3706
513 733-6336, FAX 513 733-6347

WEST COAST OFFICE
11 SANTA YORMA COURT
NOVATO, CALIFORNIA 94945
800 280-8071, FAX 415 693-9469

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Data Table

Client #	**M04652**				
DCL #	**04-33935**				

Summary Results	**Percentage**				
Mycelial Fragments	5-25%				

	Spore Percentage				
Alternaria	ND				
Amerospores	ND				
Arthrinium	ND				
Ascospores	ND				
Aspergillium/Penicillium	ND				
Basidiospores	ND				
Bipolaris/Dreschlera	ND				
Chaetomium	ND				
Cladosporium	ND				
Curvularia	ND				
Hormonema spp.	ND				
Oidium/Peronospora	ND				
Paecilomyces	ND				
Pithomyces/Ulocladium	ND				
Rusts	ND				
Smuts/Myxomycetes	ND				
Stachybotrys	75-100%				
Stemphylium	ND				
Torula	ND				
Unidentified Conidia	ND				
Total Spore Percentage	**75-100%**				

Sample Calculation: Visual estimation of spore concentrations are based on background interference contamination and individual spore concentrations within a visual field. A total spore percentage versus the background interference concentration is presented in the data table. Individual percentages of various spore types are also provided, representing as a whole the total conidia percentage.

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[redacted]

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Enclosure 3

Hohenwald Armory
Hohenwald, TN

SUBJECT: Personnel Roster

NAME	RANK/TITLE	POSITION	UNIT ASSIGNED

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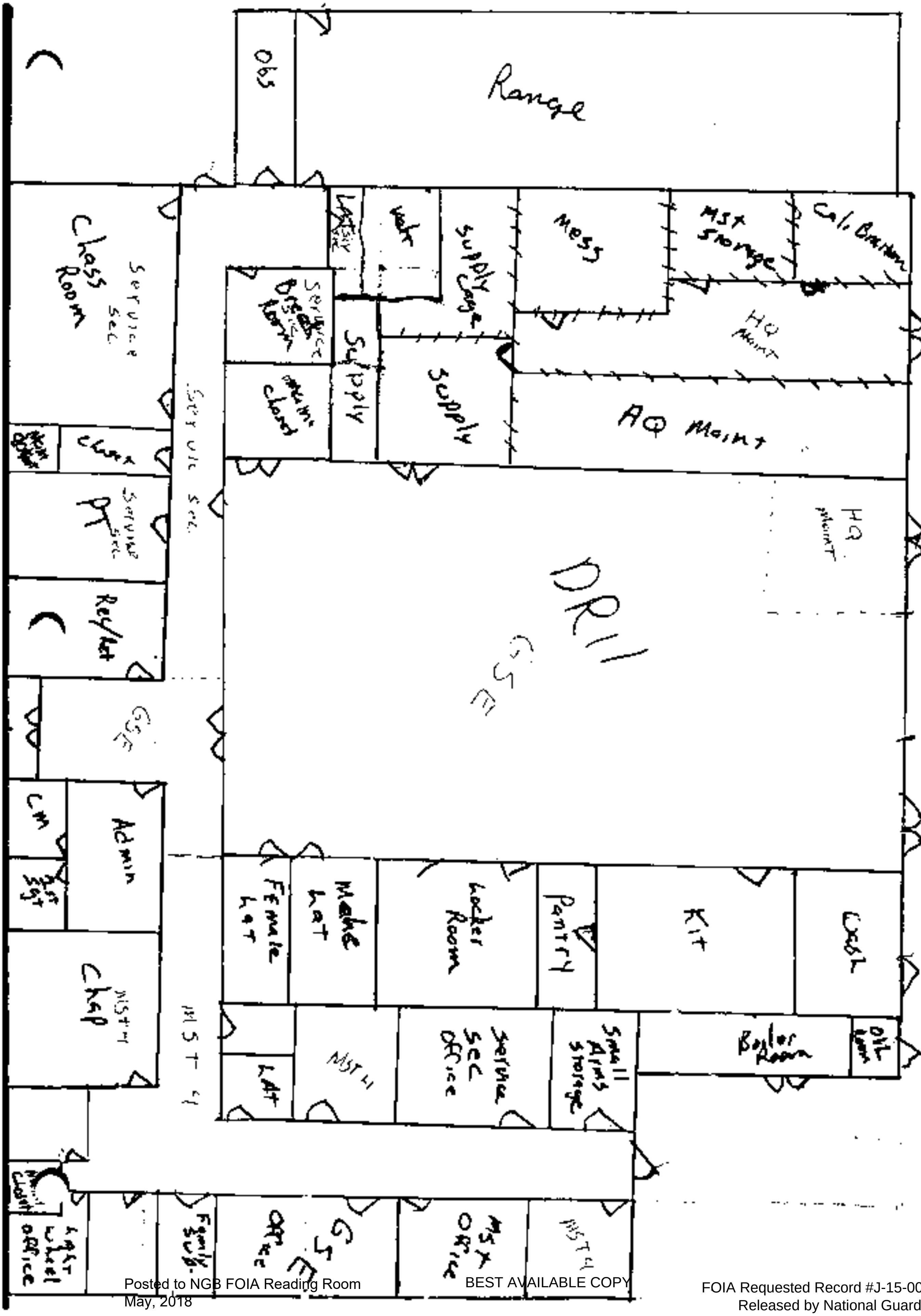
Enclosure 4



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Enclosure 5

HAZARD COMMUNICATION SAMPLE WRITTEN PROGRAM

NOTE: The written program must include the specific methods that are used to achieve compliance with the requirements of the Hazard Communication Standard (29 CFR 1910.1200). The specific methods described in this sample written program are for illustrative purposes, and other effective methods may be substituted to satisfy local needs or practices.

I. General

The purpose of this instruction is to ensure that (facility name) is in compliance with the OSHA Hazard Communication Standard (HCS) 29 CFR 1910.1200.

The [occupational safety and health manage (OS&H) manager) or other technically qualified designee] is the overall coordinator of the facility program acting as the representative of {senior facility official], who has overall responsibility.

In general, each employee in the facility will be appraised of the substance of the HCS, the hazardous properties of chemicals they work with, and measures to take to protect themselves from these chemicals.

II. List of Hazardous Chemicals

The [OS&H manager or designee] will maintain list of all hazardous chemicals used in the facility, and update the list as necessary. The hazardous chemical list will be updated upon receipt of hazardous chemicals at the facility. The list of hazardous chemicals is maintained at [location].

III. Material Safety Data Sheets (MSDS's)

The [OS&H manager or designee] will maintain an MSDS library on every substance on the list of hazardous chemicals in the [location]. The MSDS will consist of a fully completed OSHA Form 174 or equivalent. The [location manager or supervisor] will ensure that each [work area or shop] maintains an MSDS for hazardous materials used in that area. MSDS's will be readily available to all employees.

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The [local OS&H manager or designee] is responsible for acquiring and updated MSDS's. The [local OS&H manager or designee] will review each MSDS for accuracy and completeness and will consult with the [Area/Region/Headquarters OS&H manager] if additional research is necessary. The [local OS&H manager or designee] must clear all new procurements for the facility. Whenever possible, the least hazardous substance will be procured.

IV. Contractor Employers

The [local OS&H manager or designee], upon notification from the [responsible supervisor], will advise outside contractors of any chemical hazards which may be encountered in the normal course of their work on the premises.

V. Non-Routine Tasks

[Maintenance or other supervisors] contemplating a non-routine task, e.g. boiler repair, will consult with the [local OS&H manager or designee] and will ensure that employees are informed of chemical hazards associated with the performance of these tasks and appropriate protective measures. This will be accomplished by a meeting of supervisors and the OS&H manager with affected employees before such work is begun.

VI. Additional Information

Further information on this written program, the hazard communication standard, and applicable MSDS's is available at [location/telephone number].

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FOIA Requested Record #J-15-0085 (TN)
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Page 933 of 2531

HAZARDOUS MATERIAL INVENTORY

FACILITY NAME: _____ STORAGE AREA: _____ PAGE ____ OF ____ PAGES

LOCATION: _____

CML NAME (FROM MSDS)	NSN	CAS NUMBER	HAZARD CATEGORY (FIRE / SUDDEN RELEASE OF PRESSURE / REACTIVITY / IMMEDIATE (ACUTE) HEALTH HAZARD / DELAYED (CHRONIC) HEALTH HAZARD)	SIZE CON	# DAYS ONSITE	*EST AVG DAILY AMT	*EST MAX AMT STORED	*ANL AMT REC'D	*ANL AMT SHIPPED (WASTE OR RECY)	EHS TPQ	EHS RQ	CERCLA RQ	TAB
			☐☐☐☐☐										
			☐☐☐☐☐										
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ALL AMOUNTS MUST BE EXPRESSED IN LBS

CONVERSIONS:(# LBS PER GL) SOLVENTS-6.7 MOGAS-6.2 DIESEL-7.1 JP8-6.2 ALL OTHERS-8.3
2 LBS = 1 QT 1 LB = 1 PT

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Enclosure 7

Step-by-Step Summary

Cleaning: How To Do It

1. Include step-by-step procedures for precleaning, cleaning during the job, and daily and final cleaning in project design or specifications.

2. Assign responsibilities to specific workers for cleaning and for maintaining cleaning equipment.

3. Have sufficient cleaning equipment and supplies before beginning work.

4. If contamination is extensive, conduct precleaning of the dwelling unit. Move or cover all furniture and other objects.

5. Conduct ongoing cleaning during the job, including regular removal of large and small debris and dust. Decontamination of all tools, equipment, and worker protection gear is required before it leaves containment areas. Electrical equipment should be wiped and high-efficiency particulate air (HEPA) vacuumed, not wetted down, to minimize electrocution hazards.

6. Schedule sufficient time (usually 30 minutes to an hour) for a complete daily cleaning, starting at the same time near the end of each workday after lead hazard control activity has ceased.

7. For final cleaning, wait at least 1 hour after active lead hazard control activity has ceased to let dust particles settle.

8. Use a vacuum cleaner equipped with a HEPA exhaust filter. HEPA vacuum all surfaces in the room (ceilings, walls, trim, and floors). Start with the ceiling and work down, moving toward the entry door. Completely clean each room before moving on.

9. Wash all surfaces with a lead specific detergent, high-phosphate detergent, or other suitable cleaning agent such as Mr. Clean or Spic-n- Span to dislodge any ground-in contamination, then rinse. Change the cleaning solution after every room is cleaned.

10. Repeat step 8. To meet clearance standards consistently, a HEPA vacuum, wet wash, and HEPA vacuum cycle is recommended. For interim control projects involving dust removal only, the final HEPA vacuuming step is usually not needed. Other cleaning methods are acceptable, as long as clearance criteria are met and workers are not overexposed.

11. After final cleaning, perform a visual examination to ensure that all surfaces requiring lead hazard control have been addressed and all visible dust and debris have been removed. Record finding s and correct any incomplete work. This visual examination should be performed by the owner of an owner's representative who is independent of the lead hazard control contractor.

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12. If other construction work will disturb the lead-based paint surfaces, it should be completed at this point. If those surfaces are disturbed, repeat the final cleaning step after the other construction work has been completed.

13. Paint or otherwise seal treated surfaces and interior floors.

14. Conduct a clearance examination.

15. If clearance is not achieved, repeat the final cleaning.

16. Continue clearance testing and repeated cleaning until the dwelling achieves compliance with all clearance standards. As an incentive to conduct ongoing cleaning and a thorough final cleaning, the cost of repeated cleaning after failing to achieve clearance should be borne by the contractor as a matter of the job specifications, not the owner.

17. Do not allow residents to enter the work area until cleaning is completed and clearance is established.

18. Cleaning equipment list:

* HEPA vacuums.

* Detergent.

*Waterproof gloves.

* Rags.

* Sponges.

* Mops.

* Buckets.

* HEPA vacuum attachments (crevice tools, beater bar for cleaning rugs).

* 6-mil plastic bags.

* Debris containers.

* Waste water containers.

* Shovels.

* Rakes.

* Water-misting sprayers.

* 6-mil polyethylene sheeting (or equivalent).

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Enclosure 8

Stachybotrys chartarum
a mold that may be found in water-damaged homes

November 2000

Environmental Health Investigations Branch
California Department of Health Services

Stachybotrys chartarum ecology

Stachybotrys chartarum (*SC*) is a greenish black mold that grows on material with a high cellulose content, such as fiberboard, the paper covering of gypsum wallboard, wallpaper, dust, and wood when these become chronically water damaged. This mold requires very wet conditions for days or weeks in order to grow. Excessive indoor humidity resulting in water vapor condensation on walls, plumbing leaks, spills from showering or bathing, water leaking through foundations or roofs may lead to growth of many types of mold, including *Stachybotrys*. No one knows how frequently this mold is found indoors since buildings are not routinely tested for its presence.

Toxin production

Stachybotrys chartarum is one of many molds that are capable of producing one or more mycotoxins (chemicals produced by molds that may be able to cause symptoms or illness in people). It has recently gained notoriety as some strains are capable of producing a very potent toxin. However, finding *Stachybotrys* within a building does not necessarily mean that occupants have been exposed either to allergens (pieces of the fungus or spores that can cause allergic symptoms in people prone to allergies) or toxins produced by this fungus. Laboratory studies indicate that molds such as *Stachybotrys* that have the ability to produce toxins do not always do so. Whether a mold produces a toxin while growing in a building may depend on what the mold is growing on, conditions such as temperature, pH, humidity or other unknown factors. When mycotoxins are present, they occur on spores and the small mold fragments that may be released into the air. While *Stachybotrys* is growing, a wet slime layer covers its spores, preventing them from becoming airborne. However, when the mold dies and dries up, air currents or physical handling can cause spores to become airborne. There are no commercial laboratory tests currently available that can detect mycotoxins in a building where molds are present.

Health Effects

Health problems associated with *Stachybotrys chartarum* were first noted in Russian and Eastern European farm animals that ate moldy hay in the 1930's and 1940's. Horses eating heavily *SC*-contaminated fodder experienced immune system suppression, infection and bleeding that was fatal with high doses. The first reported human health effects were seen in agricultural workers who handled the moldy straw or hay. These high level exposures were associated with coughing, runny nose, burning sensations in the mouth or nose, nose bleeds, headache, fatigue and skin irritation (rashes and itching) at the site of moldy hay contact.

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Much less is known about health effects of *SC* when it occurs in indoor environments, such as homes or office buildings, where the most likely route of exposure is inhalation. If large numbers of *SC* spores are released into the air, some people may develop symptoms such as coughing, wheezing, runny nose, irritated eyes or throat, skin rash, fatigue or diarrhea. Researchers have theorized that these symptoms may result from toxins produced by *SC* or exposure to a combination of several molds or bacteria and the chemicals they produce. Most people who experience health effects associated with moldy buildings fully recover following removal and clean-up of the mold contamination.

Much of the concern about toxin-producing indoor molds and especially *Stachybotrys* followed its identification in the mid-1990s in the homes of a small number of Cleveland infants with an unusual form of lung bleeding. The original investigation, cosponsored by the U.S. Centers for Disease Control and Prevention (CDC) suggested that very wet homes and *Stachybotrys* growth played a role in these lung hemorrhage cases. However, after reviewing the methods used to conduct the original study, the CDC concluded in May, 2000 that a possible association between the lung bleeding in the Cleveland infants (now called "acute idiopathic pulmonary hemorrhage") and exposure to molds, specifically *Stachybotrys chartarum*, was not proven. However, both the CDC and other research groups are continuing to examine the role of indoor molds in both child and adult health, particularly for those molds that may produce toxins.

How can I tell if my health problems are caused by *Stachybotrys*?

It is currently difficult to prove that individual health symptoms are due to *SC* exposure for several reasons:

1) When buildings are sampled, usually several other molds or bacteria (some capable of producing chemicals such as endotoxin) are found in addition to *SC*, and these may also contribute to symptoms;
2) These symptoms are very nonspecific and may be related to exposure to other sources (such as dust mites, animal dander, pollen or other allergens) or to infectious agents such as viruses that cause common colds or flu;
3) Research has not identified how much *Stachybotrys* exposure is necessary to produce symptoms;
4) There is no test that can determine if a person was exposed to this fungus or its toxins.

Laboratory Tests for Human Exposure to *SC* mold or toxins

A few physicians have used a blood antibody test to determine whether their patients have been exposed to the *SC* mold or its toxins. However, this procedure has not been proven to be valid. In one study of 48 people exposed to *SC*, only 4 had elevated antibodies. The *Stachybotrys* antibody test can also be positive when an individual is exposed to other types of mold altogether (i.e., cross-reaction). Therefore this test cannot be used to definitively determine whether someone has been exposed to the *Stachybotrys* mold or its toxins. In addition, since we do not know how long antibodies remain elevated after *SC* exposure, it is also possible that a positive test may be evidence of a previous encounter with *SC* or a cross-reacting mold, not a current one.

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Prevention of Mold in Dwellings

As part of routine building maintenance, buildings should be inspected for evidence of water damage and visible mold. Water damage should be corrected early (within 48 hours) and building surfaces or furnishings dried to prevent mold growth. If any type of visible mold growth is found, whether *Stachybotrys* or any other mold, the water damage leading to it should be corrected and visible mold removed by appropriate methods as described below.

Correction of Visible Mold

Visible mold should be removed by the simplest and easiest method that is proper and safe. Common household molds found around bathtubs or between shower tiles should be removed with a household cleanser. For building components like walls or ceilings showing any type of fungal growth, including *Stachybotrys*, specific methods for removal are based on the extent of visible contamination and underlying water damage. New York City Department of Health produced a set of voluntary guidelines in April, 2000 that incorporate the best available knowledge on removing mold contaminated building components. Their recommendations are summarized here, but the full text should be consulted before deciding on a remediation strategy. Text is available at the New York City Department of Health website listed at the end of this document.

1) **Level I** : If the area of mold is small and isolated (10 square feet or less) – e.g., ceiling tiles, small areas on walls

   A) The area can be cleaned by individuals who have received training on proper clean up methods, protection and potential health hazards. These individuals should be free from asthma, allergy and immune disorders. Gloves, eye protection and an N95 disposable respirator (available at neighborhood hardware stores) should be worn.

   B) Contaminated material that cannot be cleaned should be removed and placed in a sealed plastic bag before taking it out of the building. This will prevent contamination of other parts of the building.

   C) The work area and areas used by the remediation workers while exiting the building should be cleaned with a damp cloth or mop. All areas should be left dry and visibly free of mold contamination and debris.

2) **Level II**: mid-sized isolated areas (10-30 square feet) – e.g., a wallboard panel

   The recommendations are the same as Level I, with the added precaution that

   A) Moldy materials should be covered with plastic sheets and taped before any handling or removal is done. For instance, a moldy panel of gypsum wallboard should have plastic sheeting taped over the affected area on the wall before it is cut to remove the contaminated section. Once cut from the wall, that section should be placed inside another layer of plastic and sealed up with tape before it is carried through the building for disposal.

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B) Following removal of contaminated material, the work area and exit areas should be HEPA vacuumed (a vacuum equipped with a High-Efficiency Particular Air filter) in addition to cleaning with a damp cloth or mop.

3) **Levels III, IV, V:** Large area (more than 30 square feet) – e.g., several wallboard panels or more

A health and safety professional with experience performing microbial investigations should be consulted prior to any cleaning activities to provide oversight for the project. See the specific recommendations in "Guidelines on Assessment and Remediation of Molds in Indoor Environments", New York City Department of Health, on their website (see Additional Resources). If you do not have access to the Internet you may request a copy through the California Department of Health Services Indoor Air Quality Assistance Line at (510) 540-2476.

Summary

Exposure to high levels of *Stachybotrys chartarum* and other mold spores may cause health symptoms in some individuals. Therefore, any fungal growth on building materials should be cleaned off or removed as rapidly as possible to maintain a healthy indoor environment. New York City Department of Health guidelines provide detailed information on mold remediation strategies and are available from their website (see Additional Resources).

At present there is no environmental test to determine whether Stachybotrys growth found in buildings is producing toxins. There is also no blood or urine test that can establish if an individual has been exposed to *Stachybotrys chartarum* spores or its toxins. Anyone with persistent health problems that they believe may be related to indoor molds should consult their physician.

Additional Resources

New York City Department of Health. Guidelines on Assessment and Remediation of Molds in Indoor Environments. Full text document available at http://www.ci.nyc.us/health. For further information about this document contact New York City Department of Health at (212) 788-4290.

U.S. E.P.A. Indoor Air Quality Web Site – Mold Links and General Information Page
http://www.epa.gov/iedweb00/pubs/moldresources.html

U.S. E.P.A. Indoor Air Quality Information Clearinghouse: 1-800-438-4318
For information on many types of indoor air contaminants.

Centers for Disease Control and Prevention. Questions and Answers on *Stachybotrys chartarum* and other molds http://www.cdc.gov/nceh/asthma/factsheets/molds/default.htm

Centers for Disease Control and Prevention. Update: Pulmonary Hemorrhage/Hemosiderosis Among Infants – Cleveland, OH, 1993-1996. Morbidity and Mortality Weekly Report 49(09):180-

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Enclosure 9

REFERENCES:

a) Title 29, Code of Federal Regulations (CFR) Part 1910, Occupational Safety and Health Administration (OSHA).

b) ARNG PAM 385-16, Guidelines for Converting Indoor Firing Ranges to Other Uses.

c) NGR 385-15, Policy and Responsibilities for Inspection/Evaluation and Use of National Guard Indoor Firing Ranges.

d) Army Regulation (AR) 40-5, 15 October 1990, Medical Service, Preventive.

e) AR 11-34, 15 February 1990, The Army Respiratory Program.

f) AR 385-10, 23 May 1988, Army Safety Program.

g) FC-Reg. 385-2, 1 July 1999, Ionizing and Nonionizing Radiation Protection Program

h) Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.

i) Technical Bulletin Medical (TB MED) 503, 1 February 1985, The Army Industrial Hygiene Program.

j) Technical Bulletin Medical (TB MED) 530, 1 January 1991, Food Service Sanitation

k) National Guard Regulation (NGR) 385-10, 20 December 1989, Army National Guard Safety and Occupational Health Program.

l) Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist (ACGIH), Cincinnati, Ohio.

m) IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.

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Enclosure 10

Recommendations:

a) An updated HAZCOM SOP was included in the report (See encl. 5). Conduct semi-annual inventories and update MSDS's on all chemicals in the facility. A hazardous material inventory sheet was included in the report (see encl 6). Tab the MSDS's on side with numbers corresponding to the hazardous material inventory sheet tab numbers for easy access in case of a spill. Include a chemical list in the janitor's MSDS book and the unit's MSDS book. A risk assessment code (RAC) of 3 was assigned to this operation.

b) Due to the lead dust wipe results, it is recommended that the old indoor firing range be thoroughly cleaned from top to bottom to include the floor, the collapsible shelves, and the light fixtures/covers. Also, the drill hall floor, the break room floor and shelves, the classroom vent screen, the vacuum clean, the vault floor, the supply room wooden shelves, the stacked chairs and chair hauler in the drill, the X-mas ornaments and shelves in the storage room, the kitchen storage shelves, the recruiter's shelves, and the carpet in the classroom must be thoroughly wiped down and or wet mopped with an industrial cleaner using tri-phosphates, Mr. Kleen or Spic-n-Span. For additional lead cleaning measures, see enclosure 7. A risk assessment code (RAC) of 1 was assigned to this operation.

c) Replace the lamps, fluorescent tubes, and or bulbs in the kitchen pantry and wash area, the boiler room, the locker room, the MST 4 storage room, the female restroom, the administration area, the recruiter's office, the old indoor firing range, the break room, and the supply area. Also, ensure that all exit signs and back up emergency fire lights are working. A risk assessment code (RAC) of 2 was assigned to this operation.

d) Increase the illumination to 30 footcandles (FC) in the drill hall and the supply room. A risk assessment code (RAC) of 3 was assigned to this operation.

e) Submit a work order to repair the roof leak in the boiler room. A risk assessment code (RAC) of 3 was assigned to this operation.

f) Submit a work order to have a certified contractor clean the black mold in the furnace room area. For mold cleanup procedures see enclosure 8. A risk assessment code (RAC) of 3 was assigned to this operation.

g) Submit a work order to repair the toilet in the women's restroom. A risk assessment code (RAC) of 3 was assigned to this operation.

h) Due to the health and welfare of the soldiers/visitors, discontinue smoking inside the armory. The 50 foot designated smoking area from the facility must be enforced. A risk assessment code (RAC) of 1 was assigned to this operation.

i) Perform monthly checks on fire extinguishers. Each month, ensure that the devices are turn upside down and tapped with a rubber mallet to loosen any material at the bottom. A risk assessment code (RAC) of 1 was assigned to this operation.

j) If work practices change, a new assessment should be made on the controls in place.

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Enclosure 11

Photo No.1

Photo No.2

Photo No.3

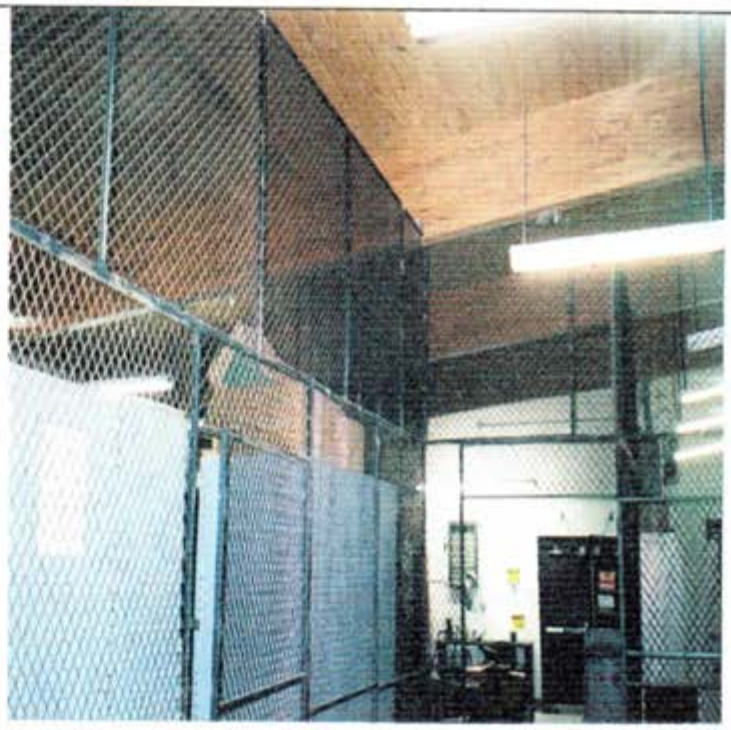

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Photo No.5

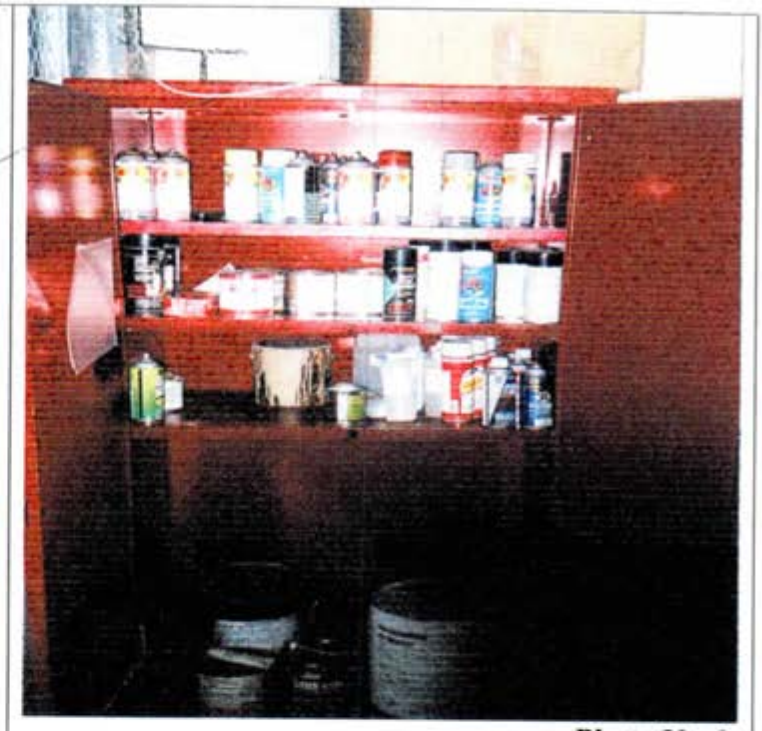

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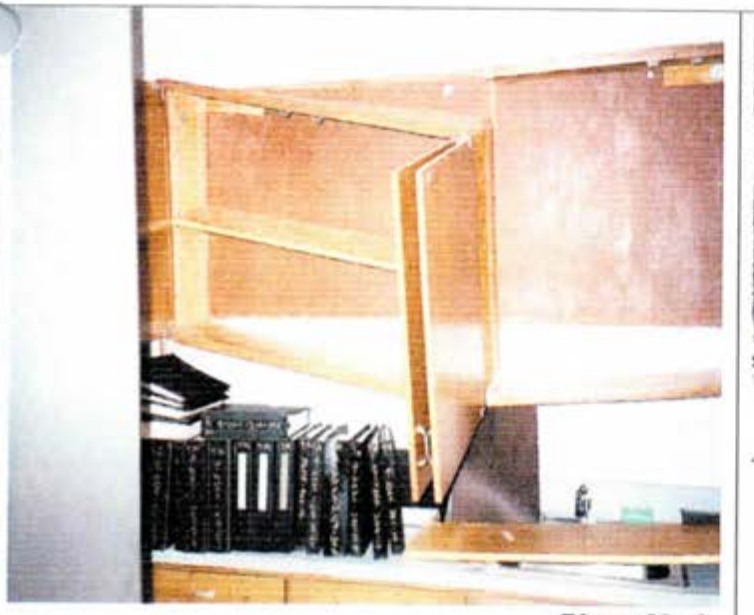
Photo No.7

Photo No.8



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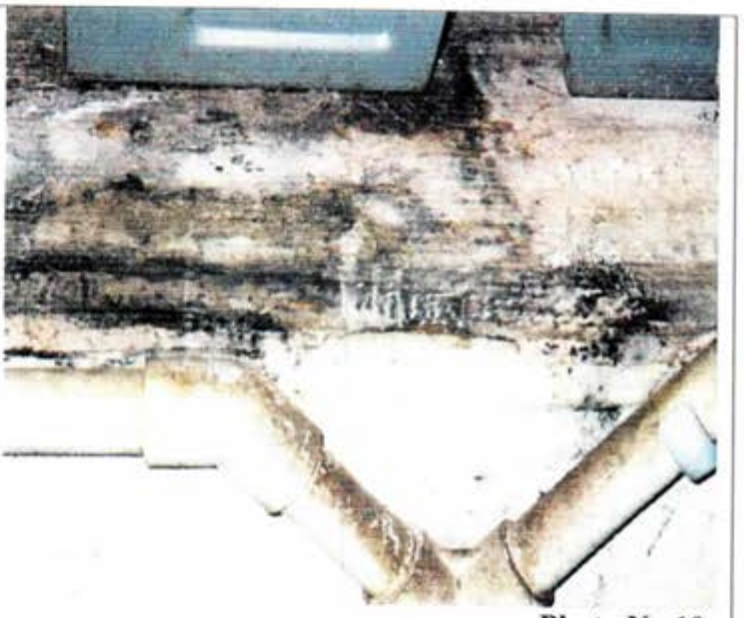

Photo No.10

Photo No.11

Photo No.12

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Enclosure 12

East End Floor, Old Indoor Firing Range (IFR)

West End Floor, Old IFR

North End Floor, Near Backstop, Old IFR

Collapsible Shelf, Old IFR

Plenum Floor, Old IFR

Service Section Office Floor

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Service Section Office, Metal Shelf

Under Chair, Maint. Closet, Next to Drill Hall

Vent Screen, Classroom

Vacuum Surface, Maint. Closet, Next to Classroom

Vault Floor, Next to the Supply Room

Wooden Shelf, Supply Room

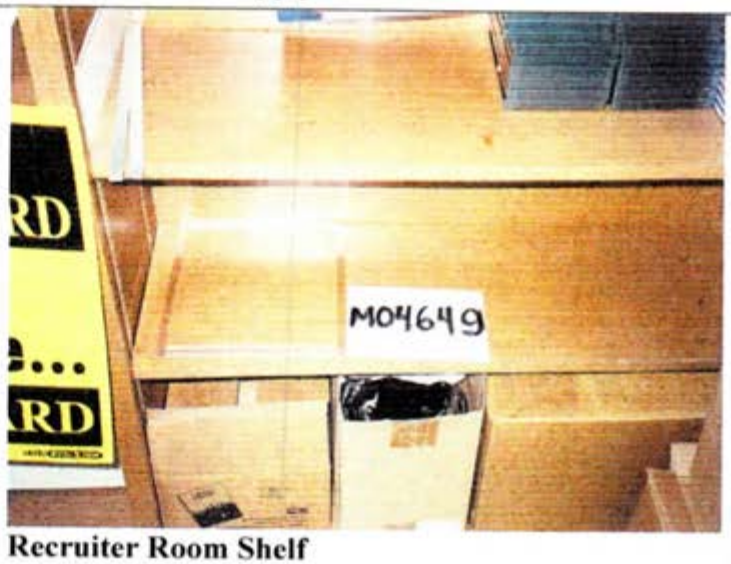
Under Chair, Drill Hall

Drill Hall Floor

X-MAS Tree Stand Surface, Storage Room

Counter Shelf, Supply Room

Kitchen Storage Shelf



Recruiter Room Shelf

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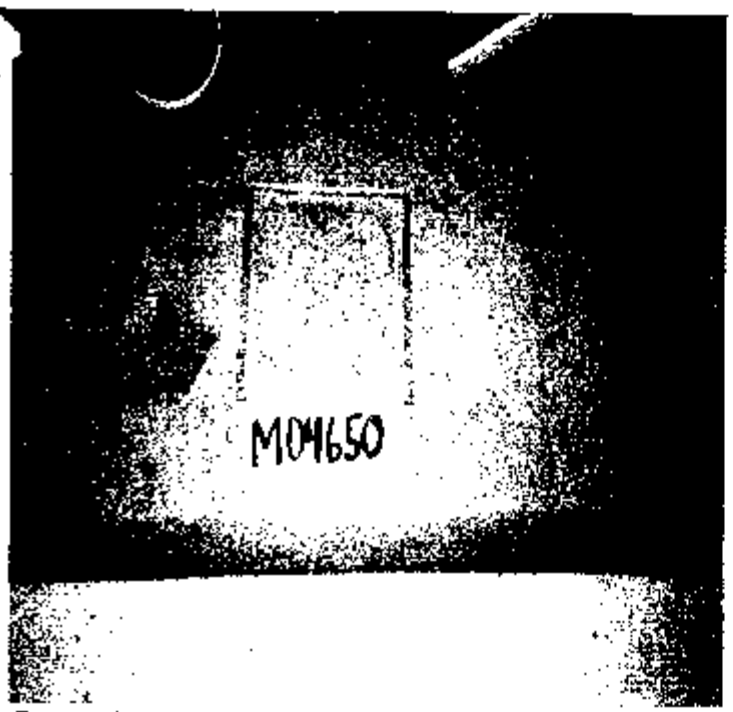

Carpet in the Classroom

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NATIONAL GUARD REGION SOUTH
INDUSTRIAL HYGIENE OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

ARNG-CSG-P (40-5f) July 29, 2011

MEMORANDUM FOR THE ADJUTANT GENERAL OF TENNESSEE, ATTN [redacted] Non-Responsive, Readiness NCO, Huntingdon Armory, 400 Mustang Drive, Huntingdon, Tennessee 38344.

THRU Non-Responsive Deputy State Surgeon, Tennessee National Guard, HQS, AGTN-DCSPER-DSS, P.O. Box 41502, Houston Barracks, Nashville, Tennessee 37204-1501.

SUBJECT: Industrial Hygiene Survey of the TN ARNG Huntingdon Armory, Huntingdon, TN.

1. References.

a. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1996 rev.

a. Title 29, Code of Federal Regulations (CFR), 2009 rev., part 1910, Occupational Safety and Health Standards.

b. Title 29 CFR, General Industry, revised 1996 rev. Part 1940

c. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 25 May 2007

d. AR 385-10, The Army Safety Program, 23 August 2007.

e. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.

f. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, 12 September 2008.

g. TB MED 503, The Army Industrial Hygiene Program, 30 October 2000.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2010 American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 26th rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

k. NG PAM 420-15, 03 November 2006, Facilities Engineering, Rehabilitation and Conversion of Indoor Firing Ranges.

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ARNG-CSG-P (40-5f)
SUBJECT: Industrial Hygiene Survey of the TN ARNG Huntingdon Armory, Huntingdon, TN.

2. General. At the request of Non-Responsive of the Tennessee National Guard Occupational Health Office, an Industrial Hygiene Survey was put together to conduct a Health Hazard Information module (HHIM) Field survey of the s and industrial hygiene sampling of the TN ARNG Huntingdon Armory, Huntingdon, TN.

3. Findings. All Health Hazard information is on the survey findings of the report. (See enclosure 1). Operations of very short duration were not sampled due to the requirements of the sampling method. If the operation changes or if the length of the operation is increased, contact this office to schedule sampling if it is deemed needed then.

1. Recommendations. Recommendations. Follow the recommendations made in the enclosed report, requesting industrial hygiene (IH) services where needed to complete the recommendations.

a. The recommendations given in the comments section of the HHIM data sheets and data collected will serve as an update of the baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY2011. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY2012 IHIP.

b. Have all HHIM data entered into the HHIM computer module.

c. Use the report to help in correcting all deficiencies noted.

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present visits, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. Contact the State Occupational Health Office, for any medical Surveillance that may be needed.

f. To execute your responsibilities in correcting all deficiencies, coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed about the industrial hygiene survey or air sample

Non-Responsive

CF: ARNG-CSG-P
Safety and Occupational Health Manager, Tennessee State Safety and Occupational Health Manager, 3041 Sidco Drive, Nashville, TN 37204-1504

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Huntingdon Armory
400 Mustang Drive
Huntingdon, TN

A. Administrative

1. A work request should be submitted to have someone from engineering to inspect and repair the cracks in the walls of ISG Office room 108, room 134 and room 135 and repair them. (Safety RAC IVC)
2. A work request should be submitted to have someone from engineering to inspect and determine if a pipe above the ceiling is leaking or the roof and repair the problem for the following areas; room 134, room 135. room 139 and room 140. (Safety RAC IVC)
3. A work request should be submitted to have someone from facility maintenance come and replace the blown bulbs in room 134. (Safety RAC IVC)

B. Restrooms

1. A work request should be submitted through proper channels to have someone from facility maintenance to repair the commode in the men restroom. (Safety RAC IVC)
2. A work request should be submitted through proper channels to have someone from facility maintenance to replace the blown bulbs in the men restroom. (Safety RAC IVC)

C. Drill Hall – A work order should be submitted through proper channels to have general illumination in the drill hall upgraded to meet the Illuminating Engineering Society (IES) minimum requirement. (Safety RAC IVC)

D. MSDS – The MSDS binder in the maintenance building should be updated when the building is returned to equipment maintenance instead of storage. (Safety RAC IVC)

E. Classrooms

1. A work request should be submitted to have someone from engineering to inspect and determine if a pipe above the ceiling tiles and light fixture is leaking or the roof and repair the problem. (Safety RAC IVC)
2. A work request should be submitted to have someone from engineering to inspect and repair the cracks in the walls. (Safety RAC IVC)

F. Maintenance Building - Before the maintenance building is restored back to equipment maintenance; general illumination needs to be increased to meet IES requirement and carbon monoxide alarm needs to have sensors replaced.

G. A work request should be submitted to have someone from engineering to inspect and determine if a pipe above the ceiling tiles in the hallway is leaking or the roof and repair the problem. (Safety RAC IVC)

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H. All training should be properly documented and kept where it is accessible for inspection at all times.

I. Fire extinguishers should be inspected and certified annually by a certified fire extinguisher inspector. (Safety RAC IVC)

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INDUSTRIAL HYGIENE INITIAL BASELINE SURVEY

TENNESSEE NATIONAL GUARD

HUNTINGDON NATIONAL GUARD ARMORY
400 MUSTANG DRIVE
HUNTINGDON, TN

DATE: JUNE 7, 2011

PREPARED BY

Non-Responsive

[redacted]

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TABLE OF CONTENTS

BACKGROUND	Pg 1
Introduction	Pg 1
Scope of Work	Pg 1
INSTRUMENTATION	Pg 1
OBSERVATION	Pg 2
ADMINISTRATIVE OFFICES	Pgs 2 & 3
AIRFLOW/VENTILATION	Pg 3
KITCHEN	Pgs 3 & 4
RESTROOM	Pg 4
DRILL HALL	Pg 4
SUPPLY	Pg 5
MATERIAL SAFETY DATA SHEETS	Pg 5
CLASSROOMS	Pg 6
GYMNASIUM	Pg 6
MAINTENANCE BUILDING	Pgs 6 & 7
FINDINGS	Pgs 7 thru 9
TABLE 1 (GENERAL ILLUMINATION LEVEL)	Pgs 9 & 10
TABLE 2 (DRILL HALL LEAD WIPE SAMPLES RESULTS)	Pg 11
TECHNICAL ASSISTANCE	Pg 11
APPENDIX A, (PROBLEM AREAS OF HUNTINGDON ARMORY)	Pgs 11 & 12
APPENDIX B, (DRILL HALL LEAD WIPE SAMPLE LOCATIONS)	Pgs 13 & 14
APPENDIX C (PICTURES OF HUNTINGDON ARMORY)	Pgs 14 & 15

ATTACHMENTS:

List of MSDS on Hand
HHIM Sheet
Analytical Environmental Services, Inc. Chain of Custody
Analytical Environmental Service, Inc. Analytical Results

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MEMORANDUM FOR: Tennessee National Guard, Attn: Non-Responsive Readiness NCO, Huntingdon Armory, 400 Mustang Drive, Huntingdon, Tennessee

Subject: Industrial Hygiene Initial Baseline Survey of Huntingdon Army National Guard Armory, Huntingdon, Tennessee

BACKGROUND:

Introduction:

At the request of Non-Responsive National Guard Bureau Regional Industrial Hygiene South Office, Atlanta, GA., an initial baseline industrial hygiene survey was conducted at Huntingdon Army National Armory, Huntingdon, Tennessee on June 7, 2011 as part of the Tennessee Army National Guard Occupational Health in the workplace. The point of contact for this facility was SFC Non-Responsive

Scope of Work:

The survey consisted of a general illumination survey, task lighting survey, lead wipe sampling and evaluating the condition of the building, including the airflow of the heating Ventilation and Air Conditioning (HVAC) System as it relates to indoor air quality. A review of several industrial programs, such as hazard communication, hearing conservation and personal protective equipment was also performed. A field survey form is complete on all industrial operations at the facility, and the data is contained in this report.

INSTRUMENTATION:

The following survey instrumentation was provided by or for the contractor, and was used to obtain illumination measurements, task lighting measurements. All instruments were pre-calibrated according to the manufacturer's instructions.

Instrument	Serial Number	Calibration
Extech Light Meter	L098665	21 June 2010

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May, 2018

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Page 955 of 2531

OBSERVATION

Huntingdon Armory is home to Troop A, 1st Squadron 278 Infantry. Duty hours are from 7:30 - 16:30 hours Monday thru Friday. The armory is a one level brick structure with a pitched roof in the front and drill hall in the back and was built in 1992.The armory has never had an indoor firing range; therefore, no indoor firing range lead wipe sampling was done. However, lead wipe sampling were collected from the drill hall walls. No lead wipe samples were collected from the floor because the floor is cleaned and buffed after each monthly meeting.

ADMINISTRATIVE OFFICES

There are eleven administrative offices, where personnel use computer systems, files, read, writes and performs administrative tasks as necessary. Computer use occurs throughout the day. All the administrative offices met IES, Illuminating Engineering Society Handbook, 8th Edition requirement of 50 FC – 100 FC (Foot Candles) see Table 1A (General Illumination Levels). Task lighting was taken at computer workstations in each administrative office and all met IES requirement of 50 FC – 100.

Commander's Office Rm. 105

1SG Office Rm. 108

Orderly Room Rm. 103

Readiness NCO Rm. 106

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Page 956 of 2531

Admin NCO Rm. 107

Supply NCO

AIRFLOW/VENTILATION

Huntingdon armory administrative offices are on a central HVAC system, none administrative offices are not on HVAC system. Drill hall has two exhaust fans and two supply air vents and four hanging gas heaters.

KITCHEN

The kitchen is small and not used during drill weekend to prepare food for troops, it is normally used for day to day storage of full time personnel food and when the hall is rented. Food for drill weekend is catered. General illumination in the prep/serving area met IES requirement of 50 FC – 100 FC. General illumination in the dishwashing area met IES requirement of 50 FC – 100 FC. The general illumination in the food storage met IES requirement of 20 FC – 50 FC. See Table 1A (General Illumination Levels) for results.

Kitchen Prep/Serving Area

Kitchen Dishwashing Area

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Page 957 of 2531

Kitchen Storage Area

RESTROOMS - There are two restrooms in the drill hall, a men restroom and a ladies restroom.

The men restroom has four sinks, four urinals, three stalls (one out of order) and shower room. Although there were blown bulbs in the shower area and stall, general illumination levels met IES requirement of 10 FC – 20 FC.

The ladies restroom has two sinks, two stalls and a shower. General illumination levels met IES requirement of 10 FC – 20 FC.

DRILL HALL

The hall is heated by four hanging gas heaters during the colder months and comfort ventilation is provided two room exhaust fans and two supply air vents. General illumination levels did not meet IES requirement of 50 FC – 100 FC. Eight lead wipe samples were taken from the wall in the drill hall and the samples were sent to Analytical Environmental Services, Inc., Atlanta, Georgia for analyses and the results came back BRL= Not Detected at the Reporting Limit. The drill hall is up for renting Monday thru Friday except drill weekend.

Drill Hall

Drill Hall

SUPPLY

Non-Responsive s the Supply NCO. The supply storage general illumination levels met IES requirement of 20 FC – 50 FC. The arms vault general illumination levels met IES requirement. The supply office general illumination levels met IES requirement of 50 FC – 100 FC.

Supply Storage

Supply Office

MATERIAL SAFETY DATA SHEETS

The MSDS master binder is kept here in supply. The MSDS binder was inspected found to be in good order. Another MSDS binder is kept in the maintenance building and it was inspected and found not up to date as the supply master MSDS. The flammable storage cabinets were inspected and found to be in compliance.

CLASSROOM

The classroom (Rm. 135) had a divider and could be used as two separate classrooms. The general illumination levels in both rooms met IES requirement of 50 FC – 100 FC. There were several problems in this room; water stained ceiling tiles, water stained light fixtures and a crack in the wall. See Appendix A (Problem Areas of Huntingdon Armory) for pictures of these problems.

Classrooms Side A

Classroom Side B

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 959 of 2531

GYMNASIUM/LOCKER ROOM

The gymnasium and locker room share the same room (Rm. 132). General illumination met IES requirement of 20 FC – 50 FC.

Gym

MAINTENANCE BUILDING

A. No maintenance is performed in the facility. The facility is being used to store equipment and other items. An MSA Toxgard carbon monoxide alarm is available but unplugged, when plugged-in to power the alarm sounds. The carbon monoxide exhaust ventilation system with two flexible drop hose flow was operational and each hose flow rate was measured. The calculated flow was 867ft³/min. (cubic feet per minute) and 918ft³/min
B. General illumination levels in the service bays does not meet IES requirement.
C. General illumination levels in the library does not meet IES requirement.
D. General illumination in the parts room and the nuts and bolts room met IES requirement.
E. General illumination in the dispatch office met IES requirement.

Maintenance Bays

Dispatch Office

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 960 of 2531

Maintenance Library

FINDINGS

A. Administrative Offices

1. All administrative offices met IES general illumination levels of 50 FC – 100 FC.
2. All task lighting taken at computer workstations met IES requirement of 50 FC – 100 FC.
3. A crack in the corner wall was noted in the 1SG Office room 108.
4. A crack in the corner of the wall was noted in room 134.
5. Water damaged was noted in the ceiling of room 134.
6. Several blown bulbs were noted in room 134.The carpet in the Orderly Room was heavily soiled.
7. Water damaged was noted in the ceiling of the classroom (Rm. 135)
8. A crack in the wall was noted in the classroom (Rm. 135).
9. Water stained ceiling tiles were noted in room 139.
10. Water stained ceiling tiles were noted in room 140.

B. Kitchen - All areas of the kitchen general illumination levels met IES requirement.

C. Restrooms

1. General illumination in both restrooms met IES requirement of 10 FC – 20 FC.
2. One stall in the men restroom was out order. Several blown bulbs were noted in the men restroom.

D. Drill Hall

1. General illumination levels does not meet IES requirement of 50 FC – 100 FC.
2. The eight lead wipe samples collected from the drill hall walls results came back BRL = Not Detected at the Reporting Limit.

E. Supply

1. General illumination levels and task lighting taken at computer workstation in the supply office met IES requirement of 50 FC – 100 FC.
2. General illumination levels in the storage area met IES requirement of 20 FC – 50 FC.
3. The arms vault general illumination met IES requirement.

F. MSDS – The master MSDS found in supply was in order. The MSDS binder in the maintenance building was found not up to dete as the one in supply.

G. Classrooms

1. General illumination levels in both rooms met IES requirement of 50 FC – 100 FC.
2. Water stained ceiling tiles were noted.
3. Water stained light fixture was noted.
4. A crack in the wall was noted.

H. Gymnasium /Locker Room- General Illumination levels met IES requirement.

I. Maintenance Building

1. The two drop hose for the carbon monoxide exhaust system flow rate measured at 867ft³/min and 918ft³/min.
2. Carbon monoxide alarm is not operational.
3. General illumination levels in the services bays does not meet IES requirement.
4. General illumination levels in the library does not meet IES requirement.
5. General illumination levels in the dispatch office met IES requirement.
6. General illumination levels in the nuts and bolts room met IES requirement.

J. Water stained ceiling tiles were noted in the hallway.

K. Fulltime employees have only administrative duties and they are not exposed to hazardous chemicals. No ambient or breathing zone air sampling accomplished during this survey.

L. Fulltime employees have only administrative duties and they are not exposed to any hazardous noise. No noise dosimeter or sound level survey accomplished during this survey.

M. HazCom training was accomplished in January 12, 2011, nothing for Hearing Conservation or Personal Protective Equipment Training.

N. Flammable storage cabinets in supply were inspected and found to be in good order.

O. AED in hallway was found in good order.

P. Fire extinguishers were inspected and found last certified August 2009.

TABLE 1A
(General Illumination Levels)

Location	Range in Foot Candles (FC)	Average FC	IES Standard in FC
Room 134	38 – 138	105	50 – 100
Classroom (Rm. 135)	83 – 164	128	50 – 100
Room 139	148 – 162	155	50 – 100
Room 140	110 – 168	146	50 – 100
Drill Hall	18 – 36	27	50 – 100
Locker Room (Rm. 132)	13 – 37	22	20 – 50
Storage Room	21 – 42	30	20 – 50
Ladies Restroom	5 – 45	20	10 – 20
Kitchen Pre/Serving	43 – 142	75	50 – 100
Men Restroom	15 – 29	21	10 – 20
Kitchen Dishwashing	39 – 92	65	50 - 100
Kitchen Storage	32 – 76	57	20 – 50
Supply Storage	17 – 72	65	20 – 50
Supply Office	74 – 116	100	50 – 100
Supply Arms Vault	3 – 45	29	20 – 50
Storage Room 104	76 – 125	100	50 – 100
Commander's Office (Rm. 105)	80 – 137	110	50 – 100
1SG Office (Rm. 108)	79 – 132	92	50 - 100
Admin NCO (Rm. 107)	69 – 137	101	50 – 100

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 963 of 2531

TABLE 1A continued
(General Illumination Levels)

Location	Range in Foot Candles (FC)	Average FC	IES Standard in FC
Orderly Room (Rm. 103)	44 – 85	63	50 – 100
Readiness NCO (Rm. 106)	92 – 129	109	50 – 100
Maintenance Building			
Maintenance Bays	31 – 54	47	50 – 100
Dispatch Office (Rm. 121)	58 – 126	98	50 – 100
Nuts & Bolts Room (Rm. 116)	63 – 76	70	20 – 50
Parts Room (Rm. 119)	65 – 74	70	20 – 50
Library	21 – 35	29	50 - 100

TABLE 2 (Drill Hall Lead Wipe Samples Results)

Location	Sample Number	Analytical Results
Next to Coffee Maker	LWS20110607-01	BRL
Next to Plaque on Wall	LWS20110607-02	BRL
Next to Bulletin Board and Switch for EF8	LWS20110607-03	BRL
Next to Dr. Pepper Vending Machine	LWS20110607-04	BRL
On Door (Red) to Room 111	LWS20110607-05	BRL
On Door (white) Room 112	LWS20110607-06	BRL
Next to Fire Extinguisher and Exit Door (Back)	LWS20110607-07	BRL
Next to Fire Extinguisher and Supply Air Vent	LWS20110607-08	BRL

Remarks: BRL – Not Detected at the Reporting Limit

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 964 of 2531

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Non-Responsive

[redacted]

APPENDIX A, (PROBLEM AREAS OF HUNTINGDON ARMORY)

Crack in Corner Wall
1SG (Rm. 108)

Water Stained Ceiling Tiles
Hallway

Out of Order Stall
Men Restroom

Carpet Stains
Orderly Room

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 965 of 2531

APPENDIX A, (PROBLEM AREAS OF HUNTINGDON ARMORY)

Crack in Wall
Room 134

Water Damaged Ceiling
Room 134

APPENDIX A, (PROBLEM AREAS OF HUNTINGDON ARMORY)

Water Damaged Ceiling
Classroom (Rm. 135)

Crack in wall
Classroom (Rm. 135)

Water Stained Ceiling Tiles
Room 139

Water Stained Ceiling Tiles
Room 140

APPENDIX B (LEAD WIPE SAMPLE LOCATIONS)

LWS20110607-01
Next to Coffee Maker

LWS20110607-02
Next to Fire Extinguisher

LWS20110607-03
Next to Bulletin Board and EF 8

LWS20110607-04
Next to Dr. Pepper Vending Machine

LWS20110607-05
On Door (Red) to Rm. 111

LWS20110607-06
Door (White) Room 112

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 967 of 2531

APPENDIX B (LEAD WIPE SAMPLE LOCATIONS)

LWS20110607-07
Next to Fire Extinguisher
and Exit Door

LWS20110607-08
Next to Fire Extinguisher
and Supply Air Vent

APPENDIX C (PICTURES OF HUNTINGDON ARMORY)

AED

Carbon Monoxide Alarm
Maintenance Building

Vehicle Exhaust System
Maintenance Building

Motor Pool

APPENDIX C (PICTURES OF HUNTINGDON ARMORY)

POV Parking

Wash Rack

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May, 2018

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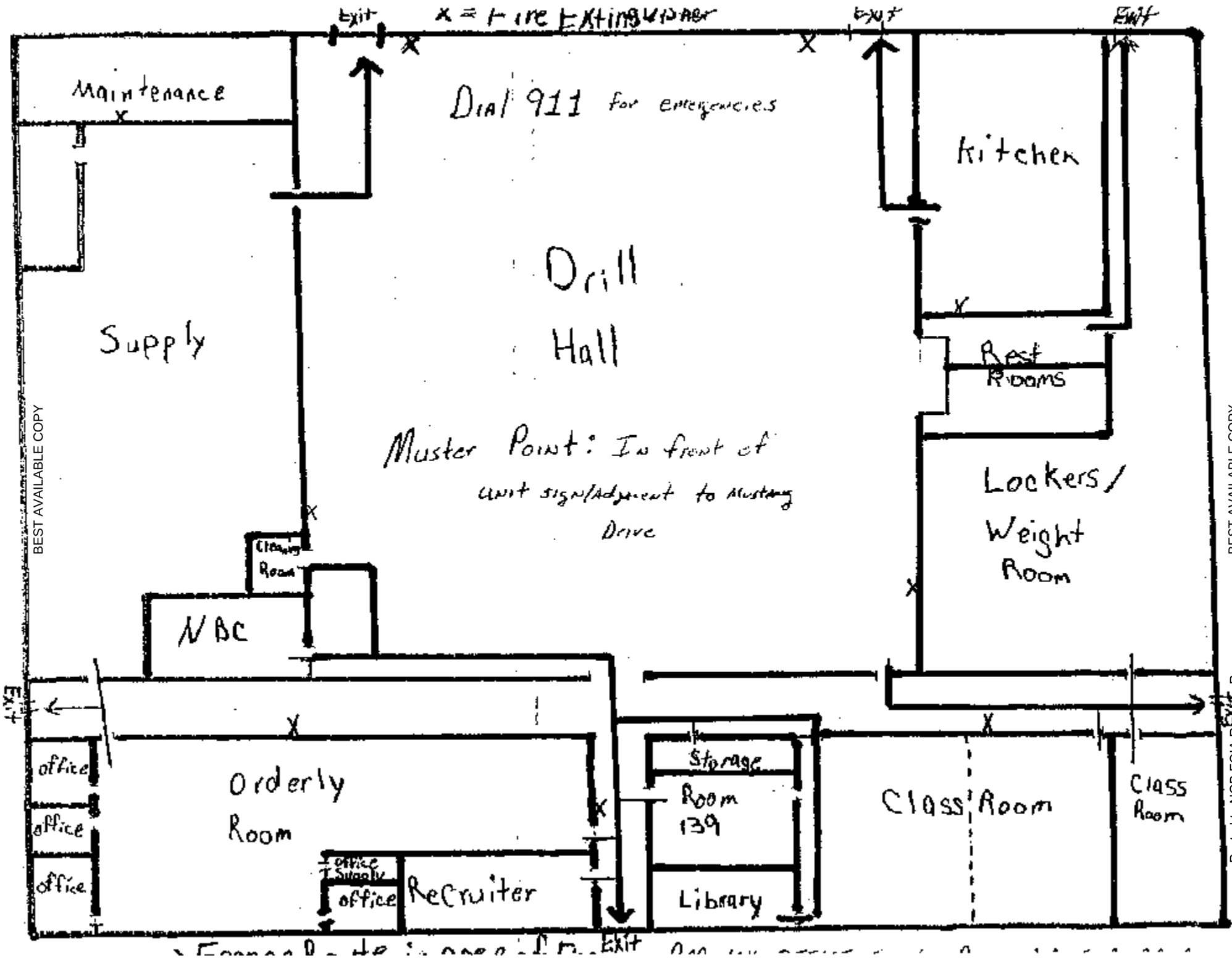
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 969 of 2531



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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 970 of 2531
Posted to NGB FOIA Reading Room
May, 2018

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HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC: 47000	INSTALLATION: Huntingdon Armory 400 Mustang Drive Huntingdon, TN	BLDG/RM NO.
LOCATION/CODE: AA	OPERATION/CODE: ADO	
SURVEY DATE: 07 June 2011	EVALUATOR (Initials): WMS	
MACOM/CODE: NG	SUBMACOM/CODE: XX	SUPERVISOR: Non-Responsive
TELEPHONE/DSN NO: Non-Responsive	UNIT/ORGANIZATION: Huntingdon Armory	RAC:
		FREQUENCY (hrs/day): 8 hrs/day

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
0	3	0	0	0

SECTION 2. FACILITY DATA

LAB HOODS: 0	VAPOR DEGREASERS: 0	SPRAY BOOTHS: 0
MAINTENANCE BAYS: 2	OPEN SURFACE TANKS: 0	VENTILATION UNITS: 1

SECTION 3. SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS

PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

GLOVES	R/U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R/U
ACID	/	AIRLINE			/
COLD SURFACES	/	ABRASIVE BLASTING HOOD			/
HOT SURFACES	/	DISPOSABLE			/
BIOC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	1/2 FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	1/4 FACE AIR PURIFYING			/
		SELF CONTAINED			/

EYES/FACE	R/U	HEARING	R/U	BODY	R/U	HEAD/FIT	R/U
CHEMICAL SPLASH	/	CANAL CAPS	/	APRONS	/	COLD WEATHER BOOTS/HATS	/
FULL FACE SHIELD	/	EARPLUGS	/	COLD WEATHER CLOTHING	/	HARD HATS	/
CHEMICAL/SAFETY	/	HELMETS	/	COVERALLS	/	IMPERMEABLE BOOTS	/
SAFETY/IMPACT	/	MUFFS	/	FULL BODY SUIT	/	SAFETY/CONDUCTIVE SHOES	/
WELDING HELMET	/	MUFF/EARPLUG COMBO	/	HEAT REFLECTIVE VEST/SUIT	/	SAFETY/NON-CONDUCTIVE SHOES	/
		MUFF/EARPLUG W/TIME LIMIT	/	SAFETY BELT/HARNESS	/		

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AES

ANALYTICAL ENVIRONMENTAL SERVICES, INC.

June 20, 2011

Non-Responsive

[redacted]

RE: Huntingdon Armory

Dear Non-Responsive [redacted]

Order No: 1106C05

Analytical Environmental Services, Inc. received 8 samples on 6/14/2011 12:15:00 PM for the analyses presented in following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.
AES' certifications are as follows:
-NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/10-06/30/11.
-AIHA Certification ID #100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) effective until 09/01/11.

These results relate only to the items tested. This report may only be reproduced in full.

If you have any questions regarding these test results, please feel free to call.

Non-Responsive

[redacted]

3785 Presidential Parkway • Atlanta, Georgia 30340 • Tel: (770) 457-8177 • FAX: (770) 457-8188

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 972 of 2531

Page 2 of 5
Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 973 of 2531

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ANALYTICAL ENVIRONMENTAL SERVICES, INC
3785 Presidential Parkway, Atlanta GA 30340-3704
AES TEL: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

Work Order: 1106C05

Date: 6-13-2011 Page 1 of 1

COMPANY: [redacted] Non-Responsive

ADDRESS: 7043 STONECREEK DRIVE DOUGLASVILLE, GA 30134

FAX: N/A

SIGNAT: [redacted] Non-Responsive

ANALYSIS REQUESTED: Lead in Dust

Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.

#	SAMPLE ID	SAMPLED DATE	SAMPLED TIME	Grab	Composite	Matrix (See codes)	Lead in Dust	REMARKS	No. of Containers
1	LWS20110607-01	6-7-2011					✓	IFT2 Wipes	
2	LWS20110607-02	6-7-2011					✓		
3	LWS20110607-03	6-7-2011					✓		
4	LWS20110607-04	6-7-2011					✓		
5	LWS20110607-05	6-7-2011					✓		
6	LWS20110607-06	6-7-2011					✓		
7	LWS20110607-07	6-7-2011					✓		
8	LWS20110607-08	6-7-2011					✓		
9									
10									
11									
12									
13									
14									

PRESERVATION (See codes)

RELINQUISHED BY: [redacted] Non-Responsive DATE/TIME: 6/14/11

RECEIVED BY: DATE/TIME:

OUT / / VIA:
IN / / VIA:
CLIENT FedEx UPS MAIL COURIER
GREYHOUND OTHER

PROJECT INFORMATION
PROJECT NAME: Huntingdon Armory
PROJECT #:
SITE ADDRESS: 4AD Mustang Drive
SEND REPO [redacted] Non-Responsive
INVOICE TO [redacted]
(IF DIFFERE [redacted] Non-Responsive
Hyatt Place South 5/0 Plaza Drive Suite 1530 College Park, GA 30349
QUOTE #: PO#:

RECEIPT
Total # of Containers

Turnaround Time Request
Standard 5 Business Days
2 Business Day Rush
Next Business Day Rush
Same Day Rush (auth req.)
Other

STATE PROGRAM (if any)
E-mail? Y / N, Fax? Y/N
DATA PACKAGE: I II III IV

SAMPLES RECEIVED AFTER 3PM OR SATURDAY ARE CONSIDERED AS RECEIVED ON THE NEXT BUSINESS DAY; IF NO TAT IS MARKED ON COC AES WILL PROCEED AS STANDARD TAT.
SAMPLES ARE DISPOSED OF 30 DAYS AFTER COMPLETION OF REPORT UNLESS OTHER ARRANGEMENTS ARE MADE.

MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify)
PRESERVATIVE CODES: H+I = Hydrochloric acid + ice I = Ice only N = Nitric acid S+I = Sulfuric acid + ice S/M+I = Sodium Bisulfate/Methanol + ice O = Other (specify) NA = None

White Copy - Original; Yellow Copy - Client

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Analytical Environmental Services, Inc

Date: 20-Jun-11

Lab Order:	1106C05
Client:	National Guard Bureau Region-South 1H
Project:	Huntingdon Armory
Matrix:	Wipe
Date Received:	6/14/2011 12:15:00 PM

LEAD ON WIPES (N9100/7082)

N7082

Laboratory ID	Client Sample ID	Result	Units	Reporting Limit	DF	Qual	Date Collected	Date Analyzed	Analyst
1106C05-001A	LWS 20110607-01	BRL	µg/ft²	20	1		06/07/2011	06/17/2011	MP
1106C05-002A	LWS 20110607-02	BRL	µg/ft²	20	1		06/07/2011	06/17/2011	MP
1106C05-003A	LWS 20110607-03	BRL	µg/ft²	20	1		06/07/2011	06/17/2011	MP
1106C05-004A	LWS 20110607-04	BRL	µg/ft²	20	1		06/07/2011	06/17/2011	MP
1106C05-005A	LWS 20110607-05	BRL	µg/ft²	20	1		06/07/2011	06/17/2011	MP
1106C05-006A	LWS 20110607-06	BRL	µg/ft²	20	1		06/07/2011	06/17/2011	MP
1106C05-007A	LWS 20110607-07	BRL	µg/ft²	20	1		06/07/2011	06/17/2011	MP
1106C05-008A	LWS 20110607-08	BRL	µg/ft²	20	1		06/07/2011	06/17/2011	MP

Qualifiers: BRL - Not Detected at the Reporting Limit

B - Analyte detected in the associated Method Blank

DF - Dilution Factor

Results are blank corrected where applicable

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 974 of 2531

Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client GA Army Work Order Number 1106C05

Checklist completed by [redacted] 6/14/11
Signature Date

Carrier name: FedEx __ UPS __ Courier __ Client __ US Mail ✓ Other _____

Shipping container/cooler in good condition? Yes ✓ No __ Not Present __

Custody seals intact on shipping container/cooler? Yes __ No __ Not Present ✓

Custody seals intact on sample bottles? Yes __ No __ Not Present ✓

Container/Temp Blank temperature in compliance? (4°C±2)* Yes ✓ No __ ND 6/14

Cooler #1 Ambient Cooler #2 _____ Cooler #3 _____ Cooler #4 _____ Cooler#5 _____ Cooler #6 _____

Chain of custody present? Yes ✓ No __

Chain of custody signed when relinquished and received? Yes ✓ No __

Chain of custody agrees with sample labels? Yes ✓ No __

Samples in proper container/bottle? Yes ✓ No __

Sample containers intact? Yes ✓ No __

Sufficient sample volume for indicated test? Yes ✓ No __

All samples received within holding time? Yes ✓ No __

Was TAT marked on the COC? Yes ✓ No __

Proceed with Standard TAT as per project history? Yes __ No __ Not Applicable ✓

Water - VOA vials have zero headspace? No VOA vials submitted ✓ Yes __ No __

Water - pH acceptable upon receipt? Yes __ No __ Not Applicable ✓

Adjusted? _____ Checked by _____

Sample Condition: Good ✓ Other(Explain) _____

(For diffusive samples or AIHA lead) Is a known blank included? Yes __ No ✓

See Case Narrative for resolution of the Non-Conformance.

* Samples do not have to comply with the given range for certain parameters.

\\L\Quality Assurance\Checklists Procedures Sign-Off Templates\Checklists\Sample Receipt Checklists\Sample_Cooler_Receipt_Checklist

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 975 of 2531

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 976 of 2531

Analytical Environmental Services, Inc

Date: 20-Jun-11

Client: National Guard Bureau Region-South IH
Project: Huntingdon Armory
Lab Order: 1106C05

Dates Report

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1106C05-001A	LWS 20110607-01	6/7/2011 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		06/17/2011	06/17/2011
1106C05-002A	LWS 20110607-02	6/7/2011 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		06/17/2011	06/17/2011
1106C05-003A	LWS 20110607-03	6/7/2011 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		06/17/2011	06/17/2011
1106C05-004A	LWS 20110607-04	6/7/2011 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		06/17/2011	06/17/2011
1106C05-005A	LWS 20110607-05	6/7/2011 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		06/17/2011	06/17/2011
1106C05-006A	LWS 20110607-06	6/7/2011 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		06/17/2011	06/17/2011
1106C05-007A	LWS 20110607-07	6/7/2011 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		06/17/2011	06/17/2011
1106C05-008A	LWS 20110607-08	6/7/2011 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		06/17/2011	06/17/2011

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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-ARS-IHSE (40-5f) November 18, 2006

MEMORANDUM THRU Non-Responsive Deputy State Surgeon, Tennessee National Guard, HQS, TNARNG STARC, Attn: AGTN-DCSPER-DSS, P.O. Box 41502, Houston Barracks, Nashville, Tennessee 37204-1501

TO: ATTN: Non-Responsive State Occupational Health Office, P O Box 41502, Nashville, TN 37204-1502.

SUBJECT: Transmittal of Survey Reports for the Field Maintenance Shop #8 (FMS#8), 313 Wilton Circle, Winchester, Tennessee 37398-9702, SGT Alvin C. York Armory, 3399 South York Highway, Jamestown, TN 38556-5336, Smyrna Armory, Smyrna, TN 37167

1. References.

a. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1996 rev.

b. AR 40-5, Preventive Medicine, 22 July 2005.

c. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.

d. AR 385-10, 29 February 2000, Army Safety Program.

e. TB MED 503, The Army Industrial Hygiene Program, 30 October 2000.

f. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.

g. Industrial Ventilation, 25th, 2004, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

h. Title 29 Code of Federal Regulation (CFR), Part 1910.1025 Lead.

i. Industrial Hygiene Survey Report, Non-Responsive Industrial Hygiene Consulting, Douglasville, GA.

2. General.

a. At the request of the TN ARNG Safety and Occupational Health Office, an Industrial Hygiene Service was put together to conduct Health Hazard Information module (HHIM) Field surveys and industrial hygiene sampling of the FMS#8, 313 Wilton Circle, Winchester, Tennessee 37398-9702, SGT Alvin C. York Armory, 3399 South York Highway, Jamestown, TN 38556-5336, Smyrna Armory, Smyrna, TN 37167.

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b. The surveys were conducted by Non-Responsive [redacted] GA.

3. Findings. All HHIM field survey forms, industrial hygiene sampling and survey findings of the report are enclosed (See ENCL 1). The report has been designed, by this office, to extract personal data from the report which is enclosed. Additionally Hearing Conservation Program Notification Letters were generated based on the noise dosimetry performed, 2 notification letters for FMS 8.

4. Recommendations.

a. Follow all recommendations made in reference 1.1., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Control water infiltration in the armory and/or replace or repair damaged surfaces or components (ceiling and floor tiles). Building conditions that present IAQ concerns or problems not only exacerbates normally minor health issues but also tend to promote or accelerate building deterioration.

c. The recommendations given in the comment section and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-06. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-07 IHIP.

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present survey, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

f. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

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NGB-ARS-IHSE (40-5f) November 18, 2006

SUBJECT: Transmittal of Survey Reports for the Field Maintenance Shop #8 (FMS#8), 313 Wilton Circle, Winchester, Tennessee 37398-9702, SGT Alvin C. York Armory, 3399 South York Highway, Jamestown, TN 38556-5336, Smyrna Armory, Smyrna, TN 37167

5. If additional information is needed about the industrial hygiene survey or air sample results

Non-Responsive

[redacted]

CF: NGB-ARS-IH

Non-Responsive Tennessee State Safety and Occupational Health Manager, 3041 Sidco Drive, Nashville, TN 37204-1504

as

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INDUSTRIAL HYGIENE INITIAL BASELINE SURVEY

TENNESSEE NATIONAL GUARD

SGT ALVIN C. YORK TENNESSEE NATIONAL GUARD ARMORY
3399 South York Highway
Jamestown, TN 38556-5336

DATE: 7 and 8 September 2006

PREPARED BY

Non-Responsive

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TABLE OF CONTENTS

BACKGROUND..... Pg 1
Introduction..... Pg 1
Scope of Work..... Pg 1
INSTRUMENTATION ..... Pg 1
FINDINGS..... Pg 2
BUILDING CONDITION..... Pg 2
LEAD DUST WIPE SAMPLES.....Pg 2 and 3
ADMINISTRATIVE OFFICES..... Pg 3
AIRFLOW/VENTILATION..... Pg 3 and 4
SUPPLY ROOM/VAULT..... Pg 4 and 5
KITCHEN/MESS HALL..... Pg 5
DRILL HALL..... Pg 6
INDOOR FIRING RANGE..... Pg 6 and 7
MOTOR POOL..... Pg 7
RESTROOMS.....Pg 7
OBSERVATIONS AND RECOMMENDATIONS..... Pg 8
TABLE 1A GENERAL ILLUMNATION LEVELS..... Pg 9
TABLE 1B TASK LEVEL TROUBLED AREAS..... Pg10
TECHNICAL ASSISTANCE..... Pg 10
APPENDIX A, (**LEAD WIPE SAMPLES lws0625001 TO lws625017**).....Pg 11 thru 13
APPENDIX B, (**MORE PICTURES OF JAMESTOWN ARMORY**).....Pg 14 thru 18

ATTACHMENTS;

Facility Diagram
Analytical Environmental Services, Inc. (Chain of Custody

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MEMORANDUM FOR: Tennessee National Guard, Attn: Non-Responsive TNARNG Readiness NCO/Master Gunner, Alvin C. York Tennessee National Guard Armory, 3399 South York Highway, Jamestown, TN 38556

Subject: Industrial Hygiene Initial Baseline Survey of Jamestown Armory, Jamestown, Tennessee.

BACKGROUND:

Introduction:

At the request of Non-Responsive National Guard Bureau Regional Industrial Hygiene South Office, Atlanta, GA, an initial baseline industrial hygiene survey was conducted at the Jamestown Armory, Jamestown, Tennessee on 7th and 8th of September 2006 as part of the Tennessee Army National Guard Occupational Health in the workplace. The point of contact for this facility was Non-Responsive Non-Responsive

Scope of Work:

The survey consisted of collecting lead wipe samples, illumination survey, as well as evaluating the condition of the building, including the airflow of the Heating Ventilation and Air Conditioning (HVAC) System as it relates to indoor air quality. A review of several industrial programs, such as hazard communication, radiation protection, and personal protective equipment was also performed. A field survey form is complete on all industrial operations at the facility, and the data is contained in this report.

INSTRUMENTATION:

The following survey instrumentation was provided by or for the contractor, and was used to obtain lead wipe dust and Illumination measurements. Ghost wipes and plastic containers were used for collecting and shipping the lead dust samples to the Analytical Environmental Services, Inc. Laboratory in Atlanta Georgia. The illumination meter battery was checked and operated according to manufacture recommendations.

Instrument	Serial Number	Calibration
Extech Foot Candle Meter	L404361	26 June 2006

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Released by National Guard Bureau
Page 982 of 2531

FINDINGS:

The Armory was built in 1986. The fulltime personnel work from 8:00 am to 4:30 pm, Monday through Friday. The building is a one level brick facility with a drill hall. The Motor Pool is fenced-in for security of the armored vehicles that's parked. The drill hall is rented out to the community about three time s a year

1. Co. A (-) 3-109 Armor Battalion 278th Calvary Brigade Combat Team, CPT Paul W. Shannon, Commander.

   This unit has two fulltime personnel providing readiness and supply support. Also, a recruiter utilizes office space in the Armory. The following information is provided on fulltime personnel and recruiter assigned:

	Last Name	First	MI	Sex	(Last Four) SSAN	Rank	Position
a.	Non-Responsive						Readiness NCO
b.							Supply NCO
c.							Recruiter

BUILDING CONDITION:

The building outside condition was good in appearance and the inside was very good due to evidence of a recent paint job. According to Non-Responsive the building had been painted while the unit was deployed from June of 2004 to November 2005. The indoor firing range had been locked for several years by State Environmental and the key kept in their possession. The condition of the firing range was good except for a loose ceiling tile in the observatory and several rows of blown bulbs.

LEAD DUST WIPE SAMPLES:

Fifteen wipe samples were collected in the indoor firing range using a 12 inch by 12 inch grid. Due to routine janitorial cleaning, lead wipe samples were not collected any where else in the building. Nine samples were significantly above the Army National Guard standard of 200 µg/ft² surface contamination in and around the indoor firing ranges (**Army National Guard All States Log Number PO1-0075, Policies and Responsibilities for Inspection, Evaluation, and Operation of ARNG Indoor Firing Range (IFR) and Guidelines for IFR Rehabilitation, Conversion, and Cleaning**). Pictures of the lead wipes were taken (see Appendix A samples 1 through 15). The following table notes where the samples were taken, the sample number and the lead results:

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 983 of 2531

Sample Location	Sample Number	Sample Results
IFR Right Acoustic Wall	lws0625001	BRL
IFR Floor	lws0625002	3830
IFR Floor (10 ft)	lws0625003	4800
IFR Floor (20 ft)	lws0625004	8910
IFR Right Acoustic Wall	lws0625005	127
IFR Floor (30 ft)	lws0625006	9310
IFR Floor (40 ft)	lws0625007	19600
IFR Right Concrete Wall	lws0625008	416
IFR Left Acoustic Wall	lws0625009	188
IFR Left Acoustic Wall	lws0625010	176
IFR Left Concrete Wall	lws0625011	402
IFR Left Metal Wall	lws0625012	334
IFR Right Metal Wall	lws0625013	484
IFR Back wall (Observatory)	lws0625014	54
IFR Left Wall (Observatory)	lws0625015	66
IFR Floor (Control)	lws0625016	BRL
IFR Wall (Control)	lws0625017	BRL

Remarks: BRL (Not Detected at the Reporting Limit)
IFR (Indoor Firing Range)

ADMINISTRATIVE OFFICES

There are several administrative offices, four class rooms in this facility, where personnel use computer systems, files, read, write and perform other administrative tasks as necessary. Computer use occurs throughout the day. The following general illumination levels did not meet the minimum requirement set forth by IES, Illuminating Engineering Society Handbook, 8th Edition: [redacted] office, Admin NCOs office, Class rooms A & B, Learning Center/Class Room and The Administrative Office. Task lighting in the following areas were below IES requirements: [redacted] computer and desk, [redacted] Desk and computer, [redacted] Computer and 1SGT's computer.

AIRFLOW/VENTILATION

The facility is not equipped with a central HVAC unit, therefore no air measurements were taken during the survey. The administrative section which house the Readiness, Recruiting and the Administrative NCO Office's have a supporting air/heating unit system. The HVAC unit on the roof can be viewed but could not be opened by anyone other than a service contractor. According to [redacted] the air filters are routinely changed. The 1SGT's office and classrooms are serviced by a separate unit. The supply room is not supported by any air ventilation unit.

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 984 of 2531

The HVAC Unit that supports the Administrative Offices

The HVAC Unit that supports the 1SGT's office and the class Rooms

SUPPLY ROOM AND VAULT

This facility has one supply room. The supply room also serves as an office for [redacted] The supply office is responsible for the Material Safety Data Sheets (MSDS). The MSDS's are held together by a two hole fastener and kept on a bulletin board in the Drill Hall. Non-Responsive [redacted] have been trained in the Federal Hazardous Communication Program IAW 1910.1200. The general illumination did not meet IES requirement. The task lighting at Non-Responsive desk did not meet IES Requirement. Supply serves two detachment units, one in Livingston, TN and the other in Oneida, TN

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 985 of 2531

Supply Room

KITCHEN/MESS HALL

The kitchen facility is used for cooking by personnel during drill weekend, as well as caterers during drill hall events sponsored by the general public. The general illumination did not meet IES requirement.

Kitchen/Mess Hall

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Released by National Guard Bureau
Page 986 of 2531

DRILL HALL

Personnel officially use the drill hall two or three days per month. The hall is rented out for community events two to three times a year.

Drill Hall

INDOOR FIRING RANGE

This indoor firing range has been put off limits and kept locked by State Environmental. At the contractor's request State Environmental sent a representative from Nashville to unlock the door to the firing range so the contractor could obtain lead wipe samples. Nine of fifteen samples came back over the 200 µg/ft² limit set by The Army National Guard All States Log Number P01-0075, Policies and Responsibilities for Inspection, Evaluation, and Operation of ARNG Indoor Firing Range (IFR) and Guidelines for IFR Rehabilitation, Conversion, and Cleaning. The general illumination was very poor. No illumination survey was conducted due to too many blown bulbs.

Indoor Firing Range (Looking from down range to up range)

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MOTOR POOL

The Motor Pool is a fenced in area behind the Armory. There was only a few military vehicles parked in the yard at the time of the survey.

Fenced-in Motor Pool

RESTROOMS

There are two restrooms in the Drill Hall, The men's restroom has two urinals, two commodes and a shower area connected with access to the men's locker room which is pretty large. The women's restroom has two commodes and a smaller shower area connected with access to a smaller locker area. The Hallway to the Indoor Firing Range has one restroom with one commode that can be use either by male or female personnel. The general illumination in all the restrooms was within IES requirements.

OBSERVATION AND RECOMMENDATIONS

A. Two of the three HVAC units on the roof are weather beaten and has been painted over with a tan colored paint making it impossible to read the printing on the units. The blades are rusty and the belts looked a little loose. Condensation coming from the units is pooled in rust and mold. A work request should be submitted to conduct a preventive maintenance inspection on the units to insure the units are operating in accordance to the manufacturer's specifications and if any part of the unit needs to be repaired than it should be done. Also, when the filters are changed for each individual unit it should be inspected for standing water to be removed and the intake grilles to be cleaned.

B. A work request should be submitted to replace blown bulbs, and up-grade lighting where needed. Furniture should be re-arranged to make better use of the illumination, and supplemental lighting obtained to increase lighting levels at the task.

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C. Material Safety Data Sheet's (MSDS's) displayed on the bulletin board in the drill hall should be removed and placed chronologically into a three ring binder. The first page of the binder should be a listing of the contents of the binder. The MSDS binder should then be kept in the Administrative area or in Supply. The location of the binder can then be posted on the bulletin boards. A print-out of the current MSDS's on hand was not available for attachment to the survey report.

D. A total of eleven portable fire extinguishers (PFE's) were noted throughout the facility. The unit inspects the PFE's on a monthly basis, however, they need to be annually inspected by a state certified NFP (National Fire Protection) inspector and tagged. Recommend unit obtain a contract through normal supply channels for a certified NFP fire extinguisher inspector to inspect PFE's on an annual basis.

E. A portable first aid kit in the kitchen was inspected and a bottle of aspirins with an expiration date of 2003 was found. Recommend the unit appoint someone to routinely inspect the contents of the kits and remove expired items and replenish it with current items. This practice should also be accomplished with the first aid kit in Supply.

F. The indoor firing range observatory and the acoustic walls were the only areas with results below the Army National Guard standard of 200 $\mu g/ft^2$. The floor, walls (concrete and metal) and backstop is well above the limit and will require a thorough cleaning and re-testing before it can be used again. Recommend it be kept locked until it can be cleaned by someone certified in lead dust decontamination.

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TABLE 1A (General Illumination Levels)

Location	Range in Foot Candles (FC)	Average FC	IES Standard in FC
Drill Hall (DH)	16 – 43	26	20 - 50
Drill Hall Storage	24 – 35	29	10 - 20
Supply Room	3 – 14	9	20 - 50
Supply Vault	12 – 22	15	20 - 50
Kitchen	27 – 57	43	50 - 100
Kitchen Washroom	27 – 45	37	50 - 100
DH Women Restroom	31 – 41	37	10 - 20
DH Janitor Room	9 – 13	11	10 - 20
DH Maintenance Storage	12 – 21	16	10 - 20
IFR Restroom	16 – 38	27	10 - 20
IFR Storage	6 – 14	11	10 - 20
IFR Hallway	7 – 28	18	
Administrative Office	28 – 60	44	50 - 100
Classroom A	40 – 54	44	50 - 100
Classroom B	26 – 42	34	50 - 100
DH Men's Restroom	5 – 60	23	10 - 20
DH Men's Shower	7 – 12	8	10 - 20
DH Men's Locker	11 – 27	17	10 - 20
Non-Responsive Office	44 – 55	49	50 - 100
Non-Responsive Office	23 – 35	31	50 - 100
Admin NCOs Office	38 – 47	42	50 - 100
1SGT's Office	52 – 74	65	50 - 100
Janitor's Room	11 – 17	15	
Library/Classroom	36 – 64	51	50 - 100
Learning Center/Classroom	31 – 46	38	50 - 100

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Page 990 of 2531

TABLE 1B (Task Level Troubled Areas)

Location	Average FC	IES Standard
Non-Responsive [redacted]	32	50 – 100
	21	50 - 100
	52	50 – 100
	37	50 – 100
	9	50 - 100
	9	50 – 100
Admin NCOs Desk	34	50 – 100
Admin NCOs Computer	34	50 – 100
1SGT's Desk	66	50 – 100
1SGT's Computer	44	50 - 100

TECHNICAL ASSISTANCE

Non-Responsive [redacted]

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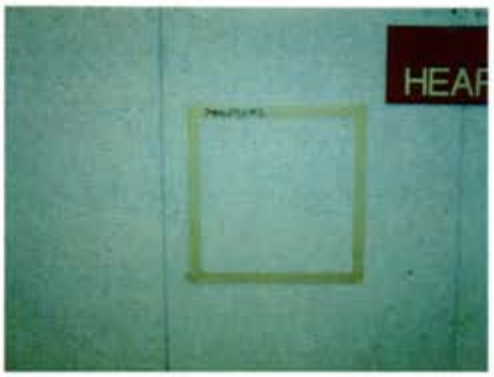
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 991 of 2531

APPENDIX A, LEAD WIPE SAMPLES lws062501 THROUGH lws062017

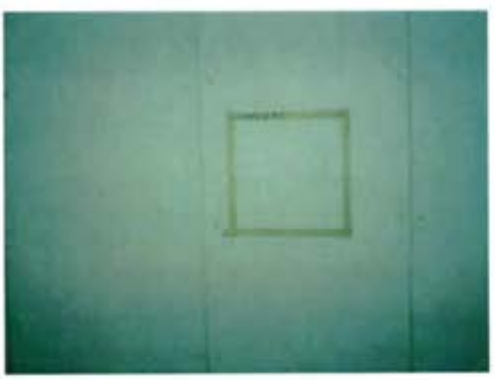


Sample No. lws0625001
(IFR Right Acoustic Wall)

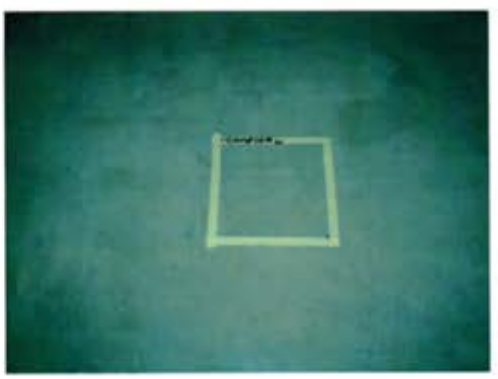
Sample No. lws0625002
(IFR Floor)

Sample No. lws0625003
(IFR Floor at 10 ft.)

Sample No. lws0625004
(IFR Floor at 20 ft.)



Sample No. lws0625005
(IFR Right Acoustic Wall



Sample No. lws0625006
(IFR Floor at 30 ft.)

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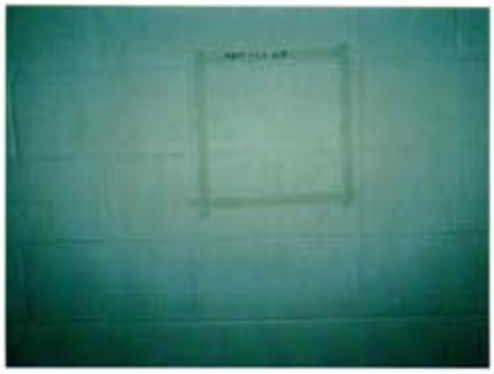
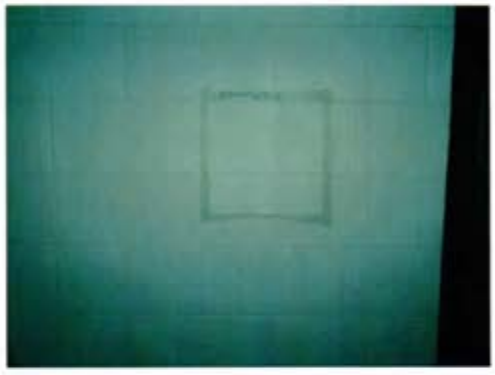
Page 992 of 2531

Sample No. lws0625007
(IFR Floor at 40 ft.)

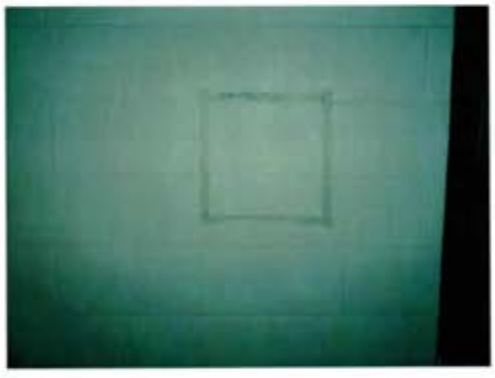


Sample No. lws0625008
(IFR Right concrete Wall)

Sample No. lws0625009
(IFR Left Acoustic Wall)



Sample No. lws0625010
(IFR Left Concrete Wall)



Sample No. lws0625011
(IFR Left Wall Concrete)

Sample No. lws0625012
(IFR Metal Back Stop Left Wall)

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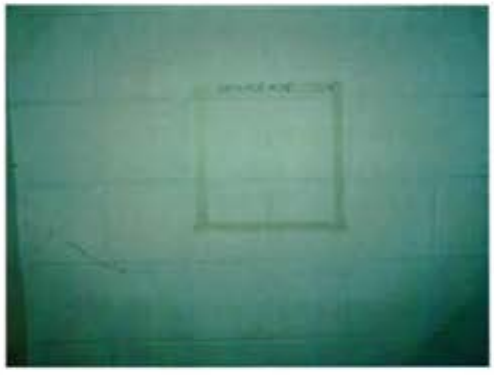
Released by National Guard Bureau
Page 993 of 2531

Sample No. lws0625013
(IFR Metal Back Stop Right Wall)

Sample No. lws0625014
(IFR Observatory Back Wall)



Sample No. lws0625015
(IFR Observatory Left Wall)

Sample No. lws0625016 Blank Control
Sample No. lws0625017 Blank Control

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Page 994 of 2531

APPENDIX B, MORE PICTURES OF JAMESTOWN ARMORY

Bradley and York Tanks Located in Front of Building Parking Lot

A Back View of Jamestown Armory

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Page 995 of 2531

SFC Asberry in the Office behind His Desk

The Administrative Office

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Looking Down Range inside the Firing Range

Inside Class Room A looking at Class Room B

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The 1SGT's Office

The Library/Class Room

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Learning Center/Class Room

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ANALYTICAL ENVIRONMENTAL SERVICES, INC

3785 Presidential Parkway, Atlanta GA 30340-3704

TEL.: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

Work Order: 0609A25

Date: 18Sep06 Page 1 of 2

Non-Responsive [redacted]

ADDRESS: 7043 STONE CREEK DRIVE
DOUGLASVILLE, GA 30134-6423

Non-Responsive [redacted]

ANALYSIS REQUESTED

Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.

SAMPLE ID	DATE	TIME	Grab	Composite	Matrix (See codes)	PRESERVATION (See codes)	REMARKS	No # of Containers
WS0625001 - WALL (R)	7Sep06	N/A					1'x 1' Grid used	
WS0625002 - Floor								
WS0625003 - Floor								
WS0625004 - Floor								
WS0625005 - WALL (R)								
WS0625006 - Floor								
WS0625007 - Floor								
WS0625008 - WALL (R)								
WS0625009 - WALL (L)								
WS0625010 - WALL (L)								
WS0625011 - WALL (L)								
WS0625012 - WALL (L)								
WS0625013 - WALL (R)								
WS0625014 - WALL (L)								

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ISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
Non-Responsive [redacted]		Non-Responsive [redacted]	18 06 2.7

Non-Responsive [redacted]

SHIPMENT METHOD

OUT / / VIA:

IN / / VIA:

CLIENT FedEx UPS MAIL COURIER

GREYHOUND OTHER DHC

PROJECT INFORMATION

PROJECT NAME: ALVIN C YORK ARMORY INDOOR FIRING RANGE

PROJECT #: N/A

SITE ADDRESS: 3309 S YORK HIGHWAY

SEND REPORT

INVOICE TO: (IF DIFFERENT)

Non-Responsive [redacted]

QUOTE #: PO#:

RECEIPT

Total # of Containers

Turnaround Time Request

- ⊗ Standard 5 Business Days
- ○ 2 Business Day Rush
- ○ Next Business Day Rush
- ○ Same Day Rush (auth req.)
- ○ Other

STATE PROGRAM (if any):

E-mail? Y / N: Fax? Y / N

DATA PACKAGE: I II III IV

RED AS RECEIVED ON THE NEXT BUSINESS DAY; IF NO TAT IS MARKED ON COC AES WILL PROCEED AS STANDARD TAT.

S ARE DISPOSED OF 30 DAYS AFTER COMPLETION OF REPORT UNLESS OTHER ARRANGEMENTS ARE MADE.

CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Water (Blank) O = Other (specify)

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ANALYTICAL ENVIRONMENTAL SERVICES, INC

3785 Presidential Parkway, Atlanta GA 30340-3704
TEL.: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

Work Order: C609A25

Date: 18 Sep 06 Page 2 of 2

[redacted]

ADDRESS: 7043 STONECREEK DRIVE
DOUGLASVILLE, GA 30134-
23

[redacted]

ANALYSIS REQUESTED: LEAD DUST CONTAMINANT

Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.

SAMPLE ID	SAMPLED DATE	SAMPLED TIME	Grab	Composite	Matrix (See codes)	PRESERVATION (See codes)	REMARKS	No # of Containers
LWS065015 - WALL (L)	7Sep06	N/A					1'x1' Grid used	
LWS065016 - FLOOR	7Sep06	N/A					" " "	
LWS065017 - WALL	7Sep06	N/A					" " "	
~~3LS0625401~~								
~~3LS0625402~~								

[redacted]

DATE/TIME: 9/19/06 427

9/20/06 10:

3:

SHIPMENT METHOD
OUT / / VIA:
IN / / VIA:
CLIENT FedEx UPS MAIL COURIER
GREYHOUND OTHER DHL

PROJECT INFORMATION
PROJECT NAME: Alvin C. York Armory Indoor Firing Range
PROJECT #:
SITE ADDRE[redacted]
SEND REPOR[redacted]
INVOICE TO: (IF DIFFERE[redacted]
QUOTE #: PO#:

RECEIPT
Total # of Containers

Turnaround Time Request
- [x] Standard 5 Business Days
- [ ] 2 Business Day Rush
- [ ] Next Business Day Rush
- [ ] Same Day Rush (auth req.)
- [ ] Other

STATE PROGRAM (if any):
E-mail? Y / N: Fax? Y / N
DATA PACKAGE: I II III IV

[redacted]

[redacted]S RECEIVED AFTER 3PM OR SATURDAY ARE CONSIDERED AS RECEIVED ON THE NEXT BUSINESS DAY; IF NO TAT IS MARKED ON COC AES WILL PROCEED AS STANDARD TAT.

[redacted]S ARE DISPOSED OF 30 DAYS AFTER COMPLETION OF REPORT UNLESS OTHER ARRANGEMENTS ARE MADE.

A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Wa[redacted]nks) O = Other (specify)

White Copy - Original, Yellow Copy - Client

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Page 1002 of 2531

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Analytical Environmental Services, Inc.

Date 9/27/2006

TOTAL LEAD IN WIPE SAMPLES
N7082

CLIENT: National Guard Bureau Region-South III
Project: Alvin C York Armory Indoor Firing Range
Delivery Order:
PO No:

Lab Order: 0609A25
Date Received: 9/20/2006 10:15 AM
Matrix: Wipe

Laboratory ID	Client Sample ID	Results	Units	Report Limit	DF	Date Collected	Date Analyzed	Analyst
0609A25-001A	lws0625001-wall (R)	BRL	µg/ft²	20	1	9/7/2006	9/22/2006	VA
0609A25-002A	lws0625002-floor	3830	µg/ft²	93	4.66	9/7/2006	9/22/2006	VA
0609A25-003A	lws0625003-floor	4800	µg/ft²	100	4.99	9/7/2006	9/22/2006	VA
0609A25-004A	lws0625004-floor	8910	µg/ft²	302	15.09	9/7/2006	9/22/2006	VA
0609A25-005A	lws0625005-wall (R)	127	µg/ft²	20	1	9/7/2006	9/22/2006	VA
0609A25-006A	lws0625006-floor	9310	µg/ft²	314	15.7	9/7/2006	9/22/2006	VA
0609A25-007A	lws0625007-floor	19600	µg/ft²	1000	50	9/7/2006	9/22/2006	VA
0609A25-008A	lws0625008-wall (R)	416	µg/ft²	20	1	9/7/2006	9/22/2006	VA
0609A25-009A	lws0625009-wall (L)	188	µg/ft²	20	1	9/7/2006	9/22/2006	VA
0609A25-010A	lws0625010-wall (L)	176	µg/ft²	20	1	9/7/2006	9/22/2006	VA
0609A25-011A	lws0625011-wall (L)	402	µg/ft²	20	1	9/7/2006	9/22/2006	VA
0609A25-012A	lws0625012-wall (L)	334	µg/ft²	20	1	9/7/2006	9/22/2006	VA
0609A25-013A	lws0625013-wall (R)	484	µg/ft²	20	1	9/7/2006	9/22/2006	VA
0609A25-014A	lws0625014-wall (L)	54	µg/ft²	20	1	9/7/2006	9/21/2006	VA
0609A25-015A	lws0625015-wall (L)	66	µg/ft²	20	1	9/7/2006	9/21/2006	VA
0609A25-016A	lws0625016-floor	BRL	µg/ft²	20	1	9/7/2006	9/21/2006	VA
0609A25-017A	lws0625017-wall	BRL	µg/ft²	20	1	9/7/2006	9/21/2006	VA

Qualifiers: BRL - Not Detected at the Reporting Limit DF - Dilution Factor

Results are Blank corrected where applicable

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Page 1003 of 2531

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

SECTION 1. DEMOGRAPHIC DATA

ILOC	INSTALLATION	BLDG/RM NO.
LOCATION/CODE	OPERATION/CODE	
SURVEY DATE	EVALUATOR (Initials)	
MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC
FREQUENCY (hrs/day)		
NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)
NO. LOC(S)	NO. OTHER	

SECTION 2. FACILITY DATA

LAB HOODS	VAPOR DEGREASERS	SPRAY BOOTHS
MAINTENANCE BAYS	OPEN SURFACE TANKS	VENTILATION UNITS

SECTION 3. SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS

PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

GLOVES	R/U	RESPIRATOR	NIOSH TC NO	MANUFACTURER	R/U
CID	/	AIRLINE			/
OLD SURFACES	/	ABRASIVE BLASTING HOOD			/
OT SURFACES	/	DISPOSABLE			/
BC AGENTS	/	FULL FACE AIR PURIFYING			/
L	/	1/2 FACE AIR PURIFYING			/
OLVENTS	/	POWERED AIR PURIFYING			/
URGICAL GLOVES	/	1/4 FACE AIR PURIFYING			/
		SELF CONTAINED			/

EYES/FACE	R/U	HEARING	R/U	BODY	R/U	HEAD/FIT	R/U
EMICAL SPLASH	/	CANAL CAPS	/	APRONS	/	COLD WEATHER BOOTS/HATS	/
CE SHIELD	/	EARPLUGS	/	COLD WEATHER CLOTHING	/	HARD HATS	/
EMICAL/SAFETY	/	HELMETS	/	COVERALLS	/	IMPERMEABLE BOOTS	/
ETY/IMPACT	/	MUFFS	/	FULL BODY SUIT	/	SAFETY/CONDUCTIVE SHOES	/
DING HELMET	/	MUFF/EARPLUG COMBO	/	HEAT REFLECTIVE VEST/SUIT	/	SAFETY/NON-CONDUCTIVE SHOES	/
		MUFF/EARPLUG W/TIME LIMIT	/	SAFETY BELT/HARNESS	/		/

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Released by National Guard Bureau
Page 1004 of 2531

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NATIONAL GUARD REGION SOUTH
INDUSTRIAL HYGIENE OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

ARNG-CSG

July 25, 2013

MEMORANDUM FOR The Adjutant General of Tennessee, ATTN: Non-Responsive HHC 176th Combat Support Sustainment Battalion, 253 Don May Road, Johnson City, Tennessee 37615.

THRU: Non-Responsive Deputy State Surgeon, Tennessee National Guard, HQS, AGTN-DCSPER-DSS, P.O. Box 41502, Houston Barracks, Nashville, Tennessee 37204-1501.

SUBJECT: Industrial Hygiene IAQ Survey of the TN ARNG Johnson City Armory, Johnson City, TN.

1. References.

a. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1996 rev.

a. Title 29, Code of Federal Regulations (CFR), 2009 rev., part 1910, Occupational Safety and Health Standards.

b. Title 29 CFR, General Industry, revised 1996 rev. Part 1940

c. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 25 May 2007

d. AR 385-10, The Army Safety Program, 23 August 2007.

e. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.

f. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, 12 September 2008.

g. TB MED 503, The Army Industrial Hygiene Program, 30 October 2000.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2010 American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 26th rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

k. NG PAM 420-15, 03 November 2006, Facilities Engineering, Rehabilitation and Conversion of Indoor Firing Ranges.

2. General. At the request of Non-Responsive RN, of the Tennessee National Guard Occupational Health Office, an Industrial Hygiene Survey was put together to conduct a Health Hazard Information module (HHIM) Field survey of the s and industrial hygiene sampling of the TN ARNG Johnson City Armory, Johnson City, TN.

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ARNG -CSG

July 25, 2013

SUBJECT: Industrial Hygiene Survey of the TN ARNG Johnson City Armory, Johnson City, TN.

3. Findings. All Health Hazard information is on the survey findings of the report. (See enclosure Operations of very short duration were not sampled due to the requirements of the sampling method. If the operation changes or if the length of the operation is increased, contact this office to schedule sampling if it is deemed needed then.

4. Recommendations. Follow the recommendations made in the enclosed report, requesting industrial hygiene (IH) services where needed to complete the recommendations.

a. Have all HHIM data entered into the HHIM computer module.

b. Use the report to help in correcting all deficiencies noted.

c. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present visits, especially if this will help eliminate health hazards and reduce medical surveillance cost.

d. Contact the State Occupational Health Office for any medical Surveillance that may be needed.

e. To execute your responsibilities in correcting all deficiencies, coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

f. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

g. Use the guidance given in the enclosed report as good IH practices, requesting industrial hygiene (IH) services where needed. The recommendations given in the comment section of the HHIM data sheets and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-13. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-14 IHIP.

5. If additional information is needed about the industrial hygiene survey or air sample results

Non-Responsive

[redacted]

CF: ARNG-CSG

Non-Responsive Safety and Occupational Health Manager, Tennessee State Safety and Occupational Health Manager, 3041 Sidco Drive, Nashville, TN 37204-1504

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Industrial Hygiene Report
For
Tennessee Army National Guard
(TN ARNG)
At
Armed Forces Reserve Center
253 Don May Road
Johnson City, Tennessee 37615

Prepared for:
National Guard Bureau
Regional Industrial Hygiene Office
Region South
510 Plaza Drive, Suite 1530
College Park, Georgia 30349
By

Non-Responsive

[redacted]

Table of Contents

Subject ..... Page 1

Background ..... Page 1
- Introduction
- Site Description
- Scope of Work
- POC

Instrumentation ..... Page 1

Findings
- HHC CSSB ..... Page 1
- Lead Wipe Results ..... Page 2
- Area Deficiencies ..... Page 3
- Illumination Readings ..... Page 3

Recommendations: ..... Page 5

Enclosures:

1. Health Hazard Information Module (HHIM) Survey Form
2. Listing of hazardous chemicals/materials at the facility
3. Analytical Lead Wipe Results
4. Personnel Roster
5. Design Floor Plan
6. Lead Clean Up Procedures
7. References
8. Pictures: 1-24

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SESS June 10, 2013

MEMORANDUM FOR: Tennessee Army National Guard, ATTN Non-Responsive HHC 176th Combat Support Sustainment Battalion, 253 Don May Road, Johnson City, Tennessee 37615

SUBJECT: Industrial Hygiene Consultation and Health Hazard Information Module (HHIM) Survey, HHC CSSB

1. REFERENCES: See Enclosure 7.

2. BACKGROUND: At the request of Non-Responsive, National Guard Bureau Regional Industrial Hygienist, Atlanta, Georgia, an Industrial Hygiene Consultation and Health Hazard Information Module Field Survey were performed at the Tennessee National Guard Armed Forces Reserve Center, 253 Don May Road, Johnson City, Tennessee 37615 on June 10, 2013. The POC was Non-Responsive Their primary mission is Command and Control of subordinate Quartermaster, Maintenance and Transportation Units. On the day of this IH Survey roofing contractors were doing repairs to the building (See Encl 8, photo 19). Assisting in the completion of this IH survey was Non-Responsive The purpose of the survey was to perform lead wipe samples; a ventilation survey, an Illuminations Survey, and complete HHIM field survey forms on all industrial operations at the facility (see Encl 1 for completed HHIM Survey Form).

3. INSTRUMENTATION: The following survey instrumentation was provided by the contractor and was used to obtain lead wipe dust samples and illumination measurements. All other instrumentation was operated according to manufacturer recommendations.

   a) Reed LM-81LX, Light Meter, S/N: Q303521, calibrated: 12/15/2012
   b) Ghost Lead Dust Wipes, Manufactured: February 2, 2010, Expiration: 08/2013

4. FINDINGS:

   a) HHC 176th CSSB Company and Supply:

      i) Administrative duties included pay, promotions, schools, family support, assignments, and supplies. The supply area was broken down into Class 2 items of clothing and equipment. The supply area was also responsible for maintaining some TA 50.

      ii) One hundred and sixty M-Day soldiers trained at the facility.

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b) General Area Armory Information:

i) Material Safety Data Sheets (MSDS) were located in the facility. All employees must be initially trained in the Federal Hazardous Communication Program IAW 1910.1200 (see Encl 2 for a listing of hazardous chemicals/materials at the facility).

ii) Twelve lead dust wipe samples were taken, using a 12 inch by 12 inch template. One sample was above the federal standard of 40µg/ft and one sample contained low levels of lead content. No sample was above the National Guard Standard of 200µg/ft². Pictures of the lead sample wipes were taken (see Encl. 8, photos M025 to M036). The analytical lead result sheet included the sampled locations and corrected results. The following table notes where the samples were taken, the surveyor's field number, and the lead results:

Location:	Surveyor's Field No:	Results:
Drill Hall Floor N.E. Side	M025	BRL
Drill Hall Floor S.E. Side	M026	BRL
Drill Hall Floor Center	M027	BRL
Drill Hall Floor N.W. Side	M028	BRL
Drill Hall Floor S.W. Side	M029	BRL
Kitchen Serving Line Table	M030	BRL
Front Entrance Hallway Floor	M031	BRL
HHC 176th CSSB Vault Floor	M032	116
HHC 176th Sup Room Countertop	M033	BRL
730th QM Co Vault Floor	M034	34
730th QM Weapons Issue Counter	M035	BRL
Break Room Floor	M036	BRL
Blank		

Note 1:µg/ft² refers to micrograms or one millionth of a gram per sq ft.
Note 2: BRL means Not Detected at the Reporting Limit.

iii) Drill Hall: Conducting classes and drill formations is the main purpose in the hall. (See Encl. 8, photo 13). Illumination levels ranged from 13 to 24 FC's.

iv) Furnace/General Mechanical Ventilation: Excellent.

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FOIA Requested Record #J-15-0085 (TN)
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Page 1010 of 2531

SESS
SUBJECT: Industrial Hygiene Consultation and Health Hazard Information Module

v) The following table identifies area deficiencies:

AREA	DEFICIENCIES
Kitchen	Light fixture fire due to water lea
Class Room 205A	Ceiling Water Leak with Mold
HHC STAFF Sec	Ceiling Water Leak no Mold

vi) Due to the low noise levels (administrative areas) there was no requirement for a Hearing Conservation Program. The only requirement would be when the M-Day troops were firing their weapons. All M-Day and full-time soldiers had earplugs.

vii) A listing of HHC 176th CSSB personnel is included as enclosure No. 4.

viii) A design floor plan of the armory was not provided by the unit. Illumination levels are listed below in Paragraph 5.

5. ILLUMINATION SURVEY RESULTS:

a) Illumination Levels: The following additional illumination level readings were taken during the survey and are reported below in foot candles (FC's).

AREA/LOCATION	FOOT CANDLES (FC)
Front Entrance Hallway	40-55
BN Commander's Office	63-70
CSM's Office	55-57
HHC Orderly Room	45-57
S1 Section	37-75
S2 Section	47-50
S3 Section	42-58
S4 Section	67-90
Class Room 205A	49-55
Class Room 207	63-100
Learning Center	35-37
Conference Room	36-41
HHC STAFF Section	50-57
730th PLT Section	20-21
Supply Room	30-50
Kitchen	10-59
Male Latrine	44-53
Female Latrine	26-68
Drill Hall	13-24

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May, 2018
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1011 of 2531

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SESS
SUBJECT: Industrial Hygiene Consultation and Health Hazard Information Module

As indicated in the IES Lighting Handbook, Application Volume 1987, Offices: 20-50 FC's, Supply and Publication Areas: 20-50 FC's, Assembly 20-50 FC's, Restrooms: 5-10 FC's, Classrooms: 50-100 FC's, Kitchen: 20-50 FC's, FC's, Library: 50-100 FC's, Storage Rooms: 10-20 FC's, Mail Room: 20-50 FC's.

6. TECHNICAL ASSISTANCE:

Non-Responsive

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1012 of 2531

7. RECOMMENDATIONS:

a) Due to the lead dust wipe results, it is recommended that the HHC 176th CSSB and 730th QM vault floor is cleaned IAW NGB (AR) 385-15 Appendix C. All floors should be thoroughly mopped with industrial cleaner using tri-phosphates, Mr. Clean or Spic-n-Span. For additional lead cleaning measures, see Enclosure 6. **(RAC 2)**

b) Conduct semi-annual inventories and update MSDS's on all chemicals in the facility. **(RAC 3)**

c) Continue to monitor the ongoing roof construction to ensure all water leaks, damaged ceiling tiles and light fixtures are repaired throughout the building. (See. Encl 8 photos 14 & 17). **(RAC 3)**

d) Replace the blown fluorescent bulb in the Kitchen and Class Room 207 to increase lighting. **(RAC 3)**

e) Perform monthly checks on fire extinguishers each month, ensure that the devices are checked, recorded, turn upside down and tapped with a rubber mallet to loosen any material at the bottom. Have the local fire department conduct annual inspections of fire extinguishers. **(RAC 3)**

f) Recommend higher wattage bulbs be installed in the Drill Hall to increase lighting levels. **(RAC 3)**

g) If work practices change, a new assessment should be made on the controls in Place.

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FOIA Requested Record #J-15-0085 (TN)
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Page 1013 of 2531

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2/8/95 CHPMFRNT.XLS

HHIMS Industrial Hygiene Survey Form

Front page

ARLOC

Installation [redacted]

Building

Room Number

Location: AA

Operation: ADO

Survey Date: 13 (month) 06 (day) 10

Evaluator [redacted]

Macom: WG

Submacom: XX

Unit / Organization (45)

Supervisor: Mr. [redacted] Mo. [redacted] Rank [redacted]

RAD

Supervisor, or Point of Contact Telephone Number

DSN [redacted] Commercial [redacted]

Frequency (hrs/day): 008

No. CIVs: 00 No. MIL: 00 Contractors: 00 No. LOCs: 00

Lab Hoods: 00 Vapor Degreasers: 00 Spray Booths: 00 Open Surface Tanks: 00 Ventilation Units: 00

Controls Present (if >4, continue in comments)(25)

OTH
OTH

Evaluation (25 characters max)

13-24
10-54

Unit code: FTC FTC

Controls Required (25 characters max)

20-50 FTC
20-50 FTC

Gloves	e*	R	U
acid			
cold surfaces			
hot surfaces			
NBC agents			
oil			
solvents			
surgical gloves			
leather / cotton			
other			

Respirator	e*	R	U
airline			
abrasive blasting hood			
disposable			
full face air purifying			
1/2 face air purifying			
powered air purifying			
1/4 face air purifying			
self-contained			
other			

Manufacturer's Description (10 characters max)

NIOSH TC # or Foreign equivalent (10 characters max)

Eyes and Face	e*	R	U
chemical splash			
full-face shield			
chem/safety impact			
safety impact			
welding helmet			
sunglasses			
welding goggles/glasses			
laser eye protection			
other			

Hearing	e*	R	U
canal caps			
(>85-108 dBA steady) earplugs			
" helmets w/ muffs			
" muffs alone			
(108-118)muff/earplug comb			
muffs and earplugs			
(118 or >) with time limit			
other			
other			

Body	e*	R	U
aprons			
cold weather clothing			
coveralls			
full body suit			
heat reflective			
vest/suit			
safety belt/harness			
special purp. clothing			
other			

Head and Feet	e*	R	U
cold weather boots/hat			
hard hats			
impermeable boots			
safety shoes (conductive)			
safety (nonconductive)			
other			
other			
other			
other			

e* = evaluator's recommendation or agreement

Reminders: ergonomics - dermatitis - physical agents - flammable storage
EYE (permanent) ____ - EYE (portable) ____ - SHW - OMV - LEV

ACO ADM DBA DSN LAB LCK
RAD ECB SPL RHS SPR WEL

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1014 of 2531

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HHMS Industrial Hygiene Survey Form

Back page

CAS code

PONOISECO
POFOOTHAZ
POFLYPROJ
POSVEHAZA
POFLAMHAZ
POLIFTING
POSHARPOB
PONOTOELIE
POELSHOCK
COLUBSOIL

PAC

EPC

Hazard Description

Social Security Number or Unique Identifier

Last Name (20 characters max)

First Name (20 characters max)

MI

Sex

Category

Personnel data provided by the facility is attached to this form

Insert Privacy Act Statement

Comments

Operation described is Personnel and Administrative duties Record updating, extension, promotions, supply, Training.

This operation was explained to the [illegible], but was not actually observed.

There is a noise data sheet attached to this form

There is a ventilation data sheet attached to this form

Comments continued on attached

2/8/95 CHPMSACK.XLS

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FOIA Requested Record #J-15-0085 (TN)
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Page 1015 of 2531

TENNESSEE ARMY NATIONAL GUARD
WORKPLACE CHEMICAL INVENTORY LIST

TENNESSEE ARMY NATIONAL GUARD
P.O. Box 41502, 3041, Sidco Drive
Nashville, Tennessee 37204-1502

UNIT: HHC, 176th CSSB

Workplace Location: 253 Donald May Road, Johnson City, Tennessee 37615

County: Washington

Local POC (Name/Phone) Non-Responsive [redacted]

Common Name	Manufacturer	NSN	Location	Average QTY on hand	MSDS	TYPE DISPENSER	TYPE ITEM
CLEAN'EMS HAND CLEANING WIPES	Zep		Fire Cabinet	2	YES	Plastic Bottle	Civilan
CLEANER ALL-PURPOSE	Skillcraft	7930-00-926-5280	Fire Cabinet	20	YES	Spray Bottle	Miltary
WINDSHIELD CLEANER	Rite-Iwn	6850-00-926-2275	Fire Cabinet	5	YES	Plastic Bottle	Miltary
GREZE-OFF / DEGREASER	Spray Nine		Fire Cabinet	5	YES	Spray Bottle	Civilan
ANTISTATIC WIPES CLEANER	Perfectdata		Fire Cabinet	1	YES	Spray Bottle	Civilan
MINERAL OIL	Swan		Fire Cabinet	1	YES	Spray Bottle	Civilan
TRIPLE O CONCENTRATE	State		Fire Cabinet	1	YES	Plastic Bottle	Civilan
SIMPLE GREEN HAND CLEANER	Simple Green		Fire Cabinet	3	YES	Tub	Civilan
LUBRICATING OIL	American Writing Ink Co	9150-00-889-3522	Fire Cabinet	5	YES	Plastic Bottle	Military
SIMPLE GREEN CLEANER	Simple Green		Fire Cabinet	1	YES	Spray Bottle	
SIMPLE GREEN CLEANER	Simple Green		Fire Cabinet	5	YES	Gallon Jug	Civilan
PAD, MERAL POLISH, IMPREGNATED	M&M Heritage Inc	7920-00-823-9818	Fire Cabinet	1	YES	Can	Millitary

MSDS SHEETS ARE ON HAND FOR ALL ITEMS BOTH MILITARY AND CIVILAIN

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Page 1016 of 2531
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Analytical Environmental Services, Inc

Date: 24-Jun-13

Lab Order: 1306E47
Client: SES
Project: Johnson City TN, Armory
Matrix: Wipe
Date Received: 6/14/2013 12:00:00 PM

LEAD ON WIPES (N7082)

N7082

Laboratory ID	Client Sample ID	Result	Units	Reporting Limit	DF	Qual	Date Collected	Date Analyzed	Analyst
1306E47-001A	M025 Drill Hall Floor N.E. Side	BRL	ug, Total	20	1		06/10/2013	06/20/2013	TA
1306E47-002A	M026 Drill Hall Floor S.E. Side	BRL	ug, Total	20	1		06/10/2013	06/20/2013	TA
1306E47-003A	M027 Drill Hall Floor Center	BRL	ug, Total	20	1		06/10/2013	06/20/2013	TA
1306E47-004A	M028 Drill Hall Floor N.W. Side	BRL	ug, Total	20	1		06/10/2013	06/20/2013	TA
1306E47-005A	M029 Drill Hall Floor S.W. Side	BRL	ug, Total	20	1		06/10/2013	06/20/2013	TA
1306E47-006A	030 Kitchen Serving Table (Met	BRL	ug, Total	20	1		06/10/2013	06/20/2013	TA
1306E47-007A	M031 Front Entrance Hallway Fl	BRL	ug, Total	20	1		06/10/2013	06/20/2013	TA
1306E47-008A	032 HHC 176TH CSSB Vault Flc	116	ug, Total	20	1		06/10/2013	06/20/2013	TA
1306E47-009A	HHC 176TH CSSB Sup Rm Cou	BRL	ug, Total	20	1		06/10/2013	06/20/2013	TA
1306E47-010A	M033 730TH QMCo Vault Floor	34	ug, Total	20	1		06/10/2013	06/20/2013	TA
1306E47-011A	35 730TH Supply Room Counter	BRL	ug, Total	20	1		06/10/2013	06/20/2013	TA
1306E47-012A	M036 Break Room Floor	BRL	ug, Total	20	1		06/10/2013	06/20/2013	TA
1306E47-013A	BLANK	BRL	ug, Total	20	1		06/10/2013	06/20/2013	TA

Qualifiers: BRL - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
Results are blank corrected where applicable

DF - Dilution Factor

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Notification Roster Johnson City AFRC

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Branch CONTRACTOR

Unit CONTRACTORS

Position	Rank	Last Name	First Name	Work Phone	Mobile Phone	E-mail Address
Causality Assistance	[redacted]					
Family Assistance						
JFHQ/DL TECH						

Non-Responsive

Branch TNARNG

Unit RECRUITING RSP

Position	Rank	Last Name	First Name	Work Phone	Mobile Phone	E-mail Address
[redacted]						

Non-Responsive

Unit HHC 176th CSSB

Position	Rank	Last Name	First Name	Work Phone	Mobile Phone	E-mail Address
EOC	[redacted]					
CMDR COF ROOM						
S1						
TNCO						
OPNS NCO ASS'T						
MAINTENANCE						
STATION COMMANDER						
S1 HRNCO						

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Page 1018 of 2531

Posted to NGB FOIA Reading Room
May, 2018

PROPERTY NCO	Non-Responsive	Non-Responsive
RNCO		
S4 NCO		
S1 HRNCO		
S2/3		
S1 MEDICAL NCO		
SUPPLY		
OPNS NCO		
Unit	**FUNER**	
Position		
Funeral Honors		
Funeral Honors		
F Honors NCO		
Unit	**FMS 1**	
Position		
Intercom System		
HVY EQ REP		
AUTO WORKER		
AUTO WORKER		
SHOP CHIEF		
AUTO WORKER		

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1019 of 2531

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Unit	DISM						
Position		Rank	Last Name	First Name	Work Phone	Mobile Phone	E-mail Address
Computer Repai		[redacted]				[redacted]	
Unit	**730th**						
Position							
TNCO							
RNCO							
SUPPLY							
Branch							
Unit	**AR-C**						
Position							
ARCC							
Unit	**AMS**						
Position							
SHOP							
SHOP							
SHOP							
PARTS CLERK							
MAT							
SHOP							
SHOP							
SHOP							

Non-Responsive

Non-Responsive

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Page 1020 of 2531

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May, 2018

SHOP

SUPERVISO

SHOP

Unit 70

Position

TNCO

PLT LEADE

UNIT ADMI

SUPPLY SG

SR MECH

PLT SGT

MTR SGT

Branch

Unit CO

Position

MEDIC

ADMIN NCO

DEERS

DUTY CELL PHONE

TRAINING CHIEF

Non-Responsive

Non-Responsive

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Released by National Guard Bureau
Page 1021 of 2531

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May, 2018

ADMIN CLERK	Non-Responsive [redacted]	Non-Responsive [redacted]
TRAINING		
I&I CDR		
ISG		
MT/ASST. TRNG		
SUPPLY NCO		
ARMORY NCOIC		
ADMIN CLERK		

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Released by National Guard Bureau
Page 1022 of 2531

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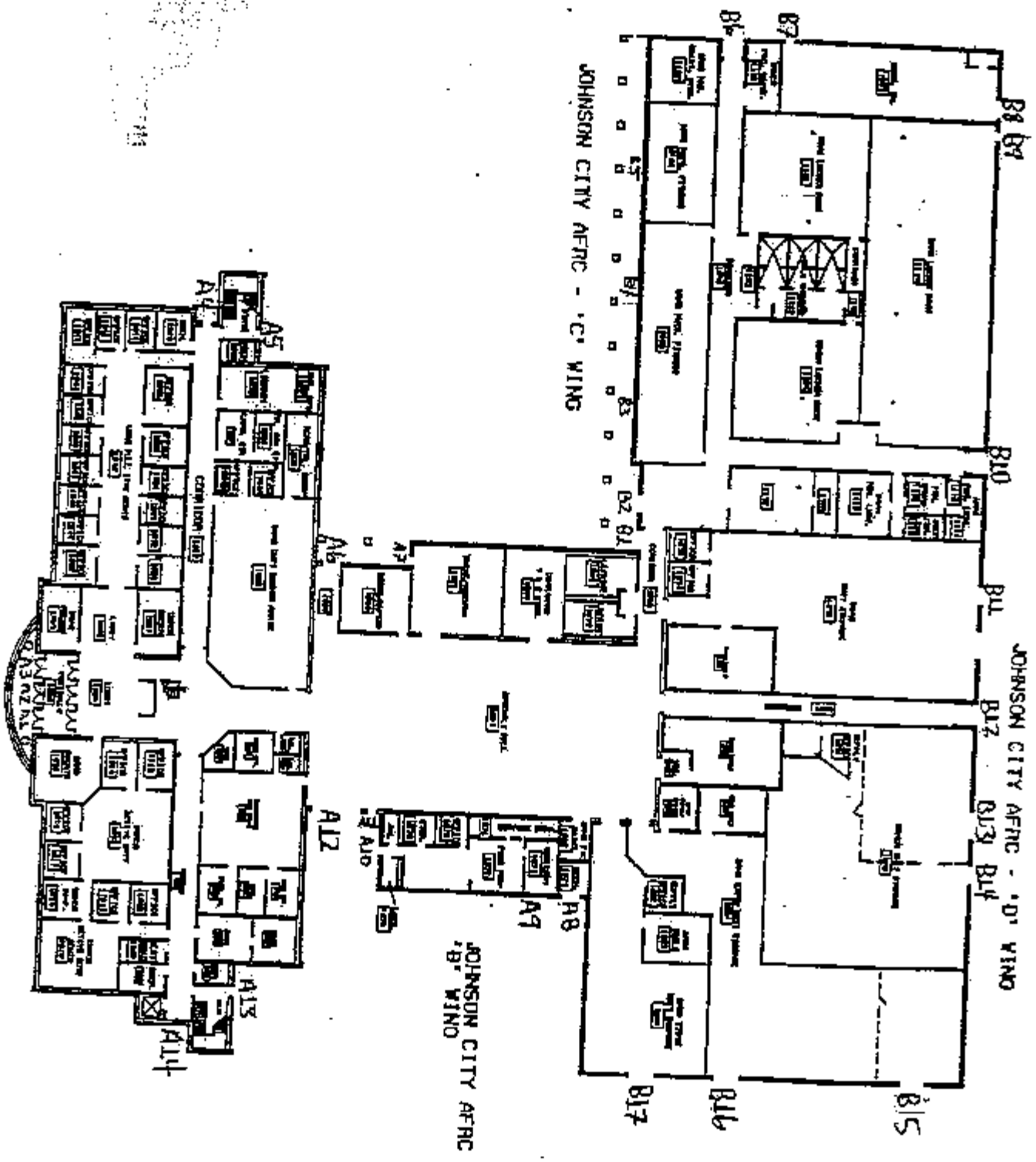

JOHNSON CITY AFRC - 'A' WING FIRST FLOOR

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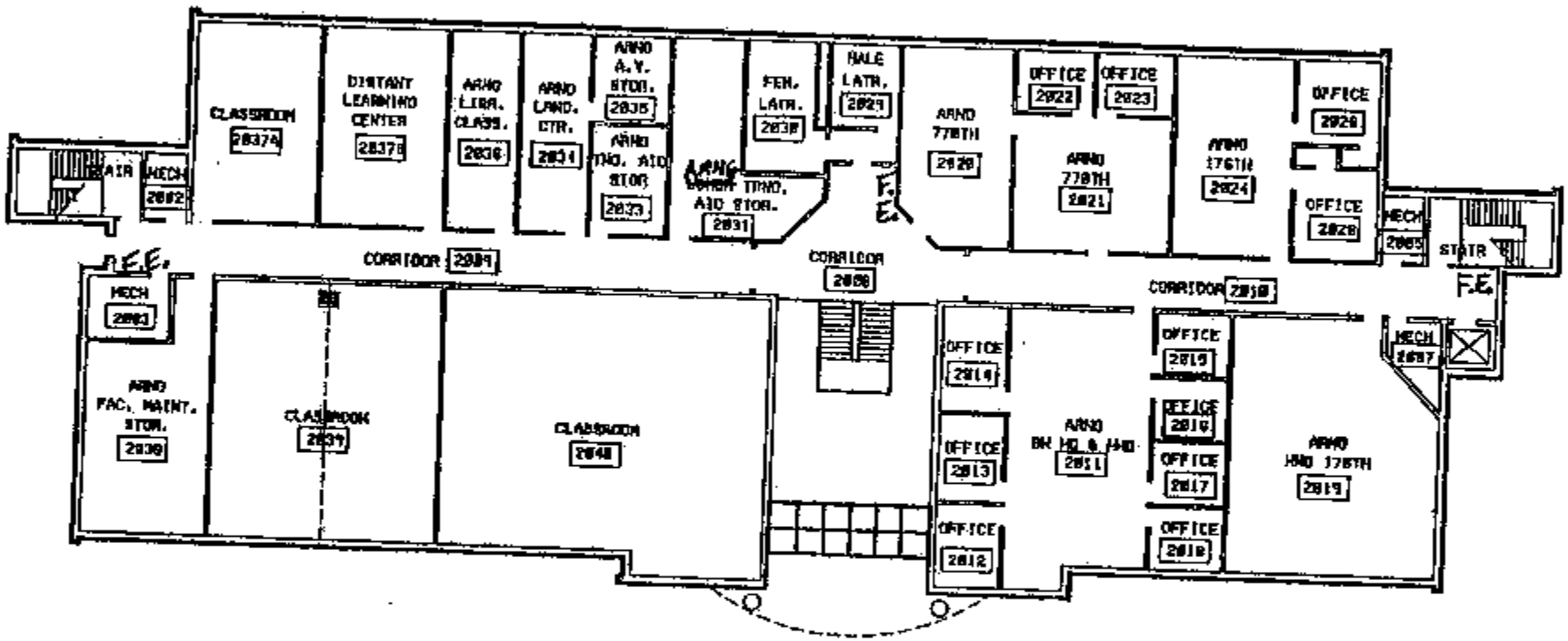

JOHNSON CITY AFRC - 'A' WING SECOND FLOOR

F.E. = FIRE EXTINGUISHER
F.P. = FIRE PULL

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Released by National Guard Bureau
Page 1024 of 2531

Posted to NGB FOIA Reading Room
May, 2018

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ENCLOSURE 6

ARMORY CLEANUP REQUIREMENTS

High Test Results

If the public utilizes your facility and the test results for lead came back above 40 $\mu g/ft^2$ you are responsible for cleaning this area and adjoining areas to meet the 40 $\mu g/ft^2$ or less, unless:

1. You can guarantee that no children under the age of 7 will come into your facility.

2. Your state public health has other guidance, for example, signage is required to warn personnel who are pregnant or of child bearing age, or under the age of 7 years old.

3. Signs stating "No smoking, drinking, eating, or applications of cosmetics without washing of hands prior to activity" are properly installed in your facility.

1. Cleaning of Building.

Before proceeding into the cleanup mode, first discuss with your Environmental Office what procedures are recommended and then coordinate your cleanup efforts with local agencies, if warranted.

a. The building, as well as the dusty materials and equipment in it, should be cleaned one time to reach the lead dust levels that are appropriate for the function of the facility, for example, facilities used by full-time personnel only, utilized by adults or children 7 years old or older children only, or not utilized by pregnant individuals and/or children under the age of 7. **NOTE:** This type of cleaning implies that this is not at a facility that has an active Indoor Firing Range. For facilities with active ranges, these facilities should be monitored with wipe samples taken over the drill floor area by the Range Custodian quarterly, to ascertain that the level of lead is at the required level for your particular facility and situation.

   1. This cleanup can be accomplished using a HEPA vacuum (a very tedious and time-consuming operation) and then by utilizing a wet method with "Spic n Span" or something equivalent to this detergent using wet rags to wipe down surfaces and mops soaked in this solution to do the entire floor area. **NOTE: Personal protective gloves, rubber boots, or protective disposable shoe/boot covers should be used during this procedure and personnel who have performed the cleanup should wash their clothing separately from their family's clothing.**

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1025 of 2531

ENCLOSURE 6

especially if they have young children at home. Personnel should wash their hands after performing this operation to assure that lead contaminates are not ingested.

2. Frequent changing out of the water used for cleaning is vital. Disposal of this hazardous waste water and rags/mop heads, Personal Protective Equipment (PPE), etc., should be coordinated with your Environmental office.

b. Clean all ductwork where lead was found. EPA has a protocol specifically for replacing or cleaning lead in dust form in HVAC systems. EPA Office of Pollution Prevention and Toxics, "*Renovate Right – Important Lead Hazard Information for Families, Child Care Providers and Schools*". http://www.epa.gov/lead/pubs/rrpamph.pdf .

c. Continue to enforce good housekeeping and hygiene practices. These measures make good sense to minimize exposures to any toxic chemicals in the workplace.

d. Provide lead awareness training to the general workforce and any occupants of your facility.

***NOTE:* Before you start any new procedures or practices be aware of the local city and state regulations in your area.**

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ENCLOSURE 6

ARMORY

CLEANUP & FOLLOW-UP HOUSEKEEPING RECOMMENDATIONS

Materials Needed:

1. Cloth Mop head(s) & Mop head holder(s) with handle.
2. Mop bucket(s) with wringer.
3. Clean cotton rags and sponges.
4. Disposable gloves.
5. Large barrel (55 gallon) to store wastewater in after changing out of dirty scrub water.
6. Disposable overshoes or rubber boots. Personnel conducting cleaning operations should not take clothes, boots, etc. home for laundering.
7. HEPA vacuum
8. Six (6) mill plastic bags to dispose of waste.
9. Wastewater containers.

Disposal of Waste Water and Cleaning Materials:

1. ***NOTE:*** Consult with the Local Army National Guard Environmental Office prior to taking any collection, disposal, or commencement of wiping activities. Each state and territory may have additional regulatory guidance regarding the collection, storage, and disposal of wastewater.

2. Mop heads should be disposed of after initial cleaning, unless otherwise advised by Environmental Office personnel. ***NOTE:*** **Thorough cleaning of mop heads may be sufficient enough to permit subsequent reuse on future Armory cleanups, but check with the local Environmental Office before reuse.**

3. Disposable gloves should be treated as hazardous waste material.

4. Soiled cotton rags should be treated as hazardous waste material.

5. Wash water contaminated with lead may be collected and allowed to slowly evaporate leaving lead deposits/sludge that may be collected in plastic containers, placed in metal drums, and stored for future delivery to an authorized hazardous waste disposal site.

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1027 of 2531

ENCLOSURE 6

a. Drums shall be properly labeled to identify contents in accordance with (IAW) Federal, state, and local regulatory guidance.

b. Disposal of containerized waste shall be coordinated IAW state hazardous waste program requirements.

c. The Environmental Office shall coordinate removal and disposal of all containerized hazardous waste through established waste streams.

Post-Cleanup Precautionary Measures:

1. Thoroughly wash hands with soap and water.

2. Rinse off rubber boots with soap and water, capturing wastewater for collection into the established waste stream. If personnel have chosen to use overshoes for protection, dispose of the used overshoes into the established waste stream. ***NOTE***: **This recommendation is for initial cleanup activities; PPE requirements may be reduced after it has been determined that non-hazardous levels of lead have been achieved.**

3. Wash BDU's or personal clothing separately from children's clothes.

IMPORTANT NOTES:

1. **No eating, drinking or application of cosmetics is allowed during cleanup procedures (these may be allowed after washing of hands/face and done outside of cleanup area).**

2. **Avoid blowing, shaking or like actions which could potentially disperse lead dust. Dry sweeping, dusting, wiping, or blowing with compressed air shall not be permitted.**

Initial Armory Cleanup:

1. Use a vacuum cleaner equipped with a HEPA exhaust filter. HEPA vacuum all surfaces in room (ceiling, wall trim, and floors). Start with the ceiling and work down, moving toward the entry door. **Completely clean each room before moving on.**

2. Prepare water and detergent for the wipe down phase, according to manufacturer's recommendations.

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1028 of 2531

ENCLOSURE 6

3. Wet wipe, with cotton rags or sponge, any horizontal, diagonal or vertical surfaces up six (6) feet from floor surfaces using hot water and "Spic-n-Span" or an equivalent product.

***NOTE*: If walls to be cleaned show signs of deterioration, for example, chipping or crumbling paint in which wiping, scrubbing, or disrupting might potentially increase or spread contamination, then this portion of the cleanup should be avoided.**

4. Now prepare water and detergent (for example, Spic n Span, Mr. Clean, Pine Sol) for the mopping phase, according to manufacturer's recommendations, which should be found on the product's label for general clean up.

    a. Change out water and detergent frequently (when water appears dirty)

    b. Rinse out mop heads frequently to prevent contamination of dirty water.

5. Cover entire drill floor surface with above prescribed water and detergent.

6. Final rinse should be with clean water only – after mop heads have been cleaned.

Recommended Follow-up Housekeeping Practices ***after Clearance sampling of cleaned area is performed by certified personnel:***

1. Floor cleaning and dusting should be accomplished using the wet cleaning described in Initial Armory Cleanup SOP.

NOTE: The only exception to these wet cleaning procedures is the use of an approved chemically treated dust floor mop. This can be used for follow-up armory cleaning by sweeping of large particles of dirt and paper.

    a. Use of a pre-treated (chemically treated) dust floor mop will prevent lead dust particles from being disbursed into the surrounding atmosphere.

    b. If a pre-treated dust mop is used – Do Not Shake Mop Head – have mop head laundered after use. **Always keep used dust mop heads in sealed double plastic bags when stored at an armory or facility.** Shaking of a pre-treated mop head may release unwanted contaminants into surrounding atmosphere.

2. Frequency of Cleanup – Armories will vary, according to usage and how often they should be cleaned. The following cleaning schedule is provided:

    a. Only full-time technicians and traditional soldiers using facility during the month. (Cleaned Monthly.)

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1029 of 2531

ENCLOSURE 6

b. Occasional activities taking place during the month, for example, 1-2 classes or volleyball games, etc. (Cleaned Twice Monthly.)

c. Used regularly by soldiers or outside agencies/personnel. (Cleaned Regularly – at least Weekly)

IMPORTANT NOTES:

1. **Armories with adjoining Indoor Firing Ranges (IFR) should be cleaned more than weekly, again depending on the use of the Armory and IFR.**

2. **Clearance sampling/testing is to be accomplished by certified IH personnel after these cleanup procedures are followed. If the area is an average Armory, occupied by adults only, for whom you are cleaning and is not a converted IFR space, you may continue to utilize the Armory space before officials re-test this space. Please notify your Safety and/or Occupational Health personnel of the completion of this cleaning regime and they will notify the proper officials of the sampling/testing requirements needed.**

3. **If lead cleanup work was contracted out, a third party should do the clearance sampling.**

4. **If young children and pregnant females are, or may be present, signs shall be posted on all facilities, warning of the potential danger of exposure to lead dust.**

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1030 of 2531

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References

Army Regulation (AR) 11-34, The Army Respiratory Protection Program.

Army Regulation (AR) 40-5, Preventative Medicine.

Army Regulation (AR) 385-10, The Army Safety Program.

NGR 385-10, Army National Guard Safety and Occupational Health Program.

TB MED 503, The Army Industrial Hygiene Program.

Title 29, Code of Federal Regulations (CFR), 2010, revision. Part 1910, Occupational Safety and Health Standards.

TG 022. US Army Environmental Hygiene Agency (YSAEHA), Industrial Hygiene Evaluation Guide.

TG 141, US Army for Health Promotion and Preventative Medicine (USACHPPM) Industrial Hygiene Air Sampling Guide.

IES Lighting Handbook

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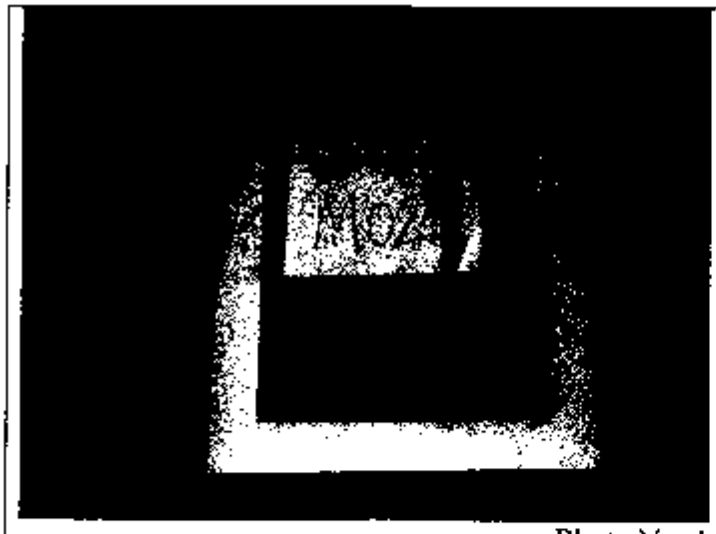

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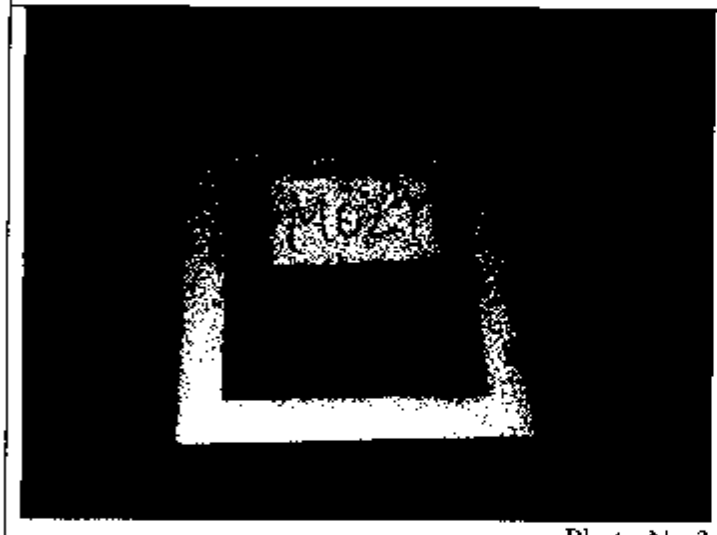
Photo No. 2



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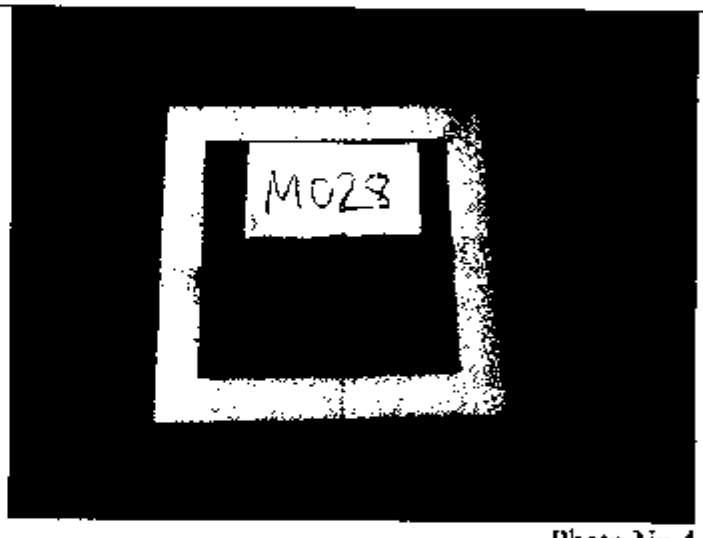

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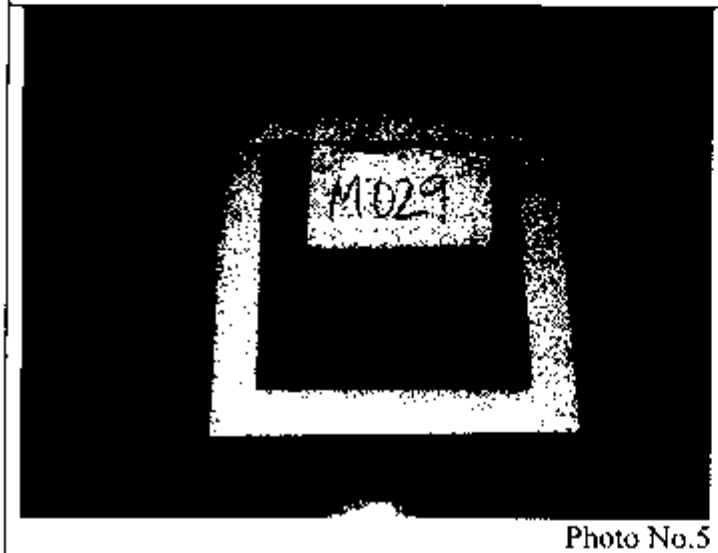

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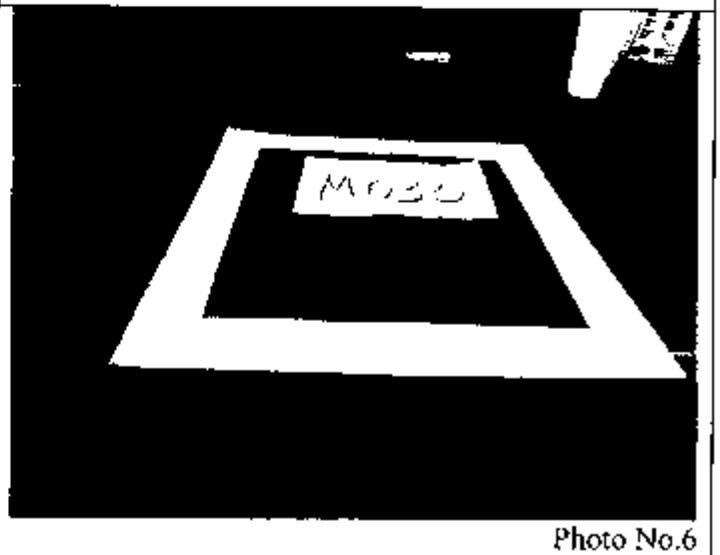

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ENCLOSURE 8
Page 1 of 5

Posted to NGB FOIA Reading Room
May, 2018

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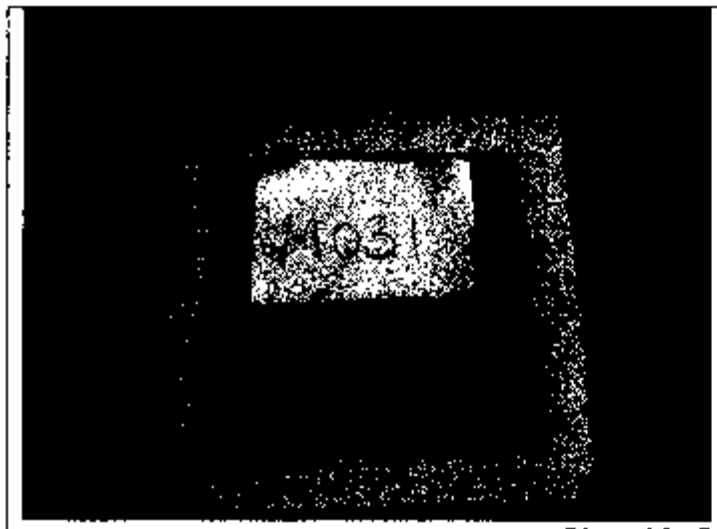

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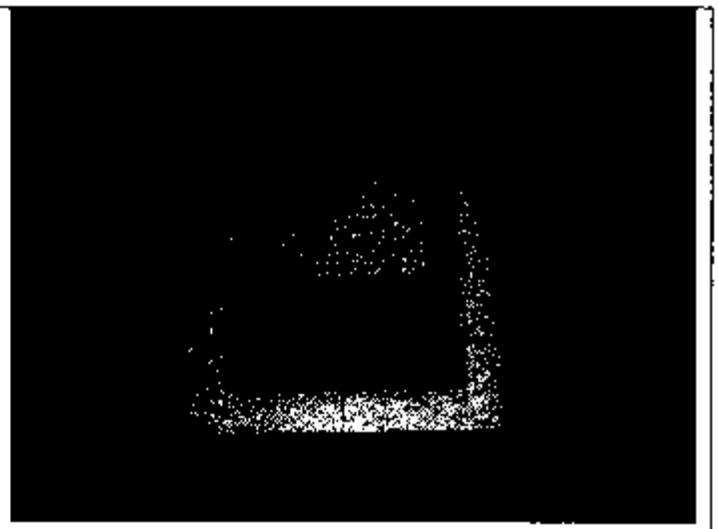

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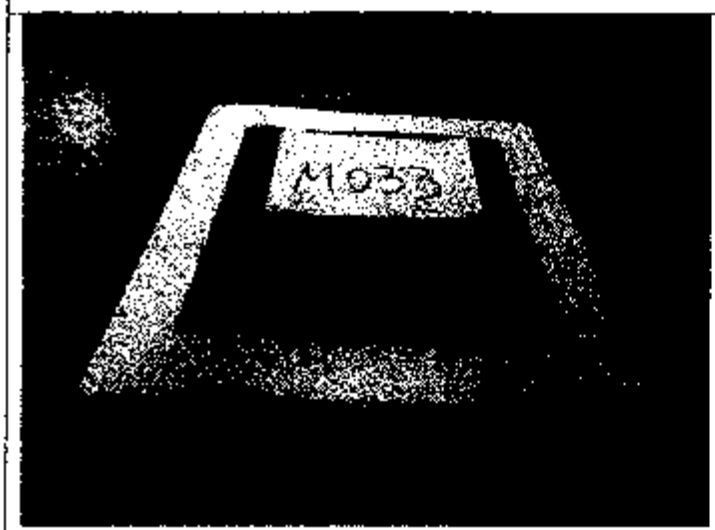

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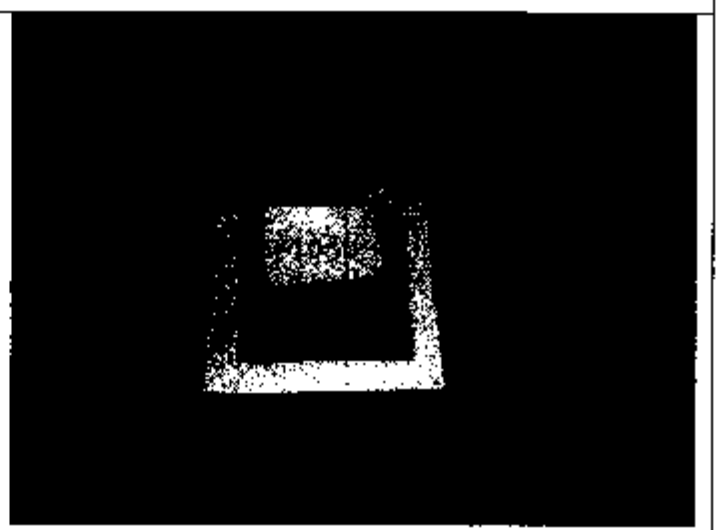

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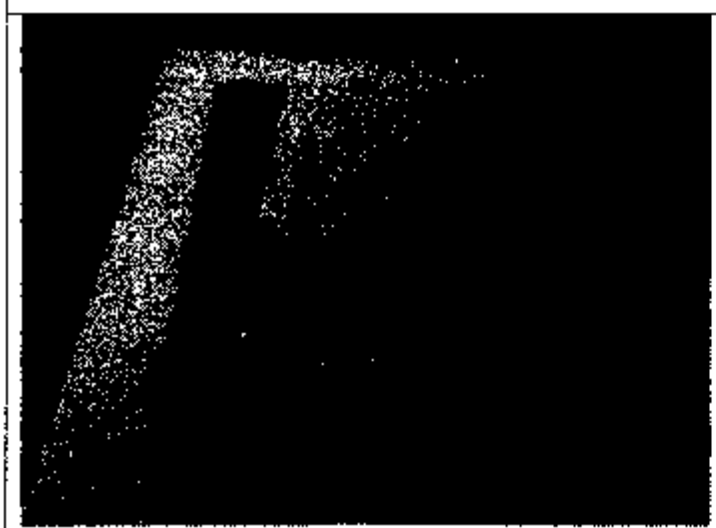

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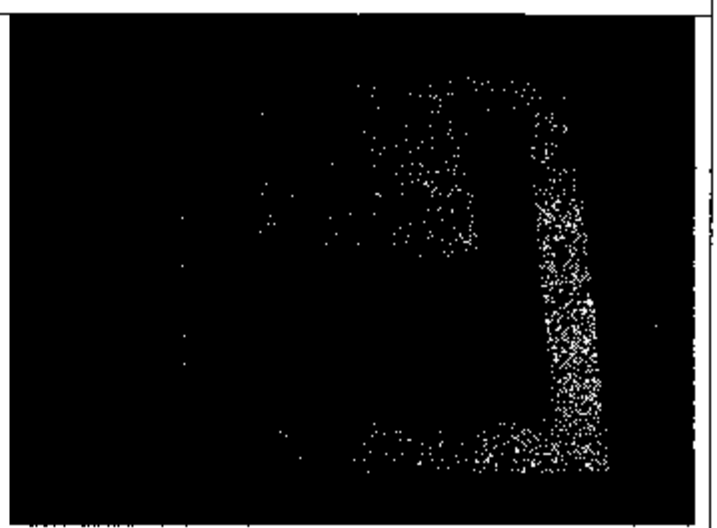

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ENCLOSURE 8
Page 2 of 5

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1033 of 2531

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Photo No.13

Photo No.14

Photo No.15

Photo No.16

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1034 of 2531

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Photo No.17

Photo No.18

Photo No.19

Photo No. 20

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1035 of 2531

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Photo No.21

Photo No.22

Photo No.23

Photo No. 24

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1036 of 2531

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NATIONAL GUARD REGION SOUTH
INDUSTRIAL HYGIENE OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

ARNG-CSG-P (40-5f) 27 October 2010

MEMORANDUM FOR THE ADJUTANT GENERAL OF TENNESSEE, ATTN: [redacted] Non-Responsive Readiness NCO, Kingsport Armory, 4401 West Stone Drive, Kingsport, Tennessee 37660.

THRU Non-Responsive, Deputy State Surgeon, Tennessee National Guard, HQS, AGTN-DCSPER-DSS, P.O. Box 41502, Houston Barracks, Nashville, Tennessee 37204-1501.

SUBJECT: Industrial Hygiene Survey of the TN ARNG Kingsport Armory, Kingsport, TN.

1. References.

a. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1996 rev.

a. Title 29, Code of Federal Regulations (CFR), 2009 rev., part 1910, Occupational Safety and Health Standards.

b. Title 29 CFR, General Industry, revised 1996 rev. Part 1940

c. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 25 May 2007

d. AR 385-10, The Army Safety Program, 23 August 2007.

e. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.

f. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, 12 September 2008.

g. TB MED 503, The Army Industrial Hygiene Program, 30 October 2000.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2010 American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 26th rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

k. NG PAM 420-15, 03 November 2006, Facilities Engineering, Rehabilitation and Conversion of Indoor Firing Ranges.

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1. Industrial Hygiene Survey Report by Non-Responsive Douglasville, GA 30134.

2. General.

a. At the request of Non-Responsive RN, of the Tennessee National Guard Occupational Health Office, an Industrial Hygiene Survey was put together to conduct a Health Hazard Information module (HHIM) Field survey of the s and industrial hygiene sampling of the TN ARNG Kingsport Armory, Kingsport, TN.

b. The surveys were conducted by Non-Responsive Stonecreek Drive, Douglasville, GA 30134.

3. Findings. All Health Hazard information is on the survey findings of the report. (See enclosure 1). Operations of very short duration were not sampled due to the requirements of the sampling method. If the operation changes or if the length of the operation is increased, contact this office to schedule sampling if it is deemed needed then.

4. Recommendations. Understand that all findings found in the enclosed report have been reviewed by the Regional Industrial Hygienist and the following recommendations are the ones to be followed.

a. Use the guidance given in the enclosed report as good IH practices, requesting industrial hygiene (IH) services where needed. The recommendations that follow are based on the survey findings as reported:

i. Update the Hazcom program and establish an MSDS log book binder. Ensure an MSDS table of content is included in the front of the MSDS binder with each hazardous material in the order found (preferably tabbed), listed on the table of content. Also, ensure to perform semi-annual inventories and updates of MSDS's on all chemicals in the facility. Ensure all hazardous materials are stored in appropriate locations **(RAC 3)**

ii. Up grade lighting in the areas listed in the enclosure, provide supplemental task lighting for those work areas that did not meet IES minimum requirement. Also, have all blown bulbs in facility replaced. (RAC 3)

b. The recommendations given in the comment section of the HHIM data sheets and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-10. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-11 IHIP.

c. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present survey, especially if this will help eliminate health hazards and reduce medical surveillance cost.

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d. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance, also provided a corrective action plan to the OHN within 30 days of receipt of this report.

e. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

5. If additional information is needed about the industrial hygiene survey or air sample

Non-Responsive

[redacted]

CF: ARNG-CSG-P
Safety and Occupational Health Manager, Tennessee State Safety and Occupational Health Manager, 3041 Sidco Drive, Nashville, TN 37204-1504

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INDUSTRIAL HYGIENE INITIAL BASELINE SURVEY

TENNESSEE NATIONAL GUARD

KINGSPORT ARMY NATIONAL GUARD ARMORY
4401 WEST STONE DRIVE
KINGSPORT, TN 37660

DATE: OCTOBER 6, 2010

PREPARED BY

Non-Responsive

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Released by National Guard Bureau

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TABLE OF CONTENTS

BACKGROUND	Pg 1
Introduction	Pg 1
Scope of Work	Pg 1
INSTRUMENTATION	Pg 1
OBSERVATION	Pg 2
ADMINISTRATIVE OFFICES	Pgs 2 & 3
AIRFLOW/VENTILATION	Pg 3
KITCHEN	Pg 4
RESTROOM	Pgs 3 & 4
DRILL HALL	Pg 4
SUPPLY	Pgs 4 & 5
FACILITY MAINTENANCE	Pgs 5 & 6
MATERIAL SAFETY DATA SHEETS	Pg 6
CLASSROOMS	Pg 6
GYMNASIUM	Pg 7
FINDINGS	Pgs 7 & 8
TABLE 1A GENERAL ILLUMINATION LEVEL	Pgs 9 & 10
TABLE 1B TASK LEVEL MEASUREMEMNTS	Pg 10
TABLE 2 (LEAD WIPE SAMPLES RESSULTS)	Pg 11
TECHNICAL ASSISTANCE	Pg 11
APPENDIX A, PROBLEM AREAS	Pgs 11 thru 13
APPENDIX B, (LEAD WIPE SAMPLE LOCATION IFR)	Pgs 13 thru 15
APPENDIX C (PICTURES OF KINGSPORT ARMORY)	Pg 15 & 16

ATTACHMENTS:

Facility Diagram
List of MSDS on Hand
HHIM Sheet
Analytical Environmental Services, Inc. Chain of Custody
Analytical Environmental Service, Inc. Analytical Results

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MEMORANDUM FOR: Tennessee National Guard, Attn: Non-Responsive Readiness NCO, Kingsport Armory, 4401 West Stone Drive, Kingsport, Tennessee 37660

Subject: Industrial Hygiene Initial Baseline Survey of Kingsport Army National Guard Armory, Kingsport, Tennessee

BACKGROUND:

Introduction:

At the request of Non-Responsive National Guard Bureau Regional Industrial Hygiene South Office, Atlanta, GA., an initial baseline industrial hygiene survey was conducted at Kingsport Army National Armory, Kingsport, Tennessee on October 6, 2010 as part of the Tennessee Army National Guard Occupational Health in the workplace. The point of contact for this facility was Non-Responsive Non-Responsive

Scope of Work:

The survey consisted of a general illumination survey, task lighting survey, lead wipe sampling and evaluating the condition of the building, including the airflow of the heating Ventilation and Air Conditioning (HVAC) System as it relates to indoor air quality. A review of several industrial programs, such as hazard communication, hearing conservation and personal protective equipment was also performed. A field survey form is complete on all industrial operations at the facility, and the data is contained in this report.

INSTRUMENTATION:

The following survey instrumentation was provided by or for the contractor, and was used to obtain illumination measurements, task lighting measurements. All instruments were pre-calibrated according to the manufacturer's instructions.

Instrument	Serial Number	Calibration
Extech Light Meter	Q516635	October 2010

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1042 of 2531

OBSERVATION

Kingsport Armory is home to HHT 3/278 ACR, 9-91 TRANS and 72-44 MED SPT. SFC Matthews, Readiness NCO met with and assisted the Industrial Hygiene Technologist (Mr. William Burch) by opening all the doors to the armory. Duty hours are from 8:00 - 16:00 hours Monday thru Friday. The armory is a one level brick structure with a flat metal roof and was built in the mid to late fifties. The armory had an indoor firing range that was gutted and cleaned to Army National Guard specification on lead removal and approved to become an additional storage area for supply. The armory has water stained ceiling tiles throughout the facility and will be discussed later in the report. This facility is being replaced by a new armory that was built about two miles down the road and will be ready for move-in in a couple of weeks.

ADMINISTRATIVE OFFICES

There are twenty one administrative offices, where personnel use computer systems, files, read, write and perform administrative tasks as necessary. Computer use occurs throughout the day. To see which administrative offices that met or did not meet IES, Illuminating Engineering Society Handbook, 8th Edition requirement of 50 FC – 100 FC (Foot Candles) see Table 1A (General Illumination Levels). Task lighting was taken at computer workstations in each administrative office for these results see which met or did not meet IES requirement of 50 FC – 100 FC see Table 1B (Task Troubled Areas at Workstations.

Non-Responsive

HHT 3/278 Unit Commander
And Unit 1SG Office

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1043 of 2531

Command Sergeant Major Office

Readiness NCO Office

AIRFLOW/VENTILATION

Kingsport armory has no central HVAC system. Many of the offices have ac/heating units on the wall. Drill hall has two hot air blowers at the front of the room and a supply air vent at the other end just above the roll-up door.

KITCHEN

The kitchen is small and not used during drill weekend to prepare food for troops, it is normally used for day to day storage of full time personnel food and when the hall is rented. Food for drill weekend is catered. General illumination is provided by eight light fixtures with four fluorescent bulbs in each (10 bulbs were blown) light fixture. Average illumination levels did not meet IES requirement of 50 FC – 100 FC.

Kitchen

RESTROOMS

There are four restrooms, a ladies restroom and gentlemen restroom in the hallway, a restroom near medical aid station and a men restroom in the break room. Each restroom had a skylight that let in a lot of outside natural light. The wall below the skylight in the men restroom located in the break room was damage. See Appendix A (Problem Areas) for picture of the skylight damage.

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1044 of 2531

The gentlemen restroom in the hallway has two urinals, two sinks, two commodes and a shower. General illumination in this restroom met IES requirement of 10 FC- 20 FC. The ladies restroom in the hallway has one sink and two commodes. This restroom has one light fixture with two light bulbs and one of the bulbs was blown. The restroom near the medical aid station has one sink, one urinal and one commode. The gentlemen restroom in the break room had two urinals, three sinks, three commodes and a shower. General illumination met IES requirement of 10 FC – 20 FC.

DRILL HALL

The floor was very impressive, clean and shiny. The hall is heated by two hot water heaters during the colder months and comfort ventilation is provided a large room exhaust vent located on the back wall above the roll-up door. Four of the twenty one mercury vapor and sodium light fixture was blown. The general illumination levels measured did not meet IES requirement of 50 FC – 100 FC.

Drill Hall

Drill Hall

SUPPLY

SSG Vance is the HHT 3/278 Supply NCO. The supply office general illumination was provided by two light fixtures with two fluorescent bulbs each that provided an average illumination of 35 FC which did not meet IES requirement of 50 FC – 100 FC. General illumination in the supply storage met IES requirement of 20 FC – 50 FC. Task lighting taken at the computer workstation did not meet IES requirement of 50 FC – 100 FC.

The old indoor firing range after a thorough cleaning was converted to a storage area. Eleven lead wipe samples were taken in the new storage area and the samples were sent to Analytical Environmental Services, Inc., Atlanta, Georgia for analyses. Two samples collected on the floor came back positive for lead. See Table 3 (Lead Wipe Samples Collected) for test results.

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1045 of 2531

Supply Office

Supply Storage

Old Indoor Firing Rang
New Storage Area

Old Indoor Firing Range
New Storage Area

FACILITY MAINTENANCE

Non-Responsive is state maintenance worker that is responsible for minor repair and janitorial cleaning of the armory. His office and janitorial supply storage are one in the same room. He has not been to HazCom or HazMat training. Non-Responsive is responsible for maintaining the MSDS sheets for the armory and the MSDS sheets are kept in a folder in his desk. On the shelf were several unlabeled bottles of liquid. See picture of unmarked bottles of liquid in Appendix A (Troubled Areas). General illumination is provided by six light fixtures with two fluorescent bulbs each that met IES requirement of 50 FC – 100 FC.

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1046 of 2531

Facility Maintenance Office & Storage

MATERIAL SAFETY DATA SHEETS

The material safety data sheets are kept in a folder in the facility maintenance room and the folder was in good condition.

CLASSROOMS

There are four classrooms in the armory. Classrooms #1 and #2 has many water stained ceiling tiles and general illumination provided by six light fixtures (each room) with two fluorescent bulbs per light fixture. Several of the light fixtures bulbs were blown in classroom #1 and neither classroom met IES requirement of 50 FC – 100 FC

Classroom #3 and #4 also have many water stained ceiling tiles and general illumination provided by six light fixtures (each room) with two fluorescent bulbs per light fixture. No bulbs were blown and neither classroom met IES requirement of 50 FC – 100 FC.

Classrooms #1 and #2

Classrooms #3 and #4

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1047 of 2531

GYMNASIUM

The general illumination was provided by eighteen light fixtures with two fluorescent bulbs each, although, six of the light fixtures weren't working average illumination met IES requirement of 20 FC – 50 FC.

Gym

FINDINGS

A. Administrative Offices

1. Eighteen administrative offices general illumination did not meet IES requirement of 50 FC – 100 FC.
2. Fourteen task lighting taken at computer work stations did not meet IES requirement of 50 FC – 100 FC.

B. Kitchen

1. Ten fluorescent bulbs in the kitchen were blown.
2. General illumination levels did not meet IES requirement of 50 FC – 100 FC.

C. Restrooms

1. The wall below the skylight in the men restroom located in the break room was damaged.
2. The ladies restroom in the hallway has a blown fluorescent bulb.

D. Drill Hall

1. Four light fixtures were blown in the drill hall.
2. General illumination did not meet IES requirement of 50 FC – 100 FC.

E. Supply

1. General illumination levels in the supply office did not meet IES requirement of 50 FC – 100 FC.
2. General illumination in supply storage met IES requirement of 20 FC – 50 FC.
3. Task lighting taken at the computer workstations did not meet IES requirement of 50 FC – 100 FC.
4. Two of the lead wipe samples collected from the floor of the new storage (IFR) area analyses came back positive for lead.

F. Facility Maintenance

1. SSG Vannoy has never had HazCom or HazMat training.
2. Several unlabeled bottles of liquid were noticed on the back shelf.
3. MSDS sheets were in a folder and not in an MSDS binder.

G. Classrooms

1. Classrooms #1, #2, #3 and #4 all have many water stained ceiling tiles
2. Several light bulbs in classroom #1 were blown.
3. General illumination in the four classrooms did not meet IES requirement of 50 FC – 100 FC.

H. Gymnasium – General illumination met IES requirement.

I. The MSDS sheets were located in a folder in facility maintenance desk drawer.

J. The portable fire extinguishers were inspected and the last time they were certified was July 2008.

K. Fulltime employees have only administrative duties and they are not exposed to hazardous chemicals. No ambient or breathing zone air sampling accomplished during this survey.

L. Fulltime employees have only administrative duties and they are not exposed to any hazardous noise. No noise dosimeter or sound level survey accomplished during this survey.

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1049 of 2531

TABLE 1A (General Illumination Levels)

Location	Range in Foot Candles (FC)	Average FC	IES Standard in FC
Squadron Conference Room	4 – 47	25	50 – 100
Intelligence Section	34 – 77	56	50 - 100
Operations Section Non-Responsive	19 – 62	41	50 - 100
Operations Section Non-Responsive	34 – 49	43	50 – 100
M-Day Weekend Office Rm. 124	26 – 33	31	50 – 100
Non-Responsive Rm. 130	35 – 55	43	50 – 100
Family Assistance Coordinator	22 – 37	30	50 – 100
ID Cards Rapid	17 – 48	30	50 – 100
Personnel Office	21 – 45	35	50 – 100
Non-Responsive	9 – 25	18	50 - 100
Men Restroom (Hallway)	5 – 45	16	10 – 20
Medical Aid Station	7 – 13	10	50 – 100
Non-Responsive	23 – 59	41	50 – 100
Squadron Executive Officer Office	42 – 65	56	50 - 100
CSM Office	31 – 91	57	50 – 100
Break Room	22 – 55	41	50 - 100
Men Restroom (Break Room	17 – 70	40	10 – 20
Recruiter Office Non-Responsive Non-Responsive	35 – 69	49	50 - 100
Recruiter Office Non-Responsive Non-Responsive	43 – 86	66	50 – 100
Orderly Room	21 – 72	41	50 - 100
Classroom #1	4 – 37	25	50 – 100
Classroom #2	4 – 36	21	50 – 100
Classroom #3	29 – 59	31	50 – 100
Classroom #4	25 – 49	34	50 – 100

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1050 of 2531

TABLE 1A, continued (General Illumination Levels)

Location	Range in Foot Candles (FC)	Average FC	IES Standard in FC
Logistics Office	21 – 51	35	50 – 100
Drill Hall	8 – 46	27	50 - 100
HHT 3/378 Unit Commander Office	36 – 63	47	50 - 100
Supply Office	21 - 45	35	50 – 100
Supply Storage	18 – 38	25	20 – 50
Gymnasium	26 – 115	74	20 – 50
Facility Maintenance	27 – 79	62	50 – 100

TABLE 1B (Task Troubled Areas at Work Stations)

Location	Average FC	IES Standard
Operations Non-Responsive Non-Responsive omputer Workstation (CWS)	16	50 – 100
Operations Non-Responsive CWS	47	50 - 100
Non-Responsive	43	50 – 100
Coordinator Office CWS	24	50 – 100
ID Cards Rapid CWS #1	20	50 – 100
ID Cards Rapid CWS #2	18	50 – 100
Personnel Non-Responsive CWS	44	50 – 100
Personnel Non-Responsive	35	50 – 100
Non-Responsive Office CWS #1	14	50 – 100
Non-Responsive Office CWS #2	12	50 -100
Non-Responsive ffice CWS	29	50 – 100
Non-Responsive CWS	33	50 – 100
WS	30	50 – 100
Supply Office CWS	25	50 – 100

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1051 of 2531

TABLE 2 (Lead Wipe Samples Results)

Location	Sample Number	Analytical Results
Storage (IFR) Wall #1	LW20101006-01	BRL
Storage (IFR) Wall #2	LW20101006-02	BRL
Storage (IFR) Wall #3	LW20101006-03	BRL
Storage (IFR) Wall #4	LW20101006-04	BRL
Storage (IFR) Wall #5	LW20101006-05	BRL
Storage (IFR) Back Wall	LW20101006-06	BRL
Storage (IFR) Back Floor	LW20101006-07	34
Storage (IFR) Floor	LW20101006-08	562
Storage (IFR) Floor	LW20101006-09	BRL
Storage (IFR) Floor	LW20101006-10	BRL
Storage (IFR) Front Floor	LW20101006-11	BRL

Remarks: BRL – Not Detected at the Reporting Limit

TECHNICAL ASSISTANCE

Non-Responsive

[redacted]

APPENDIX A, Problem Area of Kingsport Armory

Hallway Water Stained Ceiling Tile

Damaged Wall below Skylight
Men Restroom (Break Room)

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May, 2018

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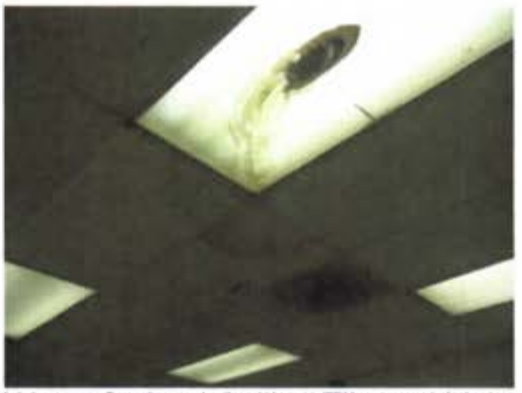
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1052 of 2531

APPENDIX A continued, Problem Area of Kingsport Armory

Water Stained Ceiling Tiles
Classrooms #1 & #2



Water Stained Ceiling Tile and Light Cover HHT 3/278 Unit Commanders Office

Water Stained Ceiling Tile
Classroom #3

Water Stained Ceiling Tile
Classroom #4

Water Stained Ceiling Tile
Conference Room

Water Stained Ceiling Tile
Facility Maintenance

APPENDIX A continued, Problem Area of Kingsport Armory

Water Stained Ceiling Tile
Gymnasium

Unlabelled Bottles Facility Maint.

APPENDIX B1, LEAD WIPE SAMPLE LOCATIONS STORAGE (IFR)

LW20101006-01 Wall

LW20101006-02 Wall

LW20101006-03 Wall

LW20101006-04 Wall

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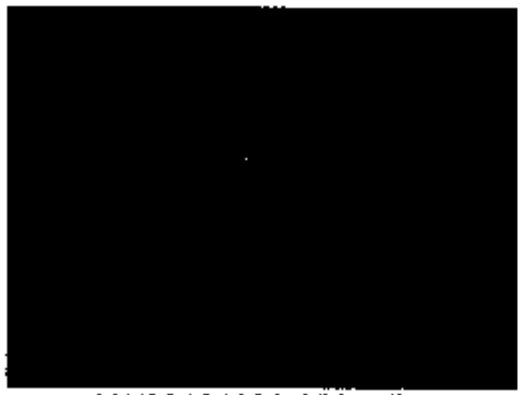
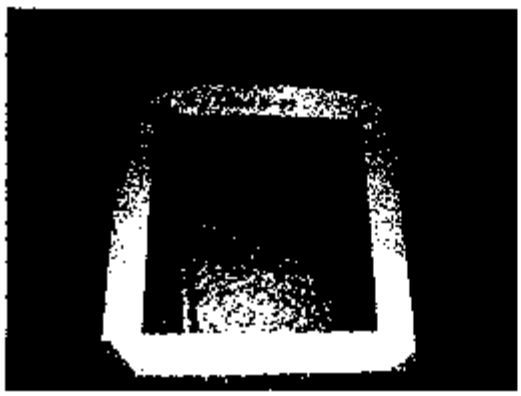
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1054 of 2531

APPENDIX B1 continued, LEAD WIPE SAMPLE LOCATIONS STORAGE (IFR)

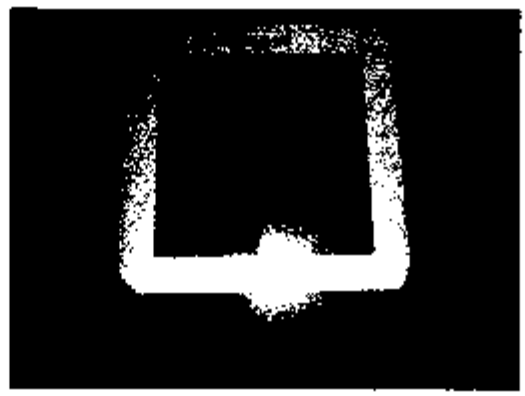


LW20101006-05 Wall

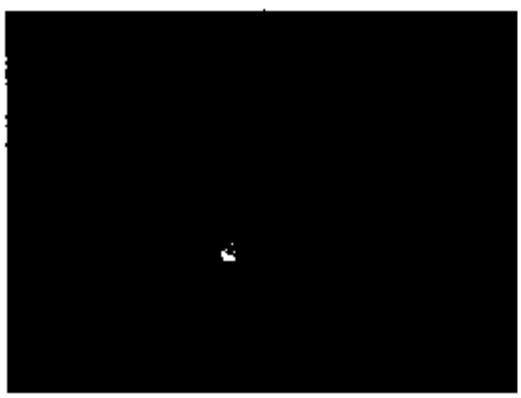
LW20101006-06 Wall



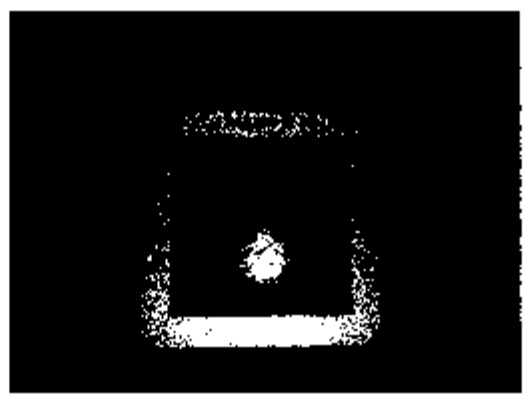
LW20101006-07 Floor



LW20101006-08 Floor



LW20101006-09 Floor



LW20101006-10 Floor

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1055 of 2531

APPENDIX B1 continued, LEAD WIPE SAMPLE LOCATIONS STORAGE (IFR)

LW20101006-11 Floor

APPENDIX C, Pictures of Kingsport Armory

AED

AC/Heating Unit

Hot Water Heater Blower

POV Parking

APPENDIX C, Pictures of Kingsport Armory

Kingsport Armory Sign Post

Tank

Break Room

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1057 of 2531

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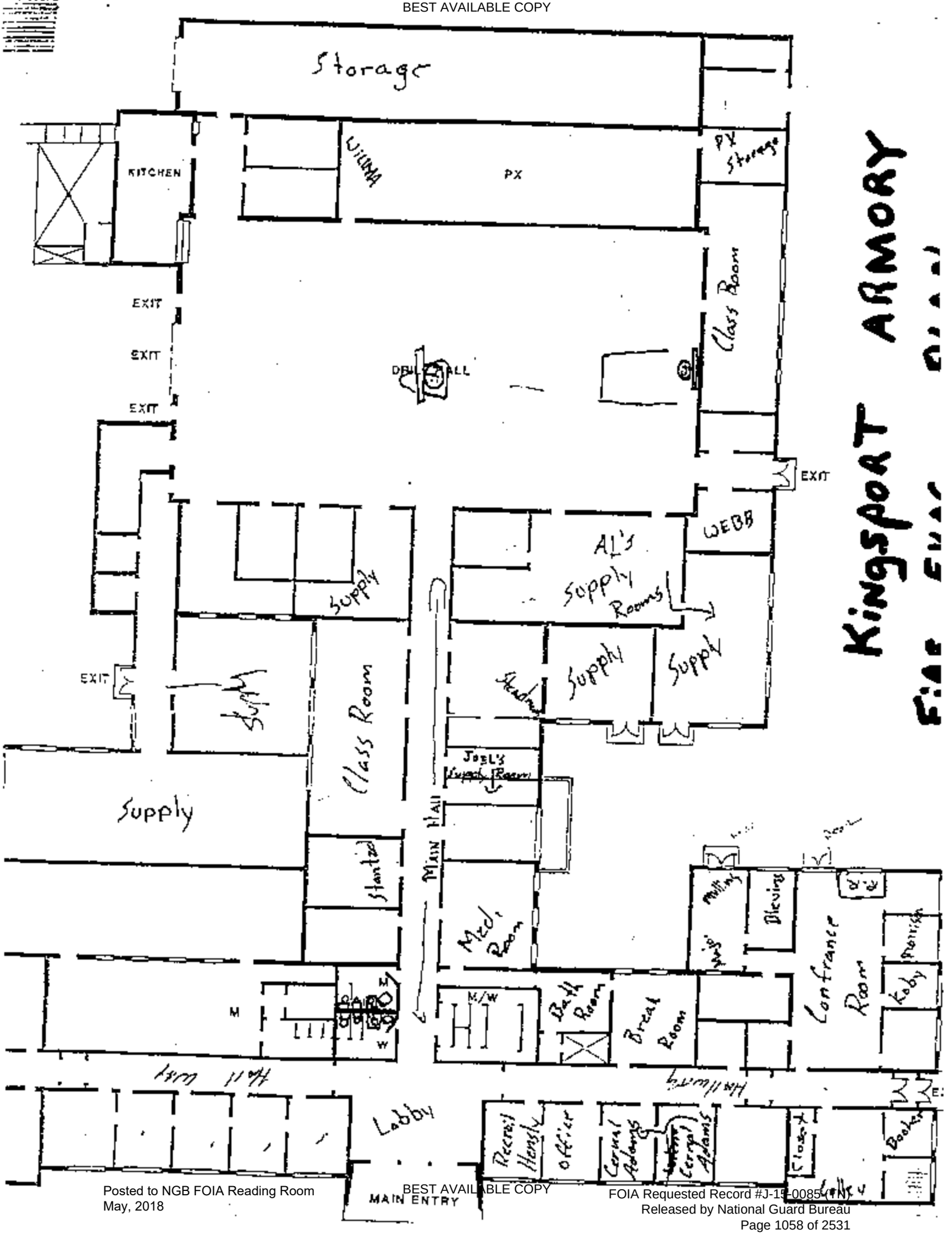

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Kingsport Armory
4401 West Stone Drive
Kingsport, TN 37660

MSDS Listing

1. Detergent, General Purpose
2. Scouring Powder
3. Degreaser, Simple Green Cleaner
4. Pro Formula Heavy Duty Stripper
5. S & B Absorbents
6. Detergent, General Purpose, Spray-on Wipe-off
7. Lisa Floating Soap
8. Austn A-1 Bleach Commercial Disinfectant
9. Multipurpose Germicidal Cleaner

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AES

ANALYTICAL ENVIRONMENTAL SERVICES, INC.

October 15, 2010

Non-Responsive

RE: Kings Port Army National Guard Armory

Dear Non-Responsive

Order No: 1010848

Analytical Environmental Services, Inc. received 11 samples on 10/11/2010 8:45:00 AM for the analyses presented in following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.
AES' certifications are as follows:
-NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/10-06/30/11.
-AIHA Certification ID #100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) effective until 09/01/11.

These results relate only to the items tested. This report may only be reproduced in full.

If you have any questions regarding these test results, please feel free to call.

Non-Responsive

3785 PRESIDENTIAL PARKWAY • ATLANTA, GEORGIA 30340 • TEL: (770) 457-8177 • FAX: (770)457-8188

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Released by National Guard Bureau
Page 1060 of 2531

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ANALYTICAL ENVIRONMENTAL SERVICES, INC
3785 Presidential Parkway, Atlanta GA 30340-3704
TEL.: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

Work Order: 1010848

Date: 10-8-2010 Page 1 of 1

COMPANY: [redacted] Non-Responsive

ADDRESS: 7043 STONECREEK DRIVE DOUGLASVILLE, GA 30134

[redacted] Non-Responsive

ANALYSIS REQUESTED: LEAD IN DIST

PRESERVATION (See codes)

Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.

		DATE	TIME	Grab	Composite	Matrix (See codes)	LEAD IN DIST	REMARKS	No # of Containers
1	LW 20101006-01	10-6-2010					✓	AREA WIPES 1 ET 2	
2	LW 20101006-02						✓		
3	LW 20101006-03						✓		
4	LW 20101006-04						✓		
5	LW 20101006-05						✓		
6	LW 20101006-06						✓		
7	LW 20101006-07						✓		
8	LW 20101006-08						✓		
9	LW 20101006-09						✓		
10	LW 20101006-10						✓		
11	LW 20101006-11						✓		
12									
13									
14									

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
1: [redacted]		[redacted] Non-Responsive	10/11/10 8:45
2:			
3:		3:	

PROJECT INFORMATION
PROJECT NAME: KINGS PORT ARMY NATIONAL GUARD ARMORY
[redacted] Non-Responsive
QUOTE #: PO#:

RECEIPT
Total # of Containers

Temperature Time Request
- ☑ Standard 5 Business Days
- ○ 2 Business Day Rush
- ○ Next Business Day Rush
- ○ Same Day Rush (auth req.)
- ○ Other

STATE PROGRAM (if any):
E-mail? Y / N; Fax? Y / N
DATA PACKAGE: I II III IV

SPECIAL INSTRUCTIONS/COMMENTS:

SHIPMENT METHOD
OUT / / VIA:
IN / / VIA:
CLIENT FedEx UPS MAIL COURIER
GREYHOUND OTHER

SAMPLES RECEIVED AFTER 3PM OR SATURDAY ARE CONSIDERED AS RECEIVED ON THE NEXT BUSINESS DAY; IF NO TAT IS MARKED ON COC AES WILL PROCEED AS STANDARD TAT.
SAMPLES ARE DISPOSED OF 30 DAYS AFTER COMPLETION OF REPORT UNLESS OTHER ARRANGEMENTS ARE MADE.

MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify)
PRESERVATIVE CODES: H+I = Hydrochloric acid + ice I = Ice only N = Nitric acid S+I = Sulfuric acid + ice S/M+I = Sodium Bisulfite/Methanol + ice O = Other (specify) NA = None

White Copy - Original; Yellow Copy - Client

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1061 of 2531

Analytical Environmental Services, Inc

Date: 15-Oct-10

Lab Order:	1010848
Client:	National Guard Bureau Region-South III
Project:	Kings Port Army National Guard Armory
Matrix:	Wipe
Date Received:	10/11/2010 8:45:00 AM

LEAD ON WIPES (N9100/7082)

N7082

Laboratory ID	Client Sample ID	Result	Units	Reporting Limit	DF	Qual	Date Collected	Date Analyzed	Analyst
1010848-001A	LW 20101006-01	BRL	µg/ft²	20	1		10/06/2010	10/14/2010	TA
1010848-002A	LW 20101006-02	BRL	µg/ft²	20	1		10/06/2010	10/14/2010	TA
1010848-003A	LW 20101006-03	BRL	µg/ft²	20	1		10/06/2010	10/14/2010	TA
1010848-004A	LW 20101006-04	BRL	µg/ft²	20	1		10/06/2010	10/14/2010	TA
1010848-005A	LW 20101006-05	BRL	µg/ft²	20	1		10/06/2010	10/14/2010	TA
1010848-006A	LW 20101006-06	BRL	µg/ft²	20	1		10/06/2010	10/14/2010	TA
1010848-007A	LW 20101006-07	34	µg/ft²	20	1		10/06/2010	10/14/2010	TA
1010848-008A	LW 20101006-08	562	µg/ft²	20	1		10/06/2010	10/14/2010	TA
1010848-009A	LW 20101006-09	BRL	µg/ft²	20	1		10/06/2010	10/14/2010	TA
1010848-010A	LW 20101006-10	BRL	µg/ft²	20	1		10/06/2010	10/14/2010	TA
1010848-011A	LW 20101006-11	BRL	µg/ft²	20	1		10/06/2010	10/14/2010	TA

Qualifiers: BRL - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank

DF - Dilution Factor

Results are blank corrected where applicable

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1062 of 2531

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Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client GA Army Work Order Number 1010848

Checklist completed by Non-Responsive 1/10
Signa

Carrier name: FedEx __ UPS __ Courier __ Client __ US Mail __ Other _____

Shipping container/cooler in good condition?	Yes ✓	No __	Not Present __
Custody seals intact on shipping container/cooler?	Yes __	No __	Not Present ✓
Custody seals intact on sample bottles?	Yes __	No __	Not Present ✓
Container/Temp Blank temperature in compliance? (4°C±2)*	Yes ✓	No __	

ND 10/11

Cooler #1 Ambient Cooler #2 _____ Cooler #3 _____ Cooler #4 _____ Cooler#5 _____ Cooler #6 _____

Chain of custody present?	Yes ✓	No __
Chain of custody signed when relinquished and received?	Yes ✓	No __
Chain of custody agrees with sample labels?	Yes ✓	No __
Samples in proper container/bottle?	Yes ✓	No __
Sample containers intact?	Yes ✓	No __
Sufficient sample volume for indicated test?	Yes ✓	No __
All samples received within holding time?	Yes ✓	No __
Was TAT marked on the COC?	Yes ✓	No __
Proceed with Standard TAT as per project history?	Yes __	No __ Not Applicable ✓

Water - VOA vials have zero headspace? No VOA vials submitted ✓ Yes __ No __

Water - pH acceptable upon receipt? Yes __ No __ Not Applicable ✓

Adjusted? _____ Checked by _____

Sample Condition: Good ✓ Other(Explain) _____

(For diffusive samples or AIHA lead) Is a known blank included? Yes __ No ✓

See Case Narrative for resolution of the Non-Conformance.

* Samples do not have to comply with the given range for certain parameters.

\\L\Quality Assurance\Checklists Procedures Sign-Off Templates\Checklists\Sample Receipt Checklists\Sample_Cooler_Receipt_Checklist

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Released by National Guard Bureau
Page 1063 of 2531

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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-AVN-SI January 12, 2005

MEMORANDUM FOR: ADJUTANT GENERAL TN ARNG, ATTN.: State Safety and Occupational Health Office, P O Box 41502, Nashville, TN 37204-1502

SUBJECT: Transmittal of the Survey Reports for Clarksville Armory, Gallatin Armory, Lafayette Armory, Lebanon Armory, Springfield Armory, TN.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, 30 August 1986, Medical Service, Preventive Medicine.

c. National Guard Regulation (NGR) 385-10, 1988, Army National Guard Safety and Occupational Health Program.

d. AR 11-34, The Army Respiratory Protection Program, 15 February 1990.

e. TB MED 502, Occupational and Environmental Health Respiratory Protection Program, February 1982.

f. DA PAM 40-503, 30 October 2000, The Army Industrial Hygiene Program.

g. DA PAM 40-501, 10 December 1998, Hearing Conservation.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2001, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

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k. Title 29, Code of Federal Regulations (CFR), 2000 rev., part 1910, Occupational Safety and Health Standards.

l. Reports dated 21 October 2004 (Gallatin & Lebanon), 22 Oct 2004 (Clarksville & Springfield) and 12 November 2004 (Lafayette), Industrial Hygiene Survey, Environmental Management Solutions, Dallas, GA.

2. General.

a. At the request of the TN ARNG Safety and Occupational Health Office, an Industrial Hygiene Service was put together to conduct Health Hazard Information module (HHIM) Field surveys and industrial hygiene sampling of the Clarksville Armory, Gallatin Armory, Lafayette Armory, Lebanon Armory, Springfield Armory, TN.

b. Environmental Management Solutions, 247 Mary Lane, Dallas, GA conducted the survey.

3. Findings. All Health Hazard information collected are on the survey findings of the report. (See enclosure 1)

4. Recommendations.

a. Follow all recommendations made in reference 1.l., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Conduct an air sampling survey in the areas in and around those identified with elevated lead dust levels in page 4 in each report of reference 1.l, to ensure that the lead dust present is not airborne and that employees in these areas are not exposed above the action level where applicable.

c. Control water infiltration in the armory and/or replace or repair damaged surfaces or components (ceiling and floor tiles). Building conditions that present IAQ concerns or problems not only exacerbates normally minor health issues but also tend to promote or accelerate building deterioration.

d. The recommendations given in the comment section and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-05. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-06 IHIP.

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e. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present survey, especially if this will help eliminate health hazards and reduce medical surveillance cost.

f. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

g. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

5. If additional information is needed about the industrial hygiene survey or air sample

Non-Responsive

[redacted]

CF:
NBG-AVN-SH
State Occupational Health Office, P O Box 41502, Nashville, TN 37204-1502.

Encl
as

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ENVIRONMENTAL MANAGEMENT SOLUTIONS
INDUSTRIAL HYGIENE CONSULTING

TENNESSEE ARMY NATIONAL GUARD

LAFAYETTE ARMORY
LAFAYETTE, TENNESSEE

247 MARY LANE, DALLAS, GEORGIA 30157
PHONE: 404 425.3103 • FAX: 770.234 6293

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EXECUTIVE SUMMARY 1

SUBJECT 2

BACKGROUND 2

INTRODUCTION 2
SITE DESCRIPTION 2
SCOPE OF WORK 2
METHODOLOGY 3

FINDINGS AND DISCUSSION 4

LEAD WIPE SAMPLES 4
ASBESTOS SUSPECT BUILDING MATERIAL 4
NOISE SURVEY 4
ILLUMINATION SURVEY 5
BUILDING CONDITION 6
HAZARD COMMUNICATION 6
RADIATION PROTECTION PROGRAM 6
ERGONOMICS 6
PERSONAL PROTECTIVE EQUIPMENT 6

RECOMMENDATIONS 7

TECHNICAL ASSISTANCE 8

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1068 of 2531

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EXECUTIVE SUMMARY

An initial baseline industrial hygiene survey was conducted at the Lafayette Armory on 12 November 2004 as part of the Tennessee Army National Guard Occupational Health Program to identify potential health hazards in the workplace. The survey consisted of collecting lead wipe samples and bulk asbestos samples as needed, conducting a noise and illumination survey and an evaluation of the condition of the building as it related to indoor air quality. A review of the Hazard communication program, ergonomics, and personal protective equipment was also performed.

The following table summarizes the survey findings and recommendations for each topic surveyed.

TOPIC	SUMMARY OF FINDINGS	RECOMMENDATIONS
Lead Wipe Samples	0 to 314 micrograms. Supply areas also show higher than recommended levels of lead contamination.	Clean surfaces in the supply and kitchen areas, decontaminate all contaminated items, and follow good hygiene and housekeeping practices.
Asbestos Bulk Samples	No findings	No action
Noise Survey	Under 85 dBA	A noise survey should be performed on equipment used and maintained in the motor pool area.
Illumination Survey	28 to 80 foot-candles	Upgrade lighting to appropriate levels.
Building Condition	Building in great condition, no leaks or signs of leaks.	Develop a housekeeping schedule to identify, repair, and prevent any leaks or standing water.
Hazard Communication	No chemical use, other than routine cleaning chemicals are present at this facility.	No action
Ergonomics	Poor workstations design in some offices	Complete ergonomics survey on all personnel and offer ergonomic training or awareness to employees who spend the majority of their time working on a computer terminal
Personal Protective Equipment	Personal protective equipment for the motor pool area was not observed.	Ensure that personal protective equipment for maintenance activities is provided by unit commanders

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MEMORANDUM FOR

Tennessee Army National Guard
Lafayette Armory
Non-Responsive
Lafayette, Tennessee 37083-2603

SUBJECT

Initial Baseline Industrial Hygiene Survey of the Lafayette Armory performed 12 November 2004 in Lafayette, Tennessee.

BACKGROUND

INTRODUCTION

At the request of Non-Responsive the National Guard Bureau Region South Industrial Hygiene Office, an initial baseline industrial hygiene survey was performed at the Lafayette Armory in Lafayette, Tennessee. Environmental Management Solutions conducted the survey on 12 November 2004. The purpose of the survey was to perform an initial baseline industrial hygiene survey to evaluate potential health hazards present at the armory.

SITE DESCRIPTION

The facility houses the Det. 2 Troop B Support Squadron 278th, all of whom are deployed. The single story building contains several administrative offices, two classrooms, a drill hall, and a kitchen. A firing range is present but was closed in August 2004. Refer to Building layout in Appendix C. Soldiers perform weapons during training, but none is performed at this facility. The armory is rented out to the city one to two times per month for receptions and parties. Recently, cheerleading practice was allowed for the local junior and senior high school.

SCOPE OF WORK

The work included collecting wipe samples for lead, bulk samples for suspect asbestos containing building material, noise readings, illumination levels, and an evaluation of the ventilation system as it pertains to indoor air quality. A list of occupational health programs and procedures were verbally covered with the armory personnel.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1070 of 2531

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METHODOLOGY

Lead wipe samples were collected from surfaces that showed signs of lead contamination in armories that have a renovated, inactive, or closed indoor firing range (IFR), kitchen or mess hall storage areas, indoor drill halls, and storage rooms with weapons vaults. The samples were collected in accordance to instructions published by Region South National Guard Bureau, which required the use of unscented baby wipes to wipe one square foot of surface. Samples were then placed in a sealed plastic bag and sent to an American Industrial Hygiene Associations (AIHA) accredited laboratory for analysis. Asbestos bulk samples and lead paint chips were collected from suspect friable and damaged building material. Each bulk sample was placed in a sealed bag and sent to an AIHA laboratory for analysis. All instruments used for assessment were factory calibrated and calibrated prior to the survey as applicable. Illumination readings were taken on work surfaces and approximately four feet from the floor.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1071 of 2531

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FINDINGS AND DISCUSSION

LEAD WIPE SAMPLES

Six wipe samples were collected from areas of the kitchen, supply, and drill hall areas as listed in the table below.

SAMPLE NUMBER	SAMPLE LOCATION	MICROGRAMS OF LEAD (µg) PER SQUARE FOOT
LF-01	Kitchen Floor, Under Sink	BRL
LF-02	Supply Room, Floor Near Lockers	**314**
LF-03	Supply Room, Top of File Cabinet	BRL
LF-04	Vault Floor	**143**
LF-05	Drill Hall Floor, Near Dispatch	BRL
LF-06	Drill Hall Floor, Near Desk, Opposite Roll UP Door	BRL

*Below Detection Limit

The Environmental Protection Agency standards (40 CFR 745) indicate lead in dust levels above 40 micrograms per square foot on bare and carpeted floors is considered dangerous for common areas. Lead results in the supply room were above regulated standards.

ASBESTOS SUSPECT BUILDING MATERIAL

Sampling for asbestos was limited to damaged material or material that could pose an exposure risk. No friable suspect material was found.

NOISE SURVEY

Area noise levels are well within the Army National Guard limit of 85 dBA and the Occupational Safety and Health Administration (OSHA) regulated limit of 90 dBA over an eight-hour period. A noise survey should be performed on equipment used and maintained in the motor pool area.

Posted to NGB FOIA Reading Room
May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1072 of 2531

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ILLUMINATION SURVEY

Lighting levels throughout the armory ranged between 28 foot-candles to 80 foot-candles. Specific readings are listed in the table below.

AREA	AVERAGE FOOT-CANDLES
Drill Hall	**29.1**
Supply Room	31.3
Classroom A & B	57.2
Section Office	62.1
Recruiter	62.2
Orderly Room	**35.1**
Det. CDR	**43.8**
Det. Sgt	79.7
Admin. Office	**27.5**
Kitchen	49.7
Section Supply	**Lighting Burned Out**

Readings in bold-faced type are not within the Army Design Guide (DG 415-2) minimum illumination level of 50 foot-candles for office areas and 20 foot-candles for parts storage/supply. The American National Standard Institute/Industrial Engineering Society (ANSI/IES) recommends a minimum illumination of 50 to 100 foot-candles for administrative and kitchen areas, and 20 to 50

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May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1073 of 2531

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foot-candles for storage areas. Luminance of 50 to 100 foot-candles is recommended for performance of visual tasks of medium contrast or small size such as reading, pencil handwriting, and poorly printed, or reproduced material. Depending of the type of display, background luminance of 30 to 60 foot-candles is recommended for computer work.

BUILDING CONDITION

The building was constructed in 1987. The building is in good condition and housekeeping is very good. No leaks or standing water was seen. Personnel did not have any specific complaints about the indoor air quality. The armory has central heating and cooling. The HVAC unit was installed approximately two years ago.

A maintenance tent is present at the back of the facility. An air compressor is located in this tent. No noise survey has been performed on this equipment. This area is used during drill weekends only. No emergency eyewashes, showers, or personal protective equipment was found in the area.

HAZARD COMMUNICATION

No chemical use, other than routine cleaning chemicals are present at this facility. SGT French updates the Material Safety Data Sheets (MSDSs) once per year. MSDSs were appropriately indexed and cross-referenced.

RADIATION PROTECTION PROGRAM

There are no radioactive materials stored at this facility.

ERGONOMICS

The full time employees in the supply or office areas did not express any ergonomic concerns. However, many workstations were not set up to provide neutral postures and appropriate ergonomically correct positions. Consideration should be given to providing all full time employees that spend the majority of their working time at a computer terminal ergonomic training or awareness. Such awareness should emphasize the importance of proper posture and set-up of the workstation to fit the user.

PERSONAL PROTECTIVE EQUIPMENT

Normal duties of full time employees at the armory do not require the use of personal protective equipment (PPE). Personal protective equipment was not observed for use during maintenance activities.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1074 of 2531

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RECOMMENDATIONS

1) All items that are contaminated with lead should be thoroughly decontaminated with a detergent and water solution. Care should be taken to wipe down tables where weapons are issued and cleaned. Kitchen areas should be thoroughly cleaned on a regular basis and especially before serving personnel.

2) Personnel should be prohibited from eating, drinking, smoking, chewing tobacco or gum, or applying cosmetics in supply areas and should be instructed to clean hands with soap and water before doing any of these. Remove any refrigerators, cups, and other eating utensils from supply areas.

3) Upgrade lighting measurements as required. Lighting can be upgraded in the following ways:

   - Replace blown or broken lighting
   - Paint walls and floors white or similar light color
   - Clean existing light fixtures
   - Rearrange furniture to make better used of available light
   - Provide supplemental or task lighting

4) Develop a housekeeping schedule to identify, repair, and prevent any leaks or standing water. Proper and immediate repairs and maintenance of the building infrastructure and interior surfaces can prevent water damage and moisture buildup which may lead to further indoor air quality issues.

5) An eyewash and shower should be acquired for the motor pool area, due to the types of chemicals commonly used in this area. An eye lavage should be made accessible within 10 seconds traveling distance of a possible eye hazard. Use portable eyewashes only if a plumbed eyewash cannot be installed.

6) Personal protective equipment should be provided, used, and maintained in a sanitary and reliable condition. Ensure that unit commanders provide appropriate personal protective equipment during maintenance procedures. If damaged or defective, PPE should be replaced immediately.

7) An ergonomics survey should be completed for all supply and administrative personnel as a preventative measure to document and address any and all ergonomic

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1075 of 2531

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concerns or problems. Provide ergonomics training and awareness to all employees who spend the majority of their time working at a computer terminal.

TECHNICAL ASSISTANCE

Non-Responsive

Non-Responsive

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1076 of 2531

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APPENDICES

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APPENDIX A

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1078 of 2531

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- American conference of Governmental Industrial Hygieist (ACGIH), Industrial Ventilation, A Manual of Recommended Practice, 23rd Edition, 1998.American National Standards Institute (ANSI), /Illuminating Engineering Society (IES), Industrial Lighting, 1991.
- Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 1990.
- Army Regulation (AR) 40-5, Preventative Medicine, 15 October 1990.
- Army Regulation (AR) 385-10, The Army Safety Program, 29 Feb 2000.
- NGR 385-10, Army National Guard Safety and Occupational Health Program, 7 October 1988.
- TB MED 503, The Army Industrial Hygiene Program, February 1985.
- Title 29, Code of Federal Regulations (CFR), 1999, revision, Part 1910, Occupational Safety and Health Standards.
- TG 022, US Army Environmental Hygiene Agency (YSAEHA), Industrial Hygiene Evaluation Guide, October 1975.
- TG 141, US Army for Health Promotion and Preventative Medicine (USACHPPM) Industrial Hygiene Air Sampling Guide, November 1997.

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Released by National Guard Bureau
Page 1079 of 2531

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APPENDIX B

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1080 of 2531

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1081 of 2531

HHIMS Industrial Hygiene Survey Form

Fro. page

AILOC

Installation: [redacted]

Building

Room Number

Location: A A

Operation: A D O

Survey Date: month 04 day 12

Evaluator: [redacted]

Macom: NG

Submacom: X X

Unit / Organization (45)

Supervisor: Mr. [redacted] Ms. [redacted] Rank [redacted]

RAC

Supervisor, or Point of Contact Telephone Number

DSN [redacted] Commercial [redacted]

Frequency (per/day): 08

No. CIVs

No. MIL: 00

Contractors: 00

No. LOCs: 00

Lab Hoods: 00

Vapor Degreasers: 00

Spray Booths: 00

Open Surface Tanks: 00

Ventilation Units: 00

Controls Present (if >6, continue in comments)(28): OTH

Evaluation (25 characters max): 28-80 | Unit code: F T C

Controls Required (25 characters max): 50-100 PTC

Gloves	e*	R	U
acid	[redacted]		
cold surfaces	[redacted]		
hot surfaces	[redacted]		
NBC agents	[redacted]		
oil	[redacted]		
solvents	[redacted]		
surgical gloves	[redacted]		
leather / cotton	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]

Respirator	e*	R	U	Manufacturer's Description (10 characters max)	NIOSH TC # or Foreign equivalent (10 characters max)
airline	[redacted]				
abrasive blasting hood	[redacted]				
disposable	[redacted]				
full face air purifying	[redacted]				
1/2 face air purifying	[redacted]				
powered air purifying	[redacted]				
1/4 face air purifying	[redacted]				
self-contained	[redacted]				
other	[redacted]	[redacted]	[redacted]		

Eyes and Face	e*	R	U
chemical splash	[redacted]		
full face shield	[redacted]		
chem/safety impact	[redacted]		
safety impact	[redacted]		
welding helmet	[redacted]		
sunglasses	[redacted]		
welding goggles/glasses	[redacted]		
laser eye protection	[redacted]		
other	[redacted]	[redacted]	[redacted]

Hearing	e*	R	U
canal caps	[redacted]		
(> 85-108 dBA steady) earplugs	[redacted]		
" helmets w/ muffs	[redacted]		
" muffs alone	[redacted]		
(108-118) muff/earplug comb	[redacted]		
muffs and earplugs with time limit (118 or >)	[redacted]		
other	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]

Body	e*	R	U
aprons	[redacted]		
cold weather clothing	[redacted]		
coveralls	[redacted]		
full body suit	[redacted]		
heat reflective vest/suit	[redacted]		
safety belt/harness	[redacted]		
special purp. clothing	[redacted]		
other	[redacted]	[redacted]	[redacted]

Head and Feet	e*	R	U
cold weather boots/hat	[redacted]		
hard hats	[redacted]		
impermeable boots	[redacted]		
safety shoes (conductive)	[redacted]		
safety (nonconductive)	[redacted]		
other	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]

e* = evaluator's recommendation or agreement

Reminders: ergonomics - dermatitis - physical agents - flammable storage
EYE (permanent) ____ - EYE (portable) ____ - SHW - GMV - LEV

ACO ADM DSA DSN LAB LCK
RAD ECR EPI SUC [illegible]

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HHIMS Industrial Hygiene Survey Form

F k page

	CAS code	PAC	EPC	Hazard Description
PONOISECO				
POFOOTHAZ	POVDTXXXX	2	A	Computer use/video display Terminal
POFLYPROJ	POSTRESSSX	3	F	ergonomics/Physical stress
POEYEHAZA				
POFLAMHAZ				
POLIFTING				
POSHARPOB				
PONOTOBJE				
POELSHOCK				
COLUBEOIL				

Social Security Number or Unique Identifier	Last Name (20 characters max)	First Name (20 characters max)	MI	Sex	Category

☐ Personnel data provided by the facility is attached to this form

Insert Privacy Act Statement

Comments

Operation described is administrative operations to include typing, filing, phone and computer use. Some workstations were not set up to allow employees to work with neutral postures. Some workspaces cramped with little space. Duties of administrative personnel vary, so that micbreaks can be taken as needed.

☐ (comments continued on attached)

☐ This operation was explained to the evaluators, but was not actually observed.

There is a noise data sheet attached to this form ☐

There is a ventilation data sheet attached to this form ☐

2/8/95 CHPMBACK.XLS

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Page 1082 of 2531

HHIMS Industrial Hygiene Survey Form

Front page

ARLOC

Installation: [illegible]

Building

Room Number

Location: SA

Operation: 421

Survey Date: 04 month 11 day 12

Evaluator: [redacted]

Macom: NG

Submacom: XX

Unit / Organization (45)

Supervisor: Mr. [redacted] Ms. [redacted] Rank [redacted]

RAC

Supervisor, or Point of Contact Telephone Number

DSN [redacted] Commercial [redacted]

Frequency (hrs/day): 008

No. CIVs

No. MIL: 00

Contractors: 00

No. LOCs: 00

Lab Hoods: 00

Vapor Degreasers: 00

Spray Booths: 00

Open Surface Tanks: 00

Ventilation Units: 00

Controls Present (if >6, continue in comments)(25)

OTH

Evaluation (25 characters max): 0-31.3

Unit code: FTC

Controls Required (25 characters max)

50-100 (Admin)

20-50 (storage)

Gloves

	e*	R	U
acid	[redacted]		
cold surfaces	[redacted]		
hot surfaces	[redacted]		
NBC agents	[redacted]		
oil	[redacted]		
solvents	[redacted]		
surgical gloves	[redacted]		
leather / cotton	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]

Respirator

	e*	R	U
airline	[redacted]		
abrasive blasting hood	[redacted]		
disposable	[redacted]		
full face air purifying	[redacted]		
1/2 face air purifying	[redacted]		
powered air purifying	[redacted]		
1/4 face air purifying	[redacted]		
self-contained	[redacted]		
other	[redacted]	[redacted]	[redacted]

Manufacturer's Description (10 characters max)

NIOSH TC # or Foreign equivalent (10 characters max)

Eyes and Face

	e*	R	U
chemical splash	[redacted]		
full face shield	[redacted]		
chem/safety impact	[redacted]		
safety impact	[redacted]		
welding helmet	[redacted]		
sunglasses	[redacted]		
welding goggles/glasses	[redacted]		
laser eye protection	[redacted]		
other	[redacted]	[redacted]	[redacted]

Hearing

	e*	R	U
canal caps	[redacted]		
(>85-108 dBA steady) earplugs	[redacted]		
helmets w/ muffs	[redacted]		
muffs alone	[redacted]		
(108-118) muff/earplug comb	[redacted]		
muffs and earplugs			
(118 or >) with time limit	[redacted]		
other	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]

Body

	e*	R	U
aprons	[redacted]		
cold weather clothing	[redacted]		
coveralls	[redacted]		
full body suit	[redacted]		
heat reflective			
vest/suit	[redacted]		
safety belt/harness	[redacted]		
special purp. clothing	[redacted]		
other	[redacted]	[redacted]	[redacted]

Head and Feet

	e*	R	U
cold weather boots/hat	[redacted]		
hard hats	[redacted]		
impermeable boots	[redacted]		
safety shoes (conductive)	[redacted]		
safety (nonconductive)	[redacted]		
other	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]

evaluator's recommendation

agreement

Reminders: ergonomics - dermatitis - physical agents - flammable storage

EYE (permanent) ____ - EYE (portable) ____ - SHW - GMV - LEV

ACO ADM DSA DSN LAB LCK

BAD FCB FPL SHC [illegible]

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HHIMS Industrial Hygiene Survey Form

E k page

	CAS code	PAC	EPC	Hazard Description
PONOISECO	P O V D T X X X X	2	A	Computer use video display terminal
POFOOTHAZ	P O S T R E S S X	3	F	Ergonomics/Physical Stress
POFLYPROJ	P O L I F T I N G	2	A	Heavy Lifting
POEYEHAZA	7 4 3 9 - 9 2 - 1	3	A	Lead
POFLAMHAZ				
POLIFTING				
POSHARPOB				
POHOTOBJE				
POELSHOCK				
COLUBEOIL				

Social Security Number or Unique Identifier	Last Name (20 characters max)	First Name (20 characters max)	MI	Sex	Category

Personnel data provided by the facility is attached to this form

Insert Privacy Act Statement

Comments

Operation described is receive, inventory, issue critical unit items to include weapons and ammunition

(comments continued on attached

This operation was explained to the evaluators, but was not actually observed.

There is a noise data sheet attached to this form

There is a ventilation data sheet attached to this form

2/8/95 CHPMBACK.XLS

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DEPARTMENT OF THE ARMY
HEADQUARTERS, TENNESSEE ARMY NATIONAL GUARD
ENVIRONMENTAL DIVISION

TITLE **HAZARDOUS MATERIALS INVENTORY LIST**

Purpose Document the type, quantity, and location of hazardous materials at the facility

Instructions The storage areas and containers should be inventoried monthly. The inspection log should be conspicuously posted in the storage area to verify that inspections have been performed. Inventory List should be updated monthly or when new material is received whichever comes first. Additionally the updated log should be forwarded to the appropriate Emergency Response Unit(s).

Facility Location	LAFAYETTE, ARMORY	Page Number 1 of 3	
Storage Area	FLAMABLE STORAGE ROOM		
Inspector Signature	Non-Responsive	Date 26 JAN 91	

Item	Trade Name/ Nomenclature	National Stock Number	Container Size/ Type	Quantity on Hand	Location
1	ENG-OIL/LUBE	9150-00-189-6727	QT/CAN	34	SHELF No. 1
2	BRAKE, FLUID/SIL	9150-01-102-9455	GAL/CAN	7	SHELF No. 1
3	SILICONE, SEALANT	9150-01-197-7688	4.7 OZ/KIT	44	SHELF No. 1
4	AUTO/ARTILLERY GREASE	9150-01-197-7692	5 GAL BUCKET	1	SHELF No. 1
5	AUTO/ARTILLERY GREASE	9150-01-197-7692	14 OZ TUBES	20	SHELF No. 1
6	ENG.-OIL LUBE	9150-01-152-4117	QT/CAN	25	SHELF No. 2
7	ANTIFREEZE-TYPE 1	6850-01-441-3218	GAL	36	SHELF No. 2 & 4
8	CLEANER, LUBE	9150-01-053-6688	GAL	14	SHELF No. 2
9	LUBE, OIL	9150-01-152-4118	5 GAL BUCKET	1	SHELF No. 3
10	HYD/TRANS FLUID	9150-01-353-4799	QT	4	SHELF No. 3
11	LUBE, OIL	9150-00-186-6668	5 GAL	4	SHELF No. 4
12	ANTIFREEZE-ADDITIVE	6850-01-160-3868	QT	12	SHELF No. 4
13	LUBE OIL	9150-00-186-8668	5 GAL	2	SHELF No. 5
14	LIQUID ORANGE	N/A	5 GAL	3	SHELF No. 3
15	STARTING FLUID/ETHER	2910-01-128-9537	18 OZ AERO	2	FLAM. CAB.

Comments:

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1085 of 2531

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DEPARTMENT OF THE ARMY
HEADQUARTERS, TENNESSEE ARMY NATIONAL GUARD
ENVIRONMENTAL DIVISION

TITLE **HAZARDOUS MATERIALS INVENTORY LIST**

Purpose Document the type, quantity, and location of hazardous materials at the facility

Instructions The storage areas and containers should be inventoried monthly. The inspection log should be conspicuously posted in the storage area to verify that inspections have been performed. Inventory List should be updated monthly or when new material is received whichever comes first. Additionally the updated log should be forwarded to the appropriate Emergency Response Unit(s).

Facility Location	LAFAYETTE, MEMORY	Page Number 2 of 3	
Storage Area			
Inspector Signature		Date	

Item	Trade Name/ Nomenclature	National Stock Number	Container Size/ Type	Quantity on Hand	Location
1	OVEN CLEANER	A-00110	16 OZ AERO	2	FLAM. CAB.
2	DENATURED ALCOHOL	6810-00-205-6786	QT	18	FLAM. CAB.
3	DIELECTRIC SOLVENT	6850-01-371-8048	16 OZ AERO	4	FLAM. CAB.
4	WD-40	N/A	11 OZ AERO	5	FLAM. CAB.
5	PENETRATING OIL	9150-00-529-7518	16 OZ AERO	13	FLAM CAB.
6	TENT/PATCH ADHESIVE	8040-00-244-3848	1/2 PINT	8	FLAM CAB.
7	GASKET SEALANT	8030-00-247-2525	11-2 OZ TUBE	9	FLAM. CAB.
8	CANVAS. PRESERV.	8030-00-664-4944	GAL - CAN	1	FLAM. CAB.
9	2 CYCLE - OIL	N/A	2.6 OZ	3	FLAM. CAB.
10	CHARCOAL LIGHTER FLD	N/A	QT	3	FLAM. CAB.
11	LUBE	9150-01-260-2534	10 OZ AERO	10	FLAM. CAB.
12	WHT. PAINT	8010-00-584-3150	10 OZ AERO	9	FLAM. CAB.
13	BLK. PAINT	8010-00-582-5382	10 OZ AERO	8	FLAM. CAB.
14	YELLOW PAINT	8010-00-721-9744	10 OZ AERO	3	FLAM. CAB.
15	RUST/WHIRITIVE	N/A	PINT	1	FLAM. CAB.

Comments:

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DEPARTMENT OF THE ARMY
HEADQUARTERS, TENNESSEE ARMY NATIONAL GUARD
ENVIRONMENTAL DIVISION

TITLE **HAZARDOUS MATERIALS INVENTORY LIST**

Purpose Document the type, quantity, and location of hazardous materials at the facility

Instructions The storage areas and containers should be inventoried monthly. The inspection log should be conspicuously posted in the storage area to verify that inspections have been performed. Inventory List should be updated monthly or when new material is received whichever comes first. Additionally the updated log should be forwarded to the appropriate Emergency Response Unit(s).

Facility Location	LAFAYETTE ARMORY	Page Number 3 of 3	
Storage Area			
Inspector Signature		Date	

Item	Trade Name/ Nomenclature	National Stock Number	Container Size/ Type	Quantity on Hand	Location
1	POLYURETHANE	8010-01-234-2934	QT / CAN	9	FLAM. CAB.
2	CONCRETE SEALANT	N/A	5 GAL CAN	1	FLAM. CAB.
3	ICING INHIBITIVE	6850-01-377-5074	5 GAL	1	FLAM. CAB.
4	VARNISH	8010-00-160-5852	1 GAL	2	FLAM. CAB.
5	LUSTERLESS ENAMEL	8010-00-597-7842	1 GAL	3	FLAM. CAB.
6	LUSTELLESS ENAMEL	8010-00-598-5958	1 GAL	3	FLAM. CAB.
7	ANTIFREEZE	6850-01-441-3821	5 GAL	5	PALLET
8	SPILL DRY / KIT	4235-01-432-7912	50 lb	1	FLOOR
9	LUBE / OIL 50W90	9150-01-035-5893	5 GAL	20	PALLET
10					
11					
12					
13					
14					
15					

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APPENDIX C

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1088 of 2531

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Lafayette Armory

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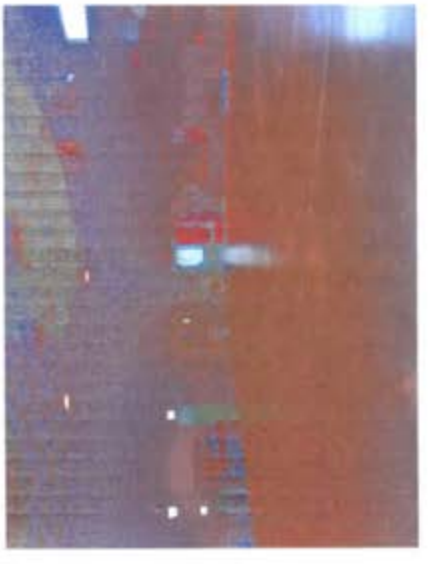
Drill Hall

Supply Room

Water Damage

Kitchen

Administration Area



Drill Hall

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Flammable Storage

Maintenance Tent

Section Supply

Boiler Room

Alarm

HVAC

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Posted to NGB FOIA Reading Room
May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau

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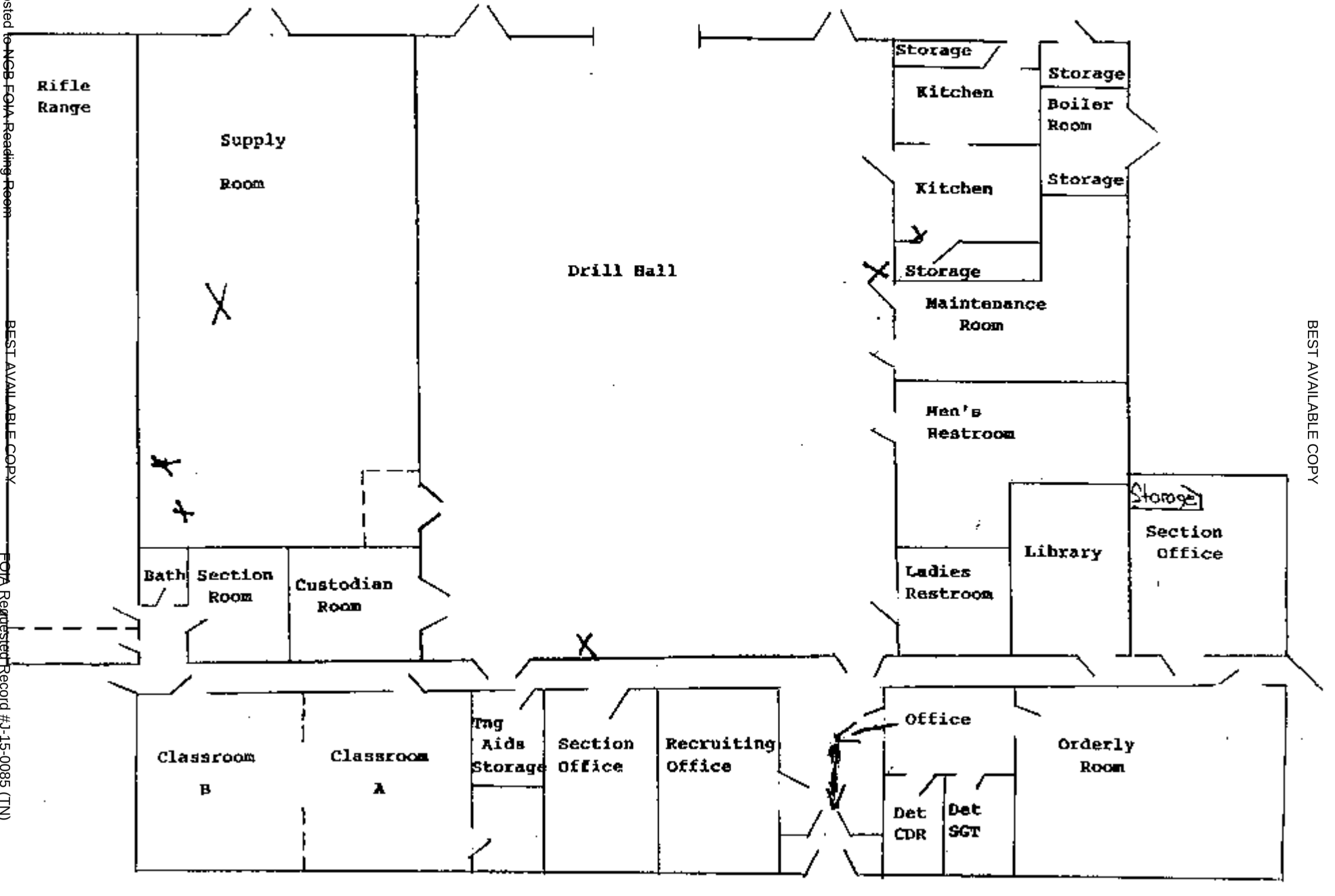
LAFAYETTE NATIONAL GUARD ARMORY



PARKING AREA

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1093 of 2531

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Analytical Environmental Services, Inc.

TOTAL LEAD IN WIPE SAMPLES

Project: Lafayette Armory TN

Date Received: 11/16/2004 3:00

Laboratory ID	Client Sample ID	Results	Units	Report Limit	DF	Date Collected	Date Analyzed	Analyst
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0411823-003A	LF-07	[illegible]	[illegible]	[illegible]	2	11/12/2004	11/17/2004	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0411823-004A	LF-04	[illegible]	[illegible]	[illegible]	2	11/12/2004	11/17/2004	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1094 of 2531

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NATIONAL GUARD REGION SOUTH
INDUSTRIAL HYGIENE OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

NGB-ARS-IHSE (40-5f) 27 August 2010

MEMORANDUM FOR THE ADJUTANT GENERAL OF TENNESSEE, ATTN: [redacted] Non-Responsive, Shop Forman, Lawrenceburg Army National Guard Armory, 1st Battalion 181st Field Activity, 2113 Helton Drive, Lawrenceburg, Tennessee 38464.

THRU Non-Responsive Deputy State Surgeon, Tennessee National Guard, HQS, AGTN-DCSPER-DSS, P.O. Box 41502, Houston Barracks, Nashville, Tennessee 37204-1501.

SUBJECT: Industrial Hygiene Survey the Lawrenceburg Army National Guard Armory, Lawrenceburg, Tennessee 38464.

1. References.

a. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1996 rev.

a. Title 29, Code of Federal Regulations (CFR), 2009 rev., part 1910, Occupational Safety and Health Standards.

b. Title 29 CFR, General Industry, revised 1996 rev. Part 1940

c. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 25 May 2007

d. AR 385-10, The Army Safety Program, 23 August 2007.

e. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.

f. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, 12 September 2008.

g. TB MED 503, The Army Industrial Hygiene Program, 30 October 2000.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2010 American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 26th rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

k. NG PAM 420-15, 03 November 2006, Facilities Engineering, Rehabilitation and Conversion of Indoor Firing Ranges.

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NGB-ARS-IHSE (40-5f) 27 August 2010

SUBJECT: Industrial Hygiene Survey the Lawrenceburg Army National Guard Armory, Lawrenceburg, Tennessee 38464.

1. Industrial Hygiene Survey Report, Nichols Environmental Associates, Inc.,1108 East Dolphin Drive, Oak Island, NC.

2. General.

a. At the request of Non-Responsive RN, of the Tennessee National Guard Occupational Health Office, an Industrial Hygiene Survey was put together to conduct a Health Hazard Information module (HHIM) Field survey of the s and industrial hygiene sampling of the Lawrenceburg National Guard Armory.

b. The surveys were conducted by Non-Responsive Environmental Associates, Inc., Oak Island, NC.

3. Findings. All Health Hazard information is on the survey findings of the report. (See enclosure 1). Operations of very short duration were not sampled due to the requirements of the sampling method. If the operation changes or if the length of the operation is increased, contact this office to schedule sampling if it is deemed needed then.

4. Recommendations. Understand that all findings found in the enclosed report have been reviewed by the Regional Industrial Hygienist and the following recommendations are the ones to be followed.

a. Use the guidance given in the enclosed report as good IH practices, requesting industrial hygiene (IH) services where needed. The recommendations that follow are based on the survey findings as reported:

i. Upgrade lighting to appropriate recommended light levels (SEE REPORT). Painting the walls and floors a light color, cleaning existing light fixtures, rearranging furniture to make better use of available light, and supplemental or task lighting are considerations in increasing available light levels. [ANSI/IES-RP7-1991]

ii. Replace burnt out lights in the Vault and Physical Fitness (weight) Room. **(RAC 2)**

iii. Ensure to perform semi-annual inventories and updates of MSDS's on all chemicals in the facility. Establish an inventory roll up sheet to be kept and evaluate the chemical inventory and update MSDS when new materials arrive and when old ones are replaced. Ensure employees attend annual Hazard Communication training after they return from deployment. Ensure all hazardous materials are stored in appropriate locations **(RAC 3)**

b. The recommendations given in the comment section of the HHIM data sheets and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-10. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-11 IHIP.

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c. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present survey, especially if this will help eliminate health hazards and reduce medical surveillance cost.

d. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance, also provided a corrective action plan to the OHN within 30 days of receipt of this report.

e. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

5. If additional information is needed about the industrial hygiene survey or air sample

Non-Responsive

[redacted]

CF: NGB-ARS-IHSE
Safety and Occupational Health Manager, Tennessee State Safety and Occupational Health Manager, 3041 Sidco Drive, Nashville, TN 37204-1504

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NEA

[redacted]

August 6, 2010

[redacted]

RE: Contract between Region South Industrial Hygiene Office
and [redacted]
Indu

Dear [redacted]

In accordance with the requirements of the above reference, Nichols Environmental Associates, Inc. (NEA) is pleased to submit this report.

This submittal incorporates the requirements of the Industrial Hygiene Contract and interview information collected. The survey and sampling were performed diligently and in accordance with industry regulations, guidelines, and good management standards. The information is complete and accurate to the best of our knowledge.

If you have any questions or comments regarding the report, please contact me.

[redacted]

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Table of Contents

	PAGE
1.0 EXECUTIVE SUMMARY	1
2.0 BACKGROUND	2
3.0 SITE DESCRIPTION	2
4.0 SCOPE OF WORK	2
5.0 IH SURVEY PERSONNEL & POINT OF CONTACTS	3
6.0 METHODOLOGY	3
7.0 FINDINGS	3
7.1 Illumination Survey	3
7.2 Maintenance Work-Bay (Inactive Firing Range)	4
7.3 Industrial Hygiene Lead Wipe Sampling	4
7.4 HAZCOM, Chemical Inventory, MSDS & General Observations	5
8.0 OCCUPANT HEALTH & COMFORT QUESTIONNAIRES & (OHCQ) FACILITY INFORMATION FORM (FIF)	5
9.0 HEALTH HAZARD INFORMATION MODULE FORMS (HHIM)	5
10.0 PHOTOGRAPHS	6
11.0 REFERENCES	6

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1099 of 2531

Table of Contents
(CONTINUED

12.0 LIMITATIONS 6

13.0 RECOMMENDATIONS 6

APPENDICES:

APPENDIX A: Building Diagram, Summary of Illumination Measurements

APPENDIX B: Firing Range Sample Placement Diagram, Chain of Custody Forms, Lab Sample Results & Sample Photographs

APPENDIX C: Occupant Health and Comfort Questionnaire, Facility Information Form, Health Hazard Information Module, Photographs & References

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1100 of 2531

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1.0 EXECUTIVE SUMMARY

The average illumination reading taken in the vehicle work bay (former indoor firing range) ranged from 8-25 FCS. The readings are below the recommended illumination levels of 50 FCS for the type of work being performed. Submit a work order to upgrade the lighting in the vehicle maintenance bay. As an interim measure, provide desk lamps for the two desks that are used by employees in the back of the maintenance bay; provide retractable drop lights, portable halogen or fluorescent stand lights in the vehicle maintenance bays where lighting is critical. Replace burned out lights in the vault 7 FCS, and Physical Fitness (Weight) Room (20 FCS). The other areas met or exceeded the guidelines.

Develop a Hazard Communication Plan. The plan should include (not limited to) the written designation of a person(s) responsible for MSDS, Labeling, and Training. The plan should also include procedures for implementing duties and keeping the program current. Ensure that the MSDS binders are kept in work areas, continually updated, and MSDS are easily cross referenced in case of emergency. "Guidelines for Employer Compliance (Advisory) – 1910.1200 App E "can be found at www. osha.gov.

A Dry Cleaning Solvent, TT-T-291F (Type II) was being used in a solvent tank for part cleaning by the OMS. The solvent tank was NIO during the time of the survey. Replace this solvent with a less-toxic cold cleaning solvent.

Laboratory lead wipe sample results indicated lead concentrations were below the National Guard Bureau (NGB) Pamphlet 420-15 guidelines of 200µg/ft² or lower for post cleaning indoor firing ranges (IFR). Ensure that the State of Tennessee does not have lead reduction levels lower than recommended in Pamphlet 420-15.

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2.0 BACKGROUND

Nichols Environmental Associates, Inc. (NEA) was contracted by the National Guard Region South Industrial Hygiene Office to conduct an Industrial Hygiene Initial Baseline Survey of the Lawrenceburg Army National Guard Armory, 1st Battalion 181st Field Activity (FA), Lawrenceburg, Tennessee 38464. The survey was conducted on July 19th, 2010 by Paul Nichols, Certified Hazard Control (CHCM).

Lawrenceburg Army National Guard Armory (LNGA) maintains rocket launchers and 5 ton vehicles. The Battery is also responsible for administration, readiness and personnel support. The armory is used for drills on weekends. On weekends LNGA personnel perform within their Military Occupational Specialty.

Vehicle maintenance is the responsibility of the OMS #8 in Winchester, Tennessee. The vehicle maintenance bay, which was initially constructed to be an indoor firing range (IFR)) is used periodically by the OMS #8 to repair vehicles on-site. OMS #8 personnel were not available.

The baseline survey included conducting illumination studies, lead wipe samples, Health Hazard Information Modules (HHIMs), Hazard Communication Program, Petroleum Oil & Lubricant (POL) procedures, Facility Information Form (FIF) and Occupant Health and Comfort Questionnaires (OHCQ).

3.0 SITE DESCRIPTION

Lawrenceburg Army National Guard Armory, 1st Battalion 181st Field Activity is located in a commercial area at 2113 Helton Drive, Lawrenceburg, Tennessee 38464. The armory was built in approximately 1982. The armory contains the usual and customary offices, class rooms, vehicle maintenance bay, drill hall, kitchen, storage, supply, recreation room, and men/women latrines, etc. There are currently four (4) full-time and one part-time employees assigned.

4.0 SCOPE of WORK

The industrial hygiene (IH) survey conducted at Lawrenceburg Army National Guard Armory included an illumination survey of the entire facility and lead wipe samples of the vehicle maintenance bay (IFR) and vault. A review of the Hazard Communication Program (Haz Com) was made, to include Material Safety Data Sheets (MSDS's), personal protective equipment (PPE), and inspection of the flammable/non-flammable storage cabinets. A review of the Facility Information Form (FIF) and Occupant Health and Comfort Questionnaire (OHCQ) which addresses questions or concerns of the employees, was also completed.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1102 of 2531

NEA
NICHOLS ENVIRONMENTAL ASSOCIATES, INC.

5.0 IH SURVEY PERSONNEL AND POINTS OF CONTACTS

Non-Responsive [redacted] Associates, Incorporated, was responsible for this survey. LNGA points of contacts (POCs) and coordinators were Non-Responsive [redacted] Industrial Hygiene Technician, and Non-Responsive [redacted] op Foreman.

6.0 SURVEY METHODOLOGY

A walk-thru survey was conducted of the Armory, vehicle maintenance bay (IFR), offices, and storage areas. Employees were interviewed, and the OHCQs/FIF were reviewed. Sampling and evaluation strategies were developed from information obtained from the POCs, OHCQs, FIF, and a walk-thru. Procedures and strategies were designed for the purpose of collecting lead wipe samples, and conducting a lighting survey. The POC was charged with providing NEA detailed information about the process and the flow of operations for each area. All tests and procedures were conducted in accordance with usual and customary, generally accepted, IH protocol.

7.0 FINDINGS

7.1 Illumination Survey

Illumination readings were obtained with an Extech Model 407026 Heavy Duty Light Meter, Serial # Z118558, with a National Institute of Standards and Technology (NIST) traceable calibration. Illumination readings were recorded in foot-candles (FCS) and the Extech light meter was programmed for the type of illumination present. Illumination readings were taken in offices, class rooms, vehicle maintenance bay (IFR), drill hall, vault, kitchen, storage, supply, recreation room, and men/women latrines

Illumination Parameters FCS

Office/ Admin = 70	Physical Fitness = 5	Vehicle Work/Bays = 50
Supply =20	Vault = 20	Drill Hall = 50
Latrines = 20	Library = 70	Kitchen= 50

The average reading taken in vehicle maintenance bay (IFR) ranged from 8-25 FCS. Two armory technicians' desks are located in the back of the maintenance bay where illumination levels are low. The average reading taken in the vault was 7 FCS (two lights were out). The average reading taken in the weight room was 20 FCS. The other areas met or exceeded the guidelines. A building diagram and summary of illumination measurements and Army National Guard DG 415 Design Guide Lighting Standards are included in Appendix A.

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1103 of 2531

BEST AVAILABLE COPY

7.2 Maintenance Work-Bay (Inactive Indoor Firing Range)

Vehicle maintenance is the responsibility of the OMS #8 in Winchester, Tennessee. The maintenance bay (inactive firing range) is used periodically by the OMS #8 to repair tires and change oil and fluids on 5 ton vehicles on-site. Major vehicle repair is performed in Winchester. No vehicle exhaust extensions were in the maintenance bay. A Dry Cleaning Solvent, TT-T-291F (Type II) was being used in a solvent tank for part cleaning by the OMS. The solvent tank was NIO during the time of the survey. Reportedly, this solvent is being turned–in to be replaced by a less-toxic cleaning solvent.

7.3 Industrial Hygiene Lead Wipe Sampling

Twelve lead dust surface samples were collected from representative areas using Environmental Express Ghost Wipes™ and 12 inch by 12 inch templates. The entire area was wiped using an "S" configured motion. The Ghost™ Wipe was then folded in half, and the area was again wiped in a direction 90° to the first using an "S" motion. The wipe was folded again and the perimeter of the area was wiped. The wipe was then placed into a plastic bag and sealed. In addition, a clean wipe was placed in a resealable plastic bag and submitted as a blank sample for analysis. The samples were sent to Analytical Environmental Services, Inc., an American Industrial Hygiene Certified Laboratory, for chemical analysis. The samples were submitted using the Chain of Custody Procedure where they were individually processed and given a unique number.

Reportedly, the vehicle maintenance bay was never used as a firing range. No samples were above the recommended NGB guidelines of 200ug/ft³ (Reference e). An indoor firing range sample placement diagram, Chain of Custody Forms, laboratory sample results, and photographs are included in Appendix B.

A table denoting sample locations, field numbers, and lead results is outlined below.

Lead Wipe Sample Locations, Field Numbers & Results

Sample Number	Sample Location	Results (µg/ft²)
Lawn-N01	Left Wall	BRL
Lawn-N02	Center Floor (FL)	67
Lawn-N03	Right Wall	BRL
Lawn-N04	Bullet Stop Area FL	143
Lawn-N05	Bullet Stop Area FL	78
Lawn-N06	Bullet Stop Lf Wall	BRL

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1104 of 2531

BEST AVAILABLE COPY

Lawn-N07	Drill Hall FL East	BRL
Lawn-N08	Drill Hall West	BRL
Lawn-N09	Basement Card Area FL	BRL
Lawn-N10	Basement Bar Area FL	BRL
Lawn-N11	Vault FL	BRL
Lawn-N12	Vault Table Top	BRL
Blank		BRL

BRL=Below Reportable Limits

7.4 HAZCOM, Chemical Inventory, MSDS Review, and General Observations

During the industrial hygiene survey, reviews of MSDSs and the Hazardous Material Inventory were conducted. An inspection of the flammable storage units was made.

An inspection of the flammable and non-flammable storage cabinets was made. The flammable storage cabinets are of the approved type and in good repair. All chemicals present in the flammable storage cabinets were relatively typical. The storage cabinets contained primarily aerosol spray paint cans. Spray painting with the aerosol spray paint cans is done for "touch-up" purposes or spraying ID numbers on the bumpers of vehicles. This is done infrequently, with a duration of no more than 5 -10 minutes. The most common "potentially hazardous" chemicals found in the substances were acetone, and toluene. The STEL and PEL set forth for these chemicals was not a concern. This is due to the amount of time, quantity and use of the chemicals, combined with their low percentage by volume.

MSDSs were not available for chemicals used and posted in the work environment.

Chemical Inventory lists were posted on the flammable storage cabinets.

8.0 OCCUPANT HEALTH AND COMFORT QUESTIONNAIRE (OHCQ) & FACILITY INFORMATION FORM (FIF)

Five Armory personnel responded to the OHCQ. No problems were identified. The OHCQs and FIF forms are included in Appendix C.

9.0 HEALTH HAZARD INFORMATION MODULE (HHIM)

The HHIM Field Survey Forms were completed for operations surveyed. A roster of employees, controls/protective measures, and potential health hazards for specific operations were identified. The HHIM Field Survey Forms are included in Appendix C.

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1105 of 2531

BEST AVAILABLE COPY

10.0 PHOTOGRAPHS

Site photographs are included in Appendix C.

11.0 REFERENCES

A list of references used during the course of this survey is included in Appendix C.

12.0 LIMITATIONS

Variation of the work environment is an inherent part of sampling and evaluations. This report reflects conditions, operations, and practices observed and reported at the time of the survey. Changes in operating conditions, materials used, and work practices can alter the environment and the outcome of this type of survey.

13.0 RECOMMENDATIONS

Submit a work order to upgrade the lighting in the vehicle maintenance bay. As an interim measure, provide desk lamps for the two desks that are used by employees in the back of the maintenance bay; provide retractable drop lights, portable halogen or fluorescent stand lights in the vehicle maintenance bays where lighting is critical.

Replace burned out lights in the vault (7 FCS, and Physical Fitness (Weight) Room (20 FCS).

Develop a Hazard Communication Plan. The plan should include (not limited to) the written designation of a person(s) responsible for MSDS, Labeling, and Training. The plan should also include procedures for implementing duties and keeping the program current. Ensure that the MSDS binders are kept in work areas, continually updated. Include an index in the binder so that MSDS are easily cross referenced in case of emergency. "Guidelines for Employer Compliance (Advisory) – 1910.1200 App E "can be found at www. osha.gov.

Laboratory lead wipe sample results indicated lead concentrations were below the National Guard Bureau (NGB) Pamphlet 420-15 guidelines of 200µg/ft² or lower for post cleaning indoor firing ranges (IFR). Ensure that the State of Tennessee does not have lead reduction levels lower than recommended in Pamphlet 420-15.

Replace the Dry Cleaning Solvent, TT-T-291F (Type II) with a less-toxic cleaning solvent.

Evaluate OMS #8 shop activities when personnel are available.

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FOIA Requested Record #J-15-0085 (TN)
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Page 1106 of 2531

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APPENDIX A

Building Diagram & Summary of Illumination Measurements & NG Design Guide Lighting Standards

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
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Building Diagram & Summary Of Illumination Measurements

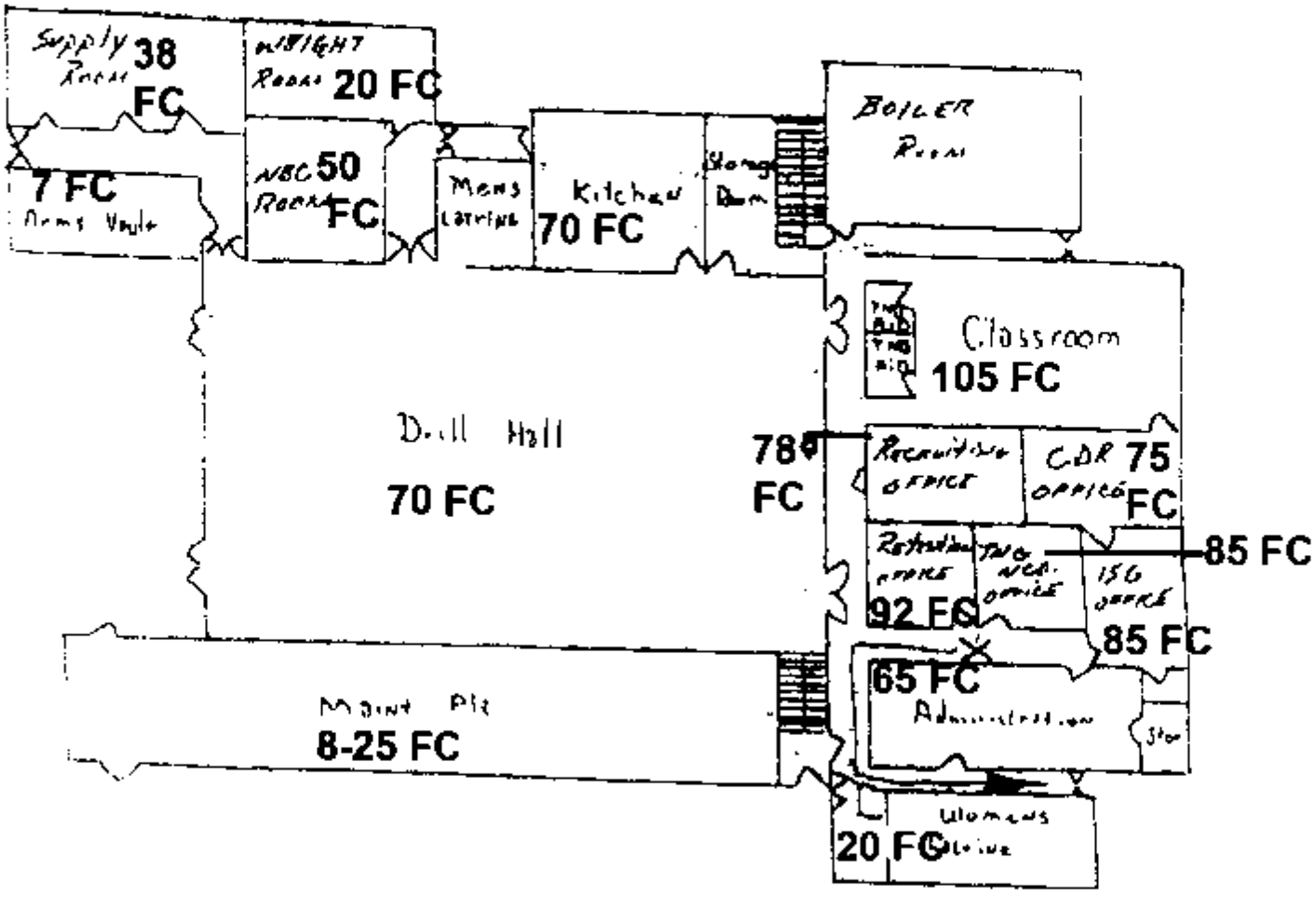

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Table 8 Electrical Requirements

	FUNCTIONAL AREA	LIGHTING	OUTLETS	NOTES
Office Areas				
1	General Supervisor	70 FC, FL	1 duplex per wall	1
2	Supervisor	70 FC, FL	1 duplex per wall	1
3	Production Controller	70 FC, FL	1 duplex per wall	1
4	Inspection and Library	70 FC, FL	1 duplex per 10 LF of wall	1
5	Automation Clerk	70 FC, FL	1 duplex per 10 LF of wall	1
6	Common IT Space	70 FC, FL	1 duplex per 10 LF of wall	2
7	IT Support Activities	70 FC, FL	1 duplex per 10 LF of wall	2
8	Classroom	70 FC, FL	1 duplex per 10 LF of wall	
Personnel Areas				
1	Toilet/Shower	40 FC, FL	1 duplex GFCI per 2 sinks	
2	Locker Room	40 FC, FL	1 duplex GFCI	
3	Break Area	30 FC, FL	1 duplex per 10 LF of wall	
4	Physical Fitness Area	50 FC, FL	1 duplex per 12 LF of wall	2
Work Areas				
1	Tool Room	50 FC, FL	1 duplex per 20 LF of wall	
2	Supply Room	30 FC, FL	1 duplex per 20 LF of wall	
3	Battery Room	30 FC, FL	explosion proof	4
4	Comm. & Electronic Shop	70 FC, FL	1 duplex per 2 LF of workbench	2
5	Instrument Repair Shop	70 FC, FL	1 duplex per 2 LF of workbench	2
6	Small Arms Repair Shop	70 FC, FL	1 duplex per 2 LF of workbench	2
7	Small Arms Test Room	70 FC, FL	1 duplex per 2 LF of workbench	2
8	Vault (Small Arms)	20 FC, FL	1 duplex	
9	Vault (CBT Vehicle Arms)	20 FC, FL	1 duplex	
10	Injector Test Room	70 FC, FL	1 duplex per 2 LF of workbench	2
11	Fuel and Ignition Repair Shop	70 FC, FL	1 duplex per 2 LF of workbench	2
12	Oil Storage/Issue	20 FC, FL	1 duplex per 20 LF of wall	
13	Machine Shop	50 FC, FL	1 duplex per 10 LF of wall	2
14	Carpenter Shop	50 FC, FL	1 duplex per 10 LF of wall	2
15	Lumber Storage Shed	10 FC, FL	none	

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Table 6. Electrical Requirements (Continued)

	FUNCTIONAL AREA	LIGHTING	OUTLETS	NOTES
16	Canvas Shop	50 FC, FL	1 duplex per 10 LF of wall	2
17	Missile Repair Shop	70 FC, FL	1 duplex per 10 LF of wall	2
18	Vault (Missile)	20 FC, FL	1 duplex	
19	Calibration Room	70 FC, FL	1 duplex per 2 LF of workbench	
20	Calibration Storage	20 FC, FL	1 duplex per 20 LF of wall	
21	Glass Repair Room	50 FC, FL	1 duplex per 10 LF of wall	2
22	Radiator Test & Repair Room	50 FC, FL	1 duplex per 10 LF of wall	2
23	COMSEC Repair Room	50 FC, FL	1 duplex per 10 LF of wall	2
24	Radiation Calibration Room	70 FC, FL	1 duplex per 2 LF of workbench	
25	Bulk POL Storage for Lubricating Systems	20 FC, FL	1 duplex	
26	Bulk POL Storage	20 FC, FL	1 duplex per 20 LF of wall	
27	Controlled Waste Handling	30 FC, FL	1 duplex per 20 LF of wall	
28	Bulky Equipment Storage	20 FC, FL	1 duplex per 20 LF of wall	
29	Flammable Materiel Storage	20 FC, FL	1 duplex (explosion proof	
30	Enclosed Unheated Storage	20 FC, FL	1 duplex per 20 LF of wall	
Workbays				
1	General Purpose Workbay	50 FC, FL	1 duplex per 10 LF of wall	2
2	Warm-Up Bay	50 FC, FL	1 duplex per 10 LF of wall	2
3	Welding Shop	50 FC, FL	1 duplex per 10 LF of wall	2
4	Wash Bay	50 FC, FL	N/A	2
5	Paint Stripping Bay	50 FC, FL	1 duplex per 10 LF of wall	2
6	Paint Preparation Bay	50 FC, FL	1 duplex per 10 LF of wall	2
7	Paint Booth	50 FC, FL	1 duplex per 10 LF of wall	2
8	Lubrication Bay	50 FC, FL	1 duplex per 10 LF of wall	2
9	Engine/Transmission Test Cell	50 FC, FL	1 duplex per 10 LF of wall	2
10	Electronics Bay	50 FC, FL	1 duplex per 10 LF of wall	2
11	Body Shop	50 FC, FL	1 duplex per 10 LF of wall	2

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APPENDIX B

IFR Sample Placement Diagram, Chain of Custody Forms, Lab Sample Results & Sample Photographs

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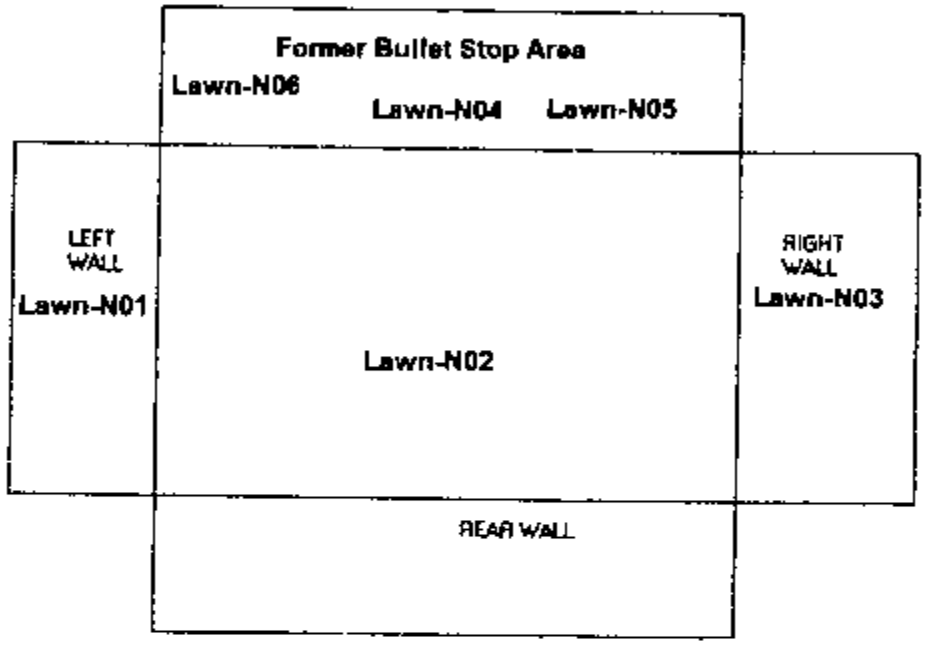
INDOOR FIRING RANGE SAMPLE PLACEMENT DIAGRAM



Lawn-N07, Drill Hall
Lawn-N08, Drill Hall
Lawn-N09, Basement FL
Lawn-N10, Basement Bar
Lawn-N11,Vault FL
Lawn-N12, Vault Table Top

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ANALYTICAL ENVIRONMENTAL SERVICES, INC.

AES

July 29, 2010

Non-Responsive

RE: Lawrenceburg, TN

Order No: 1007154

Dear Non-Responsive

Analytical Environmental Services, Inc. received 13 samples on 7/23/2010 10:30:00 AM for the analyses presented in following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.

AES' certifications are as follows:

-NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/10-06/30/11.

-AIHA Certification ID #100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) effective until 09/01/11.

These results relate only to the items tested. This report may only be reproduced in full.

If you have any questions regarding these test results, please feel free to call.

Non-Responsive

3785 Presidential Parkway • Atlanta, Georgia 30340 • Tel: (770) 457-8177 • Fax: (770) 457-8188

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May, 2018
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FOIA Requested Record #J-15-0085 (TN)
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Analytical Environmental Services, Inc

Date: 29-Jul-10

Lab Order:	1007154
Client:	Nichols Environmental Associates, Inc.
Project:	Lawrenceburg, TN
Matrix:	Wipe
Date Received:	7/23/2010 10:30:00 AM

LEAD ON WIPES (N9100/7082)

N7082

Laboratory ID	Client Sample ID	Result	Units	Reporting Limit	DF	Qual	Date Collected	Date Analyzed	Analyst
1007154-001A	LAWN-NO 1 LEFT WALL	BRL	ug, Total	20	1		07/19/2010	07/28/2010	MP
1007154-002A	LAWN-NO 2 FLOOR	67	ug, Total	20	1		07/19/2010	07/28/2010	MP
1007154-003A	LAWN-NO 3 RT WALL	BRL	ug, Total	20	1		07/19/2010	07/28/2010	MP
1007154-004A	LAWN-NO 4 BULLETSTOP	143	ug, Total	20	1		07/19/2010	07/28/2010	MP
1007154-005A	LAWN-NO 5 BULLETSTOP	78	ug, Total	20	1		07/19/2010	07/28/2010	MP
1007154-006A	LAWN-NO 6 BULLETSTOP	BRL	ug, Total	20	1		07/19/2010	07/28/2010	MP
1007154-007A	LAWN-NO 7 DRILL HALL FLT	BRL	ug, Total	20	1		07/19/2010	07/28/2010	MP
1007154-008A	LAWN-NO 8 DRILL HALL FLT	BRL	ug, Total	20	1		07/19/2010	07/28/2010	MP
1007154-009A	LAWN-NO 9 BASEMENT FL	BRL	ug, Total	20	1		07/19/2010	07/28/2010	MP
1007154-010A	LAWN-NO 10 BASEMENT	BRL	ug, Total	20	1		07/19/2010	07/28/2010	MP
1007154-011A	LAWN-NO 11 VAULT FL	BRL	ug, Total	20	1		07/19/2010	07/28/2010	MP
1007154-012A	LAWN-NO 12 VAULT TABLE	BRL	ug, Total	20	1		07/19/2010	07/28/2010	MP
1007154-013A	BLANK	BRL	ug, Total	20	1		07/19/2010	07/28/2010	MP

Qualifiers: BRL - Not Detected at the Reporting Limit

DF - Dilution Factor

B - Analyte detected in the associated Method Blank

Results are blank corrected where applicable

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Analytical Environmental Services, Inc

Date: 29-Jul-10

Client: Nichols Environmental Associates, Inc.
Project: Lawrenceburg, TN
Lab Order: 1007I54

Dates Report

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1007I54-001A	LAWN-NO 1 LEFT WALL	7/19/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007I54-002A	LAWN-NO 2 FLOOR	7/19/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007I54-003A	LAWN-NO 3 RT WALL	7/19/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007I54-004A	LAWN-NO 4 BULLETSTOP	7/19/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007I54-005A	LAWN-NO 5 BULLETSTOP	7/19/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007I54-006A	LAWN-NO 6 BULLETSTOP	7/19/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007I54-007A	LAWN-NO 7 DRILL HALL F1 E	7/19/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007I54-008A	LAWN-NO 8 DRILL HALL F1 E	7/19/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007I54-009A	LAWN-NO 9 BASEMENT FL	7/19/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007I54-010A	LAWN-NO 10 BASEMENT	7/19/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007I54-011A	LAWN-NO 11 VAULT FL	7/19/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007I54-012A	LAWN-NO 12 VAULT TABLE	7/19/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007I54-013A	BLANK	7/19/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010

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ANALYTICAL ENVIRONMENTAL SERVICES, INC
3785 Presidential Parkway, Atlanta GA 30340-3704
TEL: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

Work Order 1087354

Date 7/19/10 Page 1 of 1

COMPANY
Nichols Environmental Associates, Inc.

ADDRESS
1108 East Dolphin Drive
Oak Island, NC 28465

[redacted]

ANALYSIS REQUESTED: Lead

Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.

#	SAMPLE ID	SAMPLED DATE	SAMPLED TIME	Grab	Composite	Matrix (See codes)	PRESERVATION (See codes)	REMARKS	No # of Containers
1	Lawn-No1 Left wall	7/19/10							
2	Lawn-No2 Floor	"							
3	Lawn-No3 Rt Wall	"							
4	Lawn-No4 Bulletstop	"							
5	Lawn-No5 Bulletstop	"							
6	Lawn-No6 Bulletstop	"							
7	Lawn-No7 Drill Hall Fl E	"							
8	Lawn-No8 Drill Hall Fl E	"							
9	Lawn-No9 Basement Fl	"							
10	Lawn-No10 Basement Fl	"							
11	Lawn-No11 Vault Fl	"							
12	Lawn-No12 Vault Table	"							
13									
14									

RELINQUISHED BY DATE/TIME
[redacted]

RECEIVED BY DATE/TIME
[redacted] 10:30

PROJECT INFORMATION
PROJECT NAME: Lawrenceburg, TN
PROJECT #:
SITE ADDRESS: 2113 Hollow Drive
SEND REPORT TO [redacted]
INVOICE TO (IF DIFFERENT FROM ABOVE)
bill to: [redacted]
Suite [redacted]
QUOTE # PO#

RECEIPT
Total # of Containers

Turnaround Time Request
- (X) Standard 5 Business Days
- ( ) 2 Business Day Rush
- ( ) Next Business Day Rush
- ( ) Same Day Rush (auth req.)
- ( ) Other

STATE PROGRAM (if any)
E-mail? Y / N Fax? Y / N
DATA PACKAGE I II III IV

SPECIAL INSTRUCTIONS/COMMENTS
Please Fax or Email results ASAP

The bill for this project should be submited [redacted]
NGB, 510 Plaza Dr. Suite 1530, College Park, GA 30349.

SHIPMENT METHOD
OUT / VIA
IN VIA
CLIENT FEDEX UPS MAIL COURIER
GREYHOUND OTHER

SAMPLES RECEIVED AFTER 3PM OR SATURDAY ARE CONSIDERED AS RECEIVED ON THE NEXT BUSINESS DAY; IF NO TAT IS MARKED ON COC AES WILL PROCEED AS STANDARD TAT.
SAMPLES ARE DISPOSED OF 30 DAYS AFTER COMPLETION OF REPORT UNLESS OTHER ARRANGEMENTS ARE MADE.

MATRIX CODES A - Air GW - Groundwater SE - Sediment SO - Soil SW - Surface Water W - Water (Blanks) DW - Drinking Water (Blanks) O - Other (specify) WW - Waste Water
PRESERVATIVE CODES H+I - Hydrochloric acid + ice I - Ice only N - Nitric acid S+I - Sulfuric acid + ice S/M+I - Sodium Bisulfate/Methanol + ice O - Other (specify) NA - None

White Copy - Original; Yellow Copy - Client

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Page 1116 of 2531

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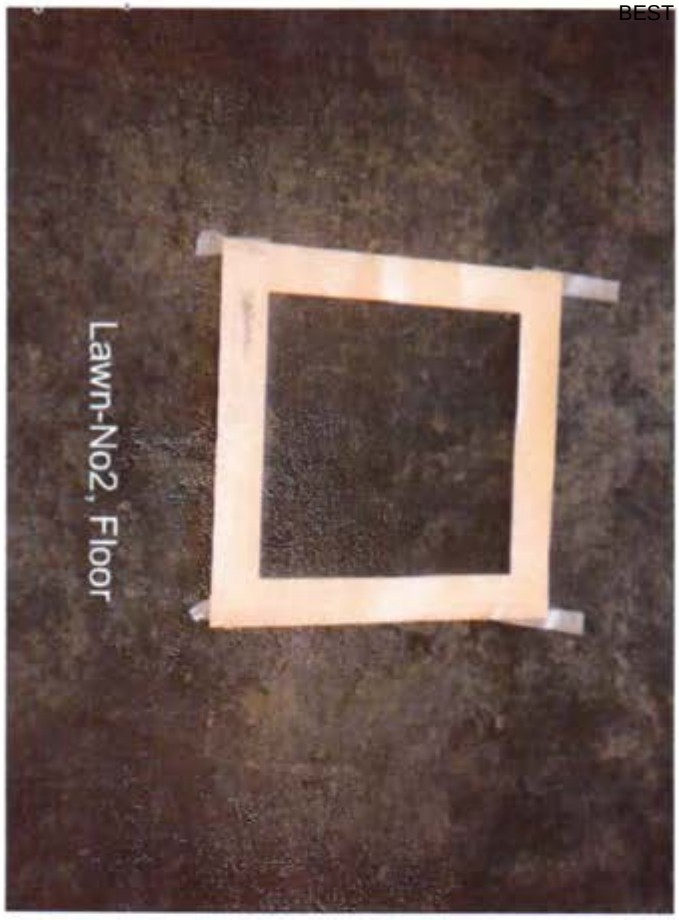

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Lawn-N05, Bullet Stop

Lawn-N07, Drill Hall Floor, East

Lawn-No6, Left Wall

Lawn-N08, Drill Hall Floor, West

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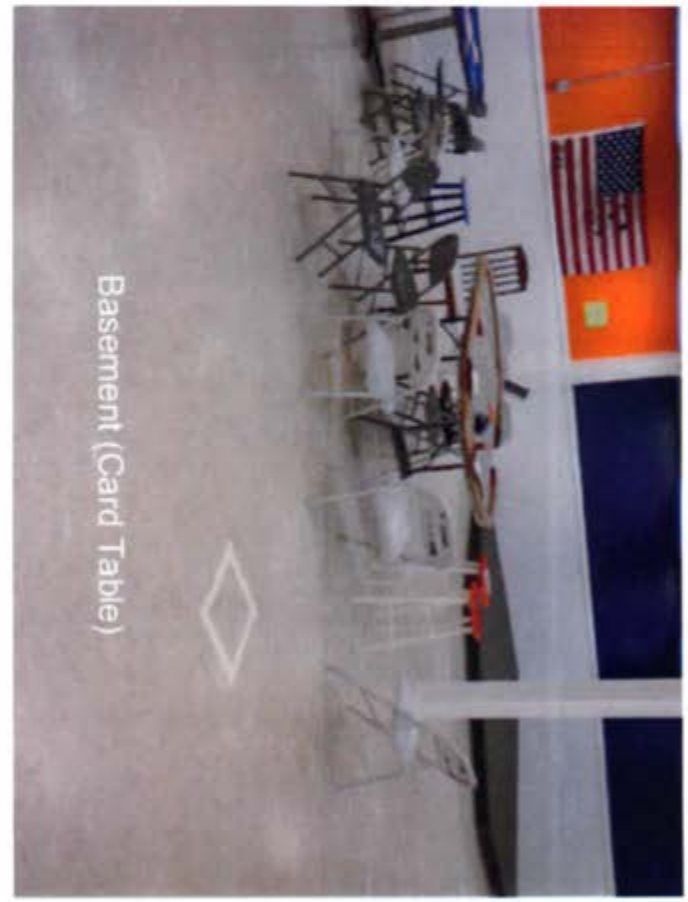
Lawn-N10, Basement (bar area)

Lawn-N09, Basement Floor (bar area)

Lawn-N11, Vault Floor



Basement (Card Table)

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APPENDIX C

Facility Information Form, Occupant Health and Comfort Questionnaires, Health Hazard Information Module, Photographs & References

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
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Facility Information Form

State:Tennessee
Facility:TN ARNG
Facility Address:_2113 Helton Drive, Lawrenceburg, TN 38464
Phone#:931-766-1422

Date Prepared: 7/22/10
Supervisor: SFC Scott Dollar

Fax #:_____

Work Schedule (M-F, 8-4:30)

General Information	
Number of Maintenance Bays: Number of Exhaust Extensions:	0
Total Number of Personnel:	5
Number of Maintenance Personnel:	2
Number of Administrative Personnel:	3
Approximate area of facility (ft²) ApproximateDate/ Construction	

Operations		
	Yes (if Yes, How Many Hours per Day on Average)	No
Abrasive Blasting (List Type)	none	
Aerosol Can Painting		
Air Compressors (How many?) Armament	1	
Aviation Life Support Equipment	none	
Avionics	none	
Battery Charging Room or Battery Storage Room	none	
Brake/Clutch Repair and/or Replacement	none	
Calibration of Equipment	none	
Canvas Repair	None	
Carpentry Shop	none	
Grinding, buffing, polishing, sanding	1	
Hazardous Materials/POL Handling	yes	
Electronics Repair	none	
Pneumatic Tool Operation	yes	
Respirators (what kind?) Refueling	no	
Solvent Tank Use (How Many) 1	yes	
Spray Paint Booth	none	
Sheet Metal Working	none	
Small Arms Repair	None	
Soldering	None	
Supply/Warehouse	None	
Testing and Tuning of Engines	No	
Welding (List Types)	No	
Other Noise sources		

Please write below any special conceros that you would like to have addressed during the survey:

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OCCUPANT HEALTH AND COMFORT QUESTIONNAIRE

Indoor Air Quality Survey (NO NAMES)

Date: 19 Jul 2010

1 Location of Facility

Lawrenceburg, TN 38464

2. Area or room where you spend the most time in the building.

Maintenance Bay

3 Gender: Male Female

Age: Under 25 25-34 (35-44) 45-54 55 and over

4. Do you.

Smoke?	(Yes)	No
Have hay fever/pollen allergies?	Yes	(No)
Have skin allergies/dermatitis?	Yes	(No)
Have a cold/flu?	Yes	(No)
Have sinus problems?	Yes	(No)
Have other allergies?	Yes	(No)
Wear contact lenses?	Yes	(No)
Operate video display terminals?	(Yes)	No
Take medication for asthma, allergies, sinus, lung or immune problems?	Yes	(No)

5. Do any of your work activities produce dust or odor? Yes (No)

Describe:

6 Office characteristics:

Number of persons sharing same room/work area 2 Number of windows in room/work area 0

Please rate adequacy of your workspace (i.e. desk space, size of work area)

Poor 1 2 Average 3 (4) Excellent 5

Please rate room temperature:

Poor 1 Average (2) 3 4 Excellent 5

7. How many years or months have you worked:
In this room/area? 2 yrs In this building? 2 yrs

8. *List symptoms you have experienced in this building. More than one answer may apply (for example headaches may occur frequently, and improve on vacation.). When do these symptoms occur?*

None

Have you seen a doctor for any or all of these symptoms? Yes (No)

If yes, did your doctor relate this to your work, and if so, what were the diagnosis and recommended treatment? When do symptoms disappear?

9 *In your opinion what is the cause of perceived indoor air quality problems?*

None, Well ventilated area.

Thank you very much for your cooperation.

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OCCUPANT HEALTH AND COMFORT QUESTIONNAIRE

Indoor Air Quality Survey (NO NAMES)

Date:

1 Location of Facility

Lawrenceburg, TN

2 Area or room where you spend the most time in the building.

Oderly Room

3 Gender: Male Female

Age: 37 Under 25 25-34 35-44 45-54 55 and over

4. Do you:

Smoke?	Yes	No
Have hay fever/pollen allergies?	Yes	No
Have skin allergies/dermatitis?	Yes	No
Have a cold/flu?	Yes	No
Have sinus problems?	Yes	No
Have other allergies?	Yes	No
Wear contact lenses?	Yes	No
Operate video display terminals?	Yes	No
Take medication for asthma, allergies, sinus, lung or immune problems?	Yes	No

5. Do any of your work activities produce dust or odor? Yes No

Describe:

6. Office characteristics:

Number of persons sharing same room/work area 2 Number of windows in room/work area 3

Please rate adequacy of your workspace (i.e. desk space, size of work area)

Poor 1 2 Average 3 4 Excellent 5

Please rate room temperature:

Poor 1 2 Average 3 4 Excellent 5

7. How many years or months have you worked:
In this room/area? 2 In this building? 7

8. *List symptoms you have experienced in this building. More than one answer may apply (for example, headaches may occur frequently, and improve on vacation). When do these symptoms occur?*

None

Have you seen a doctor for any or all of these symptoms? Yes No

NA

If yes, did your doctor relate this to your work, and if so, what were the diagnosis and recommended treatment? When do symptoms disappear?

NA

9. *In your opinion, what is the cause of perceived indoor air quality problems?*

NA, New HVAC unit

Thank you very much for your cooperation.

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May 2015

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OCCUPANT HEALTH AND COMFORT QUESTIONNAIRE

Indoor Air Quality Survey (NO NAMES)

Date:

1 Location of Facility Lawrenceburg, TN

2 Area or room where you spend the most time in the building: Front office

3. Gender: Male Female
Age Under 25 25-34 35-44 45-54 55 and over

4 Do you:

Smoke?	Yes	No
Have hay fever/pollen allergies?	Yes	No
Have skin allergies/dermatitis?	Yes	No
Have a cold/flu?	Yes	No
Have sinus problems?	Yes	No
Have other allergies?	Yes	No
Wear contact lenses?	Yes	No
Operate video display terminals?	Yes	No
Take medication for asthma, allergies, sinus, lung or immune problems?	Yes	No

5. Do any of your work activities produce dust or odor? Yes No
Describe:

6. Office characteristics:

Number of persons sharing same room/work area 2 Number of windows in room/work area 2

Please rate adequacy of your workspace (i.e. desk space, size of work area)

Poor 1 2 Average 3 4 Excellent 5

Please rate room temperature.

Poor 1 Average 2 3 4 Excellent 5

7 How many years or months have you worked:
In this room/area? ___ In this building? 3 yrs 7 mo

8 *List symptoms you have experienced in this building. More than one answer may apply (for example, headaches may occur frequently, and improve on vacation.). When do these symptoms occur?*

N/A

Have you seen a doctor for any or all of these symptoms? Yes No

If yes, did your doctor relate this to your work, and if so, what were the diagnosis and recommended treatment? When do symptoms disappear? N/A

9 *In your opinion, what is the cause of perceived indoor air quality problems?* No problem

Thank you very much for your cooperation.

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OCCUPANT HEALTH AND COMFORT QUESTIONNAIRE

Indoor Air Quality Survey (NO NAMES)

Date:

1. Location of Facility

Lawrenceburg TN

2. Area or room where you spend the most time in the building:

Main Bay

3. Gender (Male) Female

Age Under 25 25-34 (35-44) 45-54 55 and over

4. Do you

Smoke?	Yes	(No)
Have hay fever/pollen allergies?	Yes	(No)
Have skin allergies/dermatitis?	Yes	(No)
Have a cold/flu?	Yes	(No)
Have sinus problems?	Yes	(No)
Have other allergies?	Yes	(No)
Wear contact lenses?	Yes	(No)
Operate video display terminals?	Yes	(No)
Take medication for asthma, allergies, sinus, lung or immune problems?	Yes	(No)

5. Do any of your work activities produce dust or odor? **Yes** (**No**)

Describe:

6. Office characteristics.

Number of persons sharing same room/work area 1 Number of windows in room/work area Bay door

Please rate adequacy of your workspace (i.e. desk space, size of work area)

Poor 1 2 Average 3 (4) Excellent 5

Please rate room temperature:

Poor 1 (2) Average 3 4 Excellent 5

7. How many years or months have you worked
In this room/area? 5 In this building? 5

8. List symptoms you have experienced in this building. More than one answer may apply (for example headaches may occur frequently, and improve on vacation.). When do these symptoms occur?

None

Have you seen a doctor for any or all of these symptoms? Yes (No)

If yes, did your doctor relate this to your work, and if so, what were the diagnosis and recommended treatment? When do symptoms disappear?

9. In your opinion, what is the cause of perceived indoor air quality problems?

Thank you very much for your cooperation.

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ARLOC	INSTALLATION	BLDG/	RMNO.
47000	Lawrenceburg Armory, 1st Battalion 181 Field Activity, 2113 Helton Drive, Lawrenceburg, TN 38464		

LOCATION/CODE AA	OPERATION/CODE GRD
SURVEY DATE: 0719/10, Evaluator: Non-Responsive	
WACOM/CODE National Guard Bureau/NG	SUBMACOM/CODE ARNG Non-Responsive
Non-Responsive	UNIT/ORGARNIZATION Lawrenceburg Armory RAC 3 — FREQUENCY (hrs/day HRS/DAY 10 minutes/per month

NO. CIV(S)	NO. MIL	NO. CONTRACTORS	NO. LOC(S)	NO. OTHER
0	5	0	0	0

SECTION 2 FACILITY DATA

LAB HOODS 0	VAPOR DEGREASERS 0	SPRAY BOOTHS 0
MAINTENANCE BAYS 1 WORKING BAYS	OPEN SURFACE TANKS 0	VENTILATION UNITS 0

SECTION 3 SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS
Sanding, polishing, and Bench Grinder	Cutting metal parts and using bench grinder			
Lighting	8-25	Fcs	50-75	

PERSONAL PROTECTIVE EQUIPMENT (R= REQUIRED; U = UTILIZED)

GLOVES	R/U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R/U
ACID	/	AIR LINE			/
COLD SURFACES	/	ABRASIZE BLASTING HOOD			/
HOT SURFACES	/	DISPOSABLE			/
N8C AGENTS	/	FULL FACE AIR PURIFYING			/
OIL		1/2 FACE AIR PURIFYING			/no
SOLVENTS	/	1/4 FACE AIR PURIFYING			/
SURGICAL GLOVES	/	SELF CONTAINED			/

EYES/FACE	R/U	HEARING	R/U	BODY	R/U	HEAD/FIT	R/U
HEMICAL SPLASH	x/x	(CANAL CAPS	x/x	APRONS	/	(COLD WEATHER BOOTS/HATS	

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FULL FACE SHEILD	/	EARPLUGS	X/x	COLD WEATHER CLOTHING	/	HARD HATS	/
CHEMICAL/SAFETY	/	HELMETS	/	COVERALLS		IMPERMEABLE BOOTS	X/x
SAFETY/IMPACT	/	MUFFS	/	FULL BODY SUIT	/	SAFETY/CONDUCTIVE SHOES	/
WELDING HELMET	/	dUFF/EARPLUG COMBO	/	HEAT REFELECTIVE VEST/SUIT	/	SAFETY/NON-CONDUCTIVE SHOES	/
		MFF/EARPLUG W/TIME LIMIT	X/x	SAFETY BELT/HARNESS	/		/

1

SECTION 4: HAZARD INVENTORY DATA

CODUSTTOT	Metal/abrasive dust	2	A
POPLYPROJ	Flying Projectiles	2	2
CODIESELF	Diesel Fuel	2	
PONOISECO	Noise Continuous	2	A
POLIFTING	Heavy Lifting	3	A
POEYEHAZARD	Eye Hazard	3	A
POFOOTHAZARD	Foot Hazard	2	0

SECTIONS: PERSONNEL DATA

LAST NAME	FIRST NAME			GORY

Non-Responsive

SECTIONS: COMMENTS

1. Noise greater than 85 dBa.

ARLOC	INSTALLATION	BLDG/	RMNO.
47000	Lawrenceburg Armory, 1st Battalion 181 Field Activity, 2113 Helton Drive, Lawrenceburg, TN 38464		

LOCATION/CODE AA	OPERATION/CODE/ ADO

SURVEY DATE: 0719/10, Evaluator: Non-Responsive

WACOM/CODE	SUBMACOM/CODE	Non-Responsive
National Guard Bureau/NG	ARNG	

Non-Responsive	IT/ORGARNIZATION	RAC	FREQUENCY (hrs/day HRS/DAY
	awrenceburg Armory	3	10 minutes/per month

NO. CIV(S)	NO. MIL	NO. CONTRACTORS	NO. LOC(S)	NO. OTHER
0	5	0	0	0

SECTION 2 FACILITY DATA

LAB HOODS	VAPOR DEGREASERS	SPRAY BOOTHS
0	0	0
MAINTENANCE BAYS	**OPEN SURFACE TANKS**	**VENTILATION UNITS**
1 WORKING BAYS	0	0

SECTION 3 SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS
Video display terminal	Admin & Techs use computers Adequate lights in admin offices		50-75 FCS	

PERSONAL PROTECTIVE EQUIPMENT (R= REQUIRED; U = UTILIZED)

GLOVES	R/U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R/U
ACID	/	AIR LINE			/
COLD SURFACES	/	ABRASIZE BLASTING HOOD			/
HOT SURFACES	/	DISPOSABLE			/
N&C AGENTS	/	FULL FACE AIR PURIFYING			/
OIL		1/2 FACE AIR PURIFYING			/no
SOLVENTS	/	1/4 FACE AIR PURIFYING			/
SURGICAL GLOVES	/	SELF CONTAINED			/

EYES/FACE	R/U	HEARING	R/U	BODY	R/U	HEAD/FIT	R/U
HEMICAL SPLASH	x/x	(CANAL CAPS	x/x	APRONS	/	(COLD WEATHER BOOTS/HATS	

FULL FACE SHEILD	/	EARPLUGS	X/x	fcOLD WEATHER CLOTHING	/	HARD HATS	/
CHEMICAL/SAFETY	/	HELMETS	/	COVERALLS		IMPERMEABLE BOOTS	X/x
SAFETY/IMPACT	/	MUFFS	/	FULL BODY SUIT	/	SAFETY/CONDUCTIVE SHOES	/
WELDING HELMET	/	dUFF/EARPLUG COMBO	/	HEAT REFELECTIVE VEST/SUIT	/	SAFETY/NCN-CONDUCTIVE SHOES	/
		MFF/EARPLUG W/TIME LIMIT	X/x	SAFETY BELT/HARNESS	/		/

1

SECTION 4 HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
POVDT	Video Display Terminal	2	F
PODTRESS	Physical Stress	2	F

SECTIONS: PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

Non-Responsive

SECTIONS: COMMENTS

1. Computers are used in the shop and admin office.

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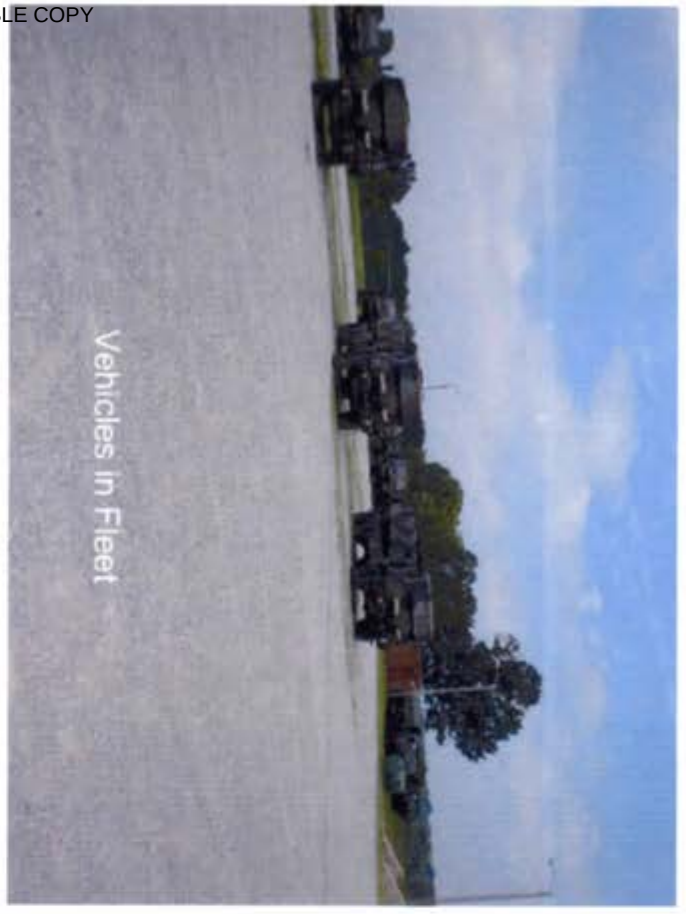

Vehicles in Fleet

Lawrenceburg Armory

Lawrenceburg Armory (rear)

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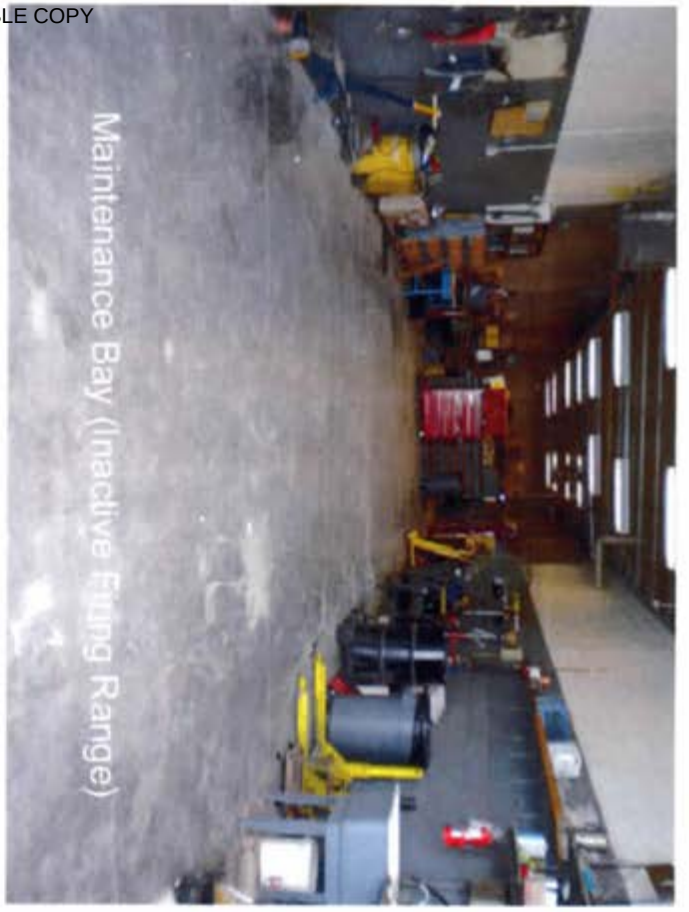

Maintenance Bay (Inactive Firing Range)

Back Of Maintenance Shop

Maintenance Shop

Back Of Maintenance Shop

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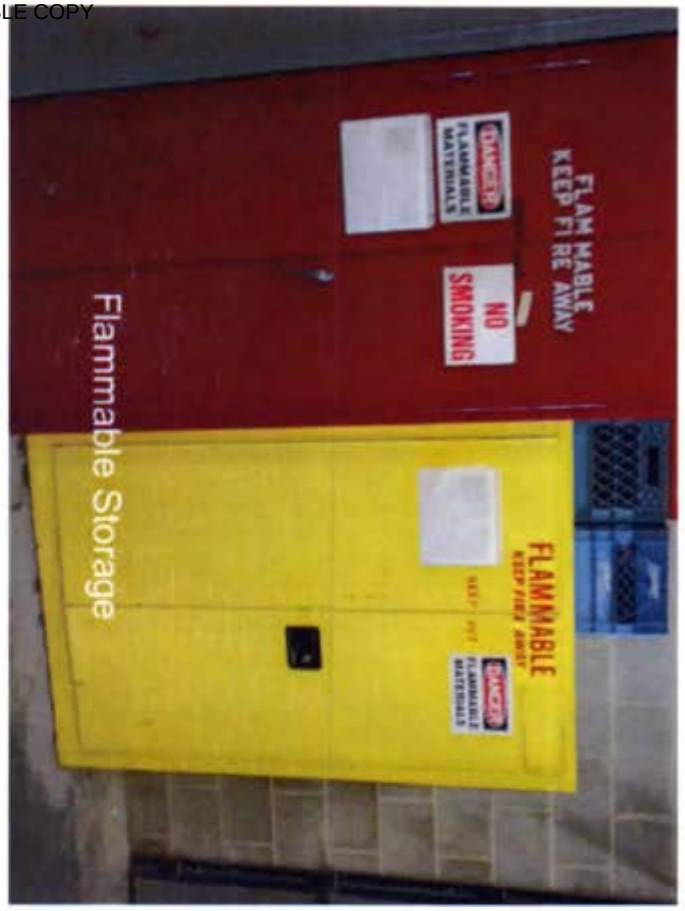

Flammable Storage

k Of Maintenance Shop

Flammable & Parts Storage

Desks Work Station

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Drill Hall

Basement (bar area)

Drill Hall, Floor

Drill Hall

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POL Storage

POL Storage

Vehicle Wash Rack

POL Storage

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REFERENCES

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 22 July 2005.

c. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, October 1988.

d. AR 385-10, The Army Safety Program, 29 February 2000.

e. National Guard Pam 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006.

f. NGR 385-15, Policy and Responsibilities, Evaluation and Operation of Army National Guard Indoor Firing Ranges, 3 November 2006.

g. DA PAM 40-503, The Army Industrial Hygiene Program, 30 October 2000.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2003, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. Title 29, Code of Federal Regulations (CFR), 2001 rev., part 1910, Occupational Safety and Health Standards.

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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-AVN-SI

February 7, 2005

MEMORANDUM FOR: The Adjutant General of Tennessee, ATTN: [redacted] Non-Responsive State Occupational Health Office, 3041 Sidco Dr, P O Box 41502, Nashville, TN 37204-1502.

SUBJECT: Transmittal of Survey Reports for the ARNG Lawrenceburg Armory, the Hohenwald Armory, the Waynesboro Armory, the Savannah Armory, and the Selmer Armory in TN.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, 30 August 1986, Medical Service, Preventive Medicine.

c. National Guard Regulation (NGR) 385-10, 1988, Army National Guard Safety and Occupational Health Program.

d. AR 11-34, The Army Respiratory Protection Program, 15 February 1990.

e. TB MED 502, Occupational and Environmental Health Respiratory Protection Program, February 1982.

f. DA PAM 40-503, 30 October 2000, The Army Industrial Hygiene Program.

g. DA PAM 40-501, 10 December 1998, Hearing Conservation.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2001, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

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j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

k. Title 29, Code of Federal Regulations (CFR), 2000 rev., part 1910, Occupational Safety and Health Standards.

l. Reports dated 27-30 November, and 7 December-26 January 2004, Industrial Hygiene Technician, 1503 Zaiger Drive,Colorado Springs, CO 80915

2. General.

a. At the request of the TNARNG Safety and Occupational Health Office, an Industrial Hygiene Service was put together to conduct Health Hazard Information module (HHIM) Field surveys and industrial hygiene sampling of the ARNG Lawrenceburg Armory, the Hohenwald Armory, the Waynesboro Armory, the Savannah Armory, and the Selmer Armory in TN.

b. Non-Responsive Industrial Hygiene Technician, 1503 Zaiger Drive,Colorado Springs, CO 80915 conducted the surveys.

3. Findings. All HHIM field survey forms and survey findings of the reports. (See enclosure 1)

4. Recommendations.

a. Follow all recommendations made in reference 1.l., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Control water infiltration in the armory and/or replace or repair damaged surfaces or components (ceiling and floor tiles). Building conditions that present IAQ concerns or problems not only exacerbates normally minor health issues but also tend to promote or accelerate building deterioration.

c. The recommendations given in the comment section of the HHIM data sheets and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-05. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-06 IHIP.

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SUBJECT: Transmittal of Survey Reports for the ARNG Lawrenceburg Armory, the Hohenwald Armory, the Waynesboro Armory, the Savannah Armory, and the Selmer Armory in TN.

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present survey, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

f. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

5. If additional information is needed about the industrial hygiene survey or air sample

Non-Responsive

[redacted]

CF:
NBG-AVN-SH

Encl
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Industrial Hygiene Report
For
Tennessee Army National Guard
1st Battalion 115th FA Armory
2113 Helton Drive
Lawrenceburg, TN 38464

Prepared for:
Department of the Army and Air Force
National Guard Bureau Regional
Industrial Hygiene Office
510 Plaza Drive
Suite 1530
College Park, GA 30349

By

DBA Non-Responsive

N

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Page 1141 of 2531

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Table of Contents

Subject ..... Page 1

Background ..... Page 1
- Introduction
- Site Description
- Scope of Work
- POC

Instrumentation ..... Page 1

Findings
- MSDS ..... Page 1
- Lead Wipe Results ..... Page 2
- Drill Hall ..... Page 2
- Maintenance Bay (Old Indoor Range) ..... Page 2 & 3
- Area Deficiencies ..... Page 3

ILLUMINATION SURVEY RESULTS
- Illumination ..... Page 4

Recommendations
- MSDS's ..... Enclosure 9
- Lead Cleanup Procedures ..... Enclosure 9
- Area Lighting ..... Enclosure 9
- CARC Paint ..... Enclosure 9
- Fire Extinguishers ..... Enclosure 9
- Dry Cleaning Solvent ..... Enclosure 9
- Kitchen Grease Trap ..... Enclosure 9
- Toxgard Carbon Monoxide Detector ..... Enclosure 9

Enclosures
1. Health Hazard Information Module (HHIM) Survey Form
2. Analytical Lead Results/Submission Forms
3. Personnel Roster
4. Armory Building Floor Plan
5. Hazard Communication Sample Written Program
6. Hazardous Material Inventory List
7. Lead Cleanup Procedures
8. References
9. Recommendations
10. Pictures: 1-17
11. Pictures: Lead Wipe Sampling, M04612-M04630

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November 26, 2004

MEMORANDUM FOR: Tennessee Army National Guard, Attn: [redacted] Readiness NCO, 2113 Helton Drive, Lawrenceburg, Tennessee 38464

SUBJECT: Industrial Hygiene Consultation and Health Hazard Information Module (HHIM) Survey, Lawrenceburg Army National Guard, Lawrenceburg, Tennessee

1. BACKGROUND: At the request of [redacted] National Guard Bureau Regional Industrial Hygienist, an Industrial Hygiene Consultation and Health Hazard Information Module Field Survey were performed at the Lawrenceburg Army National Guard Armory, Lawrenceburg, Tennessee on November 16, 2004. The POC was [redacted] His address was 1st/115th FA Armory, 2113 Helton Drive, Lawrenceburg, Tennessee 38464. The purpose of the survey was to perform lead wipe samples; a noise survey, a ventilation survey, an Illuminations survey, and complete HHIM field survey forms on all industrial operations at the facility (See encl.1 for completed HHIM Survey Form).

2. INSTRUMENTATION: The following survey instrumentation was provided by the contractor and was used to obtain lead wipe dust samples and illumination measurements. All other instrumentation was operated according to manufacture recommendations.

a) Sper Scientific 840021, Light Meter, S/N: 02997, calibrated: 1-15-04
b) Ghost Lead Dust Wipes, Manufactured: December 1, 2003, Expiration: 06/06
c) TSI Velocicalc 8346, S/N: 00040107, calibrated: 01-12-04
d) Quest Model 2700, Sound Level Meter, S/N: HUC030020, calibrated: 4/28/04
e) Quest QC-10/QC-20, Acoustic Calibrator, S/N: Q10080144, calibrated: 6/16/04
f) Circuit Tester

3. Findings:

a) A Battery, 1st Battalion, 115th Field Artillery (FA):

i) Ninety-eight M-Day soldiers were assigned to the unit. The unit maintained six 155mm howitzers, which were towed by 5 tons. Soldiers were being reassigned to other MOS's such as military police and security.

ii) The administration area was responsible to the battery in the area of readiness and personnel support such as pay, assignments, training, promotions, family support and schools.

iii) Material Safety Data Sheets (MSDS) were readily available on all cleaning chemicals and hazards used in the facility. An update HAZCOM SOP was included in the report. There was no listing of chemicals in the binder. All employees must be initially trained in the Federal Hazardous Communication Program IAW 1910.1200.

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iv) Nineteen lead dust wipe samples were taken, using a 10 inch by 10 inch template. Eight samples were above the federal standard of 40µg/ft². Two samples were above the Army National Guard standard of 200µg/ft². Pictures of the lead sample wipes were taken (See encl.11, photo's M04612 to M04630). The analytical lead result sheet included the sampled locations and corrected results. Also, the sample submission sheets were enclosed in the report (See enclosure 2). The following table notes where the samples were taken, the surveyor's field number, and the lead results:

Location:	Surveyor's Field No:	Results:
East End Floor, Maintenance Bay (Old IFR)	M04612	96 µg/ft²
North End Floor, Maintenance Bay (Old IFR)	M04613	520 µg/ft²
East End Metal Shelf, Maint. Bay (Old IFR)	M04614	72 µg/ft²
South End Floor, Maint. Bay (Old IFR)	M04615	<14 µg/ft²
West End Floor, Maintenance Bay (Old IFR)	M04616	<14 µg/ft²
West End Floor, Drill Hall	M04617	<14 µg/ft²
East End Floor, Drill Hall	M04618	<14 µg/ft²
Food Line Ledge Surface, Drill Hall	M04619	<14 µg/ft²
Kitchen Shelf	M04620	<14 µg/ft²
Vault Floor, Supply Area	M04621	46 µg/ft²
Supply Room Shelf	M04622	110 µg/ft²
Hallway Floor, Next to NBC Room	M04623	<14 µg/ft²
Chair Hauler Frame	M04624	54 µg/ft²
Kitchen Storage Room, Tray Holder Cart Shelf	M04625	<14 µg/ft²
NBC Room Floor	M04626	<14 µg/ft²
Middle Drill Hall Floor	M04627	<14 µg/ft²
Orderly Room Shelf	M04628	<14 µg/ft²
Basement Locker Room Floor	M04629	330 µg/ft²
Basement, South End Bottom Shelf	M04630	120 µg/ft²

Note 1: IFR refers to Indoor Firing Range
Note 2: µg/ft² refers to micrograms or one millionth of a gram per square foot
BDL: Below Detection Level

v) Drill Hall: Conducting drill and ceremonies in the large hall was its main purpose (See encl.10, photo 1). Halogen ceiling lamps had recently been installed. Illumination levels ranged from 60 to 103 FC's.

vi) Vehicle/Maintenance/Storage Bay (Old Indoor Firing Range): A technician had been on the job for 3 weeks. Presently, the area was used as a maintenance bay (See encl 10, photos 2 & 3). Preventive Maintenance Care and Service (PMCS) such as fixing tires, and changing fluids was performed on Humvee's, 5 ton's, and 2 ½ ton's. Main repair and service work was performed at OMS No.8 in Winchester. Used oil and fluid products were stored on an elevated environmental safety rack (see encl 10, photo 4). The technician used Dry Cleaning Solvent, TT-T-291F, Type II in a pan when cleaning parts. Sixty-eight, 8 foot long, ceiling fluorescent tubes were burned out. Ceiling tiles were missing near a recently installed garage door. A flammable storage cabinet was in the shop (see encl 10, photo 5). CARC paint was stored in one of the cabinets (see encl 10, photo 6). A new bench grinder was in the shop; however, it was evident that aluminum or copper had been used on the grinder wheel (see encl 10, photo 7). A MSA Toxgard carbon monoxide detector was mounted on the wall (see encl 10, photo 8). A portable air compressor was available for use. The roof leaked. Ceiling tiles were missing, due to the

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installation of a new garage door (see encl 10, photo 9). MSDS's were kept in a red binder. There was no eye wash/shower in the area. No ear muffs were available for use. Illumination levels ranged from 5 to 33 FC's.

vii) Women's Restroom, Basement: Sign was posted "Out of Order" due to a backed up toilet (see encl 10, photo 10). Two fluorescent tubes were out. A lounge was located next to the restrooms (see encl 10, photo 11). Illumination levels ranged from .6 to .7 FC's.

viii) Basement, Storage/Locker Area: Two ceiling bulbs were out (see encl 10, photo 12). Illumination levels ranged from 1.2 to 4 FC's.

ix) Supply Room: The supply area or equipment storage room contained TA-50, tents, support systems, M16A2's, M40 masks and basic class 7 and 8 items. One of the ballasts was buzzing. Three ceiling bulbs were burned out in the vault. Illumination levels ranged from 12 to 44 FC's.

x) Boiler Room: Natural gas boilers were in the room. One ceiling light was out. Illumination levels ranged from 4-29 FC's.

xi) Weight Room: Two fluorescent tubes were out. Ceiling light covers were missing. Illumination levels ranged from 3-27 FC's.

xii) Table/Chair Storage Area: Two fluorescent tubes were out. Illumination levels ranged from 1.5-6 FC's.

xiii) Men's Restroom: Two fluorescent ceiling lights were out in the main area and one bulb out in the shower. There were no light covers. Illumination levels ranged from 2 to 41 FC's.

xiv) Kitchen: The grease trap was located in the kitchen (see encl 10, photo 13 & 14). It was full of grease and it smelled foul. Eight fluorescent tubes were out. Illumination levels ranged from 19 to 71 FC's.

xv) POL Storage Building: An oil/water separator alarm and room light were inoperative, due to the cutting of electrical wires to the building (see encl 10, photo 15, 16, & 17).

xvi) Storage Room: Two bulbs were burned out. Illumination levels ranged from .5 to 22 FC's.

xvii) Women's Restroom, 1st Floor: Ceiling bulbs were out in both showers. Illumination levels ranged from .6-63 FC's.

xviii) Classroom: One training aid room had a light bulb out. Some of the ceiling tile was bulging. The hallway light fixture next to the classroom was missing a light cover. Illumination levels ranged from 21-81 FC's.

xix) Utility Closet: The ceiling exhaust fan was inoperative. A strong ammonia odor was evident. Illumination levels ranged from 7-8 FC's.

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xx) Due to the low noise levels (administrative areas) there was no requirement for a Hearing Conservation Program.

xxi) Physical exams were performed in Lavinia.

xxii) A listing of Lawrenceburg Armory personnel was shown in encl. 3.

xxiii) An armory floor plan was attached as encl. 4.

xxiv) A Sample HAZCOM SOP was attached as encl. 5.

4. ILLUMINATION SURVEY RESULTS:

a) Illumination Levels: The following additional illumination level readings were taken during the survey and are reported below in foot candles (FC's).

AREA/LOCATION	FOOT CANDLES (FC)
Commander's Office	57-65
1SG's Office	42-68
Training NCO Office	33-46
Retention Offices	44-59
Supply Area/Equipment Storage	2-43
Vault, Supply Area	6-54
Kitchen Area	19-71
Classroom	21-80
Maintenance Bay Area (Old IFR)	5-33
Utility Closet	7-8
Drill Hall (door half way opened)	60-103
Men's Restroom	2-41
Administrative Area	26-61

As indicated in the IES Lighting Handbook, Application Volume 1987, Offices: 20-50 FC's, Supply and Publication Areas: 20-50 FC's, Assembly 20-50 FC's, Restrooms: 5-10 FC's, Classrooms: 50-100 FC's, Kitchen: 20-50 FC's, FC's, Library: 50-100 FC's, Storage Rooms: 10-20 FC's, Mail Room: 20-50 FC's.

5. Recommendations: See enclosure 9

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6. TECHNICAL ASSISTANCE:

Non-Responsive

CF:

Occupational Health Office
ATTN: Non-Responsive TNANG,NC
Tennessee Army National Guard
AGTN-SAHO
Houston Barracks
3041 Sidco Drive
Nashville, TN 37204-1501

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Enclosure 1

HEALTH HAZARD INFORMATION MODULE FIELD SURVEY

*SEE PRIVACY ACT STATEMENT ON REVERSE.
(For use of this form, see HHIM User's Instructions.)

SECTION 1. DEMOGRAPHIC DATA

a. ARLOC 47000 b. INSTALLATION TN NAT GUARD c. BLDG/RM NUMBER ARMORY LAWRENCEBURG, TN
d. LOCATION/CODE AD / e. OPERATION/CODE AOD / SAH f. DESCRIPTION A BATTERY 1ST BN/115 FA WAS RESPONSIBLE FOR TRAINING, SCHOOLS, ASSIGNMENTS, PROMOTIONS, FAMILY SUPPORT AND SUPPLIES FOR 98 M-DAY TROOPS.
g. MACOM/CODE NG / h. [redacted] OM/CODE XX / i. SUPERVISOR [redacted]
j. TELEPHONE/AUTOVON NUMBER [redacted] k. RAC 3 l. FREQUENCY (Hrs Per Day) 9 HRS/DY
m. NO CIV(S) ____ n. NO MIL 2 o. NO CONTRACTOR(S) ____ p. NO LOC(S) ____ q. NO OTHER ____

SECTION 2. IH STAFFING DATA

a. LAB HOODS 0 b. VAPOR DEGREASERS 0 c. MAINTENANCE BAYS 0 d. SPRAY BOOTHS 0
e. OPEN SURFACE TANKS 0 f. VENTILATION UNITS 0

SECTION 3. SURVEY DATA

a. SURVEY DATE 11-16-04 b. EVALUATOR (INITIALS) [redacted]

c. CONTROLS PRESENT	d. EVALUATION	e. UNIT CODE	f. CONTROLS REQUIRED	g. STATUS
OTH (DRILL HALL)	60-103 FC's ADEQUATE	FTC	30 FTC	ACCOM
OTH (OFFICE)	42-68 FC's ADEQUATE	FTC	50 FTC	ACCOM
OTH (KITCHEN)	19-71 FC's INSUFFICIENT	FTC	70 FTC	RECMD

h. PERSONAL PROTECTIVE EQUIPMENT (R=REQUIRED; A=AVAILABLE)

1. RESPIRATOR

	MANUFACTURER	NIOSH TC NO	R/A
DISPOSABLE			/
½ FACE AIR PURIFYING			/
½ FACE AIR PURIFYING			/
FULL FACE AIR PURIFYING			/
POWERED AIR PURIFYING			/
AIRLINE			/
SELF-CONTAINED			/
ABRASIVE BLASTING HOOD			/

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	R/A
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	/
OIL	/	SAFETY/IMPACT	/	EARPLUGS	/	COVERALLS	/	IMPERMEABLE BOOTS	/
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	/
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/HARNESS	/	SAFETY/NONCONDUCTIVE SHOES	/
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/								

SECTION 4. HAZARD INVENTORY DATA

a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC or EPC	d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO)
7439-92-1	LEAD, INORGANIC DUSTS & FUMES, AS PB	2B	YES

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Page 1148 of 2531

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SECTION 5 PERSONNEL

a. LAST NAME	b. FIRST NAME				d. CATEGORY
Non-Responsive					AGR
					AGR
					AGR

SECTION 6 COMMENTS (add blank sheet of paper if necessary)

- HANDLES TRAINING SCHEDULES, SUPPLIES, AND SCHOOLING.
- SIX TOWED 155mm HOWITZERS - USE FMTV'S (M1083'S) 5 TONS, FMTV'S (M1078) 2½ TONS, AND M1008'S
- RE-DOING MSDS'S.
- OUTSIDE OIL HOUSE LIGHT OUT; OIL/WATER SEPARATOR ALARM DOESN'T WORK. ELECTRICAL WIRES WERE NOT HOOKED UP.
- NATURAL GAS BOILER; AIR CONDITIONING UNIT WILL BE REPLACED WITH NEW UNIT.

PRIVACY ACT STATEMENT

Title 5 U.S. Code, Section 301; Executive Order 9397 authorizes the use of your Social Security Number as a identification number. The purpose of this information is to identify and monitor data relating each UA civilian employee exposed to a hazardous workplace or operation. The use of this information is to provide histories of exposure for any given worker.

Disclosure of your Social Security Number is mandatory; however, nondisclosure may result in untimely processing

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HEALTH HAZARD INFORMATION MODULE FIELD SURVEY

*SEE PRIVACY ACT STATEMENT ON REVERSE
(For use of this form, see HHIM User's Instructions)

SECTION 1. DEMOGRAPHIC DATA

a. ARLOC 47000 b. INSTALLATION TN NAT GUARD c. BLDG/RM NUMBER ARMORY LAWRENCEBURG, TN
d. LOCATION/CODE MN / e. OPERATION/CODE TAT / f. DESCRIPTION INSPECTION, SERVICING, AND REPAIRING SMALL PARTS, CHANGING OIL/ANTI-FREEZE AND OTHER MISCELLANEOUS ITEMS INCLUDING FMTV'S (2Y2 & 5 TONS), M1008S, AND [redacted]
g. MACOM/CODE NG / h. [redacted]COM/CODE XX / i. SUPERVISOR [redacted]
j. TELEPHONE/AUTOVON NUMBER [redacted] k. RAC 3 l. FREQUENCY (Hrs Per Day) 9 HRS/DY
m. NO CIV(S) 1 n. NO MIL ____ o. NO CONTRACTOR(S) ____ p. NO LOC(S) ____ q. NO OTHER ____

SECTION 2. IH STAFFING DATA

a. LAB HOODS 0 b. VAPOR DEGREASERS 0 c. MAINTENANCE BAYS 1 d. SPRAY BOOTHS 0
e. OPEN SURFACE TANKS 0 f. VENTILATION UNITS 0

SECTION 3. SURVEY DATA

a. SURVEY DATE 11-16-04 b. EVALUATOR (INITIALS) [redacted]

c. CONTROLS PRESENT	d. EVALUATION	e. UNIT CODE	f. CONTROLS REQUIRED	g. STATUS
OTH (MOTOR BAY)	5-33 FC'S INSUFFICIENT	FTC	50 FTC'S	RECMD

h. PERSONAL PROTECTIVE EQUIPMENT (R-REQUIRED; A-AVAILABLE)

1. RESPIRATOR

	MANUFACTURER	NIOSH TC NO	R/A
DISPOSABLE			/
½ FACE AIR PURIFYING			/
½ FACE AIR PURIFYING			/
FULL FACE AIR PURIFYING			/
POWERED AIR PURIFYING			/
AIRLINE			/
SELF-CONTAINED			/
ABRASIVE BLASTING HOOD			/

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	R/A
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	/
OIL	/	SAFETY/IMPACT	/	EARPLUGS	X/X	COVERALLS	/	IMPERMEABLE BOOTS	/
SOLVENTS	X/X	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	/
HCT SURFACES	/	FULL FACE SHIELD	X/X	HELMETS	/	SAFETY BELT/HARNESS	/	SAFETY/NONCONDUCTIVE SHOES	/
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/								

SECTION 4. HAZARD INVENTORY DATA

a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC or EPC	d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO)
10024-97-2	NITROGEN OXIDES	3A	NO
PONOISECO	NOISE, CONTINUOUS	2D	YES
COLUBE OIL	LUBE OIL/GREASES/HYDRAULIC FLUIDS	0D	NO
630-08-0	CARBON MONOXIDE	3A	NO

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SECTION 5 PERSONNEL

a. LAST NAME					d. CATEGORY
Non-Responsive [redacted]					CIV

SECTION 6 COMMENTS (add blank sheet of paper if necessary)

- RUN VEHICLES IN BAY, SHUT DOWN; NO EXHAUST VENTILATION
- MAIN REPAIR SHOP WAS AT OMS No. 8 IN WINCHESTER, TN.
- N_2 TANK, AIR COMPRESSOR (PORTABLE), 7 TON FLOOR JACKS, DUAL DOLLY,
- TWO PORTABLE BATTERY CHARGERS; ORDER BATTERIES THRU OMS No. 8. OLDER BAD BATTERIES TAKEN TO OMS No. 8.
- DROP LIGHTS AVAILABLE; 10 TON FLOOR JACKS.
- A NEW GRINDER (BALDOR GRINDING MACHINE, UTILITY) WAS MADE BY BALDOR ELECTRIC CO. P.O. BOX 2400, FT SMITH, AR 72902-2400. (501)646-4711, NSN 3415-00-517-7754. (ALUMINUM AND COPPER SHOULD NOT BE USED ON GRINDER) - COULD EXPLODE.
- MSDS'S WERE IN A RED BINDER.
- NUTS, BOLTS, WASHERS, AND CLAMPS WERE ORDERED THRU FEDERAL SYSTE
- TECHNICIAN WORKED ON HUMVEES, HEMETS, MTV'S, LMTV'S
- TWO TIRE CAGES ON GROUNDS.
- USED DRY CLEANING SOLVENT IN A PAN TO CLEAN PARTS CSD INC, CONROE, TX NSN: 6850-00-274-5421.
  PRODUCT + COMPANY Ident: DRY CLEANING SOLVENT, TT-T-291F, TYPE II TLV OF 0.37 mg/m^3
- "CAUTION DO NOT OPERATE WITHOUT EYE PROTECTION" SIGN POSTED.
- NO EAR MUFFS,
- MSA TOXGUARD CO MONITOR: MODEL No.

PRIVACY ACT STATEMENT

Title 6 U.S. Code, Section 301: Executive Order #397 authorizes the use of your Social Security Number as a identification number. The purpose of this information is to identify and monitor data relating each DA civilian employee exposed to a hazardous workplace or [illegible] this information is to provide histories of exposure for any given worker.

Disclosure of your Social Security Number is not mandatory; however, nondisclosure may result in [illegible]

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TEST REPORT
Page 1 of 2
11/24/04

DATA CHEM LABORATORIES, INC.

Submitted To: Non-Responsive

Reference Data:	Lead
Client Sample No.:	M04612 through M04631
P.O. No.:	BPA: W912JM-04-A-0007
Sample Location:	Lawrenceburg, TN Armory
Project No.:	1
Sample Type:	Ghost Wipe
Method Reference:	3050B/6010B
DCL Set ID No.:	04-S-6046
DCL Sample ID No.:	04-33936 through 04-33955
Sample Receipt Date:	11/22/2004
Preparation Date:	11/23/04
Analysis Date:	11/23/04

The samples were prepared in accordance with EPA method 3050B. Sample condition was acceptable upon receipt except where noted. The samples were then analyzed in accordance with EPA method 6010B using a Perkin Elmer 3000XL (ICP) purged spectrometer.

The results are provided in the enclosed data table. Results relate only to the items tested and are not blank corrected unless indicated in the data table.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Non-Responsive

Analyst

CINCINNATI OFFICE
4349 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3708
513 733-5336, FAX 513 733-5347

WEST COAST OFFICE
11 SANTA YORMA COURT
NOVATO, CALIFORNIA 94945
800 280-8071, FAX 415 893-9499

DATA CHEM LABORATORIES, INC.

ANALYTICAL REQUEST FORM

☑ REGULAR Status (5 working days from receipt)

☐ RUSH Status Required - ADDITIONAL CHARGE
RESULTS REQUIRED BY _____ DATE
CONTACT DATACHEM LABS PRIOR TO SENDING SAMPLES

Date 11-16-04 [redacted]
Company Name [redacted]
Address 15[redacted]
Colorado [redacted]
Person to Conta[redacted]
Telephone (719[redacted]
Fax Telephone ([redacted]
Billing Address (if different from above)
[redacted]

Quote No. _____
Sample Collection
Sampling Site Lawrenceburg, TN - ARMORY, PROJ. No.:
Industrial Process N/A
Date of Collection 11-16-04
Time Collected 8:24
Date of Shipment 11-19-04
QC Requirements ☑ Standard ☐ Other
Collector's N[redacted]
Signature [redacted]
04-S-6046

REQUEST FOR ANALYSES

Laboratory Use Only	Client Sample Number	Media Type?	Sample Volume (Liters)	ANALYSES REQUESTED - Use Method Number if Known
33936	M04612	GHOST WIPE	10IN X 10IN	LEAD - EAST END FLOOR MAINT. AREA
33937	M04613	"	"	LEAD - NORTH END FLOOR MAINT. AREA
33938	M04614	"	"	LEAD - EAST END METAL SHELF MAINT.
33939	M04615	"	"	LEAD - SOUTH END FLOOR, MAINT. AREA
33940	M04616	"	"	LEAD - WEST END FLOOR, MAINT. AREA
33941	M04617	"	"	LEAD - WEST END FLOOR, DRILL HALL
33942	M04618	"	"	LEAD - EAST END FLOOR, DRILL HALL
33943	M04619	"	"	LEAD - FOOD LINE SURFACE, SOUTH END D.H.
33944	M04620	"	"	LEAD - KITCHEN SHELF
33945	M04621	"	"	LEAD - VAULT FLOOR, SUPPLY AREA
33946	M04622	"	"	LEAD - SUPPLY RM SHELF
33947	M04623	"	"	LEAD - HALLWAY FLOOR, NX TO NBC RM
33948	M04624	"	"	LEAD - CHAIR HAULER FRAME

CHAIN OF CUSTODY

Relinquished (Signature)	[redacted]		/ Time 12/04 12:53
Relinquished (Signature)			/ Time

4388 Glendale Milford Road / Cincinnati, OH 45242 • 800-458-1493 or 513-733-5336 / Fax: 513-733-5347

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DATA CHEM LABORATORIES, INC.

ANALYTICAL REQUEST FORM

☑ REGULAR Status (5 working days from receipt)

☐ RUSH Status Required - ADDITIONAL CHARGE
RESULTS REQUIRED BY _____ DATE
CONTACT DATACHEM LABS PRIOR TO SENDING SAMPLES

Date 11-16-04 Purchase Order No. _____
Company Name Non-Responsive [redacted] es
Address 1[redacted]
Colorado [redacted]
Person to Con[redacted]
Telephone (7[redacted]
Fax Telephone [redacted]

Quote No. _____
Sample Collection
Sampling Site LAWRENCEBURG, TN ARMORY, PROJ. No. 1
Industrial Process N/A
Date of Collection 11-16-04
Time Collected 08:24 a.m.
Date of Shipment 11-19-04

Non-Responsive [redacted] Non-Responsive [redacted]

GEORGIA CU-S-6046

REQUEST FOR ANALYSES

Laboratory Use Only	Client Sample Number	Media Type	Sample Volume (Liters)	ANALYSES REQUESTED - Use Method Number if Known
33949	M04625	6 HOLE WIPE	10 IN X 10 IN	LEAD - KITCHEN STOR. RM TRAY HOLDER CART SHELF
33950	M04626	"	"	LEAD - NBC RM FLOOR
33951	M04627	"	"	LEAD - MIDDLE DRILL HALL FLOOR
33952	M04628	"	"	LEAD - ORDERLY RM SHELF
33953	M04629	"	"	LEAD - BASEMENT LOCKER RM FLOOR
33954	M04630	"	"	LEAD - BASEMENT, SOUTH END BOTTOM SHELF
33955	M04631	"		LEAD - BLANK

CHAIN OF CUSTODY

Relinquished (Signature) Non-Responsive [redacted]			Date / Time 11/30/04 12:53
Relinquished (Signature)		(Signature)	Date / Time

4368 Glendale Milford Road / Cincinnati, OH 45242 • 800-458-1493 or 513-733-5336 / Fax: 513-733-5347

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Results
Lead

Client #	DCL #	Total Area (ft^2)	µg/Wipe	µg/ft^2
M04612	04-33936	0.69	66.	96.
M04613	04-33937	0.69	360.	520.
M04614	04-33938	0.69	50.	72.
M04615	04-33939	0.69	ND	<14.
M04616	04-33940	0.69	ND	<14.
M04617	04-33941	0.69	ND	<14.
M04618	04-33942	0.69	ND	<14.
M04619	04-33943	0.69	ND	<14.
M04620	04-33944	0.69	ND	<14.
M04621	04-33945	0.69	32.	46.
M04622	04-33946	0.69	73.	110.
M04623	04-33947	0.69	ND	<14.
M04624	04-33948	0.69	37.	54.
M04625	04-33949	0.69	ND	<14.
M04626	04-33950	0.69	ND	<14.
M04627	04-33951	0.69	ND	<14.
M04628	04-33952	0.69	ND	<14.
M04629	04-33953	0.69	230.	330.
M04630	04-33954	0.69	80.	120.
M04631	04-33955	0	ND	-
	Prep Blank		ND	
% Recovery	LCS 1		93.	
% Recovery	LCS 2		86.	
RPL			10.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

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Enclosure 3

Lawrenceburg Armory
Lawrenceburg, TN

SUBJECT: Personnel Roster

NAME	RANK/TITLE	POSITION	UNIT ASSIGNED
Non-Responsive			A Battery 1st BN/115 FA
			A Battery 1st BN/115 FA
			A Battery 1st BN/115 FA
			A Battery 1st BN/115 FA
			Recruiting and Retention Cmd

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Enclosure 4

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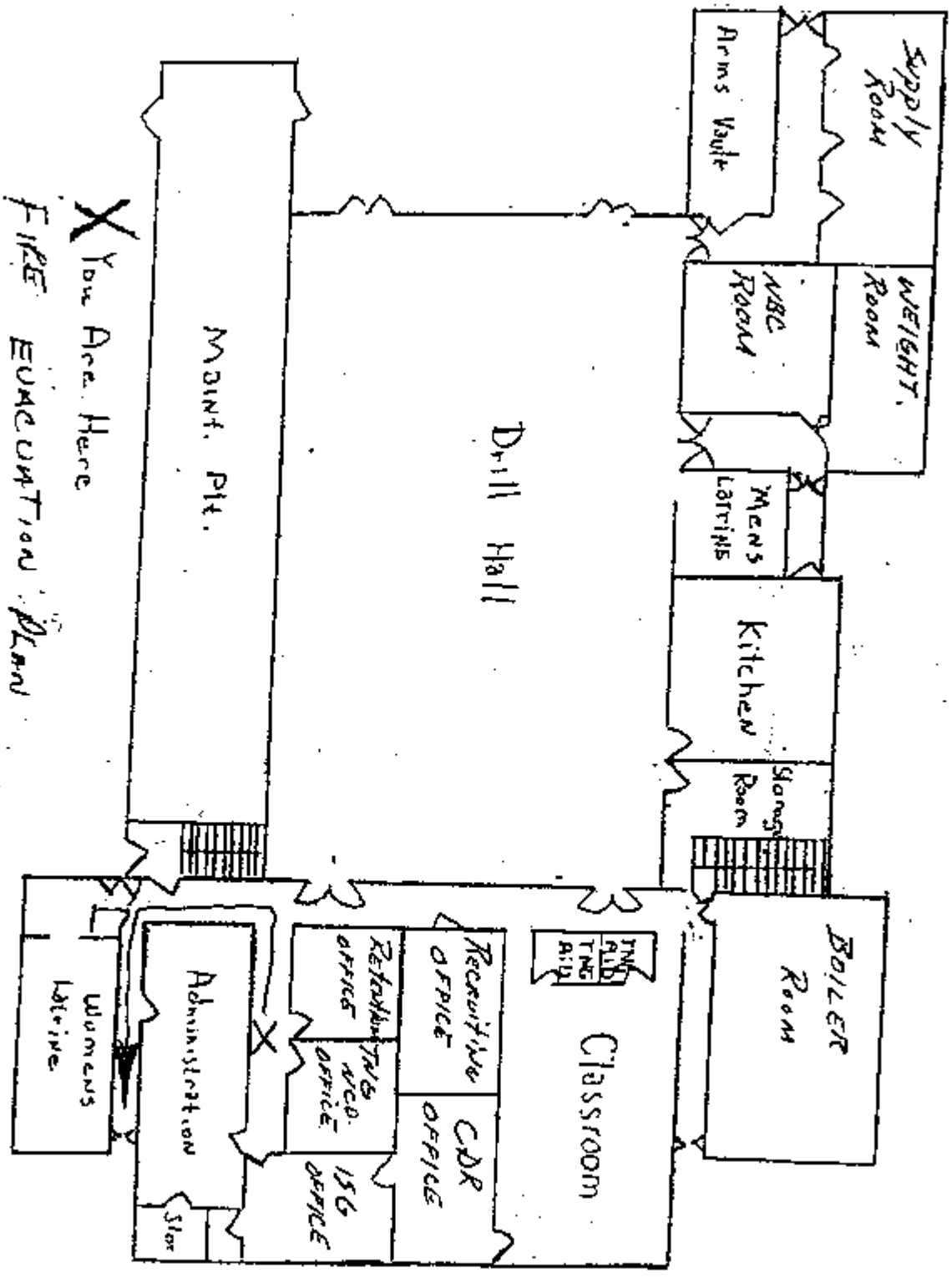

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HAZARD COMMUNICATION SAMPLE WRITTEN PROGRAM

NOTE: The written program must include the specific methods that are used to achieve compliance with the requirements of the Hazard Communication Standard (29 CFR 1910.1200). The specific methods described in this sample written program are for illustrative purposes, and other effective methods may be substituted to satisfy local needs or practices.

I. General

The purpose of this instruction is to ensure that (facility name) is in compliance with the OSHA Hazard Communication Standard (HCS) 29 CFR 1910.1200.

The [occupational safety and health manage (OS&H) manager) or other technically qualified designee] is the overall coordinator of the facility program acting as the representative of {senior facility official], who has overall responsibility.

In general, each employee in the facility will be appraised of the substance of the HCS, the hazardous properties of chemicals they work with, and measures to take to protect themselves from these chemicals.

II. List of Hazardous Chemicals

The [OS&H manager or designee] will maintain list of all hazardous chemicals used in the facility, and update the list as necessary. The hazardous chemical list will be updated upon receipt of hazardous chemicals at the facility. The list of hazardous chemicals is maintained at [location].

III. Material Safety Data Sheets (MSDS's)

The [OS&H manager or designee] will maintain an MSDS library on every substance on the list of hazardous chemicals in the [location]. The MSDS will consist of a fully completed OSHA Form 174 or equivalent. The [location manager or supervisor] will ensure that each [work area or shop] maintains an MSDS for hazardous materials used in that area. MSDS's will be readily available to all employees.

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The [local OS&H manager or designee] is responsible for acquiring and updated MSDS's. The [local OS&H manager or designec] will review each MSDS for accuracy and completeness and will consult with the [Area/Region/Headquarters OS&H manager] if additional research is necessary. The [local OS&H manager or designee] must clear all new procurements for the facility. Whenever possible, the least hazardous substance will be procured.

IV. Contractor Employers

The [local OS&H manager or designee], upon notification from the [responsible supervisor], will advise outside contractors of any chemical hazards which may be encountered in the normal course of their work on the premises.

V. Non-Routine Tasks

[Maintenance or other supervisors] contemplating a non-routine task, e.g. boiler repair, will consult with the [local OS&H manager or designee] and will ensure that employees are informed of chemical hazards associated with the performance of these tasks and appropriate protective measures. This will be accomplished by a meeting of supervisors and the OS&H manager with affected employees before such work is begun.

VI. Additional Information

Further information on this written program, the hazard communication standard, and applicable MSDS's is available at [location/telephone number].

FOIA Requested Record #J15-0085 (TN)
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Page 1160 of 2531

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HAZARDOUS MATERIAL INVENTORY

FACILITY NAME: _____ STORAGE AREA: _____ PAGE ____ OF ____ PAGES

LOCATION: _____

CML NAME (FROM MSDS)	NSN	CAS NUMBER	HAZARD CATEGORY (FIRE, RELEASE OF PRESSURE, REACTIVITY, IMMEDIATE (ACUTE) HEALTH HAZARD, DELAYED (CHRONIC) HEALTH HAZARD)	SIZE CON	# DAYS ONSITE	*EST AVG DAILY AMT	*EST MAX AMT STORED	*ANL AMT REC'D	*ANL AMT SHIPPED (WASTE OR RECY)	EHS TPQ	EHS RQ	CERCLA RQ	TAB
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ALL AMOUNTS MUST BE EXPRESSED IN LBS

CONVERSIONS: (# LBS PER GL) SOLVENTS-6.7 MOGAS-6.2 DIESEL-7.1 JP8-6.2 ALL OTHERS-8.3
2 LBS = 1 QT 1 LB = 1 PT

Enclosure 6

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Step-by-Step Summary

Cleaning: How To Do It

1. Include step-by-step procedures for precleaning, cleaning during the job, and daily and final cleaning in project design or specifications.

2. Assign responsibilities to specific workers for cleaning and for maintaining cleaning equipment.

3. Have sufficient cleaning equipment and supplies before beginning work.

4. If contamination is extensive, conduct precleaning of the dwelling unit. Move or cover all furniture and other objects.

5. Conduct ongoing cleaning during the job, including regular removal of large and small debris and dust. Decontamination of all tools, equipment, and worker protection gear is required before it leaves containment areas. Electrical equipment should be wiped and high-efficiency particulate air (HEPA) vacuumed, not wetted down, to minimize electrocution hazards.

6. Schedule sufficient time (usually 30 minutes to an hour) for a complete daily cleaning, starting at the same time near the end of each workday after lead hazard control activity has ceased.

7. For final cleaning, wait at least 1 hour after active lead hazard control activity has ceased to let dust particles settle.

8. Use a vacuum cleaner equipped with a HEPA exhaust filter. HEPA vacuum all surfaces in the room (ceilings, walls, trim, and floors). Start with the ceiling and work down, moving toward the entry door. Completely clean each room before moving on.

9. Wash all surfaces with a lead specific detergent, high-phosphate detergent, or other suitable cleaning agent sucb as Mr. Clean or Spic-n- Span to dislodge any ground-in contamination, then rinse. Change the cleaning solution after every room is cleaned.

10. Repeat step 8. To meet clearance standards consistently, a HEPA vacuum, wet wash, and HEPA vacuum cycle is recommended. For interim control projects involving dust removal only, the final HEPA vacuuming step is usually not needed. Other cleaning methods are acceptable, as long as clearance criteria are met and workers are not overexposed.

11. After final cleaning, perform a visual examination to ensure that all surfaces requiring lead hazard control have been addressed and all visible dust and debris have been removed. Record finding s and correct any incomplete work. This visual examination should be performed by the owner of an owner's representative who is independent of the lead hazard control contractor.

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12. If other construction work will disturb the lead-based paint surfaces, it should be completed at this point. If those surfaces are disturbed, repeat the final cleaning step after the other construction work has been completed.

13. Paint or otherwise seal treated surfaces and interior floors.

14. Conduct a clearance examination.

15. If clearance is not achieved, repeat the final cleaning.

16. Continue clearance testing and repeated cleaning until the dwelling achieves compliance with all clearance standards. As an incentive to conduct ongoing cleaning and a thorough final cleaning, the cost of repeated cleaning after failing to achieve clearance should be borne by the contractor as a matter of the job specifications, not the owner.

17. Do not allow residents to enter the work area until cleaning is completed and clearance is established.

18. Cleaning equipment list:

* HEPA vacuums.

* Detergent.

* Waterproof gloves.

* Rags.

* Sponges.

* Mops.

* Buckets.

* HEPA vacuum attachments (crevice tools, beater bar for cleaning rugs).

* 6-mil plastic bags.

* Debris containers.

* Waste water containers.

* Shovels.

* Rakes.

* Water-misting sprayers.

* 6-mil polyethylene sheeting (or equivalent).

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REFERENCES:

a) Title 29, Code of Federal Regulations (CFR) Part 1910, Occupational Safety and Health Administration (OSHA).

b) ARNG PAM 385-16, Guidelines for Converting Indoor Firing Ranges to Other Uses.

c) NGR 385-15, Policy and Responsibilities for Inspection/Evaluation and Use of National Guard Indoor Firing Ranges.

d) Army Regulation (AR) 40-5, 15 October 1990, Medical Service, Preventive.

e) AR 11-34, 15 February 1990, The Army Respiratory Program.

f) AR 385-10, 23 May 1988, Army Safety Program.

g) FC-Reg. 385-2, 1 July 1999, Ionizing and Nonionizing Radiation Protection Program

h) Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.

i) Technical Bulletin Medical (TB MED) 503, 1 February 1985, The Army Industrial Hygiene Program.

j) Technical Bulletin Medical (TB MED) 530, 1 January 1991, Food Service Sanitation

k) National Guard Regulation (NGR) 385-10, 20 December 1989, Army National Guard Safety and Occupational Health Program.

l) Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist (ACGIH), Cincinnati, Ohio.

m) IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.

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Recommendations:

a) An updated HAZCOM SOP was included in the report (See encl. 5). Conduct semi-annual inventories and update MSDS's on all chemicals in the facility. A hazardous material inventory sheet was included in the report (see encl 6). Tab the MSDS's on side with numbers corresponding to the hazardous material inventory sheet tab numbers for easy access in case of a spill. Include a chemical list in the janitor's MSDS book and the unit's MSDS book. A risk assessment code (RAC) of 3 was assigned to this operation.

b) Due to the lead dust wipe results, it is recommended that the maintenance bay/vehicle storage area (old indoor firing range) floor be thoroughly cleaned to include the shelves and the light fixtures/covers. Also, the vault floor, the supply room shelves, the chair hauler frame and chairs, and the basement locker room floor and shelves must be thoroughly wiped down and or wet mopped with an industrial cleaner using tri-phosphates, Mr. Kleen or Spic-n-Span. For additional lead cleaning measures, see enclosure 7. A risk assessment code (RAC) of 1 was assigned to this operation.

c) Submit a work order to have the kitchen grease trap cleaned and then closed. Install a new grease trap outside, due to the rust, smells, and unsanitary conditions that exists while preparing food. In the meantime, the grease trap must be cleaned out and sanitized. A risk assessment code (RAC) of 2 was assigned to this operation.

d) The Hentzen Coatings Incorporation, which makes the CARC paint used in the facility, strongly recommends using ½ face respirators with organic vapor cartridges and HEPA pre-filters while painting with CARC outdoors. The paint's organic solvent properties cause the vapors to immediately permeate into the air and penetrate the skin and clothing once the can is opened. The paint manufacture recommends donning TYVEK suits and booties, while using this hazardous product. Also, technicians should shower before leaving for home. Annual respirator fit testing should be performed. M-Day soldiers must not use CARC paint, without proper personnel protection and respirator fit testing. A RAC of 2 was assigned to this operation.

e) Due to the toxicity of the Dry Cleaning Solvent, TT-T-291F, Type II used for parts washing in the maintenance bay, recommend an eye wash/shower, a local ventilation system at the work site>60FPM, chemically resistant gloves, chemical resistant apron, and chemical splash goggles. Ensure that the MSDS sheet for this product is in the shop. A RAC of 2 was assigned to this operation.

f) Replace the fluorescent tubes, and or bulbs in the vault, women's shower, the training aid closet, the boiler room, the weight room, the storage room, the kitchen, the maintenance bay, and the men's latrine. Install a new lighting cover in the hallway. Repair/replace the noisy ballast in the supply office. Also, ensure that all exit signs and back up emergency fire lights are working. A risk assessment code (RAC) of 2 was assigned to this operation.

g) Submit a work order to repair the ceiling exhaust vent in the women's restroom and the utility closet. A risk assessment code (RAC) of 2 was assigned to this operation.

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h) Increase the illumination levels in the following areas:
   a) Maintenance Bay- 50 FC's
   b) Supply Area- 30 FC's

i) "Where eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body shall be provided within the work area for immediate emergency use." Submit a work requesting to have an audio and visual bypass alarm eye wash/shower station be installed in the maintenance bay. It must be flushed weekly for at least 3 minutes to rid of the harmful bacteria acanthamoeba. Also, continue to keep a weekly register on the date and times the flushing occurred. A risk assessment code (RAC) of 3 was assigned to this operation.

j) According to the manufacture, keep records on the MSA Toxgard carbon monoxide detector, part no. 48590, calibration dates. The calibration schedule should be used in figuring when to adjust the MSA CO detector to the pre determined carbon monoxide gas samples of 60 or 600 ppm. The carbon monoxide sensor should be changed every two years, depending on the work being performed in the maintenance shop. The sensor part number to the MSA Toxgard was 480595 and costs $398.20. The technical service number to MSA was 1-888-421-8324. If instruction book manual is needed, the technicians will e-mail a copy to you. A risk assessment code (RAC) of 3 was assigned to this operation.

k) Perform monthly checks on fire extinguishers. Each month, ensure that the devices are turn upside down and tapped with a rubber mallet to loosen any material at the bottom. A risk assessment code (RAC) of 2 was assigned to this operation.

l) If work practices change, a new assessment should be made on the controls in place

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Photo No.1

Photo No.2

Photo No.3

Photo No.4

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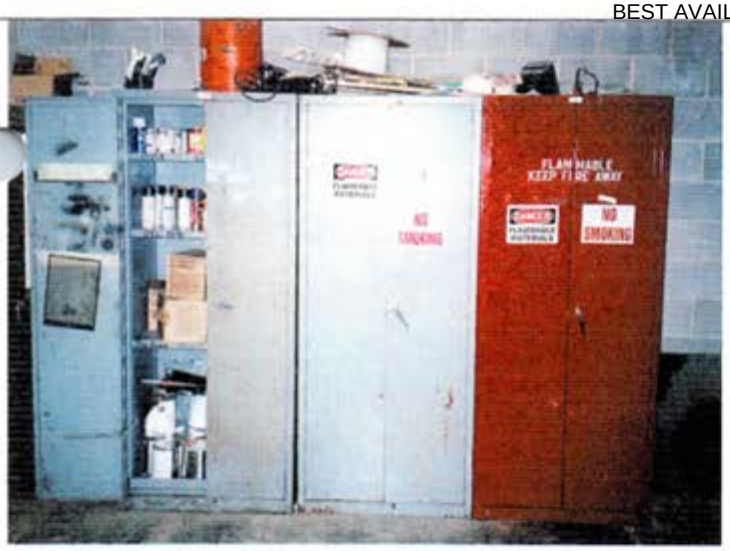

Photo No.5

Photo No.6

Photo No.7

Photo No.8

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Photo No.11

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Photo No.15

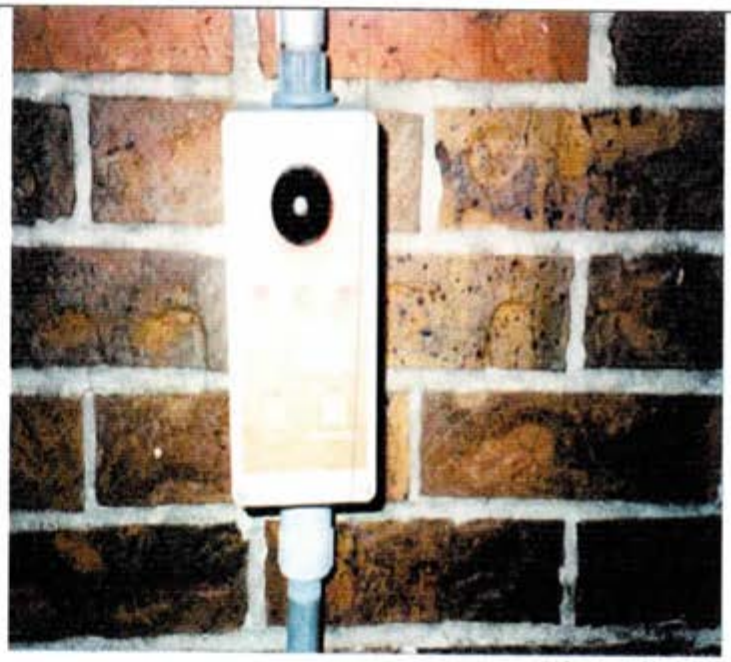

Photo No.16

Photo No.17

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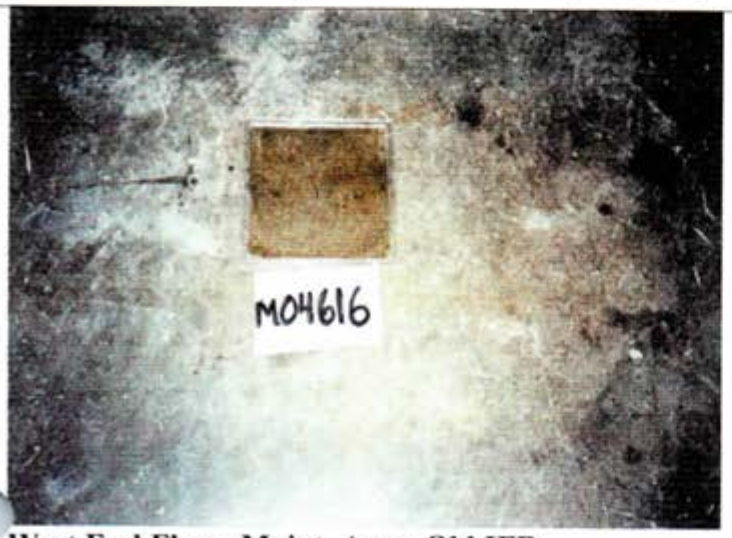
Enclosure 11

East End Floor, Maint. Area, Old Indoor Firing Range (IFR)

North End Floor, Maint. Area, Old Indoor Range

East End Metal Shelf, Maintenance Area, Old IFR

South End Floor, Maint. Area, Old IFR



West End Floor, Maint. Area, Old IFR

West End Floor, Drill Hall

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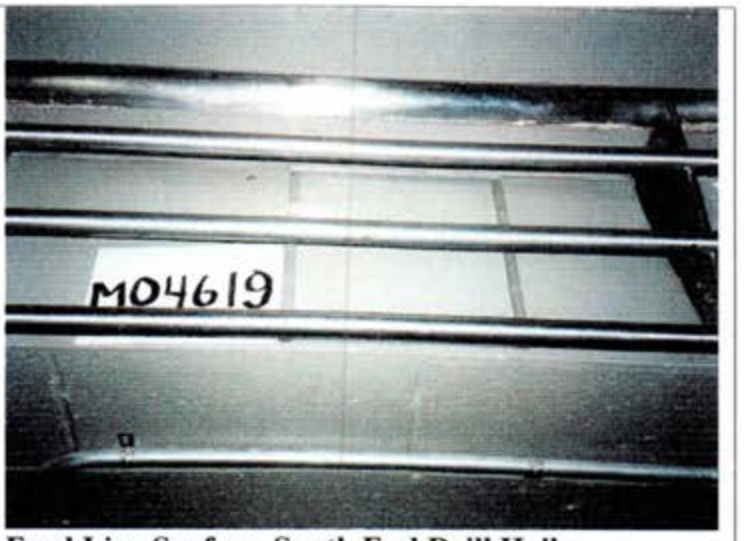
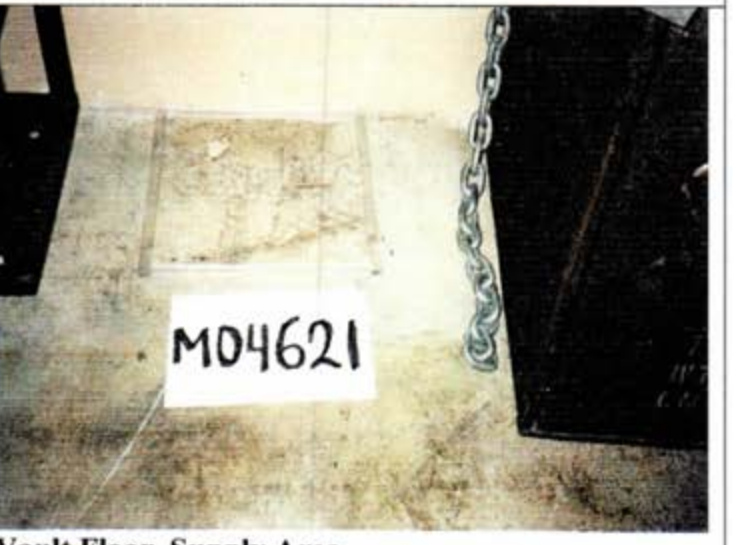
East End Floor, Drill Hall



Food Line Surface, South End Drill Hall

Kitchen Shelf



Vault Floor, Supply Area

Supply Room Shelf

Hallway Floor, Next to NBC Room

Chair Hauler Frame Surface

Kitchen Storage Room, Tray Holder Cart Shelf

NBC Room Floor

Middle Drill Hall Floor

Orderly Room Shelf

Basement Locker Room Floor

Basement, South End Bottom Shelf

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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-AVN-SI

May 18, 2001

MEMORANDUM FOR: Adjutant General TN ARNG, ATTN: State Safety Manager, P O Box 41502, Nashville, TN 37204-1502.

SUBJECT: Transmittal of Industrial Hygiene Indoor Firing Range Inspection/Evaluation Report Lebanon Armory Hygiene Indoor Firing Range, Lebanon, TN.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, 30 August 1986, Medical Service, Preventive Medicine.

c. National Guard Regulation (NGR) 385-10, 1988, Army National Guard Safety and Occupational Health Program.

d. AR 11-34, The Army Respiratory Protection Program, 15 February 1990.

e. TB MED 502, Occupational and Environmental Health Respiratory Protection Program, February 1982.

f. TB MED 503, 1 February 1985, The Army Industrial Hygiene Program.

g. DA PAM 40-501, 27 August 1991, Hearing Conservation (Updates TB MED 501, 15 March 1980, Hearing Conservation).

h. Guide to Occupational Exposure Values 2000, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, ACGIH, Cincinnati, Ohio.

j. USAEHA TG-141, 5 Mar. 1991, Guidelines for Air Sampling and Bulk sample Collection.

k. Title 29, Code of Federal Regulations (CFR), part 1910, Occupational Safety and Health Health Standards.

l. National Guard Regulation, NGR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and use of ARNG Indoor Firing Ranges, Draft March 2000.

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m. Army National Guard Guidelines for Housekeeping, Rehabilitation and Conversion of Indoor Firing Ranges, Draft NGB Pam 385-15.

n. OSHA Standards 29 CFR (Code of Federal Regulations), 1910.1025, Lead Standard

o. OSHA Standards 29 CFR (Code of Federal Regulations), 1926.62, Construction Standard

p. Report dated October March 23, 2001, Industrial Hygiene Survey, Tammer Sciences, Inc.

2. General.

a. At the request of LTC Bell, TN ARNG Occupational Health Office, an Industrial Hygiene Service was put together to conduct IH evaluation of the Lebanon Armory Hygiene Indoor Firing Range, Lebanon, TN.

b. The survey was conducted by Tammer Sciences, Inc., 3744 Lawrence Drive, Napperville, IL 60564

3. Findings. All findings are listed in the enclosed report (See ATTACHEMENT 1).

4. Recommendations.

a. Follow all recommendations made in the enclosed report.

b. At the time when the range is safe for use contact this office to evaluate it again. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY2001 IHIP.

c. Have all HHIM data entered into the HHIM computer module.

d. Contact the State Occupational Health Nurse, LTC Bell, for any medical Surveillance that may be needed.

e. To execute your responsibilities in correcting all deficiencies, coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

Non-Responsive

ial

CF: NBG-AVN-SH
State Occupational Health Office, P O Box 41502, Nashville, TN 37204-1502.
ENCL.
as

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Indoor Firing Range Inspection/Evaluation Survey Report

For

Tennessee Army National Guard
(TNANG)

At

Lebanon Armory Indoor Firing Range
Lebanon, Tennessee

Prepared by:

Tammer Sciences, Inc.
3744 Lawrence Drive
Naperville, IL 60564

For
National Guard Bureau
Army National Guard
Region South Industrial Hygiene Office
Airport Plaza Suite 1530
510 Plaza Drive
College Park, GA 30349

March 23, 2001

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Table of Contents

I. Executive Summary ..... page 1

II. Findings and Recommendations Summary ..... page 2

III. Background ..... page 4

a. Introduction
b. Site Description
c. Scope of Work
d. Health effects and hazard determination
e. Methodology and Assessment Criteria

IV. Findings and Recommendations ..... page 6

a. Building envelope
b. Range lighting
c. Bullet traps
d. Targets and target carriers
e. Range use
f. Range maintenance
g. Personal protective equipment
h. Posting of signs
i. Range sop
j. Record keeping
k. Ventilation
l. Air sampling

Appendices

A. References

B. Risk Assessment Codes (RAC) Table

C. IFR Checklist and Photographs

D. Range Layout Drawing and Ventilation Measurements

E. Air Sampling Results and Laboratory Sample Analysis Report

F. Air Sampling Notification Letters

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I. EXECUTIVE SUMMARY

At the request of the Tennessee Army National Guard (TNARNG), field personnel representing the National Guard Bureau, Region South Industrial Hygiene Office, conducted an inspection/evaluation of the Lebanon Armory indoor firing range (IFR) located in Lebanon, Tennessee on 28 November 2000. This survey was conducted as part of the TNARNG occupational safety and health program to evaluate potential health hazards associated with air contaminants generated during firing. The survey consisted of conducting a physical inspection of the range, collecting air samples, evaluating the ventilation system, measuring the lighting levels, and reviewing the range operating procedures.

Five personal samples and two area air samples were collected during a simulated thirty-one minute weapons firing qualification test. Four out of the five personal sample results exceeded the Army National Guard recommended limit of 0.03 mg/m^3. However, the equivalent eight-hour time weighted average were below the regulated Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (PEL) of 0.05 mg/m^3. Area air sampling results were well below the recommended limit of 0.03 mg/m^3, indicating that the exposure is limited to the firing line area. This finding was confirmed by the results of the air velocity measurements and smoke testing. The average air velocity at the firing line was below the recommended 50 feet per minute. Smoke testing showed excessive turbulence at the firing line. In addition to air sampling and ventilation measurements, illumination readings in critical areas were below the recommended levels. Detailed findings and recommendations regarding this range can be found in the following table and report.

In conclusion and based on the findings of this inspection/evaluation, the Lebanon firing range is classified as unsafe for use based on deficiencies in ventilation, lighting and building envelope. Based on air sampling results, this range is classified as limited use. Considerations should be given to implementing the recommendations listed herein.

Posted to NGB FOIA Reading Room
May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1178 of 2531

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II. FINDINGS and RECOMMENDATIONS SUMMARY

Finding	Recommendation	RAC
This range has been classified as unsafe due to deficiencies in the building envelope, range lighting, bullet trap, and ventilation system.	Further use of this range is restricted until deficiencies in the building envelope, lighting, bullet trap, and ventilation system have been corrected.	RAC 2
Building envelope		
Access doors are not weather-stripped.	Access doors should be weather-stripped and the locks should be fixed so that the door closes and locks properly.	RAC 2
Range lighting		
Range lighting is below the recommended 100 FC at the firing line and 30 FC in all other areas.	Upgrade lighting to meet these requirements.	RAC 3
Bullet Trap		
Steel plate was not in its correct position	Replace the steel plate so that is aligned correctly with other plates.	RAC 3
Range use		
Chairs and tables were found stored in the range.	No items should be stored in the firing range at any time. Stored should be decontaminated and removed.	RAC 2
Stored items were found in front of the plenum wall.	All items should be removed from in front of the plenum wall	RAC 2
A fire extinguisher is not provided in the range.	An ABC type fire extinguisher should be kept at the firing line in case of emergencies.	RAC 3
Posting of signs		
All appropriate warning signs were not posted in the range.	Post appropriate signs in the vicinity of the range and on the entrance door.	RAC 2
Personal Protective Equipment		
Personnel were observed wearing hearing protection only.	All personnel should wear approved haring and eye protection during firing operations	RAC 2
Range SOP		
Lebanon Armory does not have an approved standing operation procedure	Develop and implement a standing operation procedure	RAC 2
Recordkeeping		
No records of range training, maintenance, or cleaning are maintained.	Maintain appropriate records regarding range operations and procedures	RAC 2
Ventilation		
Supply and exhaust fans are not interlocked with range lighting.	Interlock supply and exhaust fans with range lighting.	RAC 3
Ventilation flow rates averaged below 50 fpm	Holes in the plenum wall should be one inch in diameter and extended over the entire surface of the plenum wall.	RAC 2
Flow rates at the plenum wall were less than the required 400 to 600 fpm	Holes in the plenum wall should be one inch in diameter and extended over the entire surface of the plenum wall.	RAC 2
More than 10 to 15% of the plenum wall is open.	Holes in the plenum wall should be one inch in diameter and extended over the entire surface of the plenum wall.	RAC 2
Smoke tests revealed turbulence	Correct ventilation system deficiencies to provide a uniform and even flow rate.	RAC 2

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Finding	Recommendation	RAC
	Air sampling	
Air sampling results ranged from <0.0033 to 0.078 mg/m³.	Range is classified as limited use based on results of air sampling. Appropriate records must be kept for all persons using the range.	RAC 2

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III. BACKGROUND

a.) Introduction: At the request of Non-Responsive of the National Guard Bureau Region South Industrial Hygiene Office, an inspection/evaluation survey was performed at the Lebanon Indoor Firing Range at the Lebanon Armory in Tennessee. Non-Responsive Non-Responsive contract industrial hygienists, conducted the survey on 28 November 2000. The purpose of the survey was to evaluate range characteristics, ventilation, and quantify employee exposure to lead dust.

b.) Site Description: The Lebanon Indoor Firing Range measures approximately 60 feet long, 24 feet wide, and 12 feet high and is used for weapons firing and qualification. The range has five firing lanes and an inclined steel plate bullet trap. An exhaust fan, which is rated at 14,000 cubic feet per minute draws air through the bullet trap and exhausts it to the rear of the building. 100 percent outside air is supplied through a plenum that extends across the back wall.

c.) Scope of Work: The work consisted of a physical inspection of the range and an evaluation of the building envelope, range lighting levels, bullet trap condition, targets and target carriers, the use of personal protective equipment, posting of signs, range standard operating procedures (SOP), record keeping, the ventilation system, range use and maintenance. In addition personal and area air samples were collected during firing to evaluate the airborne exposures to the range users. A range inspection checklist found in National Guard Regulation 385-15, which addresses Indoor Firing Range use and maintenance was completed for the range. Smoke candles were utilized to observe airflow patterns in the range. Air velocities were also measured at the firing line. Air sampling and ventilation measurements were performed to quantify performance of the range and its effectiveness in reducing employee exposure to lead dust.

d.) Health Effects and Hazard Determination: The most significant hazard present to employees and users of the indoor firing range is lead dust. Shooters using ammunition with lead primers or bullets manufactured with lead are potentially exposed to lead fumes and dust during the firing process. Furthermore, the lead found in the primer, the melting of the bullet base by hot powder gasses, the shaving and abrasion of the bullet during firing, and fragmentation of the bullet at the point of impact are all potential sources for lead. Exposure to lead may also occur during cleaning of the range, guns, or bullet trap where lead dust is deposited.

Lead affects the nervous, circulatory, digestive, excretory, and reproductive systems of both men and women. If the amount of lead absorbed and stored in the body exceeds the body's ability to expel it, lead can accumulate in the body affecting the blood, heart, and immune systems. Pregnant women overexposed to lead are more prone to spontaneous abortions or may give birth to babies with a low birth weight and slowed postnatal neurological development. Results of overexposure in children are slowed cognitive development and reduced growth.

e.) Methodology and Assessment Criteria: Personal air sampling was conducted during a simulated weapons firing qualification test, which lasted over a thirty-minute period. Area air samples were collected during the firing and one and half hour to two hours after the firing ended. Gilian air sampling pumps, Model Number GilAir5, Serial Numbers 13248, 13249, 13250, 13251, 13252, 13521, 13522, 13523, 13524, 13525 were used to collect the personal and area air samples. Each pump was calibrated prior to sampling and at the end of each sampling

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1181 of 2531

BEST AVAILABLE COPY

period using a pre-calibrated rotameter, which was calibrated against a bubble meter. The sampling flow rate was set at approximately 2 liters per minute (lpm). Samples were sent to NATLSCO laboratory, which is accredited by the American Industrial Hygiene Association (AIHA), for analysis.

An Alnor CompuFlow Air Velocity Meter, Model Number 8570, Serial Number 99097037, was used to measure air velocities at the firing line. A total of nine velocity readings were taken at each firing lane. Three measurements were taken at each of three positions, standing, kneeling, and prone positions for a total of nine readings. Details of locations where ventilation measurements were made can be found in Appendix D.

Lighting measurements were taken at the firing line, target line, and intermediate areas to determine luminance levels in these areas. Approximately fifteen to twenty readings were taken throughout the range using a Minolta Light Meter Model Number TL-1, Serial Number 90480727.

Air sampling, ventilation and illumination readings were compared to the NGR 385-15 Policy Responsibilities, and Procedures for Inspection/Evaluation and use of ARNG Indoor Firing Ranges.

Risk Assessment Codes (RACs) are included in this report to quantify the risk of particular operations to employees and to establish funding priorities for corrective actions. RACs are assigned with regard to hazard severity and mishap probability. The type, length, and route of exposure are taken into consideration, as are the medical effects that would occur with such exposures. RAC criteria can be found in Appendix B.

Posted to NGB FOIA Reading Room
May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1182 of 2531

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IV. FINDINGS, DISCUSSION, AND RECOMMENDATIONS

a. Building Envelope. This indoor firing range measures 48 feet from the firing line to the edge of the bullet trap, 23 feet wide, and 12 feet high. Each firing lane is the appropriate width and all pipes, conduits, and projecting surfaces are adequately baffled. No open drains exist in the range and roof and walls provide ballistic security. The access door to the range is not adequately weather-stripped.

Recommendation: Weather-strip all access doors to the range to prevent leakage of lead dust and debris into outlying areas. [385-15 2-2a(2)(b)] **(RAC 2)**

b. Range Lighting. Range lighting is relatively uniform and does not cause shadows. Lighting measures an average 34 foot candles (FC) at the targets and 20.3 FC in all other areas. All lighting is adequately protected by baffles. Emergency lights and exit lighting is provided and is in good working condition.

Recommendation: Increase lighting to the recommended 100 FC at the targets and 30 FC in all other areas. [NGR 385-15, 1-17c(1)(g)] **(RAC 3)**

c. Bullet Traps. An inclined plate bullet trap is permanently installed and is designed for .22 caliber use all that is permitted for firing on this range. The bullet trap measures ¼ inches thick and adequately prevents ricochets. The bullet trap is in good shape and is smooth without any seams or overlapping. One plate in the bullet trap was found out of line and in needs to be put in place so that it is properly aligned with all the other plates.

Recommendations:

1. Replace steel plate so that it is flush with the other plates in the trap. [NGR 385-15 1-17d(2)(b)] **(RAC 3)**
2. The bullet trap should be adequately maintained. Rust or paint chips may cause ricochets. A thin coating of oil should be applied every 3 months for moderate firing, sooner if heavy firing occurs (10W30 or 3 in 1). **DO NOT APPLY GREASE. (RAC 3)**
3. Bullet collection bins should not be allowed to get over ¾ full. Contact the TN ARNG State Environmental Office prior to emptying for disposal instructions. **(RAC 3)**

d. ***Targets and Target Carriers.*** Target retrieval systems were provided for each lane and are in good working order. Paper targets are used for personnel during firing procedures.

Recommendation: None at this time.

e. ***Range Use.*** Chairs and tables were stored inside the range but were removed prior to firing. These items were stored in the range because of lack of space in the facility. An appropriate fire extinguisher is not provided in the range.

Posted to NGB FOIA Reading Room
May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1183 of 2531

BEST AVAILABLE COPY

Recommendations:

1. No items should be stored in the firing range at any time. Stored items can become contaminated with lead dust and will increase the exposure to anyone who moves or touches stored items. [NGR 385-15 2-3a, 2-4h] **(RAC 2)**
2. No items should be stored in front of the plenum wall. Stored items in the plenum space disturb airflow while the ventilation system is running. [NGR 385-15 2-4a] **(RAC 2)**
3. A hand held ABC-type fire extinguisher should be kept at the firing line in case of emergencies. [DG 415-1, App. A, 4-5] **(RAC 3)**

f. ***Range Maintenance.*** No dry sweeping occurs in the range and a range custodian has been appointed for this area.

Recommendations:

1. The indoor firing range should be cleaned with the ventilation system operating to prevent dust and debris from migrating into other work areas and to minimize exposure to the cleaners. Floor areas behind the firing line and 15 feet downrange should be cleaned after firing or at least every three months if the range is not used as often. [NIOSH 76-130, p.24, II, 1] **(RAC 2)**
2. Dry sweeping and cleaning bullet traps by pouring or shoveling bullet debris into waste buckets causes settled lead dust to become airborne and inhaled by the workers. **Dry sweeping of indoor firing ranges is prohibited.** A High Efficiency Particulate Air (HEPA) filtered vacuum system is recommended for lead dust and particles cleanup only (no bullet casings). If a HEPA vacuum cannot be acquired, a wet method should be used which includes a solution of detergent and hot water. Two containers should be used; one to wet the area, and the other to rinse the applicator after the dust has been wiped from the surface. Water should be changed often to prevent reapplication of contaminated water. Wastewater should be left to evaporate and the residue and any applicators should be disposed under guidance from the TN ARNG Environmental Office. [29 CFR 1910.1025(h)(ii), NIOSH 76-130, P.24, II, 2] **(RAC 2)**
3. One person, preferably the range custodian, should be responsible for cleaning the range and discarding debris. The range should be cleaned **ONLY** with a HEPA vacuum system or utilizing a wet method. [29 CFR 1910.1025(h)(ii)] **(RAC 2)**

g. ***Personal Protective Equipment (PPE).*** Personnel were observed wearing appropriate hearing protection only.

Recommendation: All personnel should wear ANSI approved hearing and eye protection. Additional eye and hearing protection should be available for those users that do not have their own. [NGR 385-15, 2-5a, 2-5 b, 29 CFR 1910.133 (a-b), 29 CFR 1910.95 a]. **(RAC 2)**

h. ***Posting of Signs.*** Warning signs are posted and instruct users about the regulations and requirements of the range. No signs were present to instruct personnel that dry sweeping is

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1184 of 2531

BEST AVAILABLE COPY

prohibited or that storage of furniture and other items is prohibited in the range. The entrance door to the range is not posted as a Lead Hazard Area and does not prohibit pregnant women from entering the area. No illuminated warning sign is interlocked with the range ventilation switch to alert individuals that the range is in use.

Recommendations.

1. The following signs should be posted in or in the vicinity of the range and at the access door to the bullet trap. [NGR 385-15 3-6a,b] **(RAC 2)**:

   a. Eating, drinking, and Smoking are Prohibited
   b. Dry Sweeping is Prohibited
   c. Wash Hands and Face Immediately Following Firing
   d. The Following Ammunition is Authorized for use on this Range
   e. Hearing Protection Must Be Properly Worn During Firing
   f. Proper Safety Glasses/Goggles Must Be Worn During Firing
   g. No Furniture or Storage of Items Permitted in the Range

2. The following signs must be posted on the entrance door to the range and to the access door of the bullet trap:

   a. Noise Hazardous Area
   b. Danger Lead Hazard Area
   c. Pregnant Females are Not Permitted in this Area

3. An illuminated sign should be interlocked with the range ventilation switch and located outside of the firing range to alert individuals outside when the range is in use. [NGR 385-15 2-6c] **(RAC 4)**

i. ***Range Standing Operation Procedure (SOP).*** A written SOP was not available for this facility as approved by the State Safety Office.

Recommendations.

A Range Standing Operation Procedure should be written for this facility and should include the following **(RAC 2)**:

1. Requirements for establishment and maintenance of a visitor's log indicating date, age, and ammunition fired
2. Requirements for safety briefing for all individuals before entrance to the range given by a designated range safety officer
3. Work practices
4. Instructive guidance
5. Personnel responsibilities for performing, supervising, reviewing, and updating the SOP
6. Authorized ammunition
7. Posting of signs
8. Cleaning and maintenance requirements

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1185 of 2531

BEST AVAILABLE COPY

9. PPE requirements for maintenance, firing, and cleaning of the range.

j. ***Recordkeeping.*** Records kept by range custodian are a visitor's log with name and age of firer, organization and sign in and sign out times. The type of ammunition used is not documented. Range custodian was not available to provide copies of initial and previous inspection information and any air-sampling data. An OSHA compliance program is not in place. The range custodian has not been trained on lead hazards specific to firing and cleaning of the range.

Recommendations.

1. A visitor's log must be maintained that contains the name and age of firer, organization, sign in and out time, and type of ammunition, and number of rounds fired. [NGR 385-15 1-16c] **(RAC 2)**
2. A copy of this and any other inspections should be maintained. [NGR 385-15 3-6] **(RAC 2)**
3. An OSHA compliance program must be established and maintained to document how engineering (i.e. ventilation) and work practice controls will be put in place to reduce exposure to or below the permissible exposure limit. The written plan should include a description of the operation, ammunition and weapons used, existing controls, groups using the firing range, employee job responsibilities, operating procedures and maintenance practices. A record of previous inspections and air sampling data must also be retained. [29 CFR 1910.1025(e)(3)(i-ii)]. **(RAC 2)**
4. All individuals utilizing the range must be provided with a copy of the SOP or have been briefed on the unit's requirements and must sign an agreement to follow the rules. [NGR 385-15 1-15h] **(RAC 2)**
5. State maintenance officers and custodians must be fully trained on an annual basis on the health effects from exposure to lead dust and the appropriate precautions that must be taken. Records verifying this training must be kept by the range custodian. Each employee who works in a place in which there is a potential exposure to airborne lead at any level shall be informed of the Content of Appendix A Substance Data Sheet for Occupational Exposure to Lead, and Appendix B Employee Standard Summary of OSHA regulation 1910.1025. Initial training should be performed at least 180 days from date of initial job assignment and annually thereafter. [29 CFR 1910.1025(l)(1)(I-iv), 29 CFR 1910.1200(h)] **(RAC 2)**
6. A range safety officer and custodian should be designated in writing. [NGR 385-15 1-17d] **(RAC 2)**

k. ***Ventilation.*** The range is equipped with an operational ventilation system, with 100% of the make-up air exhausted behind the bullet trap. Supply and exhaust fans are not interlocked with range lighting. Average velocity readings in lanes 2, 3, and 4 were below the required 50 feet per minute (fpm). Air velocity averages were found below 50 fpm in the standing positions in lanes 1, 2, 3, and 4 and in the kneeling position in lanes 2, 3, and 4. Refer to Table D-1in Appendix D. The exhaust fan is rated for 14040 CFM, which when divided by the cross sectional area of the range would result in a calculated average velocity of 51 fpm. The measured average velocity of all the readings was 48 fpm. The difference between the measured and calculated average velocities is due to the high turbulence at the firing line. A properly

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May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1186 of 2531

BEST AVAILABLE COPY

designed plenum wall located at least 15 feet behind the firing line is meant to reduce turbulence and distribute the air evenly and uniformly downrange.

The plenum wall extends across the entire back wall and flow rates at the plenum wall did not have the required 400 to 600 fpm. More than 10-15% of the plenum wall is open. Smoke tests revealed turbulence at the firing line, with the smoke curling back behind the firing line, which would result in the lead dust blowing back into the breathing zone during firing.

Results of ventilation and smoke tests indicated that sufficient air velocities are being provided by the fan but the air flow is not evenly and uniformly distributed to move lead dust downrange and away from the firer's breathing zone.

Recommendations:

1. Interlock supply and exhaust fans with range lighting so that the ventilation system operates at all times during occupancy of the range. [CEHND 110-1-18, 3-4a] **(RAC 3)**
2. The plenum wall should be retrofitted so that the holes are one inch in diameter, and evenly distributed across the surface of the plenum wall and centered in a four-inch square area. The plenum wall should also be approximately 15 feet behind the firing line to allow the air enough time to straighten out over the entire area. The airflow must measure at least 50 fpm at all positions in the firing lane. **(RAC 2)**

I. ***Air Sampling.*** Area and personal air sampling was conducted to simulate weapons qualifications. Five personal samples were collected from personnel firing for about 30 minutes. Two area samples were also collected simultaneously; one inside the range behind the firing line, and the other outside. Based on results of the air velocity readings and smoke test evaluations, firing was restricted to simulate a single qualification time period. This 30-minute qualification period is representative of the expected exposure for personnel using the range. Personal sampling results ranged from 0.02 to 0.08 mg/m^3 for the 30 minutes sampling period. Except for one personal sample, results exceeded the Army National Guard Occupational Exposure Limit of 0.03 mg/m^3. Assuming no exposure for the remainder of an eight-hour period, the equivalent 8-hour time weighted average for the five personal samples ranged from 0.0013 to 0.005 mg/m^3. These equivalent results are lower than the OSHA PEL, NIOSH REL, and ACGIH TLV, on an eight-hour time weighted average basis. However, if firing were carried out over the eight-hour period, the exposure levels would exceed the regulated limit of 0.05 mg/m^3. Area air sampling results were less than 0.0035 mg/m^3 for the two and one half hour sampling period. Area air sampling results indicate that the airborne lead exposure is limited to the firing line area and downstream from the firing line.

Air sampling results indicated that overexposure to lead is reasonably expected while using the range for an extended period of time. Reducing the air turbulence at the firing line and stream lining the air flow as recommended herein should reduce the exposure to less than the ANG recommended limit of 0.03 mg/m^3. According to National Guard regulations, Guardsmen exposed to hazards in the range less than thirty days per year are permitted to use the range up to five hours per day. Guardsmen utilizing the range for over thirty days per year and all non-military personnel are limited to three hours per day. Range users under 17 are limited to one hour use per day.

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FOIA Requested Record #J-15-0085 (FIN)
Released by National Guard Bureau
Page 1187 of 2531

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Recommendations:

1. This range is classified as unsafe based on sampling results collected during the survey, and the results of the ventilation survey. **(RAC 2)**
2. A record must be maintained for time spent on the range for all personnel using limited use firing ranges as recorded by the range custodian. [NGR 385-15 1-15 b] **(RAC 2)**
3. Air sampling should again be conducted after changes required in the ventilation system have been made. [NGR 385-15 1-27 c] **(RAC 2)**

m. ***Range Status.*** This range has been classified as unsafe due to building envelope, range lighting, bullet trap, and ventilation deficiencies.

Recommendation: Further use of this range is restricted until deficiencies in the building envelope, range lighting, bullet trap, and ventilation system are corrected, reinspected, and approved and further air sampling has been accomplished. **(RAC 2)**

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FOIA Requested Record #J-15-0085 (TN)
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Page 1188 of 2531

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APPENDIX A

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2. American Conference of Governmental Industrial Hygienists (ACGIH), Threshold Limit Values for Chemical Substances and Physical Agents and Biological Indices for 2000.

3. Army Regulations - AR 40-5, Preventative Medicine, 15 October 1990.

4. Army Regulations - AR 385-10, The Army Safety Program, 23 May 1988.

5. National Safety Council, Fundamentals of Industrial Hygiene, 4th edition, 1996.

6. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, 29 December 1989.

7. National Guard Regulation (NGR) 385-15 Policy Responsibilities, and Procedures for Inspection/Evaluation and use of ARNG Indoor Firing Ranges, 18 September 2000..

8. National Guard Pamphlet (NG PAM) 385-16, Guidelines for Converting Firing Ranges to Other Uses, 31 January 1994.

9. National Institute for Occupational Safety and Health, Pocket Guide to Chemical Exposures, 2000.

10. TB MED 503, The Army Industrial Hygiene Program, February 1985.

11. TB MED 502, Occupational Safety and Health Respiratory Protection Program..

12. Title 29 Code of Federal Regulations (CFR) 1910.1025, Lead.

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APPENDIX B

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DERIVING RISK ASSESSMENT CODES (RACs) FOR HEALTH HAZARDS (Ref: DOD Instruction 6055.1)

STEP 1. Using the following procedures to assess points, determine the health hazard severity category (HHSC). The HHSC reflects the magnitude of exposure to a physical, chemical, or biological agent and the medical effects of exposure.

A. Exposure Points Assessed

		Exposure Conditions			
		<CT	Occasionally - >CT Always - <STD	>CT =STD	>STD
AER	NO	0	3	5	7
POSSIBLE?	YES	1-2	4	6	8

AER = Alternate exposure route, such as skin absorption, ingestion
CT = DoD component threshold that triggers surveillance actions, such as microWatts/cm^2, dB, parts per million
STD = DoD exposure limit, such as Threshold Limit Value and Permissible Exposure Limit

B. Medical Effects Points Assessed

Condition	Points
No medical effect, such as nuisance noise and nuisance odor	0
Temporary reversible illness requiring supportive treatment, such as eye irritation and sore throat	1-2
Temporary reversible illness with a variable but limited period of disability such as metal fume fever	3-4
Permanent, nonsevere illness or loss of capacity, such as permanent hearing loss	5-6
Permanent, severe, disabling, irreversible illness or death, such as asbestosis and lung cancer	7-8

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C. Determine the HHSC by totaling the points assessed and using the following guide:

Total Points (sum of A and B, above)	HHSC
13-16	I
9-12	II
5-8	III
0-4	IV

STEP 2. Using the following guides to assess points, determine the mishap probability category (MPC) for health hazards. The probability of mishap reflects the duration of exposure and the number of exposed personnel.

A. Duration of Exposure Points Assessed

		Length of Exposure		
		1-8 hr/wk	>8 hr/wk not continuous	continuous
Type of Exposure	Irregular, intermittent	1-2	4-6	-
	Regular, periodic	2-3	5-7	8

B. Number of Exposed Personnel Points Assessed

Number of Exposed Personnel	Points
<5	1-2
5 to 9	3-4
to 49	5-6
>49	7-8

C. Determine the MPC for health hazards by totaling the points assessed and using the following guide:

Total Points (sum of A and B, above)	MPC
14-16	A
10-13	B
5-9	C
<5	D

STEP 3. Determine the RAC for health hazards by using the following matrix to measure health hazard severity and mishap probability factors.

		MISHAP PROBABILITY			
		A	B	C	D
HAZARD SEVERITY	I	1	1	2	3
	II	1	2	3	4
	III	2	3	4	5
	IV	3	4	5	5

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APPENDIX C

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FIGURE 1-2

INDOOR FIRING RANGE INSPECTION CHECKLIST

See paragraphs 1-23 through 1-25 of this regulation for inspection requirements. For the range to be considered safe each of the following statements shall be true and air-sampling results shall be below the standard for Lead. The information in parentheses after each statement denotes the location of the requirement in this or other regulations.

Location of the Range LEBANON Date 11/28/00

Range Custodian [redacted]

Non-Responsive

Part 1, Physical Safety Inspection

A. Building Envelope

✓ 1. Each firing lane is at least 4 feet wide. [1-17a(1)(a)]

✓ 2. Pipes, conduits, and other projecting surfaces are baffled or covered by a material that shall protect these items and prevent ricochets. [1-17a(1)(b)]

✓ 3. No windows or doors are located in front of the firing line. (Except access door to the back of the bullet trap) [1-17a(1)(d)]

✓ 4. There are no open floor drains in the range. [1-17a(2)(c)]

✓ 5. There is no carpet, drapes or other fiber-like material in the range. [1-17a(2)(d)]

✓ 6. Pipes, conduits and walls are sealed to prevent leakage of Lead dust from the range into other areas. [1-17a(2)(b)]

✓ 7. The interior surfaces or the range floor, walls, and ceiling have no protruding edges or devices. [DG 415-1, App.A, 3-1d]

✓ 8. The roof provides ballistic security. [DG 415-1, App. A, 3-1e(1)]

✓ 9. The walls provide ballistic security. (DG 415-1, App. A, 3-1f(1))

✓ 10. Interior mortar joints are flush with the interior surface. (DG 415-1, App. A, 3-1f(2))

✓ 11. The plenum wall is adequately supported and thick enough to avoid flexing. (DG 415-1, App. A, 3-1f(4))

X 12. The entrance door to the range is weather-stripped unless the door acts as passive make-up air intake. (DG 415-1, App. A, 3-1h)

The door to Armory needs weather strip

Lebanon 1 of 6

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Page 1196 of 2531

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B. Range Lighting

✓ 1. Lighting is uniform, non-glaring and does not cause shadows. [1-17c(1)(a)]

No 2. Illumination is at least 100 foot candles on the targets and 30 foot candles in all other areas. [1-17c(1)(b)] 27.3 30.7, 20.8 flat 47.3, 45.2, 34.3 Vertical } @ target 20.9 42.7 @ line 5.78 1.75 behind firing

✓ 3. All lighting is protected by baffles and placed so that the shooter has an unobstructed view down range. [1-17c(1)(c)]

✓ 4. Downrange lighting begins approximately 18 feet from the firing line and ends approximately 8 feet from the target line. [1-17c(1)(d)]

✓ 5. Emergency lights are provided behind the firing line and are in working condition. [1-17c(1)(e)]

✓ 6. Exit lights are provided and working as required. [1-17c(1)(f)]

✓ 7. Lighting of at least 30 foot-candles is provided behind the bullet trap for maintenance (if applicable). [1-17c(1)(g)]

✓ 8. No known electrical hazards exist in the range. [1-17c(2)(c)]

C. Bullet traps

✓ 1. A bullet trap is permanently installed in the range. [1-17d(1)(a)]

✓ 2. Bullet traps are of a commercial design, which is in compliance with the requirements of CEHND 1110-1-18, NGB-ARI, NG PAM 385-16, Chapter 4 and this regulation. [1-17d(1)(b)]

✓ 3. The thickness of inclined plate/sand trap type bullet trap shall be adequate to attenuate the maximum caliber of ammunition authorized to be fired on the range. [1-17d(1)(c)] 1/2" thick

✓ 4. All plate/sand trap type bullet traps are designed to prevent ricochets by directing the projectiles in the same direction they are traveling. [1-17d(1)(d)]

✓ 5. Sandpits in plate/sand trap type backstops extend to a point directly below the leading edge of the sloped plate. [1-17d(1)(e)]

____ 6. Forward edges in a louver or venetian blind type bullet trap are maintained in a knife edge condition to prevent ricochets. [1-17d(1)(f)] N/A

✓ 7. Steel bullet traps are not bowed, punctured or severely pitted. [1-17d(2)(a)]
One Plate needs to be put in place

____ 8. Plates in the bullet trap are flush with the other plates. Mold seams are ground smooth. [1-17d(2)(b)]

D. Targets and target carriers

✓ 1. A target retrieval system is operable in all lanes. [1-17e(1)(a)]
(Any one firing lane without a retrieval system shall not be used for firing)

✓ 2. The target retrieval system is constructed in such a manner as to minimize flat surfaces exposed to the firing line. [1-17e(1)(a)]

✓ 3. Only paper targets are used in the range. [1-17e(1)(b)]

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1197 of 2531

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E. Range use

✓ 1. The range is not used for any purpose other than firing. [1-18a]

___ 2. No equipment or furniture is stored or maintained in the range, plenum area or behind the bullet trap. [1-17d] Chairs, tables were stored but removed prior to firing

✓ 3. No additional clothing or equipment is brought into the range. [1-19h]

✓ 4. Personnel are *not* permitted in the plenum area during firing even if designed for observation. [1-19a] No sign

✓ 5. Individuals other than maintenance and inspection personnel are not allowed to walk downrange. (Except in regularly cleaned area as needed to pick up brass) [1-19f]

✓ 6. All areas directly in front of the plenum walls are kept clear at all times. [1-19c]

✓ 7. Pellets, BBs, magnum and armor piercing rounds are not used in the range. [1-19g]

✓ 8. The ventilation system is in operation at all times during firing or cleaning. [1-18c]

___ 9. A hand-held ABC-type fire extinguisher is located in a recessed cabinet near the entrance door, inside of the firing range. [DG 415-1, App. A, 4-5] No Will put one

F. Range maintenance

✓ 1. Dry sweeping does not occur in the range. [1-19e]

✓ 2. No brooms are located in the range. [1-19e]

✓ 3. A range custodian is appointed for the range who is fully trained and aware of his/her responsibilities. [1-13c]

G. Personnel protective equipment

___ 1. All personnel in the range during firing wear ANSI approved eye protection. [1-20a] No

✓ 2. All personnel in the range during firing wear ANSI approved hearing protection. [1-20b]

H. Posting of signs

✓ 1. The following signs are posted in or in the vicinity of the range: [1-21a]
- ✓ a. Eating, Drinking and Smoking are *Prohibited*
- N/A b. Dry Sweeping is *Prohibited*
- ✓ c. Wash Hands and Face Immediately Following Firing
- ✓ d. The Following Ammunition is authorized for use on this Range: ____
- ✓ e. Hearing Protection *shall* be Properly worn during firing
- ✓ f. Proper Safety Glasses/Goggles *shall* be worn during firing
- N/A g. No Furniture or Storage of Items Permitted in the Range

✓ 2. The following signs are posted on the entrance door to the range: [1-21b]
- ✓ a. Noise Hazardous Area
- N/A b. Danger Lead Hazard Area
- N/A c. Pregnant women are *not* permitted in this Area

No 3. An illuminated warning sign, which is interlocked with the range ventilation switch, is located outside of the firing range to alert individuals that the range is in use. [1-21c]

✓ 4. Each firing lane is numbered at the firing line and at the bullet trap visible to all shooters. [1-21c]

___ 5. A warning sign is posted outside of the access door to the bullet trap, which warns personnel not to enter. [1-21e] N/A

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FOIA Requested Record #J-150085(TN)
Released by National Guard Bureau
Page 1198 of 2531

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I. Range SOP

_____ 1. The indoor firing range has a written SOP, which is approved by the State Safety and Occupational Health Office. [1-10e]

_____ 2. The range SOP includes as a minimum the following: [1-22b]

_____ a. The requirement for establishment and maintenance of a log of visitors for the indoor firing range.

_____ b. The requirement for and contents of a mandatory safety briefing for all individuals prior to entering the range to be given by a designated competent range safety officer.

_____ c. Work practices including required, recommended, permissible and banned practices as specified by this regulation.

_____ d. Instructive guidance for all range procedures.

_____ e. Personnel responsibilities for performing the procedures, for supervising them, and reviewing and updating the SOP.

_____ f. Authorized ammunition for the range.

_____ g. The requirement for posting of signs IAW section 1-21 of this regulation.

_____ h. Cleaning and maintenance requirements.

_____ i. Personal protective equipment requirements for maintenance, firing and cleaning.

J. Recordkeeping

_____ 1. A visitors log is maintained which includes the following information for all visitors/shooters: [1-14c]

_____ a. Name and age of shooter.

_____ b. Organization (if civilian, include address and phone number).

_____ c. Sign in and sign out times.

_____ d. Type of ammunition used and number of rounds fired.

_____ 2. Copies of initial and other previous inspections are available. [1-24a]

_____ 3. The initial inspection report includes air-sampling data. [1-24b]

_____ 4. An OSHA compliance program is in place, which covers the required aspects. [1-30a]

_____ 5. All individuals using the indoor firing range have been provided with a copy of the range SOP or been briefed on the requirements of the SOP, and have signed an agreement to follow the rules stated therein. [1-13h]

_____ 6. State maintenance officers/custodians have documentation to show that they have been educated to the health effects from exposure to Lead dust. [29 CFR 1910.1200 and 29 CFR 1910.1025]

_____ 7. Range safety officer(s) is/are designated. [1-13c]

K. New and Renovated Ranges

_____ 1. No doors are installed in the plenum wall.

_____ 2. Plenum area is at least 4 feet deep.

_____ 3. An access door is installed behind the bullet trap.

_____ 4. Only escalator or rubber bullet traps are installed.

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FOIA Requested Record #J-15-0085 (TN)
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Page 1199 of 2531

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INDOOR FIRING RANGE INSPECTION CHECKLIST

Part 2, Ventilation Inspection

A. Existing Ranges

✓ 1. The range has an operational mechanical ventilation system. [1-17b(1)(a)]

____ 2. The minimum ventilation rate at the firing line in each firing lane is 50 fpm at all levels. [1-17b(1)(b)]

✓ 3. 100% of air is exhausted at or behind the bullet trap. [1-17b(1)(c)]

✓ 4. Make-up air is introduced into the range behind the shooters. [1-17b(1)(d)]

____ 5. Air that is introduced through vents into the plenum does not exceed a velocity of 600 fpm. [1-17b(1)(e)]

____ 6. Air exiting through holes in the plenum wall has a velocity between 400 and 600 fpm. [1-17b(1)(f)]

✓ 7. The ventilation system is so constructed that air exhausted from the indoor firing range does not enter into another part of the building or any other air supply system. [1-17b(1)(g)]

____ 8. The exhaust exceeds the make-up air by approximately 10% to form a negative air pressure in the range in relation to adjoining areas. [1-17b(1)(h)]

____ 9. If air is recirculated in the range, it is installed with a HEPA filter with a reliable back-up filter. [29 CFR 1910.1025(e)(4)(ii)] N/A

____ 10. If air is recirculated in the range, controls to monitor the concentration of Lead and Carbon Monoxide levels are installed and programmed to bypass the recirculation system automatically if the filter system fails. N/A
[29 CFR 1910.1025(e)(4)(ii)]

✓ 11. The fan(s) in the ventilation system is a single speed fan only. [DG 415-1, App. A. 3-2a]

✓ 12. A smoke test of the range shows laminar air flow and no turbulence in the range. (See NG PAM 385-16, Appendix E for troubleshooting guidance) [1-18b(1)(k)] Some smoke lingers on top of line

____ 13. In non-powered systems, the supply air louvers and exhaust fan are electrically interlocked. [1-17b(1)(l)] N/A

✓ 14. In power systems, the supply and exhaust fans are electrically interlocked. The make-up air fan should start slightly after the exhaust fan. [1-17b(1)(m)]

✓ 15. Range air temperature is between 65 degrees and 80 degrees Fahrenheit. [1-17b(1)(n)]

B. New and Renovated Ranges

____ 1. A manometer is installed leading into the exhaust fan, which is capable of measuring at least 20 inches of static pressure.

____ 2. Supply and exhaust fans are electrically interlocked with the downrange lighting.

____ 3. The face velocity on supplied make-up and exhaust ducts does not exceed 2000 cfm per square foot of duct space.

____ 4. Passive supply systems have opposing blade louvers.

____ 5. Turning vanes are installed in all duct elbows, which have between 60° and 90° angles.

Lebanon
3 of 6

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Page 1200 of 2531

576 cross sect. area

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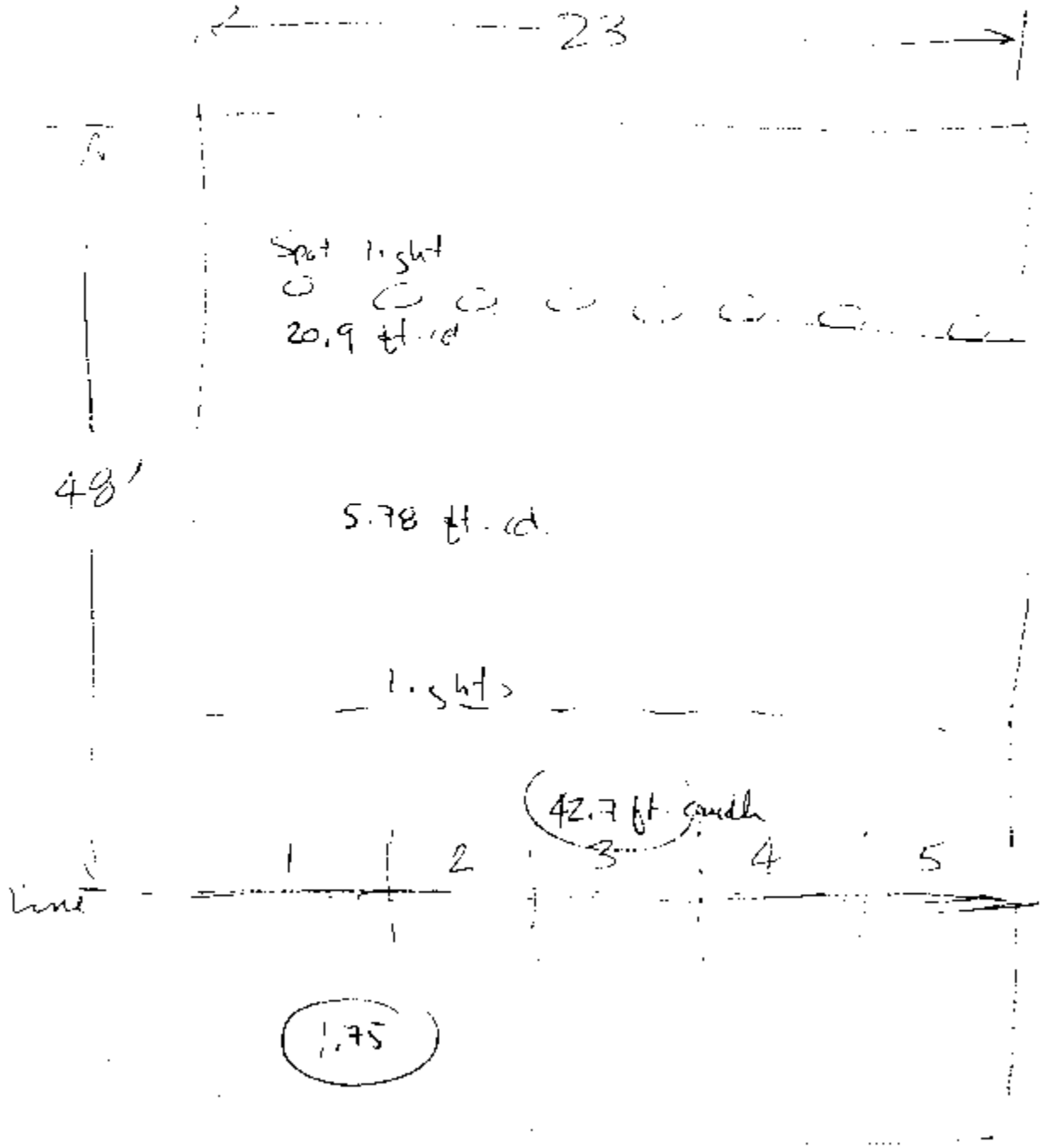
13600 CFM is needed Fan rated capacity CFM 14040 cfm

23 wide
48' length from firing line
17' High



Lebanon Indoor Firing Range

Signs posted in the range

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APPENDIX D

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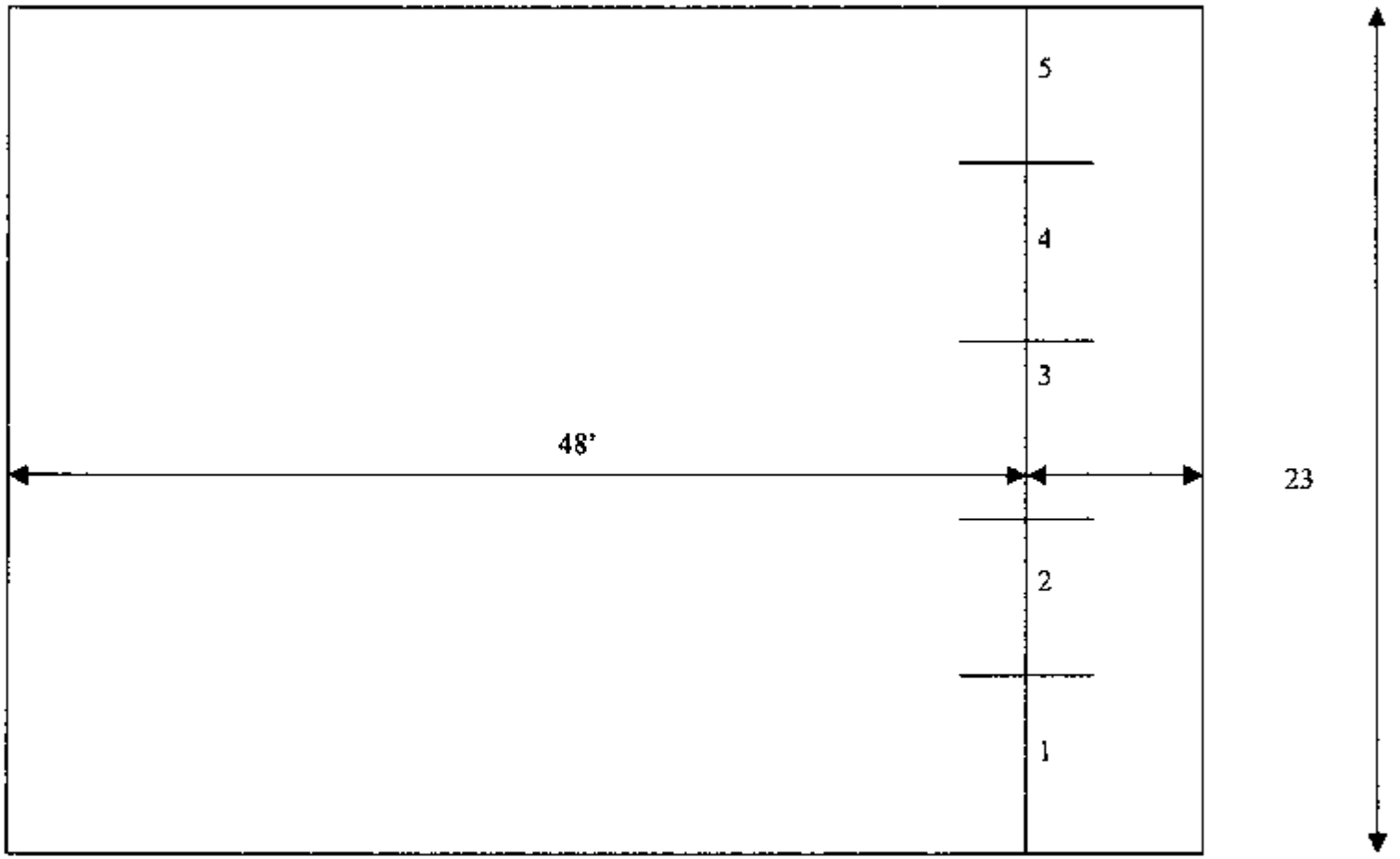

Figure D-1: Firing Range Dimensions and Lane Configuration

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1204 of 2531

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1205 of 2531

Table D-1
Ventilation Measurements
Indoor Firing Range Lanes

Lane 1			Average FPM	Lane 2			Average FPM	Lane 3			Average FPM	Lane 4			Average FPM	Lane 5			Average FPM
72	54	10	45	5	7	3	5	10	1	6	6	10	38	20	23	66	57	62	62
83	60	40	61	15	11	20	15	5	25	23	18	8	39	27	25	57	55	59	57
94	63	48	68	71	75	91	79	88	97	80	88	82	83	118	94	102	68	59	76
58 FPM				33 FPM				37 FPM				47 FPM				65 FPM			

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Page 1207 of 2531

Table E-1
Personal and Area Air Sampling Results for Lead and Total Dust
Lebanon Indoor Firing Range
Lebanon, TN
28 NOV 2000

Sample # Type	Contaminant	Sampling Time in Minutes	Result mg/m^3	OSHA PEL-TWA	NIOSH REL-TWA	ACGIH TLV-TWA	ANG OEL
LB-01	Lead in Air	152	<0.0033	0.05	0.09	0.05	0.03
Area	Total Dust		<0.33	15	15	15	15
LB-02	Lead in Air	162	<0.0031	0.05	0.09	0.05	0.03
Area	Total Dust		<0.31	15	15	15	15
LB-03	Lead in Air	32	0.019	0.05	0.09	0.05	0.03
Personal	Total Dust		<1.6	15	15	15	15
LB-04	Lead in Air	31	0.046	0.05	0.09	0.05	0.03
Personal	Total Dust		<1.6	15	15	15	15
LB-05	Lead in Air	30	0.049	0.05	0.09	0.05	0.03
Personal	Total Dust		<1.6	15	15	15	15
LB-06	Lead in Air	31	0.078	0.05	0.09	0.05	0.03
Personal	Total Dust		<1.6	15	15	15	15
LB-07	Lead in Air	30	0.072	0.05	0.09	0.05	0.03
Personal	Total Dust		<1.6	15	15	15	15
LB-B1	Lead in Air	N/A	<1.0 microgram				
Field Blank	Total Dust		<100 microgram				

Notes:
mg/m^3 = Milligrams per cubic meter
OSHA PEL = Occupational Safety and Health Administration Permissible Exposure Limit (1989 PEL Values)
NIOSH REL = National Institute of Occupational Safety and Health Recommended Exposure Level
ACGIH TLV = American Conference of Governmental Industrial Hygienists Threshold Limit Value
ANG-OEL =National Guard Bureau Occupational Exposure Limit
TWA = Time Weighted Average, [C] means a Ceiling Value
STEL = Short Term Exposure Limit
LFC Lowest Feasible Concentration
All Limits are in milligram per meter cube

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REPORT DATE DEC 27, 2000
SAMPLES REC'D DEC 19, 2000
REQUEST NUMBER 358459
PAGE NUMBER 1 OF 21

TO: Non-Responsive [redacted]

IB-01 → 0[redacted]

SAMPLE	AIR VOLUME / ANALYSIS REQUESTED	MEDIA TYPE / RESULTS	
B-01	304 Liters	37mm 0.8 Micron Matched Mixed Cellulose Ester Filter	
		micrograms	mg/m3
	LEAD IN AIR	< 1.0	< 0.0033
	TOTAL DUST	< 100	< 0.33
B-02	324 Liters	37mm 0.8 Micron Matched Mixed Cellulose Ester Filter	
		micrograms	mg/m3
	LEAD IN AIR	< 1.0	< 0.0031
	TOTAL DUST	< 100	< 0.31
I-03	64 Liters	37mm 0.8 Micron Matched Mixed Cellulose Ester Filter	
		micrograms	mg/m3
	LEAD IN AIR	1.2	0.019
	TOTAL DUST	< 100	< 1.6
-04	63 Liters	37mm 0.8 Micron Matched Mixed Cellulose Ester Filter	
		micrograms	mg/m3
	LEAD IN AIR	2.9	0.046
	TOTAL DUST	< 100	< 1.6

IMENTS:

PRESENT, DE MEANS DESORPTION EFFICIENCY

pectfully submitted,

Non-Responsive [redacted]

[redacted] DUSTRIAL HYGIENE ASSOCIATION

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REPORT DATE DEC 27, 2000
SAMPLES REC'D DEC 19, 2000
REQUEST NUMBER 358459
PAGE NUMBER 2 OF 21

TO: Non-Responsive [redacted]

SAMPLE	AIR VOLUME / ANALYSIS REQUESTED	MEDIA TYPE / RESULTS	
3-05	61 Liters	37mm 0.8 Micron Matched Mixed Cellulose Ester Filter	
		micrograms	mg/m3
	LEAD IN AIR	3.0	0.049
	TOTAL DUST	< 100	< 1.6
3-06	63 Liters	37mm 0.8 Micron Matched Mixed Cellulose Ester Filter	
		micrograms	mg/m3
	LEAD IN AIR	4.9	0.078
	TOTAL DUST	< 100	< 1.6
-07	61 Liters	37mm 0.8 Micron Matched Mixed Cellulose Ester Filter	
		micrograms	mg/m3
	LEAD IN AIR	4.4	0.072
	TOTAL DUST	< 100	< 1.6

MENTS:

PRESENT, DE MEANS DESORPTION EFFICIENCY

pectfully submitted,

Non-Responsive [redacted]

REDITED BY THE AMERICAN INDUSTRIAL HYGIENE ASSOCIATION

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REPORT DATE DEC 27, 2000
SAMPLES REC'D DEC 19, 2000
REQUEST NUMBER 358459
PAGE NUMBER 3 OF 21

TO: Non-Responsive [redacted]

SAMPLE	AIR VOLUME / ANALYSIS REQUESTED	MEDIA TYPE / RESULTS
B-B1		**37mm 0.8 Micron Matched Mixed Cellulose Ester Filter**
		micrograms
	LEAD IN AIR (BLANK)	< 1.0
		SUBTRACTED
	TOTAL DUST (BLANK)	< 100
		NOT SUBTRACTED, -240 UG IS OUTSIDE OF QC RANGE.

OMMENTS:

F PRESENT, DE MEANS DESORPTION EFFICIENCY

espectfully submitted,

Non-Responsive [redacted]

ACCREDITED BY THE AMERICAN INDUSTRIAL HYGIENE ASSOCIATION

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INDUSTRIAL HYGIENE
SAMPLING RESULT NOTIFICATION SHEET

DATA REQUIRED BY THE PRIVACY ACT

AUTHORITY: Sections 133, 1071 87, 3012, 5031, and 8012, title 10, United States Code, Executive Order 9397 and AR 40 5.

PRINCIPAL PURPOSE: The Social Security Number of the individual is required to identify, record, and retrieve occupational medical surveillance records.

ROUTINE USE: The primary use of this information is to provide, plan, and coordinate occupational health medical surveillance and care.

DISCLOSURE: In the case of military personnel and Federal employees, the requested information is mandatory because of the need to document all occupational injuries and illnesses in view of future rights and benefits. If the requested information is not furnished comprehensive medical surveillance may not be possible, but AUTHORIZED CARE WILL NOT BE DENIED.

NAME:	SOCIAL SECURITY NO.:	OPERATION:	BLDG:	DIRECTORATE/COLLOCATED ACTV:
Non-Responsive		Weapons Firing	Lebanon	Indoor Firing Range

Air sampling took place on November 28, 2000 to determine workplace exposure to:

SUBSTANCE	PERMISSIBLE EXPOSURE LIMIT	YOUR RESULTS	EXP CATEGORY (See Below)
1. Lead	0.050 mg/m3 (OSHA)	0.005 mg/m3	1
2.			
3.			
5.			
6.			

EXPOSURE CATEGORY

1. Airborne levels are below permissible limits; no work changes necessary.
2. Airborne levels are close to permissible limits: additional sampling necessary; temporary use of respiratory protection during this operation.
3. Airborne levels are above permissible limits and the following actions are indicated (where feasible) to prevent overexposure:
   a. Ventilation system improvements required (general and/or local exhaust).
   b. Engineering controls required.
   c. Employee work practices need improvement.
   d. Improve housekeeping.
   e. Personal protective equipment mandatory until exposure is below permissible limits.

COMMENTS:

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INDUSTRIAL HYGIENE
SAMPLING RESULT NOTIFICATION SHEET

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AUTHORITY: Sections 133, 1071 87, 3012, 5031, and 8012, title 10, United States Code, Executive Order 9397 and AR 40 5.

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NAME:	SOCIAL SECURITY NO.:	OPERATION:	BLDG:	DIRECTORATE/COLLOCATED ACTV
Non-Responsive		Weapons Firing	Lebanon	Indoor Firing Range

Air sampling took place on November 28, 2000 to determine workplace exposure to:

SUBSTANCE	PERMISSIBLE EXPOSURE LIMIT	YOUR RESULTS	EXP CATEGORY (See Below)
1. Lead	0.050 mg/m3 (OSHA)	0.003 mg/m3	1
2.			
3.			
4.			
5.			
6.			

EXPOSURE CATEGORY

1. Airborne levels are below permissible limits: no work changes necessary.
2. Airborne levels are close to permissible limits: additional sampling necessary; temporary use of respiratory protection during this operation.
3. Airborne levels are above permissible limits and the following actions are indicated (where feasible) to prevent overexposure:
   a. Ventilation system improvements required (general and/or local exhaust).
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   c. Employee work practices need improvement.
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NAME:	SOCIAL SECURITY NO.:	OPERATION:	BLDG:	DIRECTORATE/COLLOCATED ACTV
Non-Responsive		Weapons Firing	Lebanon	Indoor Firing Range

Air sampling took place on November 28, 2000 to determine workplace exposure to:

SUBSTANCE	PERMISSIBLE EXPOSURE LIMIT	YOUR RESULTS	EXP CATEGORY (See Below)
1. Lead	0.050 mg/m3 (OSHA)	0.003 mg/m3	1
2.			
3.			
4.			
5.			
6.			

EXPOSURE CATEGORY

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3. Airborne levels are above permissible limits and the following actions are indicated (where feasible) to prevent overexposure:
   a. Ventilation system improvements required (general and/or local exhaust).
   b. Engineering controls required.
   c. Employee work practices need improvement.
   d. Improve housekeeping.
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COMMENTS:

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AUTHORITY: Sections 133, 1071 87, 3012, 5031, and 8012, title 10, United States Code, Executive Order 9397 and AR 40 5.

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NAME:	SOCIAL SECURITY NO.:	OPERATION:	BLDG:	DIRECTORATE/COLLOCATED ACTV:
Non-Responsive		Weapons Firing	Lebanon	Indoor Firing Range

Air sampling took place on November 28, 2000 to determine workplace exposure to:

SUBSTANCE	PERMISSIBLE EXPOSURE LIMIT	YOUR RESULTS	EXP CATEGORY (See Below)
1. Lead	0.050 mg/m3 (OSHA)	0.012 mg/m3	1
2.			
3.			
4.			
5.			
6.			

EXPOSURE CATEGORY

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3. Airborne levels are above permissible limits and the following actions are indicated (where feasible) to prevent overexposure:
   a. Ventilation system improvements required (general and/or local exhaust).
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COMMENTS:

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INDUSTRIAL HYGIENE
SAMPLING RESULT NOTIFICATION SHEET

DATA REQUIRED BY THE PRIVACY ACT

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NAME:	SOCIAL SECURITY NO.:	OPERATION:	BLDG:	DIRECTORATE/COLLOCATED ACTV
Non-Responsive		Weapons Firing	Lebanon	ndoor Firing Range

Air sampling took place on November 28, 2000 to determine workplace exposure to:

SUBSTANCE	PERMISSIBLE EXPOSURE LIMIT	YOUR RESULTS	EXP CATEGORY (See Below)
1. Lead	0.050 mg/m3 (OSHA)	0.005 mg/m3	1
2.			
3.			
5.			
6.			

EXPOSURE CATEGORY

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   a. Ventilation system improvements required (general and/or local exhaust).
   b. Engineering controls required.
   c. Employee work practices need improvement.
   d. Improve housekeeping.
   e. Personal protective equipment mandatory until exposure is below permissible limits.

COMMENTS:

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NATIONAL GUARD REGION SOUTH
INDUSTRIAL HYGIENE OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

NGB-ARS-SEIH

November 21, 2007

MEMORANDUM FOR: Non-Responsive RN, Occupational Health Nurse, Tennessee State Safety and Occupational Health Office, 250 8th Avenue, Smyrna, Tennessee 37167.

SUBJECT: Lebanon National Guard Armory, 1010 Leeville Road, Lebanon, Tennessee.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 22 July 2005.

c. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, October 1988.

d. AR 385-10, The Army Safety Program, 29 February 2000.

e. National Guard Pam 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006.

f. NGR 385-15, Policy and Responsibilities, Evaluation and Operation of Army National Guard Indoor Firing Ranges, 3 November 2006.

g. DA PAM 40-503, The Army Industrial Hygiene Program, 30 October 2000.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2003, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. Title 29, Code of Federal Regulations (CFR), 2001 rev., part 1910, Occupational Safety and Health Standards.

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2. General.

a. As requested by Non-Responsive Tennessee Occupational Health Office, personnel with the National Guard Region South Industrial Hygiene Office performed an inspection at the referenced site. The apparent objective of the inspection was to collect surface wipe samples from the former Indoor Firing Range (IFR) for analysis of total lead to confirm/deny the presence of lead dust.

b. Non-Responsive with the National Guard Region South Industrial Hygiene Office in College Park Georgia performed the site visit.

3. Findings.

General Information

At the time of the sampling activity, the interior of the Lebanon Armory IFR was emptied of all equipment including the bullet trap and firing line. The surface areas were observed to be constructed of cinder-block walls with concrete floors and ceilings. The supply vent serving the IFR was observed closed and the former range appeared to be generally cleaned of debris. The former bullet trap location was identified along what was referred to as the front wall and the firing line was previously located at the rear wall.

Sampling Activities

Based on the number of surfaces observed, samples were collected in accordance with National Guard Bureau Pamphlet 420-15. Ghost Wipe™ is pre-moistened media made of non-woven polyvinyl alcohol fiber and approved by American Industrial Hygiene Association (AIHA) for lead sampling. The wipes also meet all American Standards Testing Materials (ASTM) Designation E1792-96E specifications for sampling materials for lead in surface dust.

The surface samples were collected by placing a 1 square foot sampling template on the surface area and wiping the outlined area with a Ghost Wipe™. After the area inside the template was wiped, each individual sampling media was placed into separate, labeled re-sealable plastic bags and sealed. After each sample collection, a new surface area template was used and new disposable gloves were donned. A total of 18 samples were collected, three from each surface area for submittal to Analytical Environmental Services, Inc. (AES) in Atlanta, Georgia for subsequent analysis of total lead. In addition, one wipe was placed into a re-sealable bag and submitted as a blank sample for analysis.

Photographs of the observation made during the inspection including sample locations are attached for reference.

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FOIA Requested Record #J-15-0085 (TN)
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Page 1219 of 2531

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Laboratory Results

The results of the lead dust sampling activities are summarized in the following table.

Sample Number	Sample Location	Laboratory Results[1]
TNL-01	Lower Front Wall	BRL
TNL-02	Middle Front Wall	BRL
TNL-03	Upper Front Wall	65
TNL-04	**Lower Right Wall**	**536**
TNL-05	Middle Right Wall	22
TNL-06	Upper Right Wall	BRL
TNL-07	Lower Rear Wall	30
TNL-08	Middle Rear Wall	90
TNL-09	Upper Rear Wall	29
TNL-10	Lower Left Wall	BRL
TNL-11	Middle Left Wall	33
TNL-12	Upper Left Wall	BRL
TNL-13	**Floor at Front Wall**	**462**
TNL-14	Middle Floor	30
TNL-15	Floor at Rear Wall	BRL
TNL-16	Ceiling Front Wall	147
TNL-17	Middle Ceiling	56
TNL-18	Ceiling at Rear Wall	70
TNL-B1	Field Blank	BRL

[1] Results reported in micrograms per square feet ($\mu g/ft^2$)
[2] BRL = Below Reportable Limits

The laboratory results indicate lead concentrations detected above the IFR post cleaning standard. In accordance with the National Guard Bureau Pamphlet 420-15, the Lebanon Armory IFR cannot be converted for other uses until the lead dust levels are reduced to $200\mu g/ft^2$ or lower depending on local requirements.

The laboratory results are attached for review.

4. Recommendations.

a. Prior to initiating decontamination activities and in accordance with 29 CFR 1910.1025, perform and conduct training for employees exposed to lead concentrations above the standard or who may suffer skin or eye irritation from exposure to lead.

b. Review NG Bureau Pamphlet 420-15 prior to conducting decontamination of the IFR and conduct cleaning activities in accordance with the regulatory document. Keep in mind that EPA (40 CFR 745 Subpart D) and your state may have lead reduction levels lower than the levels recommended in Pamphlet 420-15.

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FOIA Requested Record #J-15-0085 (TN)
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Page 1221 of 2531

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c. Ensure that appropriate personal protective equipment is worn during decontamination activities.

d. Consult with local Environmental Agency for guidance on proper disposal of materials used in decontaminating the IFR.

e. Upon completion of the decontamination activities, contact the Regional IH office for evaluation and collection of confirmatory lead dust samples.

5. If additional information is needed about the contractors report, please contact SGT

Non-Responsive

[redacted]

CC: Non-Responsive CFMO, 3041 Sidco Drive, Nashville, Tennessee 37204-1504

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Page 1223 of 2531

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Photo 1: View of the Lebanon, Tennessee Armory.

Photo 2: View of the former bullet stop and adjacent wall with sample locations.

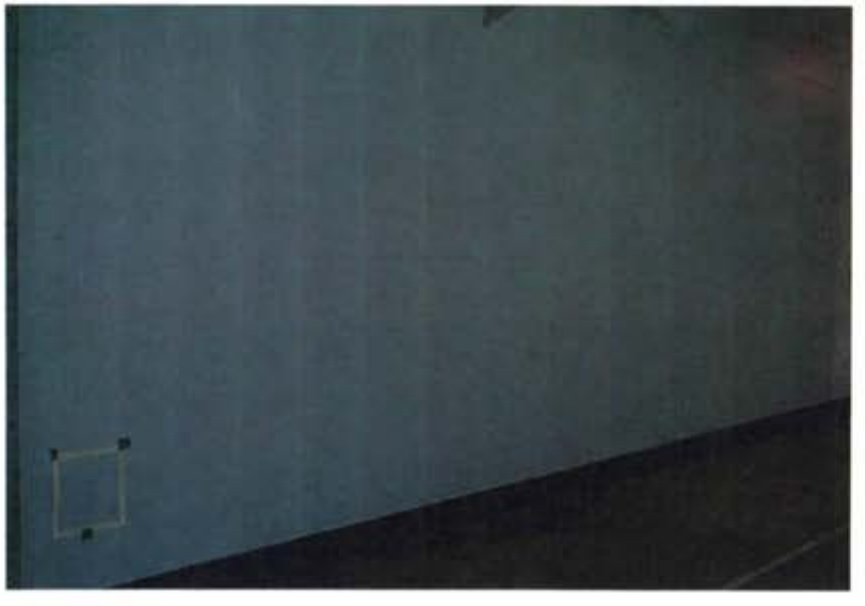

Photo 3: View of right wall with sample location outlined.

Photo 4: View of rear wall with surface sample locations.

Project Name: Lebanon Tennessee Armory

Date Photos Taken: 18 October 2007

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Photo 5: View of the left wall of the former IFR.

Photo 6: View of floor of the former IFR

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Project Name: Lebanon Tennessee Armory

Date Photos Taken: 18 October 2007

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Analytical Environmental Services, Inc.

Date: 10/31/2007

LEAD ON WIPES (N9100/7082)
N7082

CLIENT: National Guard Bureau Region-South III
Project: LEBANON TN ARMORY
Delivery Order:
PO No:

Lab Order: 0710D49
Date Received: 10/24/2007 12:55 PM
Matrix: Wipe

Laboratory ID	Client Sample ID	Results	Units	Report Limit.	DF	Date Collected	Date Analyzed	Analyst
0710D49-001A	TNL-01	BRL	µg/ft²	20	1	10/18/2007	10/25/2007	JY
0710D49-002A	TNL-02	BRL	µg/ft²	20	1	10/18/2007	10/25/2007	JY
0710D49-003A	TNL-03	65	µg/ft²	20	1	10/18/2007	10/25/2007	JY
0710D49-004A	TNL-04	536	µg/ft²	20	1	10/18/2007	10/25/2007	JY
0710D49-005A	TNL-05	22	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D49-006A	TNL-06	BRL	µg/ft²	20	1	10/18/2007	10/25/2007	JY
0710D49-007A	TNL-07	30	µg/ft²	20	1	10/18/2007	10/25/2007	JY
0710D49-008A	TNL-08	90	µg/ft²	20	1	10/18/2007	10/25/2007	JY
0710D49-009A	TNL-09	29	µg/ft²	20	1	10/18/2007	10/25/2007	JY
0710D49-010A	TNL-10	BRL	µg/ft²	20	1	10/18/2007	10/25/2007	JY
0710D49-011A	TNL-11	33	µg/ft²	20	1	10/18/2007	10/25/2007	JY
0710D49-012A	TNL-12	BRL	µg/ft²	20	1	10/18/2007	10/25/2007	JY
0710D49-013A	TNL-13	462	µg/ft²	20	1	10/18/2007	10/25/2007	JY
0710D49-014A	TNL-14	30	µg/ft²	20	1	10/18/2007	10/25/2007	JY
0710D49-015A	TNL-15	BRL	µg/ft²	20	1	10/18/2007	10/25/2007	JY
0710D49-016A	TNL-16	147	µg/ft²	20	1	10/18/2007	10/25/2007	JY
0710D49-017A	TNL-17	56	µg/ft²	20	1	10/18/2007	10/25/2007	JY
0710D49-018A	TNL-18	70	µg/ft²	20	1	10/18/2007	10/25/2007	JY
0710D49-019A	TNL-B-1	BRL	µg, Total	20	1	10/18/2007	10/26/2007	JY

Qualifiers: BRL - Not Detected at the Reporting Limit DF - Dilution Factor

Results are blank corrected where applicable

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Page 1229 of 2531

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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-AVN-SI January 12, 2005

MEMORANDUM FOR: ADJUTANT GENERAL TN ARNG, ATTN.: State Safety and Occupational Health Office, P O Box 41502, Nashville, TN 37204-1502

SUBJECT: Transmittal of the Survey Reports for Clarksville Armory, Gallatin Armory, Lafayette Armory, Lebanon Armory, Springfield Armory, TN.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, 30 August 1986, Medical Service, Preventive Medicine.

c. National Guard Regulation (NGR) 385-10, 1988, Army National Guard Safety and Occupational Health Program.

d. AR 11-34, The Army Respiratory Protection Program, 15 February 1990.

e. TB MED 502, Occupational and Environmental Health Respiratory Protection Program, February 1982.

f. DA PAM 40-503, 30 October 2000, The Army Industrial Hygiene Program.

g. DA PAM 40-501, 10 December 1998, Hearing Conservation.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2001, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

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k. Title 29, Code of Federal Regulations (CFR), 2000 rev., part 1910, Occupational Safety and Health Standards.

l. Reports dated 21 October 2004 (Gallatin & Lebanon), 22 Oct 2004 (Clarksville & Springfield) and 12 November 2004 (Lafayette), Industrial Hygiene Survey, Environmental Management Solutions, Dallas, GA.

2. General.

a. At the request of the TN ARNG Safety and Occupational Health Office, an Industrial Hygiene Service was put together to conduct Health Hazard Information module (HHIM) Field surveys and industrial hygiene sampling of the Clarksville Armory, Gallatin Armory, Lafayette Armory, Lebanon Armory, Springfield Armory, TN.

b. Environmental Management Solutions, 247 Mary Lane, Dallas, GA conducted the survey.

3. Findings. All Health Hazard information collected are on the survey findings of the report. (See enclosure 1)

4. Recommendations.

a. Follow all recommendations made in reference 1.l., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Conduct an air sampling survey in the areas in and around those identified with elevated lead dust levels in page 4 in each report of reference 1.l, to ensure that the lead dust present is not airborne and that employees in these areas are not exposed above the action level where applicable.

c. Control water infiltration in the armory and/or replace or repair damaged surfaces or components (ceiling and floor tiles). Building conditions that present IAQ concerns or problems not only exacerbates normally minor health issues but also tend to promote or accelerate building deterioration.

d. The recommendations given in the comment section and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-05. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-06 IHIP.

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e. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present survey, especially if this will help eliminate health hazards and reduce medical surveillance cost.

f. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

g. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

5. If additional information is needed about the industrial hygiene survey or air sample

Non-Responsive

[redacted]

CF:
NBG-AVN-SH
State Occupational Health Office, P O Box 41502, Nashville, TN 37204-1502.

Encl
as

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May, 2018

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ENVIRONMENTAL MANAGEMENT SOLUTIONS
INDUSTRIAL HYGIENE CONSULTING

TENNESSEE ARMY NATIONAL GUARD

LEBANON ARMORY
LEBANON, TENNESSEE

247 MARY LANE, DALLAS, GEORGIA 30157
PHONE: 404.425.3103 • FAX: 770.234.6297

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EXECUTIVE SUMMARY 1

SUBJECT 2

BACKGROUND 2

INTRODUCTION 2
SITE DESCRIPTION 2
SCOPE OF WORK 2
METHODOLOGY 3

FINDINGS AND DISCUSSION 4

LEAD WIPE SAMPLES 4
ASBESTOS SUSPECT BUILDING MATERIAL 5
NOISE SURVEY 5
ILLUMINATION SURVEY 5
BUILDING CONDITION 6
HAZARD COMMUNICATION 6
RADIATION PROTECTION PROGRAM 6
ERGONOMICS 7
PERSONAL PROTECTIVE EQUIPMENT 7

RECOMMENDATIONS 8

TECHNICAL ASSISTANCE 9

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FOIA Requested Record #J-15-0085 (TN)
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Page 1235 of 2531

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EXECUTIVE SUMMARY

An initial baseline industrial hygiene survey was conducted at the Lebanon Armory on 21 October 2004 as part of the Tennessee Army National Guard Occupational Health Program to identify potential health hazards in the workplace. The survey consisted of collecting lead wipe samples and bulk asbestos samples as needed, conducting a noise and illumination survey and an evaluation of the condition of the building as it related to indoor air quality. A review of the Hazard communication program, ergonomics, and personal protective equipment was also performed.

The following table summarizes the survey findings and recommendations for each topic surveyed.

TOPIC	SUMMARY OF FINDINGS	RECOMMENDATIONS
Lead Wipe Samples	0 to 574 micrograms. Indoor firing range is contaminated and not suitable for stored items. Supply areas also show higher than recommended levels of lead contamination.	Clean surfaces in the supply areas, decontaminate all contaminated items, and follow good hygiene and housekeeping practices. The indoor firing range cannot be used as a storage area, any stored items must be decontaminated and removed according to Army National Guard All States Log Number P01 0075, **Policies and Responsibilities for Inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges (IFR) and Guidelines for IFR Rehabilitation, Conversion, and Cleaning**
Asbestos Bulk Samples	No findings	No action
Noise Survey	Under 85 dBA	No action
Illumination Survey	19 to 93 foot candles	Upgrade lighting to appropriate levels.
Building Condition	Water damage to ceiling tiles seen in administrative areas.	Develop a housekeeping schedule to identify, repair, and prevent any leaks or standing water.
Hazard Communication	Material Safety Data Sheets maintained by OMS. Chemicals used at this facility include cleaning supplies	Material Safety Data Sheets should be updated for cleaning supplies used by facility.
Ergonomics	Poor workstations design in some offices	Complete ergonomics survey on all personnel and offer ergonomic training or awareness to employees who spend the majority of their time working on a computer terminal
Personal Protective Equipment	No findings	No action

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MEMORANDUM FOR

Tennessee Army National Guard
Lebanon Armory
Commander
1010 Leeville Rd.
Lebanon, Tennessee 37090-8255

SUBJECT

Initial Baseline Industrial Hygiene Survey of the Lebanon Armory performed 21 October 2004 in Lebanon, Tennessee.

BACKGROUND

INTRODUCTION

At the request of Non-Responsive of the National Guard Bureau Region South Industrial Hygiene Office, an initial baseline industrial hygiene survey was performed at the Lebanon Armory in Lebanon, Tennessee. Environmental Management Solutions conducted the survey on 21 October 2004. The purpose of the survey was to perform an initial baseline industrial hygiene survey to evaluate potential health hazards present at the armory.

SITE DESCRIPTION

The facility houses the 168th MP Battalion, which includes seven full time personnel. The single story building contains several administrative offices, one classroom, a drill hall, and a kitchen. An indoor firing range is present at this facility and is currently closed and locked so no one enters. The range has been closed for four years. Refer to Building layout in Appendix C. Soldiers perform weapons cleaning once per month in the drill hall area for three consecutive months after range firing. The armory is rented out approximately once per month for private functions.

SCOPE OF WORK

The work included collecting wipe samples for lead, bulk samples for suspect asbestos containing building material, noise readings, illumination levels, and an evaluation of the ventilation system as it pertains to indoor air quality. A list of occupational health programs and procedures were verbally covered with the armory personnel.

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Released by National Guard Bureau
Page 1237 of 2531

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METHODOLOGY

Lead wipe samples were collected from surfaces that showed signs of lead contamination in armories that have a renovated, inactive, or closed indoor firing range (IFR), kitchen or mess hall storage areas, indoor drill halls, and storage rooms with weapons vaults. The samples were collected in accordance to instructions published by Region South National Guard Bureau, which required the use of unscented baby wipes to wipe one square foot of surface. Samples were then placed in a sealed plastic bag and sent to an American Industrial Hygiene Associations (AIHA) accredited laboratory for analysis. Asbestos bulk samples and lead paint chips were collected from suspect friable and damaged building material. Each bulk sample was placed in a sealed bag and sent to an AIHA laboratory for analysis. All instruments used for assessment were factory calibrated and calibrated prior to the survey as applicable. Illumination readings were taken on work surfaces and approximately four feet from the floor.

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Page 1238 of 2531

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FINDINGS AND DISCUSSION

LEAD WIPE SAMPLES

Eight wipe samples were collected from areas of the kitchen, supply, drill hall, and indoor firing range areas as listed in the table below.

SAMPLE NUMBER	SAMPLE LOCATION	MICROGRAMS OF LEAD (µg) PER SQUARE FOOT
LB-01	Kitchen, Floor under sink near storage	BRL
LB-02	IFR, Bathroom	**285**
LB-03	IFR, Table near door	BRL
LB-04	IFR, Outside floor near door	**574**
LB-05	Supply Area, Floor	**62.0**
LB-06	Supply Area, Inside Vault	**307**
LB-07	Drill Hall, Near roll up door	26.0
LB-08	Drill Hall, Near coke machine	23.0

*Below Detection Limit

The Army National Guard All States Log Number P01-0075, **Policies and Responsibilities for Inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges (IFR) and Guidelines for IFR Rehabilitation, Conversion, and Cleaning** requires a limit of 200 micrograms per square foot for surface contamination in and around indoor firing ranges closed or converted for other uses. Lead results in areas surrounding the indoor firing range areas above the regulated limit.

The Environmental Protection Agency standards (40 CFR 745) indicate lead in dust levels above 40 micrograms per square foot on bare and carpeted floors is considered dangerous for common areas. Lead results in the supply areas were above regulated standards.

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Page 1239 of 2531

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ASBESTOS SUSPECT BUILDING MATERIAL

Sampling for asbestos was limited to damaged material or material that could pose an exposure risk. No friable suspect material was found.

NOISE SURVEY

Area noise levels are well within the Army National Guard limit of 85 dBA and the Occupational Safety and Health Administration (OSHA) regulated limit of 90 dBA over an eight-hour period.

ILLUMINATION SURVEY

Lighting levels throughout the armory ranged between 19 foot-candles to 93 foot-candles. Specific readings are listed in the table below.

AREA	AVERAGE FOOT-CANDLES
Kitchen	**35**
War Room	**21**
Battalion Area	**38**
AO FTUS	61
TNG NCO FTUS	**60**
TNG OFF FTUS	63
BN CDR	93
S1 FTUS	64
S4 FTUS	**43**
Orderly Room	**34**

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1240 of 2531

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CDRS Office	56
HHD RTUS	70
Learning Center	59
Classroom	68
Supply Room FTUS	**19**
Drill Hall	**39**

Readings in bold-faced type are not within the Army Design Guide (DG 415-2) minimum illumination level of 50 foot-candles for office areas and 20 foot candles for parts storage/supply. The American National Standard Institute/Industrial Engineering Society (ANSI/IES) recommends a minimum illumination of 50 to 100 foot-candles for administrative and kitchen areas, and 20 to 50 foot-candles for storage areas. Luminance of 50 to 100 foot-candles is recommended for performance of visual tasks of medium contrast or small size such as reading, pencil handwriting, and poorly printed, or reproduced material. Depending of the type of display, background luminance of 30 to 60 foot-candles is recommended for computer work.

BUILDING CONDITION

The building was constructed in 1985. The building is in fair condition and housekeeping is fair as well. Water damage could be seen in the ceiling tiles of several administrative areas throughout the building. The roof was recently replaced. Personnel did not have any specific complaints about the indoor air quality.

HAZARD COMMUNICATION

No chemical use, other than routine cleaning chemicals are present at this facility. All chemicals used at this facility are maintained by the OMS.

RADIATION PROTECTION PROGRAM

There are no radioactive materials stored at this facility.

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1241 of 2531

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ERGONOMICS

The full time employees in the supply or office areas did not express any ergonomic concerns. However, many workstations were not set up to provide neutral postures and appropriate ergonomically correct positions. Consideration should be given to providing all full time employees that spend the majority of their working time at a computer terminal ergonomic training or awareness. Such awareness should emphasize the importance of proper posture and set-up of the workstation to fit the user.

PERSONAL PROTECTIVE EQUIPMENT

Normal duties of full time employees at the armory do not require the use of personal protective equipment (PPE).

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1242 of 2531

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RECOMMENDATIONS

1) All items that are contaminated with lead should be thoroughly decontaminated with a detergent and water solution. Care should be taken to wipe down tables where weapons are issued and cleaned. Kitchen areas should be thoroughly cleaned on a regular basis and especially before serving personnel.

2) Personnel should be prohibited from eating, drinking, smoking, chewing tobacco or gum, or applying cosmetics in supply areas and should be instructed to clean hands with soap and water before doing any of these. Remove all refrigerators, cups, and other eating utensils from supply areas.

3) **Lead results indicate that the indoor firing range is grossly contaminated and is not suitable for use as a storage area. An indoor firing range should not be used for any purpose other than firing until it has been appropriately cleaned and converted.** Consult the Army National Guard All States Log Number P01-0075, Policies and Responsibilities for inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges (IFR) and Guidelines for IFR Rehabilitation, Conversion, and Cleaning on guidelines for cleaning and converting Indoor Firing Range. **Immediately**, follow requirements to decontaminate and remove all items until the range has been properly cleaned and converted.

4) Upgrade lighting measurements as required. Lighting can be upgraded in the following ways:

   - Replace blown or broken lighting
   - Paint walls and floors white or similar light color
   - Clean existing light fixtures
   - Rearrange furniture to make better used of available light
   - Provide supplemental or task lighting

5) Develop a housekeeping schedule to identify, repair, and prevent any leaks or standing water. Proper and immediate repairs and maintenance of the building infrastructure and interior surfaces can prevent water damage and moisture buildup which may lead to further indoor air quality issues.

6) Material Safety Data Sheets (MSDS) are required to be kept at the primary workplace facility and to be easily accessible in case of emergency. Material Safety Data Sheets for cleaning materials should be kept by the facility as well. Personnel responsible for these items should receive annual training in the requirements of the

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1243 of 2531

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Hazardous Communication Program and the appropriate keeping and storage of all MSDS.

7) An ergonomics survey should be completed for all supply and administrative personnel as a preventative measure to document and address any and all ergonomic concerns or problems. Provide ergonomics training and awareness to all employees who spend the majority of their time working at a computer terminal.

TECHNICAL ASSISTANCE

Non-Responsive

Non-Responsive

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1244 of 2531

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APPENDICES

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APPENDIX A

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1246 of 2531

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- American conference of Governmental Industrial Hygieist (ACGIH), Industrial Ventilation, A Manual of Recommended Practice, 23rd Edition, 1998.American National Standards Institute (ANSI), /Illuminating Engineering Society (IES), Industrial Lighting, 1991.
- Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 1990.
- Army Regulation (AR) 40-5, Preventative Medicine, 15 October 1990.
- Army Regulation (AR) 385-10, The Army Safety Program, 29 Feb 2000.
- NGR 385-10, Army National Guard Safety and Occupational Health Program, 7 October 1988.
- TB MED 503, The Army Industrial Hygiene Program, February 1985.
- Title 29, Code of Federal Regulations (CFR), 1999, revision, Part 1910, Occupational Safety and Health Standards.
- TG 022, US Army Environmental Hygiene Agency (YSAEHA), Industrial Hygiene Evaluation Guide, October 1975.
- TG 141, US Army for Health Promotion and Preventative Medicine (USACHPPM) Industrial Hygiene Air Sampling Guide, November 1997.

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1247 of 2531

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APPENDIX B

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FOIA Requested Record #J-15-0085 (TN)
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Page 1248 of 2531

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1249 of 2531

HHIMS Industrial Hygiene Survey Form

Front page

ARLOC

Installation: [redacted]

Building

Room Number

Location: A A

Operation: A D O

Survey Date: month 0 4 0 2 day 1

Evaluator: [redacted]

Macom: N G

Submacom: X X

Unit / Organization (45)

Supervisor: Mr. [redacted] Ms. [redacted] Rank [redacted]

RAC

Supervisor, or Point of Contact Telephone Number

DSN [redacted] Commercial [redacted]

Frequency (hrs/day): 0 0 8

No. CIVs

No. MIL: 0 0

Contractors: 0 0

No. LOCs: 0 0

Lab Hoods: 0 0

Vapor Degreasers: 0 0

Spray Booths: 0 0

Open Surface Tanks: 0 0

Ventilation Units: 0 0

Controls Present (if >6, continue in comments)(25)

OTH

Evaluation (25 characters max)

21 - 93

Unit code: F T C

Controls Required (25 characters max)

50 - 100 FTC

Gloves

	e*	R	U
acid	[redacted]		
cold surfaces	[redacted]		
hot surfaces	[redacted]		
NBC agents	[redacted]		
oil	[redacted]		
solvents	[redacted]		
surgical gloves	[redacted]		
leather / cotton	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]

Respirator

	e*	R	U	Manufacturer's Description (10 characters max)
airline	[redacted]			
abrasive blasting hood	[redacted]			
disposable	[redacted]			
full face air purifying	[redacted]			
1/2 face air purifying	[redacted]			
powered air purifying	[redacted]			
1/4 face air purifying	[redacted]			
self-contained	[redacted]			
other	[redacted]	[redacted]	[redacted]	

NIOSH TC # or Foreign equivalent (10 characters max)

Eyes and Face

	e*	R	U
chemical splash	[redacted]		
full face shield	[redacted]		
chem/safety impact	[redacted]		
safety impact	[redacted]		
welding helmet	[redacted]		
sunglasses	[redacted]		
welding goggles/glasses	[redacted]		
laser eye protection	[redacted]		
other	[redacted]	[redacted]	[redacted]

Hearing

	e*	R	U
canal caps	[redacted]		
(>85-108 dBA steady) earplugs	[redacted]		
" helmets w/ muffs	[redacted]		
" muffs alone	[redacted]		
(108-118)muff/earplug comb	[redacted]		
muffs and earplugs			
(118 or >) with time limit	[redacted]		
other	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]

Body

	e*	R	U
aprons	[redacted]		
cold weather clothing	[redacted]		
coveralls	[redacted]		
full body suit	[redacted]		
heat reflective vest/suit	[redacted]		
safety belt/harness	[redacted]		
special purp. clothing	[redacted]		
other	[redacted]	[redacted]	[redacted]

Head and Feet

	e*	R	U
cold weather boots/hat	[redacted]		
hard hats	[redacted]		
impermeable boots	[redacted]		
safety shoes (conductive)	[redacted]		
safety (nonconductive)	[redacted]		
other	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]

* = evaluator's recommendation or agreement

Reminders: ergonomics - dermatitis - physical agents - flammable storage
EYE (permanent) ____ - EYE (portable) ____ - SHW - GMV - LEV

ACO ADM OSA DSN LAB LCK
RAD ECB EPL PHS CPO [illegible]

HHIMS Industrial Hygiene Survey Form

B. page

	CAS code	PAC	EPC	Hazard Description
PONOISECO	POVDTXXXX	2	A	Computer use/video display Terminal
POFOOTHAZ	POSTRESSX	3	F	Ergonomics/Physical stress
POFLYPROJ				
POEYEHAZA				
POFLAMHAZ				
POLIFTING				
POSHARPOB				
POHOTOBJE				
POELSHOCK				
COLUBEOIL				

Social Security Number or Unique Identifier	Last Name (20 characters max)	First Name (20 characters max)	MI	Sex	Category
	[redacted] Non-Responsive				

☐ Personnel data provided by the facility is attached to this form

Insert Privacy Act Statement

Comments

Operation described is administrative operations to include typing, filing, phone and computer use. Some workstations were not set up to allow employees to work with neutral postures. Some workspaces cramped with little space. Duties of administrative personnel vary, so that micrbreaks can be taken as needed.

☐ This operation was explained to the evaluators, but was not actually observed.

☐ Comments continued on attached

There is a noise data sheet attached to this form ☐

There is a ventilation data sheet attached to this form ☐

2/8/95 CHPMBACK.XLS

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Released by National Guard Bureau
Page 1250 of 2531

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2/8/95 CHP[illegible]ERNT.XLS

HHIMS Industrial H[illegible]ene Survey Form

Front page

ARLOC

Installation: [illegible]mon/

Building

Room Number

Location: SA

Operation: 421

Survey Date: 03 (month) 0 (day)

Evaluator: [redacted]

Macom: NG

Submacom: XX

Unit / Organization (45)

Supervisor: Mr. [redacted] Ms. [redacted] Rank [redacted]

RAC

Supervisor, or Point of Contact Telephone Number

DSN [redacted] Commercial [redacted]

Frequency (hrs/day): 008

No. C/Vs

No. M/L: 00

Contractors: 00

No. LOCs: 00

Lab Hoods: 00

Vapor Degreasers: 00

Spray Booths: 00

Open Surface Tanks: 00

Ventilation Units: 00

Controls Present (if >6, continue in comments)(25)

OTH (storage/Admin)

Evaluation (25 characters max)

19

Unit code: F T C

Controls Required (25 characters max)

50-100 (Admin)

20-50 (storage)

Gloves	e*	R	U
acid	[redacted]		
cold surfaces	[redacted]		
hot surfaces	[redacted]		
NBC agents	[redacted]		
oil	[redacted]		
solvents	[redacted]		
surgical gloves	[redacted]		
leather / cotton	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]

Respirator	e*	R	U
airline	[redacted]		
abrasive blasting hood	[redacted]		
disposable	[redacted]		
full face air purifying	[redacted]		
1/2 face air purifying	[redacted]		
powered air purifying	[redacted]		
1/4 face air purifying	[redacted]		
self-contained	[redacted]		
other	[redacted]	[redacted]	[redacted]

Manufacturer's Description (10 characters max)

NIOSH TC # or Foreign equivalent (10 characters max)

Eyes and Face	e*	R	U
chemical splash	[redacted]		
full face shield	[redacted]		
chem/safety impact	[redacted]		
safety impact	[redacted]		
welding helmet	[redacted]		
sunglasses	[redacted]		
welding goggles/glasses	[redacted]		
laser eye protection	[redacted]		
other	[redacted]	[redacted]	[redacted]

Hearing	e*	R	U
canal caps	[redacted]		
(>85-108 dBA steady) earplugs	[redacted]		
helmets w/ muffs	[redacted]		
muffs alone	[redacted]		
(108-118) muff/earplug comb	[redacted]		
muffs and earplugs			
(118 or >) with time limit	[redacted]		
other	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]

Body	e*	R	U
aprons	[redacted]		
cold weather clothing	[redacted]		
coveralls	[redacted]		
full body suit	[redacted]		
heat reflective			
vest/suit	[redacted]		
safety belt/harness	[redacted]		
special purp. clothing	[redacted]		
other	[redacted]	[redacted]	[redacted]

Head and Feet	e*	R	U
cold weather boots/hat	[redacted]		
hard hats	[redacted]		
impermeable boots	[redacted]		
safety shoes (conductive)	[redacted]		
safety (nonconductive)	[redacted]		
other	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]

e* = evaluator's recommendation or agreement

Reminders: ergonomics - dermatitis - physical agents - flammable storage
EYE (permanent) ____ - EYE (portable) ____ - SHW - GMV - LEV

ACO ADM DSA DSN LAB LCK
RAO ECR EPL [illegible]

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May, 2018

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Released by National Guard Bureau

HHIMS Industrial Hygiene Survey Form

B page

	CAS code	PAC	EFC	Hazard Description
POHOISECO	PDVDTXXXX	2	A	Computer use, video display terminal
POFOOTHAZ	POSTRESSX	3	F	Ergonomics/Physical Stress
POFLYPROJ	PDLIFTING	2	A	Heavy Lifting
POEYEHAZA	149-92-1	3	A	Lead
POFLAMHAZ				
POLIFTING				
POSHARPOB				
POHOTOBJE				
POELSHOCK				
COLUBEOIL				

Social Security Number or Unique Identifier	Last Name (20 characters max)	First Name (20 characters max)	MI	Sex	Category

☐ Personnel data provided by the facility is attached to this form

Insert Privacy Act Statement

Comments

Operation described is receive, inventory, issue critical unit items to include weapons and ammunition

☐ This operation was explained to the evaluators, but was not actually observed.

☐ Comments continued on attached

There is a noise data sheet attached to this form ☐

There is a ventilation data sheet attached to this form ☐

2/8/95 CHPN4BACK.XLS

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1252 of 2531

168th MP BN Lebanon

SRC	Paragraph Line	LineUnit	CMD TYPE	GRADE	DUTY TITLE	REQ'D	NAME
I9476L000							
		0	BN HQ				
	2846-001	1	MP BN HQ	O4	S3/XO	[redacted]	
	2846-020	11	MP BN HHD	E7	RDNS NCO		

Non-Responsive

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APPENDIX C

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Page 1254 of 2531

Lebanon Armory

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Lebanon Armory

Administrative Area

Classroom

Water Damage

Drill Hall

Kitchen

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May, 2018

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Supply Area, Storage

Indoor Firing Range, Water Damage

Indoor Firing Range, Fallen Ceiling

Indoor Firing Range, Water Damaged Ceiling

Indoor Firing Range, Storage

HVAC

HVAC

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FOIA Requested Record #J-15-0085 (TN)
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Page 1257 of 2531

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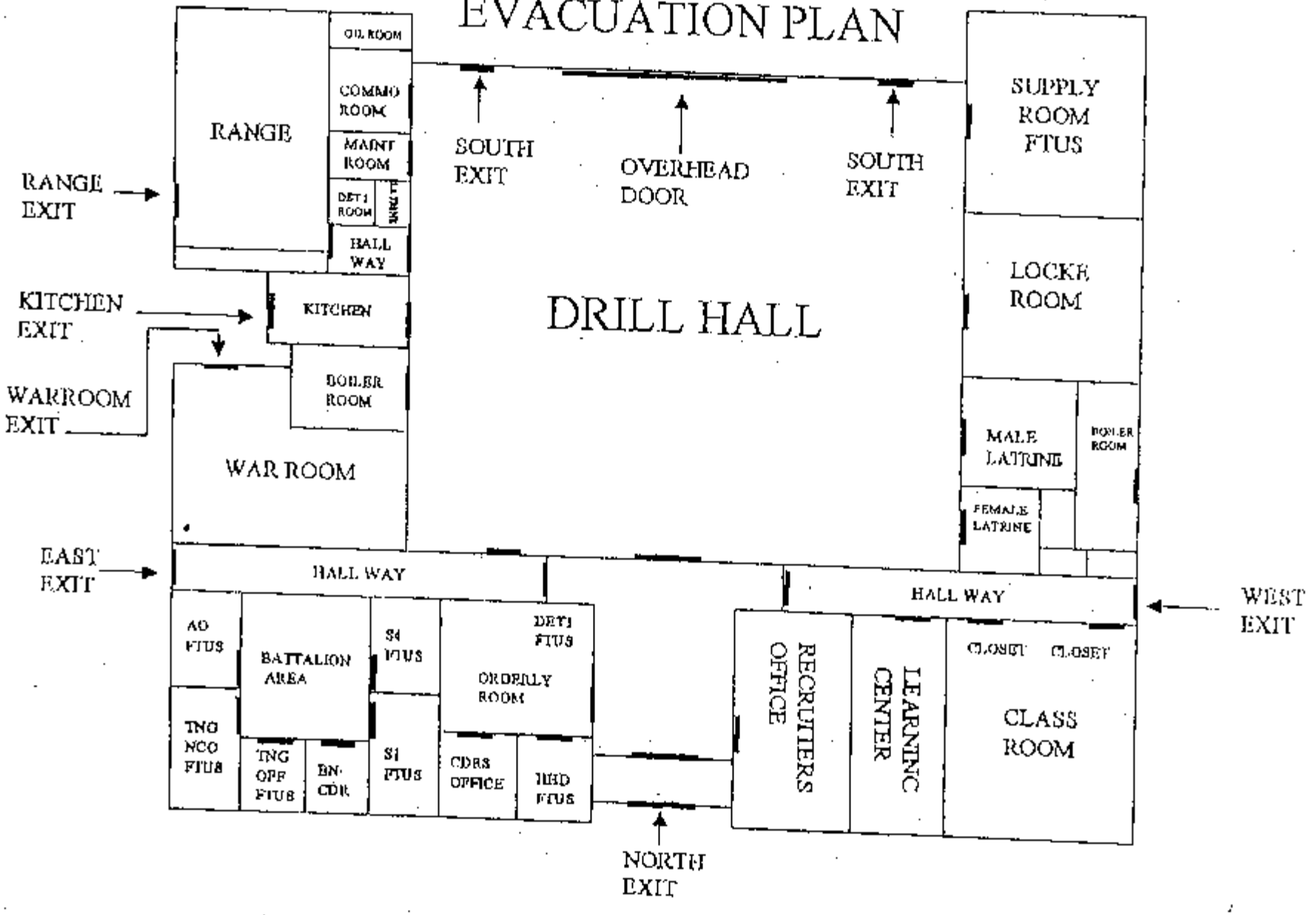
LEBANON ARMORY EVACUATION PLAN



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APPENDIX D

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Released by National Guard Bureau
Page 1259 of 2531

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Analytical Environmental Services, Inc.

Date: 12-1-2004

TOTAL LEAD IN WIPE SAMPLES
N7082

CLIENT: National Guard Bureau Region-South III
Project: TN01-102004
Delivery Order: TN01-102004

Lab Order: 0410C03
Date Received: 10/27/2004 3:25:
Matrix: Wipe

Laboratory ID	Client Sample ID	Results	Units	Report Limit	DF	Date Collected	Date Analyzed	Analyst
0410C03-001A	CV-01	BRL	µg Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-002A	CV-02	37.0	ug Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-003A	CV-03	BRL	µg Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-004A	CV-04	170	ug Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-005A	CV-05	164	µg Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-006A	CV-06	510	µg Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-007A	CV-07	BRL	µg Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-008A	CV-08	98.0	µg Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-009A	CV-09	30.0	µg Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-010A	CV-010	100	ug Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-011A	CV-011	76.0	µg Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-012A	CV-012	245	ug Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-013A	LB-01	BRL	µg Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-014A	LB-02	285	ug Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-015A	LB-04	BRL	µg Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-016A	LB-05	574	ug Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-017A	LB-05	67.0	µg Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-018A	LB-06	307	ug Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-019A	LB-07	26.0	ug Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-020A	LB-08	23.0	ug Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-021A	SF-01	BRL	µg Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-022A	SF-02	BRL	ug Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-023A	SF-03	19.0	µg Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-024A	SF-04	201	ug Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-025A	SF-05	39.0	µg Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-026A	SF-06	BRL	ug Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-027A	SF-07	BRL	µg Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-028A	SF-08	BRL	ug Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-029A	SF-09	BRL	µg Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-030A	SF-010	46.0	ug Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-031A	SF-011	BRL	ug Total	20.0	1	10/21/2004	11/1/2004	EM

Qualifiers: ND - Not Detected at the Reporting Limit DF - Dilution Factor

results are blank corrected where applicable

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1260 of 2531

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Analytical Environmental Services, Inc.

[illegible]

TOTAL LEAD IN WIPE SAMPLES
N7082

CLIENT: National Guard Bureau Region-South III
Project: TN01-102004
Delivery Order: TN01-102004

Lab Order: 0410C03
Date Received: 10/27/2004 3:25
Matrix: Wipe

Laboratory ID	Client Sample ID	Results	Units	Report Limit	DF	Date Collected	Date Analyzed	Analyst
0410C03-032A	SF-012	BRL	µg. Total	20.0	1	10/21/2004	11/1/2004	FM
0410C03-033A	SF-013	BRL	µg. Total	20.0	1	10/21/2004	11/1/2004	FM
0410C03-034A	GL-01	BRL	µg. Total	20.0	1	10/21/2004	11/1/2004	FM
0410C03-035A	GL-02	19.0	µg. Total	20.0	1	10/21/2004	11/1/2004	FM
0410C03-036A	GL-03	253	µg. Total	20.0	1	10/21/2004	11/1/2004	FM
0410C03-037A	GL-04	BRL	µg. Total	20.0	1	10/21/2004	11/1/2004	FM
0410C03-038A	GL-05	132	µg. Total	20.0	1	10/21/2004	11/1/2004	FM
0410C03-039A	GL-06	88.0	µg. Total	20.0	1	10/21/2004	11/1/2004	FM
0410C03-040A	GL-07	1510	µg. Total	20.0	1	10/21/2004	11/1/2004	FM
0410C03-041A	GL-08	269	µg. Total	20.0	1	10/21/2004	11/1/2004	FM

Qualifiers: ND - Not Detected at the Reporting Limit DF - Dilution Factor

Results are blank corrected where applicable

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1261 of 2531

BEST AVAILABLE COPY

DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-AVN-SI May 18, 2001

MEMORANDUM FOR: Adjutant General TN ARNG, ATTN: State Safety Manager, P O Box 41502, Nashville, TN 37204-1502.

SUBJECT: Transmittal of Industrial Hygiene Indoor Firing Range Inspection/Evaluation Report Lewisburg Armory Hygiene Indoor Firing Range, Lewisburg, TN.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, 30 August 1986, Medical Service, Preventive Medicine.

c. National Guard Regulation (NGR) 385-10, 1988, Army National Guard Safety and Occupational Health Program.

d. AR 11-34, The Army Respiratory Protection Program, 15 February 1990.

e. TB MED 502, Occupational and Environmental Health Respiratory Protection Program, February 1982.

f. TB MED 503, 1 February 1985, The Army Industrial Hygiene Program.

g. DA PAM 40-501, 27 August 1991, Hearing Conservation (Updates TB MED 501, 15 March 1980, Hearing Conservation).

h. Guide to Occupational Exposure Values 2000, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, ACGIH, Cincinnati, Ohio.

j. USAEHA TG-141, 5 Mar. 1991, Guidelines for Air Sampling and Bulk sample Collection.

k. Title 29, Code of Federal Regulations (CFR), part 1910, Occupational Safety and Health Health Standards.

l. National Guard Regulation, NGR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and use of ARNG Indoor Firing Ranges, Draft March 2000.

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m. Army National Guard Guidelines for Housekeeping, Rehabilitation and Conversion of Indoor Firing Ranges, Draft NGB Pam 385-15.

n. OSHA Standards 29 CFR (Code of Federal Regulations), 1910.1025, Lead Standard

o. OSHA Standards 29 CFR (Code of Federal Regulations), 1926.62, Construction Standard

p. Report dated October March 23, 2001, Industrial Hygiene Survey, Tammer Sciences, Inc.

2. General.

a. At the request of Non-Responsive [redacted] TN ARNG Occupational Health Office, an Industrial Hygiene Service was put together to conduct IH evaluation of the Lewisburg Armory Hygiene Indoor Firing Range, Lewisburg, TN.

b. The survey was conducted by Tammer Sciences, Inc., 3744 Lawrence Drive, Napperville, IL 60564

3. Findings. All findings are listed in the enclosed report (See ATTACHEMENT 1).

4. Recommendations.

a. Follow all recommendations made in the enclosed report.

b. At the time when the range is safe for use contact this office to evaluate it again. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY2001 IHIP.

c. Have all HHIM data entered into the HHIM computer module.

d. Contact the State Occupational Health Nurse Non-Responsive [redacted], for any medical Surveillance that may be needed.

e. To execute your responsibilities in correcting all deficiencies, coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

[redacted]

Non-Responsive

CF: NBG-AVN-SH
State Occupational Health Office, P O Box 41502, Nashville, TN 37204-1502.
ENCL.
as

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Indoor Firing Range Inspection/Evaluation Survey Report

For

Tennessee Army National Guard
(TNANG)

At

Lewisburg Armory Indoor Firing Range
Lewisburg, Tennessee

Prepared by:

Tammer Sciences, Inc.
3744 Lawrence Drive
Naperville, IL 60564

For
National Guard Bureau
Army National Guard
Region South Industrial Hygiene Office
Airport Plaza Suite 1530
510 Plaza Drive
College Park, GA 30349

March 23, 2001

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau

BEST AVAILABLE COPY

Table of Contents

I. Executive Summary ..... page 1

II. Findings and Recommendations Summary ..... page 2

III. Background ..... page 4

a. Introduction
b. Site Description
c. Scope of Work
d. Health effects and hazard determination
e. Methodology and Assessment Criteria

IV. Findings and Recommendations ..... page 6

a. Building envelope
b. Range lighting
c. Bullet traps
d. Targets and target carriers
e. Range use
f. Range maintenance
g. Personal protective equipment
h. Posting of signs
i. Range sop
j. Record keeping
k. Ventilation
l. Air sampling

Appendices

A. References

B. Risk Assessment Codes (RAC) Table

C. IFR Checklist and Photographs

D. Range Layout Drawing and Ventilation Measurements

E. Air Sampling Results and Laboratory Sample Analysis Report

F. Air Sampling Notification Letters

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I. EXECUTIVE SUMMARY

At the request of the Tennessee Army National Guard (TNARNG), field personnel representing the National Guard Bureau, Region South Industrial Hygiene Office, conducted an inspection/evaluation of the Lewisburg Armory indoor firing range (IFR) located in Lewisburg, Tennessee on 4 December 2000. This survey was conducted as part of the TNARNG occupational safety and health program to evaluate potential health hazards associated with air contaminants generated during firing. The survey consisted of conducting a physical inspection of the range, collecting air samples, evaluating the ventilation system, measuring the lighting levels, and reviewing the range operating procedures

Four personal samples and two area air samples were collected during a simulated thirty minute weapons firing qualification test. Two out of the four personal sample results exceeded the Army National Guard recommended limit of 0.03 mg/m^3. However, the equivalent eight-hour time weighted average were below the regulated Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (PEL) of 0.05 mg/m^3. Area air sampling results were well below the recommended limit of 0.03 mg/m^3, indicating that the exposure is limited to the firing line area. This finding was confirmed by the results of the air velocity measurements and smoke testing. The average air velocity at the firing line was above the recommended 50 feet per minute. Average velocities ranged from 28 feet per minute in lane 1 to 98 feet per minute in lane 3 indicating uneven air distributions throughout the range. Smoke testing showed excessive turbulence at the firing line. In addition to air sampling and ventilation measurements, illumination readings in critical areas were below the recommended levels. Detailed findings and recommendations regarding this range can be found in the following table and report.

In conclusion and based on the findings of this inspection/evaluation, the Lewisburg firing range is classified as unsafe for use based on deficiencies in ventilation, lighting, bullet trap, and building envelope. Based on air sampling results, this range is classified as limited use. Considerations should be given to implementing the recommendations listed herein.

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1266 of 2531

BEST AVAILABLE COPY

II. FINDINGS and RECOMMENDATIONS SUMMARY

Findings	Recommendations	RAC
This range has been classified as limited use due to deficiencies in the ventilation system and air sampling results.	Further use of this range is limited until deficiencies in the ventilation system have been corrected, re-inspected, and approved, and further air sampling is performed.	RAC 2
Building envelope		
There is one open floor drain in the area	The floor drain should be immediately sealed to prevent toxic dusts from seeping into the sewer system.	RAC 2
Small gaps between the wall and floor were observed	All pipes, conduits, and walls should be sealed to prevent leakage of lead dust from the range into other areas.	RAC 4
Access doors are not weather-stripped.	Access doors should be weather-stripped and the locks should be fixed so that the door closes and locks properly.	RAC 2
Range lighting		
Range lighting is below the recommended 100 FC at the firing line and 30 FC in all other areas.	Upgrade lighting to meet these requirements.	RAC 3
Emergency lights are not provided behind the firing line	Emergency lighting should be provided in good working condition for use during emergencies	RAC 3
Signs of water damage were observed around range lighting	Consult facilities maintenance to fix water infiltration around electrical appliances.	RAC 3
Bullet Traps		
The bullet trap was found slightly bowed	Replace bowed steel plate with one that is in good condition	RAC 3
Range Use		
Firers are allowed to walk downrange to clean up debris	A regular maintenance program should be implemented so that individuals are walking in regularly cleaned areas.	RAC 2
A fire extinguisher is not provided in the range.	An ABC type fire extinguisher should be kept at the firing line in case of emergencies.	RAC 3
Range Maintenance		
The indoor firing range has not been cleaned.	The indoor firing range should be cleaned regularly	RAC 2
Dry sweeping is used to clean up spent shells	A High Efficiency Particulate Air filtered vacuum or wet method should be used to clean the range	RAC 2
A range custodian has not yet been appointed	A range custodian should be appointed to the range who will be responsible for cleaning the range and discarding debris	RAC 3
Posting of signs		
All appropriate warning signs were not posted in the range.	Post appropriate signs in the vicinity of the range and on the entrance door.	RAC 2
Range SOP		
Lewisburg Armory does not have an approved standing operation procedure	Develop and implement a standing operation procedure	RAC 2
Recordkeeping		
No records of range training, maintenance, or cleaning are maintained. All appropriate records regarding visitors are not logged.	Maintain appropriate records regarding range operations and procedures	RAC 2
A range custodian has not yet been appointed	A range custodian should be appointed to the range who will be responsible for cleaning the range and discarding debris	RAC 3

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1267 of 2531

BEST AVAILABLE COPY

Findings	Recommendations	RAC
	Ventilation	
Supply and exhaust fans are not interlocked with range lighting.	Interlock supply and exhaust fans with range lighting.	RAC 3
Ventilation flow rates were found below 50 fpm in Lane 1 and above the recommended 50-75 fpm in lanes 3,4, and 5.	Holes in the plenum wall should be one inch in diameter and extended over the entire surface of the plenum wall.	RAC 2
Flow rates at the plenum wall were less than the required 400 to 600 fpm	Holes in the plenum wall should be one inch in diameter and extended over the entire surface of the plenum wall.	RAC 2
More than 10 to 15% of the plenum wall is open.	Holes in the plenum wall should be one inch in diameter and extended over the entire surface of the plenum wall.	RAC 2
Smoke tests revealed turbulence at the firing line observable in 1, 2, 4, and 5.	Correct ventilation system deficiencies to provide a uniform and even flow rate.	RAC 2
Range temperature was below 65 degrees Fahrenheit	Range air temperature should be between 65 degrees and 80 degrees Fahrenheit	RAC 3
	Air sampling	
Air sampling results ranged from <0.0031 to 0.1 mg/m^3.	Range is classified as limited use based on results of air sampling. Appropriate records must be kept for all persons using the range.	RAC 2

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1268 of 2531

BEST AVAILABLE COPY

III. BACKGROUND

a.) Introduction: At the request of Non-Responsive of the National Guard Bureau Region South Industrial Hygiene Office, an inspection/evaluation survey was performed at the Lewisburg Indoor Firing Range at the Lewisburg Armory in Tennessee. Non-Responsive Non-Responsive contract industrial hygienist, conducted the survey on 4 December 2000. The purpose of the survey was to evaluate range characteristics, ventilation, and quantify employee exposure to lead dust.

b.) Site Description: The Lewisburg Indoor Firing Range measures approximately 75 feet long, 23 feet wide, and 12 feet high and is used for weapons firing and qualification. The range has five firing lanes and an inclined steel plate bullet trap. An exhaust fan, which is rated at 16,560 cubic feet per minute draws air through the bullet trap and exhaust it to the rear of the building. 100 percent outside air is supplied through a plenum that extends across the back wall.

c.) Scope of Work: The work consisted of a physical inspection of the range and an evaluation of the building envelope, range lighting levels, bullet trap condition, targets and target carriers, the use of personal protective equipment, posting of signs, range standard operating procedures (SOP), record keeping, the ventilation system, range use and maintenance. In addition personal and area air samples were collected during firing to evaluate the airborne exposures to the range users. A range inspection checklist found in National Guard Regulation 385-15, which addresses Indoor Firing Range use and maintenance was completed for the range. Smoke candles were utilized to observe airflow patterns in the range. Air velocities were also measured at the firing line. Air sampling and ventilation measurements were performed to quantify performance of the range and its effectiveness in reducing employee exposure to lead dust.

d.) Health Effects and Hazard Determination: The most significant hazard present to employees and users of the indoor firing range is lead dust. Shooters using ammunition with lead primers or bullets manufactured with lead are potentially exposed to lead fumes and dust during the firing process. Furthermore, the lead found in the primer, the melting of the bullet base by hot powder gasses, the shaving and abrasion of the bullet during firing, and fragmentation of the bullet at the point of impact are all potential sources for lead. Exposure to lead may also occur during cleaning of the range, guns, or bullet trap where lead dust is deposited.

Lead affects the nervous, circulatory, digestive, excretory, and reproductive systems of both men and women. If the amount of lead absorbed and stored in the body exceeds the body's ability to expel it, lead can accumulate in the body affecting the blood, heart, and immune systems. Pregnant women overexposed to lead are more prone to spontaneous abortions or may give birth to babies with a low birth weight and slowed postnatal neurological development. Results of overexposure in children are slowed cognitive development and reduced growth.

e.) Methodology and Assessment Criteria: Personal air sampling was conducted during a simulated weapons firing qualification test, which lasted over a thirty-minute period. Area air samples were collected during the firing and one and half hour to two hours after the firing ended. Gilian air sampling pumps, Model Number GilAir5, Serial Numbers 13248, 13249, 13250, 13251, 13252, 13521, 13522, 13523, 13524, 13525 were used to collect the personal and

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1269 of 2531

BEST AVAILABLE COPY

area air samples. Each pump was calibrated prior to sampling and at the end of each sampling period using a pre-calibrated rotameter, which was calibrated against a bubble meter. The sampling flow rate was set at approximately 2 liters per minute (lpm). Samples were sent to NATLSCO laboratory, which is accredited by the American Industrial Hygiene Association (AIHA), for analysis.

An Alnor CompuFlow Air Velocity Meter, Model Number 8570, Serial Number 99097037, was used to measure air velocities at the firing line. A total of nine velocity readings were taken at each firing lane. Three measurements were taken at each of three positions; standing, kneeling, and prone positions for a total of nine readings. Details of locations where ventilation measurements were made can be found in Appendix D.

Lighting measurements were taken at the firing line, target line, and intermediate areas to determine luminance levels in these areas. Approximately fifteen to twenty readings were taken throughout the range using a Minolta Light Meter Model Number TL-1, Serial Number 90480727.

Air sampling, ventilation and illumination readings were compared to the NGR 385-15 Policy Responsibilities, and Procedures for Inspection/Evaluation and use of ARNG Indoor Firing Ranges.

Risk Assessment Codes (RACs) are included in this report to quantify the risk of particular operations to employees and to establish funding priorities for corrective actions. RACs are assigned with regard to hazard severity and mishap probability. The type, length, and route of exposure are taken into consideration, as are the medical effects that would occur with such exposures. RAC criteria can be found in Appendix B.

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1270 of 2531

BEST AVAILABLE COPY

IV. FINDINGS, DISCUSSION, AND RECOMMENDATIONS

a. Building Envelope. This indoor firing range measures 48 feet from the firing line to the bullet trap, 23 feet wide, and 12 feet high. Each firing lane is the appropriate width and all pipes, conduits, and projecting surfaces are adequately baffled. There is one open floor drain in the range. Some small gaps between the floor and wall were observed. The access door to the range is not adequately weather-stripped.

Recommendations:

1. There should be no open floor drains in the area, which allows lead toxic dust to seep into the sewer system. Immediately close up all drains in the area. [NGR 385-15 1-17a(1)(b)] **(RAC 2)**

2. All pipes, conduits, and walls should be sealed to prevent leakage of lead dust from the range into other areas. [NGR 385-15 1-17a(2)(b)] **(RAC 4)**

3. Weather-strip all access doors to the range to prevent leakage of lead dust and debris into outlying areas. [NGR 385-15 2-2a(2)(b)] **(RAC 2)**

b. Range Lighting. Range lighting is relatively uniform but causes some shadows throughout the range. Average lighting levels were 32.5 footcandles (FC) at the targets and 32.1 FC in all other areas. Baffles adequately protect all lighting fixtures. Emergency lights are not provided behind the firing line. Exit lighting is provided and is in good working condition. Signs of water leakage are apparent around range lighting and may present an electrical hazard.

Recommendations:

1. Increase lighting to the recommended 100 FC at the targets and 30 FC in all other areas. [NGR 385-15, 1-17c(1)(d)] **(RAC 3)**

2. Emergency lighting should be provided in good working condition for use in emergencies. [NGR 385-15, 1-17c(1)(f)] **(RAC 3)**

3. No electrical hazards should be allowed in the range. Consult facilities maintenance to prevent water seepage around lighting. [NGR 385-15, 1-17c(2)(c)] **(RAC 3)**

c. Bullet Traps. An inclined plate bullet trap is permanently installed and is designed for .22 caliber use, which is all that is permitted for firing on this range. The bullet trap measures ¼ " thick and adequately prevents ricochets. The bullet trap is slightly bowed..

Recommendations:

1. Replace bowed steel plate with one that is in good condition. [NGR 385-15 1-17d(2)(a)] **(RAC 3)**

2. The bullet trap should be adequately maintained. Rust or paint chips may cause ricochets. A thin coating of oil should be applied every 3 months for moderate firing,

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1271 of 2531

BEST AVAILABLE COPY

sooner if heavy firing occurs (10W30 or 3 in 1). **DO NOT APPLY GREASE. (RAC 3)**

3. Bullet collection bins should not be allowed to get over ¾ full. Contact the TN ARNG State Environmental Office prior to emptying for disposal instructions. **(RAC 3)**

d. Targets and Target Carriers. Target retrieval systems were provided for each lane and are in good working order. Paper targets are used for personnel during firing procedures.

Recommendation: None at this time.

e. Range Use. The range is used for firing purposes only. No equipment or furniture is stored or maintained in the range, plenum area, or behind the bullet trap. Firers in the range are allowed to walk downrange to clean up debris. A fire extinguisher is provided in the hallway outside of the range.

Recommendations:

1. Individuals should only be allowed to walk downrange in regularly cleaned areas as needed to pick up brass. A regular maintenance program should be implemented if firers will be allowed to walk downrange to collect brass. [NGR 385-15 1-19f] **(RAC 2)**

2. A hand held ABC-type fire extinguisher should be kept at the firing line in case of emergencies. [DG 415-1, App. A, 4-5] **(RAC 3)**

f. Range Maintenance. This indoor firing range has not been cleaned. Brooms are used to clean up spent shells. A range custodian has not been appointed to the range.

Recommendations:

1. The indoor firing range should be cleaned with the ventilation system operating to prevent dust and debris from migrating into other work areas and to minimize exposure to the cleaners. Floor areas behind the firing line and 15 feet downrange should be cleaned after firing or at least every three months if the range is not used as often. [NIOSH 76-130, p.24, II, 1] **(RAC 2)**

2. Dry sweeping and cleaning bullet traps by pouring or shoveling bullet debris into waste buckets causes settled lead dust to become airborne and inhaled by the workers. **Dry sweeping of indoor firing ranges is prohibited.** A High Efficiency Particulate Air (HEPA) filtered vacuum system is recommended for lead dust and particles cleanup only (no bullet casings). If a HEPA vacuum cannot be acquired, a wet method should be used which includes a solution of detergent and hot water. Two containers should be used; one to wet the area, and the other to rinse the applicator after the dust has been wiped from the surface. Water should be changed often to prevent reapplication of contaminated water. Wastewater should be left to evaporate

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1272 of 2531

BEST AVAILABLE COPY

and the residue and any applicators should be disposed under guidance from the TN ARNG Environmental Office. [29 CFR 1910.1025(h)(ii), NIOSH 76-130, P.24, II, 2] **(RAC 2)**

3. One person, preferably the range custodian, should be responsible for cleaning the range and discarding debris. The range should be cleaned **ONLY** with a HEPA vacuum system or utilizing a wet method. [29 CFR 1910.1025(h)(ii)] **(RAC 2)**

g. Personal Protective Equipment (PPE). Personnel were observed wearing appropriate hearing and eye protection.

Recommendation: All personnel should wear ANSI approved hearing and eye protection. Additional eye and hearing protection should be available for those users that do not have their own. [NGR 385-15, 2-5a, 2-5 b, 29 CFR 1910.133 (a-b), 29 CFR 1910.95 a]. **(RAC 2)**

h. Pasting of Signs. Warning signs are posted and instruct users about the regulations and requirements of the range. Warnings include those against eating, drinking, and smoking, authorized ammunition, and hearing protection required. No signs were present to instruct personnel that dry sweeping is prohibited or that storage of furniture and other items is prohibited in the range. The entrance door to the range does not prohibit pregnant women from entering the area. No illuminated warning sign is interlocked with the range ventilation switch to alert individuals that the range is use. Firing lanes are not numbered.

Recommendations.

1. The following signs should be posted in or in the vicinity of the range and of the access door to the bullet trap. [NGR 385-15 3-6a,b] **(RAC 2)**:

   a. Eating, drinking, and Smoking are Prohibited
   b. Dry Sweeping is Prohibited
   c. Wash Hands and Face Immediately Following Firing
   d. The Following Ammunition is Authorized for use on this Range
   e. Hearing Protection Must Be Properly Worn During Firing
   f. Proper Safety Glasses/Goggles Must Be Worn During Firing
   g. No Furniture or Storage of Items Permitted in the Range

2. The following signs must be posted on the entrance door to the range and to the access door of the bullet trap:

   a. Noise Hazardous Area
   b. Danger Lead Hazard Area
   c. Pregnant Females are Not Permitted in this Area

3. An illuminated sign should be interlocked with the range ventilation switch and located outside of the firing range to alert individuals outside when the range is in use. [NGR 385-15 2-6c] **(RAC 4).**

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1273 of 2531

BEST AVAILABLE COPY

4. Each firing line should be clearly numbered at the firing line and bullet trap. [NGR 385-15 1-21C] **(RAC 4)**

*i. **Range Standing Operation Procedure (SOP).*** A range SOP with all requirements is not available for this facility as approved by the State Safety Office.

Recommendations.

A Range Standing Operation Procedure should be written for this facility and should include the following **(RAC 2)**:

1. Requirements for establishment and maintenance of a visitor's log indicating date, age, and ammunition fired
2. Requirements for safety briefing for all individuals before entrance to the range given by a designated range safety officer
3. Work practices
4. Instructive guidance
5. Personnel responsibilities for performing, supervising, reviewing, and updating the SOP
6. Authorized ammunition
7. Posting of signs
8. Cleaning and maintenance requirements
9. PPE requirements for maintenance, firing, and cleaning of the range.

*j. **Recordkeeping.*** Records kept by range custodian are a visitor's log with name and age of firer, organization and sign in and sign out times. The type of ammunition used is not documented. Copies of initial and previous inspections and any air-sampling data are not available. An OSHA compliance program is not in place. A range custodian has not been appointed to this range

Recommendations.

1. A visitor's log must be maintained that contains the name and age of firer, organization, sign in and out time, and type of ammunition, and number of rounds fired. [NGR 385-15 1-16c] **(RAC 2)**
2. A copy of this and any other inspections should be maintained. [NGR 385-15 3-6] **(RAC 2)**
3. An OSHA compliance program must be established and maintained to document how engineering (i.e. ventilation) and work practice controls will be put in place to reduce exposure to or below the permissible exposure limit. The written plan should include a description of the operation, ammunition and weapons used, existing controls, groups using the firing range, employee job responsibilities, operating procedures and maintenance practices. A record of previous inspections and air sampling data must also be retained. [29 CFR 1910.1025(e)(3)(i-ii)]. **(RAC 2)**

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1274 of 2531

BEST AVAILABLE COPY

4. All individuals utilizing the range must be provided with a copy of the SOP or have been briefed on the unit's requirements and must sign an agreement to follow the rules. [NGR 385-15 1-15h] **(RAC 2)**
5. State maintenance officers and custodians must be fully trained on an annual basis on the health effects from exposure to lead dust and the appropriate precautions that must be taken. Records verifying this training must be kept by the range custodian. Each employee who works in a place in which there is a potential exposure to airborne lead at any level shall be informed of the Content of Appendix A Substance Data Sheet for Occupational Exposure to Lead, and Appendix B Employee Standard Summary of OSHA regulation 1910.1025. Initial training should be performed at least 180 days from date of initial job assignment and annually thereafter. [29 CFR 1910.1025(l)(1)(I-iv), 29 CFR 1910.1200(h)] **(RAC 2)**
6. A range safety officer and custodian should be designated in writing. [NGR 385-15 1-17d] **(RAC 2)**

k. ***Ventilation.*** The range is equipped with an operational ventilation system, with 100% of the make-up air exhausted behind the bullet trap. Supply and exhaust fans are not interlocked with range lighting. Average flow rates in Lane 1 were below 50 fpm. Flow rates at the standing positions in all lanes were below 50 fpm. Flow rates at the kneeling position in Lanes 1 and 2 were also below 50 fpm. However, Lanes 3,4, and 5 averaged above the recommended 50-75 fpm. Refer to Table D-1 in Appendix D. The exhaust fan is rated for 16560 CFM, which when divided by the cross sectional area of the range would result in a calculated average velocity of 60 fpm. The measured average velocity of all the readings was 66 fpm. Average velocities ranged from 28 fpm in lane 1 to 98 in lane 3. A properly designed plenum wall located at least 15 feet behind the firing line is meant to reduce turbulence and distribute the air evenly and uniformly downrange.

The plenum wall extends across the entire back wall and flow rates at the plenum wall do not meet the required 400 to 600 fpm. More than 10-15% of the plenum wall is open. Smoke tests revealed turbulent airflow in Lanes 1,2,4, and 5. These lanes showed the largest variance between the ventilation rates in the standing, kneeling, and prone positions. The air remained stagnant and did not move evenly downrange.

Results of ventilation and smoke tests indicated that sufficient air velocities are being provided by the fan but the air flow is not evenly and uniformly distributed to move lead dust downrange and away from the firer's breathing zone.

Recommendations:

1. Interlock supply and exhaust fans with range lighting so that the ventilation system operates at all times during occupancy of the range. [CEHND 110-1-18, 3-4a] **(RAC 3)**

2. The plenum wall should be retrofitted so that the holes are one inch in diameter, and evenly distributed across the surface of the plenum wall and centered in a four-inch

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1275 of 2531

BEST AVAILABLE COPY

square area. The plenum wall should also be approximately 15 feet behind the firing line to allow the air enough time to straighten out over the entire area. The airflow must measure at least 50 fpm at all positions in the firing lane. **(RAC 2)**

3. Range air temperature should be between 65 degrees and 80 degrees Fahrenheit. [NGR 385-15 1-17b(1)(n)] **(RAC 3)**

l. ***Air Sampling.*** Area and personal air sampling was conducted to simulate weapons qualifications. Four personal samples were collected from personnel firing for about 30 minutes. Two area samples were also collected simultaneously; one inside the range behind the firing line, and the other outside. The firing was restricted to a single qualification time period because of the air turbulence found at the firing line and the uneven air distribution. This 30-minute qualification period is representative of the expected exposure for personnel using the range. Personal sampling results ranged from 0.03 to 0.1 mg/m^3 for the 30 minutes sampling period. Two out of the four personal sample results exceeded the Army National Guard Occupational Exposure Limit of 0.03 mg/m^3. Refer to Table E-1 in Appendix E. Assuming no exposure for the remainder of an eight-hour period, the equivalent 8-hour time weighted average for the four personal samples ranged from 0.0019 to 0.006 mg/m^3. These equivalent results are lower than the OSHA PEL, NIOSH REL, and ACGIH TLV, on an eight-hour time weighted average basis. However, if firing were continued for the eight-hour period, airborne lead levels would exceed the regulated OSHA limit of 0.05 mg/m^3. Area air sampling results were less than 0.0035 mg/m^3 for the two and one half hour sampling period. Area air sampling results indicate that the airborne lead exposure is limited to the firing line area and downstream from the firing line.

Air sampling result indicated that overexposure to lead is reasonably expected while using the range for an extended period of time. Reducing the air turbulence at the firing line and stream lining the air flow as recommended herein should reduce the exposure to less than the ANG recommended limit of 0.03 mg/m^3. According to National Guard regulations, Guardsmen exposed to hazards in the range less than thirty days per year are permitted to use the range up to five hours per day. Guardsmen utilizing the range for over thirty days per year and all non-military personnel are limited to three hours per day. Range users under 17 are limited to one hour use per day.

Recommendations:

1. This range is classified as limited use based on sampling results collected during the survey, and the results of the ventilation survey. **(RAC 2)**
2. A record must be maintained for time spent on the range for all personnel using limited use firing ranges as recorded by the range custodian. [NGR 385-15 1-15 b] **(RAC 2)**
3. Air sampling should again be conducted after changes required in the ventilation system have been made. [NGR 385-15 1-27 c] **(RAC 2)**

m. ***Range Status.*** This range is classified as unsafe due to building envelope, range lighting, bullet trap, and ventilation deficiencies. The range may qualify for limited used once these deficiencies have been completed based on air sample results.

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1276 of 2531

BEST AVAILABLE COPY

Recommendation: Further use of this range is prohibited until building envelope, range lighting, bullet trap, and ventilation deficiencies have been corrected. The range status may be upgraded to a limited use once these deficiencies have been corrected. Limited use status will remain until deficiencies in the ventilation system are re-inspected, and approved and further air sampling has been accomplished. **(RAC 2)**

Non-Responsive

Posted to NGB FOIA Reading Room
May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1277 of 2531

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ENVIRONMENTAL MANAGEMENT SOLUTIONS
INDUSTRIAL HYGIENE CONSULTING

Lewisburg Indoor Firing Range
Tennessee Army National Guard

PO BOX 6895, DOUGLASVILLE, GEORGIA 30154
PHONE: 678 596 8509 • FAX 770 234.6297

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FOIA Requested Record #J-15-0085 (TN)
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Indoor Firing Range Inspection/Evaluation Survey Report

For

Tennessee Army National Guard
(TNANG)

At

Lewisburg Armory Indoor Firing Range
Lewisburg, Tennessee

Prepared by:

Environmental Management Solutions

For
National Guard Bureau
Army National Guard
Region South Industrial Hygiene Office
Airport Plaza Suite 1530
510 Plaza Drive
College Park, GA 30349

March 23, 2001

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau

BEST AVAILABLE COPY

Table of Contents

I. Executive Summary ..... page 1

II. Findings and Recommendations Summary ..... page 2

III. Background ..... page 4

a. Introduction
b. Site Description
c. Scope of Work
d. Health effects and hazard determination
e. Methodology and Assessment Criteria

IV. Findings and Recommendations ..... page 6

a. Building envelope
b. Range lighting
c. Bullet traps
d. Targets and target carriers
e. Range use
f. Range maintenance
g. Personal protective equipment
h. Posting of signs
i. Range sop
j. Record keeping
k. Ventilation
l. Air sampling

Appendices

A. References

B. Risk Assessment Codes (RAC) Table

C. IFR Checklist and Photographs

D. Range Layout Drawing and Ventilation Measurements

E. Air Sampling Results and Laboratory Sample Analysis Report

F. Air Sampling Notification Letters

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I. EXECUTIVE SUMMARY

At the request of the Tennessee Army National Guard (TNARNG), field personnel representing the National Guard Bureau, Region South Industrial Hygiene Office, conducted an inspection/evaluation of the Lewisburg Armory indoor firing range (IFR) located in Lewisburg, Tennessee on 4 December 2000. This survey was conducted as part of the TNARNG occupational safety and health program to evaluate potential health hazards associated with air contaminants generated during firing. The survey consisted of conducting a physical inspection of the range, collecting air samples, evaluating the ventilation system, measuring the lighting levels, and reviewing the range operating procedures

Four personal samples and two area air samples were collected during a simulated thirty minute weapons firing qualification test. Two out of the four personal sample results exceeded the Army National Guard recommended limit of 0.03 mg/m^3. However, the equivalent eight-hour time weighted average were below the regulated Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (PEL) of 0.05 mg/m^3. Area air sampling results were well below the recommended limit of 0.03 mg/m^3, indicating that the exposure is limited to the firing line area. This finding was confirmed by the results of the air velocity measurements and smoke testing. The average air velocity at the firing line was above the recommended 50 feet per minute. Average velocities ranged from 28 feet per minute in lane 1 to 98 feet per minute in lane 3 indicating uneven air distributions throughout the range. Smoke testing showed excessive turbulence at the firing line. In addition to air sampling and ventilation measurements, illumination readings in critical areas were below the recommended levels. Detailed findings and recommendations regarding this range can be found in the following table and report.

In conclusion and based on the findings of this inspection/evaluation, the Lewisburg firing range is classified as unsafe for use based on deficiencies in ventilation, lighting, bullet trap, and building envelope. Based on air sampling results, this range is classified as limited use. Considerations should be given to implementing the recommendations listed herein.

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1281 of 2531

BEST AVAILABLE COPY

II. FINDINGS and RECOMMENDATIONS SUMMARY

FINDINGS	RECOMMENDATIONS	RAC
This range has been classified as limited use due to deficiencies in the ventilation system and air sampling results.	Further use of this range is limited until deficiencies in the ventilation system have been corrected, re-inspected, and approved, and further air sampling is performed.	RAC 2
BUILDING ENVELOPE		
There is one open floor drain in the area	The floor drain should be immediately sealed to prevent toxic dusts from seeping into the sewer system.	RAC 2
Small gaps between the wall and floor were observed	All pipes, conduits, and walls should be sealed to prevent leakage of lead dust from the range into other areas.	RAC 4
Access doors are not weather-stripped.	Access doors should be weather-stripped and the locks should be fixed so that the door closes and locks properly	RAC 2
RANGE LIGHTING		
Range lighting is below the recommended 100 FC at the firing line and 30 FC in all other areas.	Upgrade lighting to meet these requirements.	RAC 3
Emergency lights are not provided behind the firing line	Emergency lighting should be provided in good working condition for use during emergencies	RAC 3
Signs of water damage were observed around range lighting	Consult facilities maintenance to fix water infiltration around electrical appliances.	RAC 3
BULLET TRAPS		
The bullet trap was found slightly bowed	Replace bowed steel plate with one that is in good condition	RAC 3
RANGE USE		
Firers are allowed to walk downrange to clean up debris	A regular maintenance program should be implemented so that individuals are walking in regularly cleaned areas	RAC 2
A fire extinguisher is not provided in the range.	An ABC type fire extinguisher should be kept at the firing line in case of emergencies.	RAC 3
RANGE MAINTENANCE		
The indoor firing range has not been cleaned.	The indoor firing range should be cleaned regularly	RAC 2
Dry sweeping is used to clean up spent shells	A High Efficiency Particulate Air filtered vacuum or wet method should be used to clean the range	RAC 2
A range custodian has not yet been appointed	A range custodian should be appointed to the range who will be responsible for cleaning the range and discarding debris	RAC 3
POSTING OF SIGNS		
All appropriate warning signs were not posted in the range.	Post appropriate signs in the vicinity of the range and on the entrance door.	RAC 2
RANGE SOP		
Lewisburg Armory does not have an approved standing operation procedure	Develop and implement a standing operation procedure	RAC 2
RECORDKEEPING		
No records of range training, maintenance, or cleaning are maintained. All appropriate records regarding visitors are not logged.	Maintain appropriate records regarding range operations and procedures	RAC 2
A range custodian has not yet been	A range custodian should be appointed to the range who	RAC 3

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1282 of 2531

BEST AVAILABLE COPY

FINDINGS	RECOMMENDATIONS	RAC
appointed	will be responsible for cleaning the range and discarding debris	
VENTILATION		
Supply and exhaust fans are not interlocked with range lighting.	Interlock supply and exhaust fans with range lighting	RAC 3
Ventilation flow rates were found below 50 fpm in Lane 1 and above the recommended 50-75 fpm in lanes 3,4, and 5.	Holes in the plenum wall should be one inch in diameter and extended over the entire surface of the plenum wall.	RAC 2
Flow rates at the plenum wall were less than the required 400 to 600 fpm	Holes in the plenum wall should be one inch in diameter and extended over the entire surface of the plenum wall.	RAC 2
More than 10 to 15% of the plenum wall is open.	Holes in the plenum wall should be one inch in diameter and extended over the entire surface of the plenum wall.	RAC 2
Smoke tests revealed turbulence at the firing line observable in 1, 2, 4, and 5.	Correct ventilation system deficiencies to provide a uniform and even flow rate	RAC 2
Range temperature was below 65 degrees Fahrenheit	Range air temperature should be between 65 degrees and 80 degrees Fahrenheit	RAC 3
AIR SAMPLING		
Air sampling results ranged from <0.0031 to 0.1 mg/m^3.	Range is classified as limited use based on results of air sampling Appropriate records must be kept for all persons using the range.	RAC 2

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1283 of 2531

BEST AVAILABLE COPY

III. BACKGROUND

a.) Introduction: At the request of Non-Responsive of the National Guard Bureau Region South Industrial Hygiene Office, an inspection/evaluation survey was performed at the Lewisburg Indoor Firing Range at the Lewisburg Armory in Tennessee. Non-Responsive Non-Responsive contract industrial hygienist, conducted the survey on 4 December 2000. The purpose of the survey was to evaluate range characteristics, ventilation, and quantify employee exposure to lead dust.

b.) Site Description: The Lewisburg Indoor Firing Range measures approximately 75 feet long, 23 feet wide, and 12 feet high and is used for weapons firing and qualification. The range has five firing lanes and an inclined steel plate bullet trap. An exhaust fan, which is rated at 16,560 cubic feet per minute draws air through the bullet trap and exhaust it to the rear of the building. 100 percent outside air is supplied through a plenum that extends across the back wall.

c.) Scope of Work: The work consisted of a physical inspection of the range and an evaluation of the building envelope, range lighting levels, bullet trap condition, targets and target carriers, the use of personal protective equipment, posting of signs, range standard operating procedures (SOP), record keeping, the ventilation system, range use and maintenance. In addition personal and area air samples were collected during firing to evaluate the airborne exposures to the range users. A range inspection checklist found in National Guard Regulation 385-15, which addresses Indoor Firing Range use and maintenance was completed for the range. Smoke candles were utilized to observe airflow patterns in the range. Air velocities were also measured at the firing line. Air sampling and ventilation measurements were performed to quantify performance of the range and its effectiveness in reducing employee exposure to lead dust.

d.) Health Effects and Hazard Determination: The most significant hazard present to employees and users of the indoor firing range is lead dust. Shooters using ammunition with lead primers or bullets manufactured with lead are potentially exposed to lead fumes and dust during the firing process. Furthermore, the lead found in the primer, the melting of the bullet base by hot powder gasses, the shaving and abrasion of the bullet during firing, and fragmentation of the bullet at the point of impact are all potential sources for lead. Exposure to lead may also occur during cleaning of the range, guns, or bullet trap where lead dust is deposited.

Lead affects the nervous, circulatory, digestive, excretory, and reproductive systems of both men and women. If the amount of lead absorbed and stored in the body exceeds the body's ability to expel it, lead can accumulate in the body affecting the blood, heart, and immune systems. Pregnant women overexposed to lead are more prone to spontaneous abortions or may give birth to babies with a low birth weight and slowed postnatal neurological development. Results of overexposure in children are slowed cognitive development and reduced growth.

e.) Methodology and Assessment Criteria: Personal air sampling was conducted during a simulated weapons firing qualification test, which lasted over a thirty-minute period. Area air samples were collected during the firing and one and half hour to two hours after the firing

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1284 of 2531

BEST AVAILABLE COPY

ended. Gilian air sampling pumps, Model Number GilAir5, Serial Numbers 13248, 13249, 13250, 13251, 13252, 13521, 13522, 13523, 13524, 13525 were used to collect the personal and area air samples. Each pump was calibrated prior to sampling and at the end of each sampling period using a pre-calibrated rotameter, which was calibrated against a bubble meter. The sampling flow rate was set at approximately 2 liters per minute (lpm). Samples were sent to NATLSCO laboratory, which is accredited by the American Industrial Hygiene Association (AIHA), for analysis.

An Alnor CompuFlow Air Velocity Meter, Model Number 8570, Serial Number 99097037, was used to measure air velocities at the firing line. A total of nine velocity readings were taken at each firing lane. Three measurements were taken at each of three positions; standing, kneeling, and prone positions for a total of nine readings. Details of locations where ventilation measurements were made can be found in Appendix D.

Lighting measurements were taken at the firing line, target line, and intermediate areas to determine luminance levels in these areas. Approximately fifteen to twenty readings were taken throughout the range using a Minolta Light Meter Model Number TL-1, Serial Number 90480727.

Air sampling, ventilation and illumination readings were compared to the NGR 385-15 Policy Responsibilities, and Procedures for Inspection/Evaluation and use of ARNG Indoor Firing Ranges.

Risk Assessment Codes (RACs) are included in this report to quantify the risk of particular operations to employees and to establish funding priorities for corrective actions. RACs are assigned with regard to hazard severity and mishap probability. The type, length, and route of exposure are taken into consideration, as are the medical effects that would occur with such exposures. RAC criteria can be found in Appendix B.

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1285 of 2531

BEST AVAILABLE COPY

IV. FINDINGS, DISCUSSION, AND RECOMMENDATIONS

a. Building Envelope. This indoor firing range measures 48 feet from the firing line to the bullet trap, 23 feet wide, and 12 feet high. Each firing lane is the appropriate width and all pipes, conduits, and projecting surfaces are adequately baffled. There is one open floor drain in the range. Some small gaps between the floor and wall were observed. The access door to the range is not adequately weather-stripped.

Recommendations:

1. There should be no open floor drains in the area, which allows lead toxic dust to seep into the sewer system. Immediately close up all drains in the area. [NGR 385-15 1-17a(1)(b)] **(RAC 2)**

2. All pipes, conduits, and walls should be sealed to prevent leakage of lead dust from the range into other areas. [NGR 385-15 1-17a(2)(b)] **(RAC 4)**

3. Weather-strip all access doors to the range to prevent leakage of lead dust and debris into outlying areas. [NGR 385-15 2-2a(2)(b)] **(RAC 2)**

b. Range Lighting. Range lighting is relatively uniform but causes some shadows throughout the range. Average lighting levels were 32.5 footcandles (FC) at the targets and 32.1 FC in all other areas. Baffles adequately protect all lighting fixtures. Emergency lights are not provided behind the firing line. Exit lighting is provided and is in good working condition. Signs of water leakage are apparent around range lighting and may present an electrical hazard.

Recommendations:

1. Increase lighting to the recommended 100 FC at the targets and 30 FC in all other areas. [NGR 385-15, 1-17c(1)(d)] **(RAC 3)**

2. Emergency lighting should be provided in good working condition for use in emergencies. [NGR 385-15, 1-17c(1)(f)] **(RAC 3)**

3. No electrical hazards should be allowed in the range. Consult facilities maintenance to prevent water seepage around lighting. [NGR 385-15, 1-17c(2)(c)] **(RAC 3)**

c. Bullet Traps. An inclined plate bullet trap is permanently installed and is designed for .22 caliber use, which is all that is permitted for firing on this range. The bullet trap measures ¼ " thick and adequately prevents ricochets. The bullet trap is slightly bowed..

Recommendations:

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1286 of 2531

BEST AVAILABLE COPY

1. Replace bowed steel plate with one that is in good condition. [NGR 385-15 1-17d(2)(a)] **(RAC 3)**

2. The bullet trap should be adequately maintained. Rust or paint chips may cause ricochets. A thin coating of oil should be applied every 3 months for moderate firing, sooner if heavy firing occurs (10W30 or 3 in 1). **DO NOT APPLY GREASE. (RAC 3)**

3. Bullet collection bins should not be allowed to get over ¾ full. Contact the TN ARNG State Environmental Office prior to emptying for disposal instructions. **(RAC 3)**

d. Targets and Target Carriers. Target retrieval systems were provided for each lane and are in good working order. Paper targets are used for personnel during firing procedures.

Recommendation: None at this time.

e. Range Use. The range is used for firing purposes only. No equipment or furniture is stored or maintained in the range, plenum area, or behind the bullet trap. Firers in the range are allowed to walk downrange to clean up debris. A fire extinguisher is provided in the hallway outside of the range.

Recommendations:

1. Individuals should only be allowed to walk downrange in regularly cleaned areas as needed to pick up brass. A regular maintenance program should be implemented if firers will be allowed to walk downrange to collect brass. [NGR 385-15 1-19f] **(RAC 2)**

2. A hand held ABC-type fire extinguisher should be kept at the firing line in case of emergencies. [DG 415-1, App. A, 4-5] **(RAC 3)**

f. Range Maintenance. This indoor firing range has not been cleaned. Brooms are used to clean up spent shells. A range custodian has not been appointed to the range.

Recommendations:

1. The indoor firing range should be cleaned with the ventilation system operating to prevent dust and debris from migrating into other work areas and to minimize exposure to the cleaners. Floor areas behind the firing line and 15 feet downrange should be cleaned after firing or at least every three months if the range is not used as often. [NIOSH 76-130, p.24, II, 1] **(RAC 2)**

2. Dry sweeping and cleaning bullet traps by pouring or shoveling bullet debris into waste buckets causes settled lead dust to become airborne and inhaled by the workers. **Dry sweeping of indoor firing ranges is prohibited.** A High Efficiency Particulate

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1287 of 2531

BEST AVAILABLE COPY

Air (HEPA) filtered vacuum system is recommended for lead dust and particles cleanup only (no bullet casings). If a HEPA vacuum cannot be acquired, a wet method should be used which includes a solution of detergent and hot water. Two containers should be used; one to wet the area, and the other to rinse the applicator after the dust has been wiped from the surface. Water should be changed often to prevent reapplication of contaminated water. Wastewater should be left to evaporate and the residue and any applicators should be disposed under guidance from the TN ARNG Environmental Office. [29 CFR 1910.1025(h)(ii), NIOSH 76-130, P.24, II, 2] **(RAC 2)**

3. One person, preferably the range custodian, should be responsible for cleaning the range and discarding debris. The range should be cleaned **ONLY** with a HEPA vacuum system or utilizing a wet method. [29 CFR 1910.1025(h)(ii)] **(RAC 2)**

g. Personal Protective Equipment (PPE). Personnel were observed wearing appropriate hearing and eye protection.

Recommendation: All personnel should wear ANSI approved hearing and eye protection. Additional eye and hearing protection should be available for those users that do not have their own. [NGR 385-15, 2-5a, 2-5 b, 29 CFR 1910.133 (a-b), 29 CFR 1910.95 a]. **(RAC 2)**

h. Posting of Signs. Warning signs are posted and instruct users about the regulations and requirements of the range. Warnings include those against eating, drinking, and smoking, authorized ammunition, and hearing protection required. No signs were present to instruct personnel that dry sweeping is prohibited or that storage of furniture and other items is prohibited in the range. The entrance door to the range does not prohibit pregnant women from entering the area. No illuminated warning sign is interlocked with the range ventilation switch to alert individuals that the range is use. Firing lanes are not numbered.

Recommendations.

1. The following signs should be posted in or in the vicinity of the range and of the access door to the bullet trap. [NGR 385-15 3-6a,b] **(RAC 2)**:

   a. Eating, drinking, and Smoking are Prohibited
   b. Dry Sweeping is Prohibited
   c. Wash Hands and Face Immediately Following Firing
   d. The Following Ammunition is Authorized for use on this Range
   e. Hearing Protection Must Be Properly Worn During Firing
   f. Proper Safety Glasses/Goggles Must Be Worn During Firing
   g. No Furniture or Storage of Items Permitted in the Range

2. The following signs must be posted on the entrance door to the range and to the access door of the bullet trap:

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1288 of 2531

BEST AVAILABLE COPY

a. Noise Hazardous Area
b. Danger Lead Hazard Area
c. Pregnant Females are Not Permitted in this Area

3. An illuminated sign should be interlocked with the range ventilation switch and located outside of the firing range to alert individuals outside when the range is in use. [NGR 385-15 2-6c] **(RAC 4).**

4. Each firing line should be clearly numbered at the firing line and bullet trap. [NGR 385-15 1-21C] **(RAC 4)**

i. Range Standing Operation Procedure (SOP). A range SOP with all requirements is not available for this facility as approved by the State Safety Office.

Recommendations.

A Range Standing Operation Procedure should be written for this facility and should include the following **(RAC 2)**:

1. Requirements for establishment and maintenance of a visitor's log indicating date, age, and ammunition fired
2. Requirements for safety briefing for all individuals before entrance to the range given by a designated range safety officer
3. Work practices
4. Instructive guidance
5. Personnel responsibilities for performing, supervising, reviewing, and updating the SOP
6. Authorized ammunition
7. Posting of signs
8. Cleaning and maintenance requirements
9. PPE requirements for maintenance, firing, and cleaning of the range.

j. Recordkeeping. Records kept by range custodian are a visitor's log with name and age of firer, organization and sign in and sign out times. The type of ammunition used is not documented. Copies of initial and previous inspectious and any air-sampling data are not available. An OSHA compliance program is not in place. A range custodian has not been appointed to this range

Recommendations.

1. A visitor's log must be maintained that contains the name and age of firer, organization, sign in and out time, and type of ammunition, and number of rounds fired. [NGR 385-15 1-16c] **(RAC 2)**
2. A copy of this and any other inspections should be maintained. [NGR 385-15 3-6] **(RAC 2)**

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1289 of 2531

BEST AVAILABLE COPY

3. An OSHA compliance program must be established and maintained to document how engineering (i.e. ventilation) and work practice controls will be put in place to reduce exposure to or below the permissible exposure limit. The written plan should include a description of the operation, ammunition and weapons used, existing controls, groups using the firing range, employee job responsibilities, operating procedures and maintenance practices. A record of previous inspections and air sampling data must also be retained. [29 CFR 1910.1025(e)(3)(i-ii)]. **(RAC 2)**
4. All individuals utilizing the range must be provided with a copy of the SOP or have been briefed on the unit's requirements and must sign an agreement to follow the rules. [NGR 385-15 1-15h] **(RAC 2)**
5. State maintenance officers and custodians must be fully trained on an annual basis on the health effects from exposure to lead dust and the appropriate precautions that must be taken. Records verifying this training must be kept by the range custodian. Each employee who works in a place in which there is a potential exposure to airborne lead at any level shall be informed of the Content of Appendix A Substance Data Sheet for Occupational Exposure to Lead, and Appendix B Employee Standard Summary of OSHA regulation 1910.1025. Initial training should be performed at least 180 days from date of initial job assignment and annually thereafter. [29 CFR 1910.1025(l)(1)(i-iv), 29 CFR 1910.1200(h)] **(RAC 2)**
6. A range safety officer and custodian should be designated in writing. [NGR 385-15 1-17d] **(RAC 2)**

k. *Ventilation.* The range is equipped with an operational ventilation system, with 100% of the make-up air exhausted behind the bullet trap. Supply and exhaust fans are not interlocked with range lighting. Average flow rates in Lane 1 were below 50 fpm. Flow rates at the standing positions in all lanes were below 50 fpm. Flow rates at the kneeling position in Lanes 1 and 2 were also below 50 fpm. However, Lanes 3,4, and 5 averaged above the recommended 50-75 fpm. Refer to Table D-1 in Appendix D. The exhaust fan is rated for 16560 CFM, which when divided by the cross sectional area of the range would result in a calculated average velocity of 60 fpm. The measured average velocity of all the readings was 66 fpm. Average velocities ranged from 28 fpm in lane 1 to 98 in lane 3. A properly designed plenum wall located at least 15 feet behind the firing line is meant to reduce turbulence and distribute the air evenly and uniformly downrange.

The plenum wall extends across the entire back wall and flow rates at the plenum wall do not meet the required 400 to 600 fpm. More than 10-15% of the plenum wall is open. Smoke tests revealed turbulent airflow in Lanes 1,2,4, and 5. These lanes showed the largest variance between the ventilation rates in the standing, kneeling, and prone positions. The air remained stagnant and did not move evenly downrange.

Results of ventilation and smoke tests indicated that sufficient air velocities are being provided by the fan but the air flow is not evenly and uniformly distributed to move lead dust downrange and away from the firer's breathing zone.

Posted to NGB FOIA Reading Room
May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1290 of 2531

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Recommendations:

1. Interlock supply and exhaust fans with range lighting so that the ventilation system operates at all times during occupancy of the range. [CEHND 110-1-18, 3-4a] **(RAC 3)**

2. The plenum wall should be retrofitted so that the holes are one inch in diameter, and evenly distributed across the surface of the plenum wall and centered in a four-inch square area. The plenum wall should also be approximately 15 feet behind the firing line to allow the air enough time to straighten out over the entire area. The airflow must measure at least 50 fpm at all positions in the firing lane. **(RAC 2)**

3. Range air temperature should be between 65 degrees and 80 degrees Fahrenheit. [NGR 385-15 1-17b(1)(n)] **(RAC 3)**

L. ***Air Sampling.*** Area and personal air sampling was conducted to simulate weapons qualifications. Four personal samples were collected from personnel firing for about 30 minutes. Two area samples were also collected simultaneously; one inside the range behind the firing line, and the other outside. The firing was restricted to a single qualification time period because of the air turbulence found at the firing line and the uneven air distribution. This 30-minute qualification period is representative of the expected exposure for personnel using the range. Personal sampling results ranged from 0.03 to 0.1 mg/m^3 for the 30 minutes sampling period. Two out of the four personal sample results exceeded the Army National Guard Occupational Exposure Limit of 0.03 mg/m^3. Refer to Table E-1 in Appendix E. Assuming no exposure for the remainder of an eight-hour period, the equivalent 8-hour time weighted average for the four personal samples ranged from 0.0019 to 0.006 mg/m^3. These equivalent results are lower than the OSHA PEL, NIOSH REL, and ACGIH TLV, on an eight-hour time weighted average basis. However, if firing were continued for the eight-hour period, airborne lead levels would exceed the regulated OSHA limit of 0.05 mg/m^3. Area air sampling results were less than 0.0035 mg/m^3 for the two and one half hour sampling period. Area air sampling results indicate that the airborne lead exposure is limited to the firing line area and downstream from the firing line.

Air sampling result indicated that overexposure to lead is reasonably expected while using the range for an extended period of time. Reducing the air turbulence at the firing line and stream lining the air flow as recommended herein should reduce the exposure to less than the ANG recommended limit of 0.03 mg/m^3. According to National Guard regulations, Guardsmen exposed to hazards in the range less than thirty days per year are permitted to use the range up to five hours per day. Guardsmen utilizing the range for over thirty days per year and all non-military personnel are limited to three hours per day. Range users under 17 are limited to one hour use per day.

Recommendations:

Posted to NGB FOIA Reading Room
May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1291 of 2531

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1. This range is classified as limited use based on sampling results collected during the survey, and the results of the ventilation survey. **(RAC 2)**
2. A record must be maintained for time spent on the range for all personnel using limited use firing ranges as recorded by the range custodian. [NGR 385-15 1-15 b] **(RAC 2)**
3. Air sampling should again be conducted after changes required in the ventilation system have been made. [NGR 385-15 1-27 c] **(RAC 2)**

m. ***Range Status.*** This range is classified as unsafe due to building envelope, range lighting, bullet trap, and ventilation deficiencies. The range may qualify for limited used once these deficiencies have been completed based on air sample results.

Recommendation: Further use of this range is prohibited until building envelope, range lighting, bullet trap, and ventilation deficiencies have been corrected. The range status may be upgraded to a limited use once these deficiencies have been corrected. Limited use status will remain until deficiencies in the ventilation system are re-inspected, and approved and further air sampling has been accomplished. **(RAC 2)**

Non-Responsive

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1292 of 2531

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APPENDIX A

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2. American Conference of Governmental Industrial Hygienists (ACGIH), Threshold Limit Values for Chemical Substances and Physical Agents and Biological Indices for 2000.

3. Army Regulations - AR 40-5, Preventative Medicine, 15 October 1990.

4. Army Regulations - AR 385-10, The Army Safety Program, 23 May 1988.

5. National Safety Council, Fundamentals of Industrial Hygiene, 4th edition, 1996.

6. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, 29 December 1989.

7. National Guard Regulation (NGR) 385-15 Policy Responsibilities, and Procedures for Inspection/Evaluation and use of ARNG Indoor Firing Ranges, 18 September 2000..

8. National Guard Pamphlet (NG PAM) 385-16, Guidelines for Converting Firing Ranges to Other Uses, 31 January 1994.

9. National Institute for Occupational Safety and Health, Pocket Guide to Chemical Exposures, 2000.

10. TB MED 503, The Army Industrial Hygiene Program, February 1985.

11. TB MED 502, Occupational Safety and Health Respiratory Protection Program..

12. Title 29 Code of Federal Regulations (CFR) 1910.1025, Lead.

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APPENDIX B

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DERIVING RISK ASSESSMENT CODES (RACs) FOR HEALTH HAZARDS (Ref: DOD Instruction 6055.1)

STEP 1. Using the following procedures to assess points, determine the health hazard severity category (HHSC). The HHSC reflects the magnitude of exposure to a physical, chemical, or biological agent and the medical effects of exposure.

A. Exposure Points Assessed

		Exposure Conditions			
		<CT	Occasionally - >CT Always - <STD	>CT =STD	>STD
AER	NO	0	3	5	7
POSSIBLE?	YES	1-2	4	6	8

AER = Alternate exposure route, such as skin absorption, ingestion
CT = DoD component threshold that triggers surveillance actions, such as microWatts/cm^2, dB, parts per million
STD = DoD exposure limit, such as Threshold Limit Value and Permissible Exposure Limit

B. Medical Effects Points Assessed

Condition	Points
No medical effect, such as nuisance noise and nuisance odor	0
Temporary reversible illness requiring supportive treatment, such as eye irritation and sore throat	1-2
Temporary reversible illness with a variable but limited period of disability such as metal fume fever	3-4
Permanent, nonsevere illness or loss of capacity, such as permanent hearing loss	5-6
Permanent, severe, disabling, irreversible illness or death, such as asbestosis and lung cancer	7-8

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C. Determine the HHSC by totaling the points assessed and using the following guide:

Total Points (sum of A and B, above)	HHSC
13-16	I
9-12	II
5-8	III
0-4	IV

STEP 2. Using the following guides to assess points, determine the mishap probability category (MPC) for health hazards. The probability of mishap reflects the duration of exposure and the number of exposed personnel.

A. Duration of Exposure Points Assessed

		Length of Exposure		
		1-8 hr/wk	>8 hr/wk not continuous	continuous
Type of Exposure	Irregular, intermittent	1-2	4-6	-
	Regular, periodic	2-3	5-7	8

B. Number of Exposed Personnel Points Assessed

Number of Exposed Personnel	Points
<5	1-2
5 to 9	3-4
to 49	5-6
>49	7-8

C. Determine the MPC for health hazards by totaling the points assessed and using the following guide.

Total Points (sum of A and B, above)	MPC
14-16	A
10-13	B
5-9	C
<5	D

STEP 3. Determine the RAC for health hazards by using the following matrix to measure health hazard severity and mishap probability factors.

		MISHAP PROBABILITY			
		A	B	C	D
HAZARD SEVERITY	I	1	1	2	3
	II	1	2	3	4
	III	2	3	4	5
	IV	3	4	5	5

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APPENDIX C

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1984

SUBJECT: All States (Log Number P00-0059) Army National Guard (ARNG) Safety and Occupational Health Program -- POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

Military almost 1/year but not used for several years
Sheriff's Dept 2 1/year

FIGURE 1-2

INDOOR FIRING RANGE INSPECTION CHECKLIST

.22
.40
9mm

See paragraphs 1-23 through 1-25 of this regulation for inspection requirements. For the range to be considered safe each of the following statements shall be true and air-sampling results shall be below the standard for Lead. The information in parentheses after each statement denotes the location of the requirement in this or other regulations.

Location of the Range Lewisburg, TN Date 4 Dec 2000

Range Custodian [redacted] Telephone [redacted]

Non-Responsive

Non-Responsive

Part 1, Physical Safety Inspection

A. Building Envelope

✓ 1. Each firing lane is at least 4 feet wide. [1-17a(1)(a)]

✓ 2. Pipes, conduits, and other projecting surfaces are baffled or covered by a material that shall protect these items and prevent ricochets. [1-17a(1)(b)]

✓ 3. No windows or doors are located in front of the firing line. (Except access door to the back of the bullet trap) [1-17a(1)(d)]

No 4. There are no open floor drains in the range. [1-17a(2)(c)]
One open floor drain Lane 3

✓ 5. There is no carpet, drapes or other fiber-like material in the range. [1-17a(2)(d)]

No 6. Pipes, conduits and walls are sealed to prevent leakage of Lead dust from the range into other areas. [1-17a(2)(b)] Some of small spaces between wall and floor

✓ 7. The interior surfaces or the range floor, walls, and ceiling have no protruding edges or devices. [DG 415-1, App.A, 3-1d] acoustic tiling protruding edges. See pics

✓ 8. The roof provides ballistic security. [DG 415-1, App. A, 3-1e(1)]
acoustic tiling

✓ 9. The walls provide ballistic security. (DG 415-1, App. A, 3-1f(1))
acoustic tiling, Concrete block

✓ 10. Interior mortar joints are flush with the interior surface. (DG 415-1, App. A, 3-1f(2))

✓ 11. The plenum wall is adequately supported and thick enough to avoid flexing. (DG 415-1, App. A, 3-1f(4))

No 12. The entrance door to the range is weather-stripped unless the door acts as passive make-up air intake. (DG 415-1, App. A, 3-1h)
Access door

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1300 of 2531

B. Range Lighting

_____ 1. Lighting is uniform, non-glaring and does not cause shadows. [1-17c(1)(a)]

_____ 2. Illumination is at least 100 foot candles on the targets and 30 foot candles in all other areas. [1-17c(1)(b)]

✓ 3. All lighting is protected by baffles and placed so that the shooter has an unobstructed view down range. [1-17c(1)(c)]

_____ 4. Downrange lighting begins approximately 18 feet from the firing line and ends approximately 8 feet from the target line. [1-17c(1)(d)]

No 5. Emergency lights are provided behind the firing line and are in working condition. [1-17c(1)(e)]

✓ 6. Exit lights are provided and working as required. [1-17c(1)(f)]

_____ 7. Lighting of at least 30 foot-candles is provided behind the bullet trap for maintenance (if applicable). [1-17c(1)(g)]

N 8. No known electrical hazards exist in the range. [1-17c(2)(c)]

C. Bullet traps

✓ 1. A bullet trap is permanently installed in the range. [1-17d(1)(a)]

✓ 2. Bullet traps are of a commercial design, which is in compliance with the requirements of CEHND 1110-1-18, NGB-ARI, NG PAM 385-16, Chapter 4 and this regulation. [1-17d(1)(b)]

✓ 3. The thickness of inclined plate/sand trap type bullet trap shall be adequate to attenuate the maximum caliber of ammunition authorized to be fired on the range. [1-17d(1)(c)]

✓ 4. All plate/sand trap type bullet traps are designed to prevent ricochets by directing the projectiles in the same direction they are traveling. [1-17d(1)(d)]

NA 5. Sandpits in plate/sand trap type backstops extend to a point directly below the leading edge of the sloped plate. [1-17d(1)(e)]

NA 6. Forward edges in a louver or venetian blind type bullet trap are maintained in a knife edge condition to prevent ricochets. [1-17d(1)(f)]

No 7. Steel bullet traps are not bowed, punctured or severely pitted. [1-17d(2)(a)]

✓ 8. Plates in the bullet trap are flush with the other plates. Mold seams are ground smooth. [1-17d(2)(b)]

D. Targets and target carriers

✓ 1. A target retrieval system is operable in all lanes. [1-17e(1)(a)]
(Any one firing lane without a retrieval system shall not be used for firing)

✓ 2. The target retrieval system is constructed in such a manner as to minimize flat surfaces exposed to the firing line. [1-17e(1)(a)]

✓ 3. Only paper targets are used in the range. [1-17e(1)(b)]

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1301 of 2531

E. Range use

✓ 1. The range is not used for any purpose other than firing. [1-18a]

✓ 2. No equipment or furniture is stored or maintained in the range, plenum area or behind the bullet trap. [1-17d]

✓ 3. No additional clothing or equipment is brought into the range. [1-19h]

✓ 4. Personnel are *not* permitted in the plenum area during firing even if designed for observation. [1-19a]

____ 5. Individuals other than maintenance and inspection personnel are not allowed to walk downrange. (Except in regularly cleaned area as needed to pick up brass) [1-19f]
Sheriff's dept

____ 6. All areas directly in front of the plenum walls are kept clear at all times. [1-19c]

✓ 7. Pellets, BBs, magnum and armor piercing rounds are not used in the range. [1-19g]

✓ 8. The ventilation system is in operation at all times during firing or cleaning. [1-18c]

No 9. A hand-held ABC-type fire extinguisher is located in a recessed cabinet near the entrance door, inside of the firing range. [DG 415-1, App. A. 4-5] outside

F. Range maintenance

No 1. Dry sweeping does not occur in the range. [1-19e]
Dummy cleaning - after firing

✓ 2. No brooms are located in the range. [1-19e]

No 3. A range custodian is appointed for the range who is fully trained and aware of his/her responsibilities. [1-13c]

G. Personnel protective equipment

✓ 1. All personnel in the range during firing wear ANSI approved eye protection. [1-20a]

✓ 2. All personnel in the range during firing wear ANSI approved hearing protection. [1-20b]

H. Posting of signs

____ 1. The following signs are posted in or in the vicinity of the range: [1-21a]
- ✓ a. Eating, Drinking and Smoking are *Prohibited*
- ____ b. Dry Sweeping is *Prohibited*
- ✓ c. Wash Hands and Face Immediately Following Firing times vary
- ✓ d. The Following Ammunition is authorized for use on this Range: ____
- ✓ e. Hearing Protection *shall be* Properly worn during firing
- ✓ f. Proper Safety Glasses/Goggles *shall be* worn during firing
- ____ g. No Furniture or Storage of Items Permitted in the Range
  No Smoking

____ 2. The following signs are posted on the entrance door to the range: [1-21b]
- ✓ a. Noise Hazardous Area
- ____ b. Danger Lead Hazard Area
- No c. Pregnant women are *not* permitted in this Area

No 3. An illuminated warning sign, which is interlocked with the range ventilation switch, is located outside of the firing range to alert individuals that the range is in use. [1-21c]

No 4. Each firing lane is numbered at the firing line and at the bullet trap visible to all shooters. [1-21c]
Not numbered at all

____ 5. A warning sign is posted outside of the access door to the bullet trap, which warns personnel not to enter. [1-21e]

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FOIA Requested Record #J-15-0085 (TM)
Released by National Guard Bureau
Page 1302 of 2581

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I. Range SOP - No

_____ 1. The indoor firing range has a written SOP, which is approved by the State Safety and Occupational Health Office. [1-10e]

_____ 2. The range SOP includes as a minimum the following: [1-22b]

_____ a. The requirement for establishment and maintenance of a log of visitors for the indoor firing range.

_____ b. The requirement for and contents of a mandatory safety briefing for all individuals prior to entering the range to be given by a designated competent range safety officer.

_____ c. Work practices including required, recommended, permissible and banned practices as specified by this regulation.

_____ d. Instructive guidance for all range procedures.

_____ e. Personnel responsibilities for performing the procedures, for supervising them, and reviewing and updating the SOP.

_____ f. Authorized ammunition for the range.

_____ g. The requirement for posting of signs IAW section 1-21 of this regulation.

_____ h. Cleaning and maintenance requirements.

_____ i. Personal protective equipment requirements for maintenance, firing and cleaning.

SGT Fitz

J. Recordkeeping No

_____ 1. A visitors log is maintained which includes the following information for all visitors/shooters: [1-14c]

_____ a. Name and age of shooter.

_____ b. Organization (if civilian, include address and phone number).

_____ c. Sign in and sign out times.

_____ d. Type of ammunition used and number of rounds fired.

_____ 2. Copies of initial and other previous inspections are available. [1-24a]

_____ 3. The initial inspection report includes air-sampling data. [1-24b]

_____ 4. An OSHA compliance program is in place, which covers the required aspects. [1-30a]

_____ 5. All individuals using the indoor firing range have been provided with a copy of the range SOP or been briefed on the requirements of the SOP, and have signed an agreement to follow the rules stated therein. [1-13h]

_____ 6. State maintenance officers/custodians have documentation to show that they have been educated to the health effects from exposure to Lead dust. [29 CFR 1910.1200 and 29 CFR 1910.1025]

_____ 7. Range safety officer(s) is/are designated. [1-13c]

K. New and Renovated Ranges

_____ 1. No doors are installed in the plenum wall.

_____ 2. Plenum area is at least 4 feet deep.

_____ 3. An access door is installed behind the bullet trap.

_____ 4. Only escalator or rubber bullet traps are installed.

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FOIA Requested Record #J-15-0085(TN)
Released by National Guard Bureau
Page 1303 of 2531

INDOOR FIRING RANGE INSPECTION CHECKLIST

Part 2, Ventilation Inspection

A. Existing Ranges

✓ 1. The range has an operational mechanical ventilation system. [1-17b(1)(a)]

No 2. The minimum ventilation rate at the firing line in each firing lane is 50 fpm at all levels. [1-17b(1)(b)] See diagram

✓ 3. 100% of air is exhausted at or behind the bullet trap. [1-17b(1)(c)]

✓ 4. Make-up air is introduced into the range behind the shooters. [1-17b(1)(d)]

No 5. Air that is introduced through vents into the plenum does not exceed a velocity of 600 fpm. [1-17b(1)(e)] 900 - 1750 FPM

No 6. Air exiting through holes in the plenum wall has a velocity between 400 and 800 fpm. [1-17b(1)(f)]

✓ 7. The ventilation system is so constructed that air exhausted from the indoor firing range does not enter into another part of the building or any other air supply system. [1-17b(1)(g)]

✓ 8. The exhaust exceeds the make-up air by approximately 10% to form a negative air pressure in the range in relation to adjoining areas. [1-17b(1)(h)]

NA 9. If air is recirculated in the range, it is installed with a HEPA filter with a reliable back-up filter. [29 CFR 1910.1025(e)(4)(ii)]

NA 10. If air is recirculated in the range, controls to monitor the concentration of Lead and Carbon Monoxide levels are installed and programmed to bypass the recirculation system automatically if the filter system fails.
[29 CFR 1910.1025(e)(4)(ii)]

✓ 11. The fan(s) in the ventilation system is a single speed fan only. [DG 415-1, App. A, 3-2a]

No 12. A smoke test of the range shows laminar air flow and no turbulence in the range. (See NG PAM 385-16, Appendix E for troubleshooting guidance) [1-18b(1)(k)] Turbulence in lanes and stagnant air

✓ 13. In non-powered systems, the supply air louvers and exhaust fan are electrically interlocked. [1-17b(1)(l)]

NA 14. In power systems, the supply and exhaust fans are electrically interlocked. The make-up air fan should start slightly after the exhaust fan. [1-17b(1)(m)]

No 15. Range air temperature is between 65 degrees and 80 degrees Fahrenheit. [1-17b(1)(n)] Heaters available

B. New and Renovated Ranges

____ 1. A manometer is installed leading into the exhaust fan, which is capable of measuring at least 20 inches of static pressure.

____ 2. Supply and exhaust fans are electrically interlocked with the downrange lighting.

____ 3. The face velocity on supplied make-up and exhaust ducts does not exceed 2000 cfm per square foot of duct space.

____ 4. Passive supply systems have opposing blade louvers.

____ 5. Turning vanes are installed in all duct elbows, which have between 60° and 90° angles.

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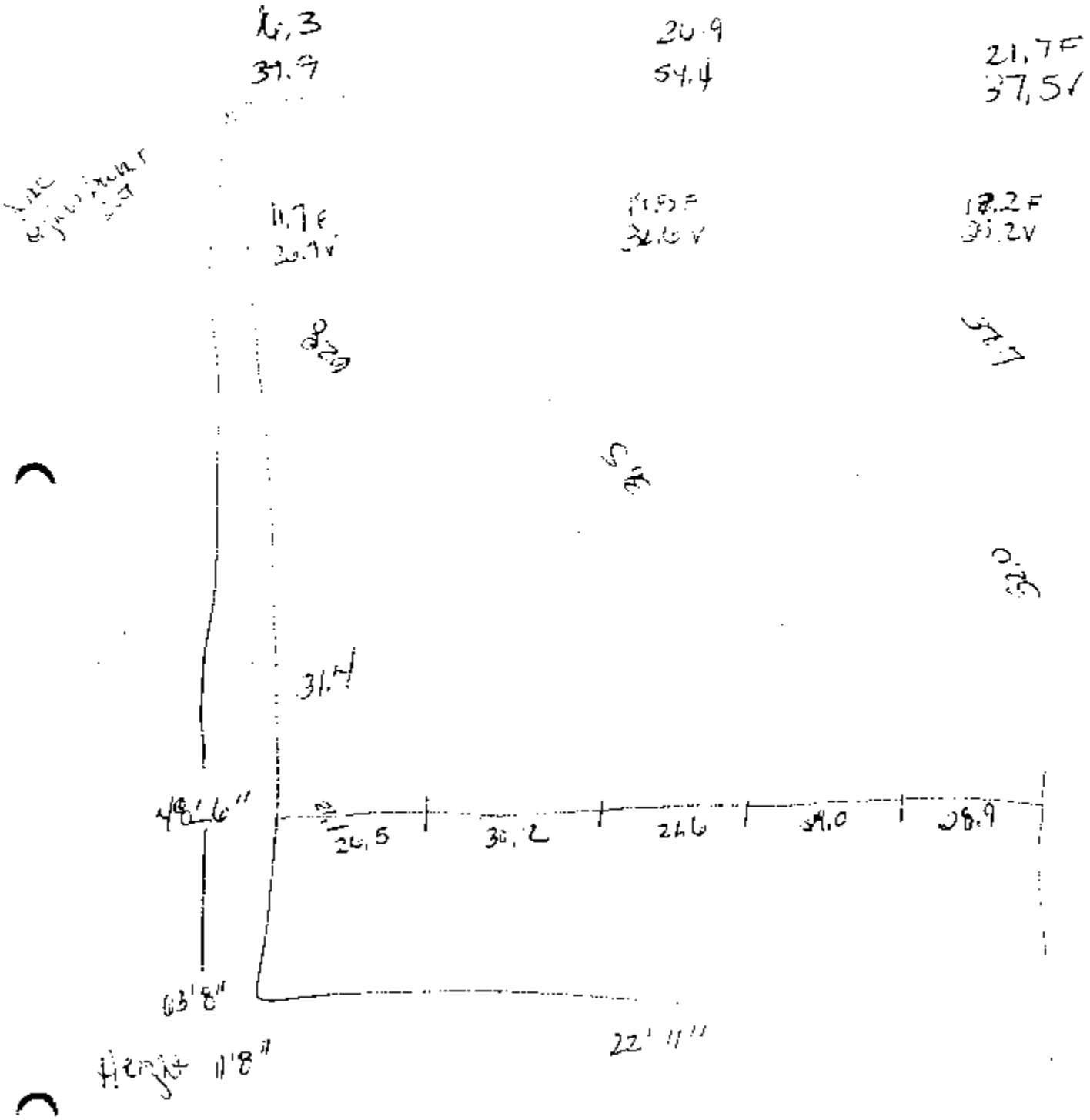
Released by National Guard Bureau
Page 1304 of 2531

5 of 6


20.9
54.4
21.7F
37.5V
11.7F
20.7V
18.2F
31.2V
31.4
48'6"
26.5
30.2
24.6
28.9
63'8"
22' 11"
Height 11'8"

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APPENDIX D

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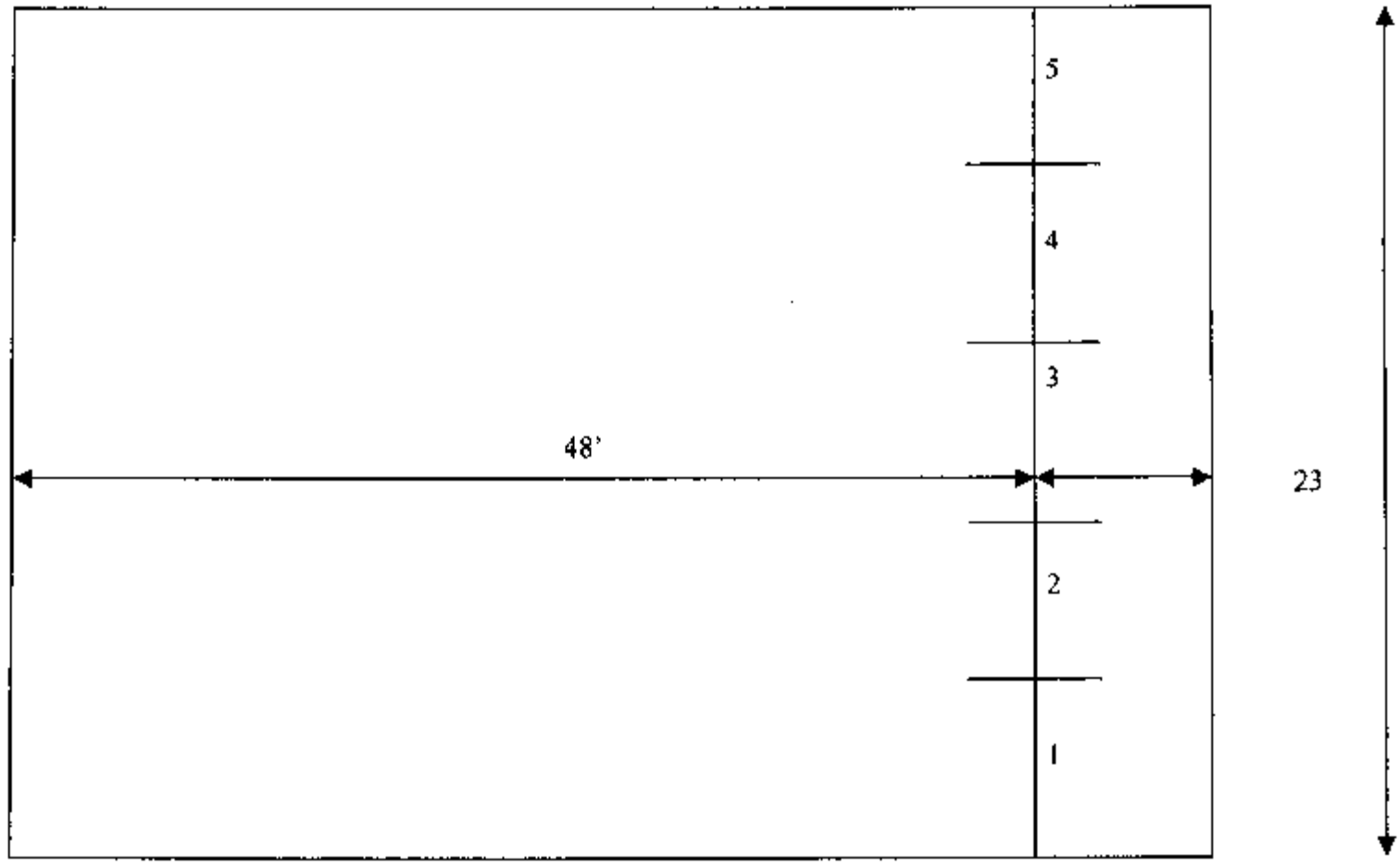

Figure D-1: Firing Range Dimensions and Lane Configuration

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FOIA Requested Record #J-15-0085 (TN)
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1308 of 2531

Table D-1
Ventilation Measurements
Indoor Firing Range Lanes

Lane 1			Average FPM	Lane 2			Average FPM	Lane 3			Average FPM	Lane 4			Average FPM	Lane 5			Average FPM
12	0	2	5	0	0	1	0.3	54	40	38	44	13	13	33	20	0	12	20	11
8	0	0	3	6	55	67	43	101	103	50	85	54	78	53	62	96	79	69	81
73	81	71	75	74	92	154	107	182	156	153	164	153	173	164	163	154	119	85	119
28 FPM				50 FPM				98 FPM				82 FPM				70 FPM			

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1310 of 2531

Table E-1
Personal and Area Air Sampling Results for Lead and Total Dust
Lewisburg Indoor Firing Range
Lewisburg, TN
04 DEC 2000

Sample # Type	Contaminant	Sampling Time in Minutes	Result mg/m^3	OSHA PEL-TWA	NIOSH REL-TWA	ACGIH TLV-TWA	ANG OEL
LW1 Area	Lead in Air	160	<0.0031	0.05	0.09	0.05	0.03
	Total Dust		<0.31	15	15	15	15
LW2 Personal	Lead in Air	32	0.1	0.05	0.09	0.05	0.03
	Total Dust		<1.6	15	15	15	15
LW3 Area	Lead in Air	160	<0.0031	0.05	0.09	0.05	0.03
	Total Dust		<0.316	15	15	15	15
LW4 Personal	Lead in Air	30	0.03	0.05	0.09	0.05	0.03
	Total Dust		<1.7	15	15	15	15
LW5 Personal	Lead in Air	30	0.03	0.05	0.09	0.05	0.03
	Total Dust		<1.7	15	15	15	15
LW7 Personal	Lead in Air	30	0.1	0.05	0.09	0.05	0.03
	Total Dust		<1.7	15	15	15	15
LWB Field Blank	Lead in Air	N/A	<1.0 microgram				
	Total Dust		<100 microgram				

Notes:
mg/m^3 = Milligrams per cubic meter
OSHA PEL = Occupational Safety and Health Administration Permissible Exposure Limit (1989 PEL Values)
NIOSH REL = National Institute of Occupational Safety and Health Recommended Exposure Level
ACGIH TLV = American Conference of Governmental Industrial Hygienists Threshold Limit Value
ANG-OEL =National Guard Bureau Occupational Exposure Limit
TWA = Time Weighted Average, [C] means a Ceiling Value
STEL = Short Term Exposure Limit
LFC Lowest Feasible Concentration
All Limits are in milligram per meter cube

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May, 2018

NATLSCO
www.natlsco.com
LABORATORY, K-2
Kemper Drive
ong Grove, IL 60049-0075
(847) 320-2488
7) 320-4331
oll Free (888) 576-7522

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Leinsburg

REPORT DATE DEC 27, 2000
SAMPLES REC'D DEC 19, 2000
REQUEST NUMBER 358462
PAGE NUMBER 10 OF 21

TO: Non-Responsive [redacted] IL 60564

LW1 - LW3

SAMPLE	AIR VOLUME / ANALYSIS REQUESTED	MEDIA TYPE / RESULTS	
W1	320 Liters	37mm 0.8 Micron Matched Mixed Cellulose Ester Filter	
		micrograms	mg/m3
	LEAD IN AIR	< 1.0	< 0.0031
	TOTAL DUST	< 100	< 0.31
W2	63 Liters	37mm 0.8 Micron Matched Mixed Cellulose Ester Filter	
		micrograms	mg/m3
	LEAD IN AIR	6.6	0.1
	TOTAL DUST	< 100	< 1.6
[illegible]	320 Liters	37mm 0.8 Micron Matched Mixed Cellulose Ester Filter	
		micrograms	mg/m3
	LEAD IN AIR	< 1.0	< 0.0031
	TOTAL DUST	< 100	< 0.31
W4	60 Liters	37mm 0.8 Micron Matched Mixed Cellulose Ester Filter	
		micrograms	mg/m3
	LEAD IN AIR	1.8	0.03
	TOTAL DUST	< 100	< 1.7

OMMENTS:

F PRESENT, DE MEANS DESORPTION EFFICIENCY

espectfully submitted,

Non-Responsive [redacted]

CCREDITED BY THE AMERICAN INDUSTRIAL HYGIENE ASSOCIATION

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NATLSCO
www.natlsco.com
LABORATORY, K-2
Kemper Drive
ong Grove, IL 60049-0075
h (847) 320-2488
a 7) 320-4331
oll Free (888) 576-7522

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REPORT DATE DEC 27, 2000
SAMPLES REC'D DEC 19, 2000
REQUEST NUMBER 358462
PAGE NUMBER 11 OF 21

TO: Non-Responsive [redacted]

SAMPLE	AIR VOLUME / ANALYSIS REQUESTED	MEDIA TYPE / RESULTS	
W5	60 Liters	37mm 0.8 Micron Matched Mixed Cellulose Ester Filter	
		micrograms	mg/m3
	LEAD IN AIR	1.8	0.03
	TOTAL DUST	< 100	< 1.7
W7	60 Liters	37mm 0.8 Micron Matched Mixed Cellulose Ester Filter	
		micrograms	mg/m3
	LEAD IN AIR	6.3	0.1
	TOTAL DUST	< 100	< 1.7
		37mm 0.8 Micron Matched Mixed Cellulose Ester Filter	
		micrograms	
	LEAD IN AIR (BLANK)	< 1.0	
		SUBTRACTED	
	TOTAL DUST (BLANK)	220	
		NOT SUBTRACTED, 220 UG IS OUTSIDE OF QC RANGE.	

OMMENTS:

PRESENT, DE MEANS DESORPTION EFFICIENCY

spectfully submitted,

Non-Responsive [redacted]

[redacted] INDUSTRIAL HYGIENE ASSOCIATION

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APPENDIX F

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INDUSTRIAL HYGIENE
SAMPLING RESULT NOTIFICATION SHEET

DATA REQUIRED BY THE PRIVACY ACT

AUTHORITY: Sections 133, 1071 87, 3012, 5031, and 8012, title 10, United States Code, Executive Order 9397 and AR 40 5.

PRINCIPAL PURPOSE: The Social Security Number of the individual is required to identify, record, and retrieve occupational medical surveillance records.

ROUTINE USE: The primary use of this information is to provide, plan, and coordinate occupational health medical surveillance and care.

DISCLOSURE: In the case of military personnel and Federal employees, the requested information is mandatory because of the need to document all occupational injuries and illnesses in view of future rights and benefits. If the requested information is not furnished comprehensive medical surveillance may not be possible, but AUTHORIZED CARE WILL NOT BE DENIED.

NAME:	SOCIAL SECURITY NO.:	OPERATION:	BLDG:	DIRECTORATE/COLLOCATED ACTV:
Non-Responsive [redacted]		eapons Firing	Lewisburg	Indoor Firing Range

Air sampling took place on December 4, 2000 to determine workplace exposure to:

SUBSTANCE	PERMISSIBLE EXPOSURE LIMIT	YOUR RESULTS	EXP CATEGORY (See Below)
1. Lead	0.050 mg/m3 (OSHA)	0.006 mg/m3	1
2.			
3.			
4.			
5.			
6.			

EXPOSURE CATEGORY

1. Airborne levels are below permissible limits: no work changes necessary.
2. Airborne levels are close to permissible limits: additional sampling necessary; temporary use of respiratory protection during this operation.
3. Airborne levels are above permissible limits and the following actions are indicated (where feasible) to prevent overexposure:
   a. Ventilation system improvements required (general and/or local exhaust).
   b. Engineering controls required.
   c. Employee work practices need improvement.
   d. Improve housekeeping.
   e. Personal protective equipment mandatory until exposure is below permissible limits.

COMMENTS:

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INDUSTRIAL HYGIENE
SAMPLING RESULT NOTIFICATION SHEET

DATA REQUIRED BY THE PRIVACY ACT

AUTHORITY: Sections 133, 1071 87, 3012, 5031, and 8012, title 10, United States Code, Executive Order 9397 and AR 40 5.

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NAME:	SOCIAL SECURITY NO.	OPERATION:	BLDG:	DIRECTORATE/COLLOCATED ACTV
Non-Responsive		Weapons Firing	Lewisburg	Indoor Firing Range

Air sampling took place on December 4, 2000 to determine workplace exposure to:

SUBSTANCE	PERMISSIBLE EXPOSURE LIMIT	YOUR RESULTS	EXP CATEGORY (See Below)
1. Lead	0.050 mg/m3 (OSHA)	0.006 mg/m3	1
2.			
3.			
4.			
5.			
6.			

EXPOSURE CATEGORY

1. Airborne levels are below permissible limits; no work changes necessary.
2. Airborne levels are close to permissible limits; additional sampling necessary; temporary use of respiratory protection during this operation.
3. Airborne levels are above permissible limits and the following actions are indicated (where feasible) to prevent overexposure:
   a. Ventilation system improvements required (general and/or local exhaust).
   b. Engineering controls required.
   c. Employee work practices need improvement.
   d. Improve housekeeping.
   e. Personal protective equipment mandatory until exposure is below permissible limits.

COMMENTS:

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INDUSTRIAL HYGIENE
SAMPLING RESULT NOTIFICATION SHEET

DATA REQUIRED BY THE PRIVACY ACT

AUTHORITY: Sections 133, 1071 87, 3012, 5031, and 8012, title 10, United States Code, Executive Order 9397 and AR 40 5.

PRINCIPAL PURPOSE: The Social Security Number of the individual is required to identify, record, and retrieve occupational medical surveillance records.

ROUTINE USE: The primary use of this information is to provide, plan, and coordinate occupational health medical surveillance and care.

DISCLOSURE: In the case of military personnel and Federal employees, the requested information is mandatory because of the need to document all occupational injuries and illnesses in view of future rights and benefits. If the requested information is not furnished comprehensive medical surveillance may not be possible, but AUTHORIZED CARE WILL NOT BE DENIED.

NAME:	SOCIAL SECURITY NO.:	OPERATION:	BLDG:	DIRECTORATE/COLLOCATED ACTV:
Non-Responsive [redacted]		Weapons Firing	Lewisburg	Indoor Firing Range

Air sampling took place on December 4, 2000 to determine workplace exposure to:

SUBSTANCE	PERMISSIBLE EXPOSURE LIMIT	YOUR RESULTS	EXP CATEGORY (See Below)
1. Lead	0.050 mg/m3 (OSHA)	0.002 mg/m3	1
2.			
3.			
4.			
5.			
6.			

EXPOSURE CATEGORY

1. Airborne levels are below permissible limits; no work changes necessary.
2. Airborne levels are close to permissible limits; additional sampling necessary; temporary use of respiratory protection during this operation.
3. Airborne levels are above permissible limits and the following actions are indicated (where feasible) to prevent overexposure:
   a. Ventilation system improvements required (general and/or local exhaust).
   b. Engineering controls required.
   c. Employee work practices need improvement.
   d. Improve housekeeping.
   e. Personal protective equipment mandatory until exposure is below permissible limits.

COMMENTS:

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INDUSTRIAL HYGIENE
SAMPLING RESULT NOTIFICATION SHEET

DATA REQUIRED BY THE PRIVACY ACT

AUTHORITY: Sections 133, 1071 87, 3012, 5031, and 8012, title 10, United States Code, Executive Order 9397 and AR 40 5.

PRINCIPAL PURPOSE: The Social Security Number of the individual is required to identify, record, and retrieve occupational medical surveillance records.

ROUTINE USE: The primary use of this information is to provide, plan, and coordinate occupational health medical surveillance and care.

DISCLOSURE: In the case of military personnel and Federal employees, the requested information is mandatory because of the need to document all occupational injuries and illnesses in view of future rights and benefits. If the requested information is not furnished comprehensive medical surveillance may not be possible, but AUTHORIZED CARE WILL NOT BE DENIED.

NAME: Non-Responsive

OPERATION:	BLDG:	DIRECTORATE/COLLOCATED ACTV:
Weapons Firing	Lewisburg	Indoor Firing Range

Air sa[redacted] to determine workplace exposure to:

SUBSTANCE	PERMISSIBLE EXPOSURE LIMIT	YOUR RESULTS	EXP CATEGORY (See Below)
1. Lead	0.050 mg/m3 (OSHA)	0.002 mg/m3	1
2.			
3.			
4.			
5.			
6.			

EXPOSURE CATEGORY

1. Airborne levels are below permissible limits: no work changes necessary.
2. Airborne levels are close to permissible limits: additional sampling necessary; temporary use of respiratory protection during this operation.
3. Airborne levels are above permissible limits and the following actions are indicated (where feasible) to prevent overexposure:
   a. Ventilation system improvements required (general and/or local exhaust).
   b. Engineering controls required.
   c. Employee work practices need improvement.
   d. Improve housekeeping.
   e. Personal protective equipment mandatory until exposure is below permissible limits.

COMMENTS:

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NATIONAL GUARD REGION SOUTH
INDUSTRIAL HYGIENE OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

NGB-ARS-SEIH

November 20, 2007

MEMORANDUM FOR: Non-Responsive RN, Occupational Health Nurse, Tennessee State Safety and Occupational Health Office, 250 8th Avenue, Smyrna, Tennessee 37167.

SUBJECT: Lewisburg National Guard Armory, Lead Sampling Survey, 822 East Commerce Road, Lewisburg, Tennessee.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 22 July 2005.

c. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, 1988.

d. AR 385-10, The Army Safety Program, 29 February 2000.

e. NGR Pam 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006.

f. NGR 385-15, Policy and Responsibilities, Evaluation and Operation of Army National Guard Indoor Firing Ranges, 3 November 2006.

g. DA PAM 40-503, The Army Industrial Hygiene Program, 30 October 2000.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2003, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. Title 29, Code of Federal Regulations (CFR), 2001 rev., part 1910, Occupational Safety and Health Standards.

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2. General.

a. As requested by Non-Responsive Tennessee Occupational Health Office, personnel with the National Guard Region South Office performed a visual inspection at the referenced site. The apparent objective of the inspection was to collect surface wipe samples from the former Indoor Firing Range for analysis of total lead.

b. Non-Responsive with the National Guard Region South Industrial Hygiene Office in College Park Georgia performed the site visit.

3. Findings.

General Information

At the time of the sampling activity, the interior of the Lewisburg Armory Indoor Firing Range was emptied of the bullet stop and firing line. The surface areas were observed to be constructed of cinder-block walls with concrete floors and ceilings. The system appeared to be closed and the former range appeared to be generally cleaned of debris.

Sampling Activities

Based on the number of surfaces observed, samples were collected in accordance with NG Pam 420-15. Ghost Wipes™ are pre-moistened media made of non-woven polyvinyl alcohol fiber and approved by American Industrial Hygiene Association (AIHA) for lead sampling. The wipes also meet all American Standards Testing Materials (ASTM) Designation E1792-96E specifications for sampling materials for lead in surface dust.

The surface samples were collected by placing a 1 square foot sampling template on the surface area and wiping the outlined area with a Ghost Wipe™. After the area inside the template was wiped, the sampling media was placed into a labeled re-sealable plastic bag and sealed. After each sample collection, a new surface area template was used and new disposable gloves were donned. A total of 18 samples were collected, three from each surface area for submittal to Analytical Environmental Services, Inc. (AES) in Atlanta, Georgia for subsequent analysis of total lead. In addition, one wipe was placed into a re-sealable bag and submitted as a blank sample for analysis.

Photographs of the observation made during the inspection including sample locations are attached for reference.

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
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Page 1320 of 2531

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Laboratory Results

The results of the lead dust sampling activities are summarized in the following table.

Sample Number	Sample Location	Laboratory Results[1]
TNLW-01	Lower Wall, Bullet Stop	238
TNLW-02	Middle Wall, Bullet Stop	64
TNLW-03	Upper Wall, Bullet Stop	968
TNLW-04	Lower Right Wall	590
TNLW-05	Middle Right Wall	38
TNLW-06	Upper Right Wall	BRL[2]
TNLW-07	Lower Rear Wall	BRL
TNLW-08	Middle Rear Wall	BRL
TNLW-09	Upper Rear Wall	BRL
TNLW-10	Lower Left Wall	BRL
TNLW-11	Middle Left Wall	BRL
TNLW-12	Upper Left Wall	89
TNLW-13	Floor at Bullet	562
TNLW-14	Middle Floor	417
TNLW-15	Floor at Rear Wall	151
TNLW-16	Ceiling at Bullet Stop	166
TNLW-17	Middle Ceiling	BRL
TNLW-18	Ceiling at Rear Wall	BRL
TNLW-B1	Field Blank	BRL

[1] Results reported in micrograms per square feet ($\mu g/ft^2$)
[2] BRL = Below Reportable Limits

The laboratory results indicate lead concentrations detected above the IFR post cleaning standard. In accordance with the National Guard Bureau Pamphlet 420-15, the Lebanon Armory IFR cannot be converted for other uses until the lead dust levels are reduced to $200\mu g/ft^2$ or lower depending on local requirements.

The laboratory results are attached for review.

4. Recommendations.

a. Prior to initiating decontamination activities and in accordance with 29 CFR 1910.1025, perform and conduct training for employees exposed to lead concentrations above the standard or who may suffer skin or eye irritation from exposure to lead.

b. Review NG Bureau Pamphlet 420-15 prior to conducting decontamination of the IFR and conduct cleaning activities in accordance with the regulatory document. Keep in mind that EPA (40 CFR 745 Subpart D) and your state may have lead reduction levels lower than the levels recommended in Pamphlet 420-15.

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FOIA Requested Record #J-15-0085 (TN)
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Page 1322 of 2531

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c. Ensure that appropriate personal protective equipment is worn during decontamination activities.

d. Consult with local Environmental Agency for guidance on proper disposal of materials used in decontaminating the IFR.

e. Upon completion of the decontamination activities, contact the Regional IH office for evaluation and collection of confirmatory lead dust samples.

f. Consult local Standards that could be more stringent than the guidance given in NGB Pam 420-15. Consider that if the area would be

5. If additional information is needed about the contractors report, please contact SGT

Non-Responsive

CC: Non-Responsive CFMO, 3041 Sidco Drive, Nashville, Tennessee 37204-1504

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FOIA Requested Record #J-15-0085 (TN)
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Page 1324 of 2531

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Photo 1: View of the Lewisburg, Tennessee Armory.

Photo 2: View of the former bullet stop and adjacent wall with sample locations.

Photo 3: View of right wall with sample location outlined.

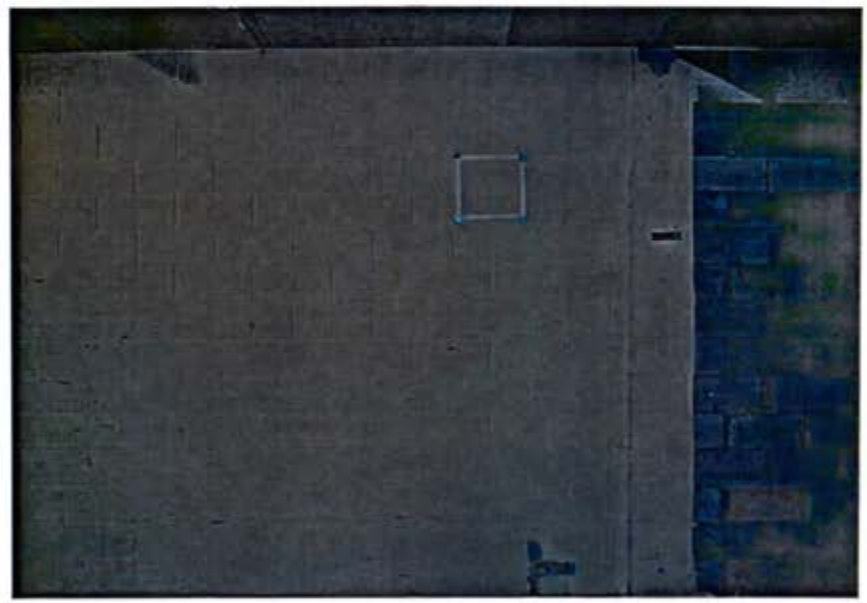

Photo 4: View of rear wall with surface sample location.

Project Name: Lewisburg Tennessee Armory

Date Photos Taken: 18 October 2007

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Photo 5: View of the left wall of the former IFR.

Photo 7: View of IFR as observed from the room entrance.

Photo 6: View of floor of the former IFR

Photo 8: View of IFR ceiling area.

Project Name: Lewisburg Tennessee Armory

Date Photos Taken: 18 October 2007

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Analytical Environmental Services, Inc.

Date: 10/31/2007

LEAD ON WIPES (N9100/7082)
N7082

CLIENT: National Guard Bureau Region-South IH
Project: LEWISBURG TN ARMORY
Delivery Order:
PO No:

Lab Order: 0710D54
Date Received: 10/24/2007 12:55 PM
Matrix: Wipe

Laboratory ID	Client Sample ID	Results	Units	Report Limit	DF	Date Collected	Date Analyzed	Analyst
0710D54-001A	TNLW-01	238	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D54-002A	TNLW-02	64	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D54-003A	TNLW-03	968	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D54-004A	TNLW-04	590	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D54-005A	TNLW-05	38	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D54-006A	TNLW-06	BRL	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D54-007A	TNLW-07	BRL	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D54-008A	TNLW-08	BRL	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D54-009A	TNLW-09	BRL	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D54-010A	TNLW-10	BRL	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D54-011A	TNLW-11	BRL	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D54-012A	TNLW-12	89	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D54-013A	TNLW-13	562	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D54-014A	TNLW-14	417	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D54-015A	TNLW-15	151	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D54-016A	TNLW-16	166	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D54-017A	TNLW-17	BRL	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D54-018A	TNLW-18	BRL	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D54-019A	TNLW-B 1	BRL	µg, Total	20	1	10/18/2007	10/26/2007	JY

Qualifiers: BRL - Not Detected at the Reporting Limit DF - Dilution Factor

Results are blank corrected where applicable

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Page 1330 of 2531

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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-AVN-SI April 2, 2003

MEMORANDUM FOR: Adjutant General TN ARNG, ATTN.: State Occupational Health Office, P. O. BOX 410502, Nashville, TN 37204

SUBJECT: Lexington Armory Indoor Firing Range wipe sample results.

1. References.

a. 385-10, Army Safety Program

b. National Guard Regulation, AR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and use of ARNG Indoor Firing Ranges, Draft March 2000

c. Army National Guard Guidelines for Housekeeping, Rehabilitation and Conversion of Indoor Firing Ranges, Draft NGB Pam 385-15

d. OSHA Standards 29 CFR (Code of Federal Regulations), 1910.1025, Lead Standard

e. OSHA Standards 29 CFR (Code of Federal Regulations), 1926.62, Construction Standard

2. General. The sample results from samples taken at the Indoor Firing Range in Lexington, TN by MAJ Terry Kiehn are enclosed.

3. Findings.

a. A review of the sampling results show several samples with high concentrations of lead dust present at the time of the survey. The elevated levels shown in the wipe sampling

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require further decontamination of the firing range and equipment in Lexington, TN.

4. Recommendations.

a. Continue decontamination process until clearance sample meet the required standard. Use the sample results as a guide when:

i. determining which ranges and what items stored in the ranges must be cleaned.

ii. determining acceptance of ranges after clean-up and/or decontamination of a range.

b. Closely follow all recommendations in Ref. 1. b. when decontaminating ranges. After decontamination of those items with elevated sample results perform a complete re-sampling following the same protocol.

c. Provide scheduled cleaning and maintenance to those firing ranges new, old or retrofitted to preclude the accumulation of lead dust.

d. Follow the provisions of reference 1.e above for any construction or re-modeling project for any firing range to be renovated for other use.

4. If additional information is needed about the industrial hygiene survey or lead wipe sample results, please contact

Non-Responsive

[redacted]

ENCL.
as

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AES

ANALYTICAL ENVIRONMENTAL SERVICES, INC.

March 12, 2003

Non-Responsive

[redacted]

RE: Lexington Armory

Order No.: 0303166

Dear Non-Responsive [redacted]

Analytical Environmental Servs, Inc. received 33 samples on 3/5/2003 1:30:00 PM for the analyses presented in the following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative. AES' certifications are as follows:
-NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water, effective 07/01/02-06/30/03.
-AIHA Certification number 505 for analysis of Air, Paint Chips, Soil and Dust Wipes, effective until 03/01/03.

These results relate only to the items tested. This report may only be reproduced in full and contains 7 total pages (including cover letter).

If you have any questions regarding these test results, please feel free to call.

Sincerely,

Non-Responsive

[redacted]

3785 PRESIDENTIAL PARKWAY • ATLANTA, GEORGIA 30340 • TEL: (770) 457-8177 • FAX: (770) 457-8188

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03031666

Industrial Hygiene Surface Wipe Sample Sheet

Return Address Non-Responsive [redacted]

Point of Contact (name & phone #) Non-Responsive [redacted]

Samples Collected By Non-Responsive [redacted]

Sampled Facility LEXINGTON ARMORY

City NASHVILLE

State TN

Location (bldg/area)

Description of Operation Indoor Firing RANGE

Date Collected 2/14/03

Date Shipped 4 MAR 03

Analysis Desired LEAD

Sampling Data LEAD WIPES SAMPLE

Lab Use Only	Sample #	Results	Remarks
	13		Top of Box
	14		Top of MRE Box
	15		Box
	16		BACK WALL
	17		Trap
	18		Top of Box
	19		Floor
	20		Camo Support Bag
	21		UGR-A Box
	23		Top of Shelf
	22		INSIDE ENTRENCE Door
	24/25		Top of Box / WALL

Comments to Lab: 3/6/03 Mail

Non-Responsive [redacted]

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03031664

Industrial Hygiene Surface Wipe Sample Sheet

Return Address Non-Responsive [redacted]

Point of Contact (name & phone) Non-Responsive [redacted]

Sampled Facility	City	State	Location (bldg/area)
Lexington Armory	Nashville	TN	

Description of Operation	Date Collected	Date Shipped
Indoor Firing Range	2/14/03	4 Mar 03

Analysis Desired Lead

Sampling Data

Lab Use Only	Sample #	Results	Remarks
	1		Center of Floor
	2		Table
	3		4 Shelf from Bottom
	4		Top of Camo Bag
	5		Drink Urn
	6		Top of 2nd Record Box
	7		Rack
	8		Camo Screen Bag
	9		Camo
	10		Top of Camo Support Bag
	11		Top of Box Electric Light
	12		Trap

Comments to Lab: 3/6/03 Mail

Non-Responsive [redacted]

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Analytical Environmental Services, Inc.

Sample Receipt Checklist

Client GANGB

Date and Time 3/6/03 1:30

Work Order Number 03031666

Received by Non-Responsive

Checklist completed by Non-Responsive 3/6/03 (Date)

Reviewed by [redacted]

Carrier name: FedEx __ UPS __ Courier __ Client __ US Mail ✓ Other _____

	Yes	No	Not Present
Shipping container/cooler in good condition?	✓		
Custody seals intact on shipping container/cooler?			✓
Custody seals intact on sample bottles?			✓
Chain of custody present?	✓		
Chain of custody signed when relinquished and received?		✓	
Chain of custody agrees with sample labels?		✓	
Samples in proper container/bottle?	✓		
Sample containers intact?	✓		
Sufficient sample volume for indicated test?	✓		
All samples received within holding time?	✓		
Was TAT marked on the COC?		✓	
Proceed with Standard TAT as per project history?	✓		Not Applicable __
Container/Temp Blank temperature in compliance?	✓		

Cooler #1 ambient Cooler #2 _____ Cooler #3 _____ Cooler #4 _____ Cooler#5 _____ Cooler #6 _____

Water - VOA vials have zero headspace? No VOA vials submitted ✓ Yes __ No __

Water - pH acceptable upon receipt? Yes __ No __ Not Applicable ✓

Adjusted? _____ Checked by _____

Any No and/or NA (not applicable) response must be detailed in the comments section below:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: Chain of custody not signed when relinquished
Eight extra samples were sent: 26, 27, 28, 29, 30 and 3 "Blank".
Per client + project history, all extra samples will be logged in and analyzed.

Corrective Action

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Analytical Environmental Servs, Inc.

Date: 3/12/2003

TOTAL LEAD IN WIPE SAMPLES
N7082

CLIENT:	National Guard Bureau Region-South JH	**Lab Order:**	0303166
Project:	Lexington Armory	**Date Received:**	3/5/2003 1:30:00
Project No:	Lexington Armor	**Matrix:**	Wipe
PO No:		**Analyst:**	MM

Laboratory ID	Client Sample ID	Results	Units	MDL	DF	Date Collected	Date Analyzed
0303166-001A	1	40.0	µg, Total	2.83	1	2/14/2003	3/10/2003
0303166-002A	2	BRL	µg, Total	2.83	1	2/14/2003	3/10/2003
0303166-003A	3	BRL	µg, Total	2.83	1	2/14/2003	3/10/2003
0303166-004A	4	78.0	µg, Total	2.83	1	2/14/2003	3/10/2003
0303166-005A	5	BRL	µg, Total	2.83	1	2/14/2003	3/10/2003
0303166-006A	6	BRL	µg, Total	2.83	1	2/14/2003	3/10/2003
0303166-007A	7	BRL	µg, Total	2.83	1	2/14/2003	3/10/2003
0303166-008A	8	63.0	µg, Total	2.83	1	2/14/2003	3/10/2003
0303166-009A	9	BRL	µg, Total	2.83	1	2/14/2003	3/10/2003
0303166-010A	10	32.0	µg, Total	2.83	1	2/14/2003	3/10/2003
0303166-011A	11	68.0	µg, Total	2.83	1	2/14/2003	3/10/2003
0303166-012A	12	31.0	µg, Total	2.83	1	2/14/2003	3/10/2003
0303166-013A	13	BRL	µg, Total	2.83	1	2/14/2003	3/10/2003
0303166-014A	14	BRL	µg, Total	2.83	1	2/14/2003	3/10/2003
0303166-015A	15	136	µg, Total	2.83	1	2/14/2003	3/10/2003
0303166-016A	16	39.0	µg, Total	2.83	1	2/14/2003	3/10/2003
0303166-017A	17	39.0	µg, Total	2.83	1	2/14/2003	3/10/2003
0303166-018A	18	259	µg, Total	2.83	1	2/14/2003	3/10/2003
0303166-019A	19	3210	µg, Total	7.61	2.69	2/14/2003	3/10/2003
0303166-020A	20	96.0	µg, Total	2.83	1	2/14/2003	3/10/2003
0303166-021A	21	BRL	µg, Total	2.83	1	2/14/2003	3/10/2003
0303166-022A	22	25.0	µg, Total	2.83	1	2/14/2003	3/10/2003
0303166-023A	23	26.0	µg, Total	2.83	1	2/14/2003	3/10/2003
0303166-024A	24	137	µg, Total	2.83	1	2/14/2003	3/10/2003
0303166-025A	25	BRL	µg, Total	2.83	1	2/14/2003	3/10/2003
0303166-026A	26	92.0	µg, Total	2.83	1	2/14/2003	3/10/2003
0303166-027A	27	342	µg, Total	2.83	1	2/14/2003	3/10/2003
0303166-028A	28	263	µg, Total	2.83	1	2/14/2003	3/10/2003
0303166-029A	29	101	µg, Total	2.83	1	2/14/2003	3/10/2003

Qualifiers: MDL - Method Detection Limit
ND - Not Detected at the Reporting Limit
DF - Dilution Factor

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1338 of 2531

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Analytical Environmental Servs, Inc.

Date: 3/12/2003

TOTAL LEAD IN WIPE SAMPLES
N7082

CLIENT:	National Guard Bureau Region-South IH	**Lab Order:**	0303166
Project:	Lexington Armory	**Date Received:**	3/5/2003 1:30:00
Project No:	Lexington Armor	**Matrix:**	Wipe
PO No:		**Analyst:**	MM

Laboratory ID	Client Sample ID	Results	Units	MDL	DF	Date Collected	Date Analyzed
0303166-030A	30	266	µg, Total	2.83	1	2/14/2003	3/10/2003
0303166-031A	BLANK 1	BRL	µg, Total	2.83	1	2/14/2003	3/10/2003
0303166-032A	BLANK 2	BRL	µg, Total	2.83	1	2/14/2003	3/10/2003
0303166-033A	BLANK 3	BRL	µg, Total	2.83	1	2/14/2003	3/10/2003

Qualifiers: MDL - Method Detection Limit
ND - Not Detected at the Reporting Limit
DF - Dilution Factor

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1339 of 2531

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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-AVN-SI

April 18, 2003

MEMORANDUM FOR: The Adjutant General of Tennessee, ATTN: Non-Responsive State Occupational Health Office, P O Box 41502, Nashville, TN 37204-1502.

SUBJECT: Transmittal of Survey Reports for the Phillip Miller Armory, Ripley, TN, the Lexington Armory, Lexington, TN, the Frankland-Taylor Armory, Jackson, TN, the Dyersburg Armory, Dyersburg, TN, the Henderson Armory, Henderson, TN, and the Wyatt-Duke Armory, Brownsville, TN.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, 30 August 1986, Medical Service, Preventive Medicine.

c. National Guard Regulation (NGR) 385-10, 1988, Army National Guard Safety and Occupational Health Program.

d. AR 11-34, The Army Respiratory Protection Program, 15 February 1990.

e. TB MED 502, Occupational and Environmental Health Respiratory Protection Program, February 1982.

f. DA PAM 40-503, 30 October 2000, The Army Industrial Hygiene Program.

g. DA PAM 40-501, 10 December 1998, Hearing Conservation.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2001, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

k. Title 29, Code of Federal Regulations (CFR), 2000 rev., part 1910, Occupational Safety and Health Standards.

l. Reports dated 24-26 January 2003, Industrial Hygiene Survey, Environmental Mgmt. Solutions, Atlanta, GA.

2. General.

a. At the request of the TNARNG Safety and Occupational Health Office, an Industrial Hygiene Service was put together to conduct Health Hazard Information module (HHIM) Field surveys and industrial hygiene sampling of the Phillip Miller Armory, Ripley, TN, the Lexington Armory, Lexington, TN, the Frankland-Taylor Armory, Jackson, TN, the Dyersburg Armory, Dyersburg, TN, the Henderson Armory, Henderson, TN, and the Wyatt-Duke Armory, Brownsville, TN.

b. Environmental Mgmt. Solutions, 247 Mary Lane, Dallas, GA. 30132 conducted the surveys.

3. Findings. All HHIM field survey forms and survey findings of the reports. (See enclosure 1)

4. Recommendations.

a. Follow all recommendations made in reference 1.l., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Control water infiltration in the armory and/or replace or repeir damaged surfaces or components (ceiling and floor tiles). Building conditions that present IAQ concerns or problems not only exacerbates normally minor health issues but also tend to promote or accelerate building deterioration.

c. The recommendations given in the comment section of the HHIM data sheets and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-03. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-04 IHIP.

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SUBJECT: Transmittal of Survey Reports for the Phillip Miller Armory, Ripley, TN, the Lexington Armory, Lexington, TN, the Frankland-Taylor Armory, Jackson, TN, the Dyersburg Armory, Dyersburg, TN, the Henderson Armory, Henderson, TN, and the Wyatt-Duke Armory, Brownsville, TN.

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present survey, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

f. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

5. If additional information is needed about the industrial hygiene

Non-Responsive

[redacted]

CF:
NBG-AVN-SH

Encl
as

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ENVIRONMENTAL MANAGEMENT SOLUTIONS
INDUSTRIAL HYGIENE CONSULTING

TENNESSEE ARMY NATIONAL GUARD

LEXINGTON ARMORY
LEXINGTON, TENNESSEE

247 MARY LANE, DALLAS, GEORGIA 30157
PHONE: 770.459.4376 • FAX: 770.234.6207

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EXECUTIVE SUMMARY 1

SUBJECT 2

BACKGROUND 2

INTRODUCTION 2
SITE DESCRIPTION 2
SCOPE OF WORK 2
METHODOLOGY 2

FINDINGS AND DISCUSSION 3

LEAD WIPE SAMPLES 3
ASBESTOS SUSPECT BUILDING MATERIAL 4
NOISE SURVEY 4
ILLUMINATION SURVEY 4
BUILDING CONDITION 5
HAZARD COMMUNICATION 6
RADIATION PROTECTION PROGRAM 6
ERGONOMICS 6
PERSONAL PROTECTIVE EQUIPMENT 6

RECOMMENDATIONS 7

TECHNICAL ASSISTANCE 8

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1344 of 2531

BEST AVAILABLE COPY

EXECUTIVE SUMMARY

An initial baseline industrial hygiene survey was conducted at the Lexington Armory on 26 February 2003 as part of the Tennessee Army National Guard Occupational Health Program to identify potential health hazards in the workplace. The survey consisted of collecting lead wipe samples and bulk asbestos samples as needed, conducting a noise and illumination survey and an evaluation of the condition of the building as it related to indoor air quality. A review of the Hazard communication program, ergonomics, and personal protective equipment was also performed.

The following table summarizes the survey findings and recommendations for each topic surveyed.

TOPIC	SUMMARY OF FINDINGS	RECOMMENDATIONS
Lead Wipe Samples	33.0 to 2600 micrograms	Clean surfaces in the Indoor Firing Range area, decontaminate all contaminated items, and follow good hygiene and housekeeping practices
Asbestos Bulk Samples	No findings	No action
Noise Survey	Under 85 dBA	No action
Illumination Survey	7 to 68 foot-candles	Upgrade lighting to appropriate levels.
Building Condition	Water damage to ceiling and floor tiles	Clean damaged surfaces, control sources of water infiltration, and create a maintenance schedule for HVAC units
Hazard Communication	MSDS are available for chemicals used	Personnel responsible for these items should receive annual training in HAZCOM requirements
Ergonomics	Poor workstations design in some offices	Complete ergonomics survey on all personnel and offer ergonomic training or awareness to employees who spend the majority of their time working on a computer terminal
Personal Protective Equipment	No findings	No action

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SUBJECT

Initial Baseline Industrial Hygiene Survey of the Lexington Armory performed 26 February 2003 in Lexington, Tennessee.

BACKGROUND

INTRODUCTION

At the request of Non-Responsive of the National Guard Bureau Region South Industrial Hygiene Office, an initial baseline industrial hygiene survey was performed at the Lexington Armory in Lexington, Tennessee. Environmental Management Solutions conducted the survey on 26 February 2003. The purpose of the survey was to perform an initial baseline industrial hygiene survey to evaluate potential health hazards present at the armory.

SITE DESCRIPTION

The facility houses the Battery A 2nd BN 115th Field Artillery Unit, which includes three full time personnel. The one story building contains several administrative offices, one classroom, a drill hall, and a kitchen. A firing range is present at this facility and is being used as storage space. Refer to Building layout in Appendix C.

SCOPE OF WORK

The work included collecting wipe samples for lead, bulk samples for suspect asbestos containing building material, noise readings, illumination levels, and an evaluation of the ventilation system as it pertains to indoor air quality. A list of occupational health programs and procedures were verbally covered with the armory personnel.

METHODOLOGY

Lead wipe samples were collected from surfaces that showed signs of lead contamination in armories that have a renovated, inactive, or closed indoor firing range (IFR), kitchen or mess hall storage areas, indoor drill halls, and storage rooms with weapons vaults. The samples were collected in accordance to instructions published by Region South National Guard Bureau, which required the use of unscented baby wipes to wipe one square foot of surface. Samples were then placed in a sealed plastic bag and sent to an American Industrial Hygiene Associations (AIHA) accredited laboratory for analysis. Asbestos bulk samples and lead paint chips were collected from suspect friable and damaged building material. Each bulk sample was placed in a sealed bag and sent to an AIHA laboratory for analysis. All instruments used for assessment were factory calibrated and calibrated prior to the survey as applicable. Illumination readings were taken on work surfaces and approximately four feet from the floor.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1346 of 2531

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FINDINGS AND DISCUSSION

LEAD WIPE SAMPLES

Seventeen wipe samples were collected from areas of the indoor firing range, kitchen, supply and other storage areas as listed in the table below.

SAMPLE NUMBER	SAMPLE LOCATION	MICROGRAMS OF LEAD (µg) PER SQUARE FOOT
LX-01	Shelving, Right side of storage area	33.0
LX-02	Weapons rack, vault	BRL
LX-03	Wooden shelf, At bullet stop, left side, facing downrange, IFR	**263**
LX-04	Middle of floor, Bullet Stop, IFR	**2600**
LX-05	Back Wall, Bullet Stop, Right Side, approximately 9' high, IFR	BRL
LX-06	Food storage area, Shelving, IFR	BRL
LX-07	Right wall, Approximately 5', Support Platoon HQ, IFR	BRL
LX-08	Floor, 2nd Platoon Ammo Section, IFR	**2150**
LX-09	Floor, in front of storage cages, Left side, IFR	**458**
LX-10	Wall, approximately 6', Battery Supply, IFR	BRL
LX-11	Right side wall, front of range, IFR	BRL
LX-12	Shelving, Firing Platoon HQ, IFR	70.0
LX-13	Shelf, Hallway to Range	BRL

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1347 of 2531

BEST AVAILABLE COPY

LX-14	Floor, Hallway to Range	**164**
LX-15	Floor Next to IFR Entrance, right side	BRL
LX-16	Kitchen, Shelf below coffee maker	BRL
LX-17	Drill Hall, Top of soda machine	**84.0**

*Below Reporting Limit

The Army National Guard All States Log Number P01-0075, **Policies and Responsibilities for Inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges (IFR) and Guidelines for IFR Rehabilitation, Conversion, and Cleaning** requires a limit of 200 micrograms per square foot for surface contamination in and around indoor firing ranges. The Environmental Protection Agency standards (40 CFR 745) indicate lead in dust levels above 40 micrograms per square foot on bare and carpeted floors is considered dangerous for common areas. Several samples in and around the indoor firing range and in the drill hall were above required limits.

ASBESTOS SUSPECT BUILDING MATERIAL

Sampling for asbestos was limited to damaged material or material that could pose a higher exposure risk. No friable suspect material was found.

NOISE SURVEY

Area noise levels are well within the Army National Guard limit of 85 dBA and the Occupational Safety and Health Administration (OSHA) regulated limit of 90 dBA over an eight-hour period.

ILLUMINATION SURVEY

Lighting levels throughout the armory ranged between 7 foot-candles to 68 foot-candles. Specific readings are listed in the table below.

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1348 of 2531

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AREA	AVERAGE FOOT-CANDLES
Supply Area	28.6
Drill Hall	7.2
Dish Room	37
Kitchen	28.6
Office C	10
Locker Rooms	9.3
Classroom	26.5
Library	29
Recruiter's Office	68
Administrative Office	42
Office A	11
Office B	53

These readings are not within the Army Design Guide (DG 415-2) minimum illumination level of 50 foot-candles for office areas and 20 foot-candles for parts storage/supply. The American National Standard Institute/Industrial Engineering Society (ANSI/IES) recommends a minimum illumination of 50 to 100 foot-candles for administrative and kitchen areas, and 20 to 50 foot-candles for storage areas. Luminance of 50 to 100 foot-candles is recommended for performance of visual tasks of medium contrast or small size such as reading, pencil handwriting, and poorly printed, or reproduced material. Depending of the type of display, background luminance of 30 to 60 foot-candles is recommended for VDT work. Some areas had lighting that was burned out.

BUILDING CONDITION

Several areas of the armory have damaged ceiling or floor tiles due to water damage. The armory is cooled with a central heating, ventilating, and air conditioning (HVAC) system. Personnel did not have any specific complaints about the indoor air quality.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1349 of 2531

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HAZARD COMMUNICATION

Material Safety Data Sheets were available and easily accessible.

RADIATION PROTECTION PROGRAM

Several pieces of equipment stored at the facility contain radioactive materials. Telescopes, fire control quadrants, alignment devices, and compasses are among stored equipment. An inventory and designated safety officer are present.

ERGONOMICS

The full time employees in the supply or office areas did not express any ergonomic related injuries or concerns. Many workstations were not set up to provide neutral postures and appropriate ergonomically correct positions. Consideration should be given to providing all full time employees that spend the majority of their working time at a computer terminal ergonomic training or awareness. Such awareness should emphasize the importance of proper posture and set-up of the workstation to fit the user.

PERSONAL PROTECTIVE EQUIPMENT

Normal duties of full time employees at the armory do not require the use of personal protective equipment (PPE).

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1350 of 2531

BEST AVAILABLE COPY

RECOMMENDATIONS

1) All items that are contaminated with lead should be thoroughly decontaminated with a detergent and water solution. Care should be taken to wipe down tables where weapons are issued and cleaned. Kitchen areas should be thoroughly cleaned on a regular basis and especially before serving personnel.

2) Personnel should be prohibited from eating, drinking, smoking, chewing tobacco or gum, or applying cosmetics in supply areas and should be instructed to clean hands with soap and water before doing any of these. Remove all refrigerators, cups, and other eating utensils from supply areas.

3) Lead results indicate that some areas of the converted indoor firing range are not completely free from contamination. Consult the Army National Guard All States Log Number P01-0075, Policies and Responsibilities for inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges (IFR) and Guidelines for IFR Rehabilitation, Conversion, and Cleaning on guidelines for cleaning and converting Indoor Firing Range.

4) Upgrade lighting measurements as required. Lighting can be upgraded in the following ways:

   - Replace blown or broken lighting
   - Paint wall a light color
   - Clean existing light fixtures
   - Rearrange furniture to make better used of available light
   - Provide supplemental or task lighting

5) Develop a maintenance schedule for monitoring, inspecting and cleaning HVAC components such as outside air intakes, outside air dampers, air filters, drain pans, heating and cooling coils, the interiors of air handling units, fan motors ad belts, air humidification, controls and cooling towers. The schedule should also ensure that any leaks or standing water are identified, repaired, and prevented. Proper repairs and maintenance of the building infrastructure and interior surfaces can prevent water damage and moisture buildup which may lead to further indoor air quality issues.

6) Material Safety Data Sheets (MSDS) are required to be kept at the primary workplace facility and to be easily accessible in case of emergency. Personnel

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1351 of 2531

BEST AVAILABLE COPY

responsible for these items should receive annual training in the requirements of the Hazardous Communication Program and the appropriate keeping and storage of all MSDS.

7) An ergonomics survey should be completed for all supply and administrative personnel as a preventative measure to document and address any and all ergonomic concerns or problems. Provide ergonomics training and awareness to all employees who spend the majority of their time working at a computer terminal.

TECHNICAL ASSISTANCE

Non-Responsive

[redacted]

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1352 of 2531

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APPENDICES

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APPENDIX A

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1354 of 2531

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- American conference of Governmental Industrial Hygieist (ACGIH), Industrial Ventilation, A Manual of Recommended Practice, 23rd Edition, 1998.American National Standards Institute (ANSI), /Illuminating Engineering Society (IES), Industrial Lighting, 1991.
- Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 1990.
- Army Regulation (AR) 40-5, Preventative Medicine, 15 October 1990.
- Army Regulation (AR) 385-10, The Army Safety Program, 29 Feb 2000.
- NGR 385-10, Army National Guard Safety and Occupational Health Program, 7 October 1988.
- TB MED 503, The Army Industrial Hygiene Program, February 1985.
- Title 29, Code of Federal Regulations (CFR), 1999, revision, Part 1910, Occupational Safety and Health Standards.
- TG 022, US Army Environmental Hygiene Agency (YSAEHA), Industrial Hygiene Evaluation Guide, October 1975.
- TG 141, US Army for Health Promotion and Preventative Medicine (USACHPPM) Industrial Hygiene Air Sampling Guide, November 1997.

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1355 of 2531

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APPENDIX B

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1356 of 2531

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2/8/95 CHPMFRNT.XLS

HHIMS Industrial Hygiene Survey Form

Front page

ARLOC: 47000
Installation: Lexington Armory
Building:
Room Number:
Location: AA
Operation: ADO
Survey Date: 03 month 08 day 2 6
Evaluator: AZB
Bitcom: NB
Submacom: XX
Unit / Organization (45): BHY A 2nd BN 115th FA
Supervisor: Mr. Ms. Rank
RAC:
Supervisor, or Point of Contact Telephone Number:
DSN:
Commercial:
Frequency (hrs/day): 008
No. CIVs: 02
No. MIL: 00
Contractors: 00
No. LOCs: 00
Lab Hoods: 00
Vapor Degreasers: 00
Spray Booths: 00
Open Surface Tanks: 00
Ventilation Units: 00

Controls Present (If >8, continue in comments/[illegible]): OTH

Evaluation (25 characters max): 10-53
Unit code: FTC

Controls Required (25 characters max): 50-100 FTC

Gloves	e*	R	U
acid			
cold surfaces			
hot surfaces			
NBC agents			
oil			
solvents			
surgical gloves			
leather / cotton			
other			

Respirator	e*	R	U
airline			
abrasive blasting hood			
disposable			
full face air purifying			
1/2 face air purifying			
powered air purifying			
1/4 face air purifying			
self-contained			
other			

Manufacturer's Description (10 characters max)

NIOSH TC # or Foreign equivalent (10 characters max)

Eyes and Face	e*	R	U
chemical splash			
full face shield			
chem/safety impact			
safety impact			
welding helmet			
sunglasses			
welding goggles/glasses			
laser eye protection			
other			

Hearing	e*	R	U
canal caps			
(>95-108 dBA steady) earplugs			
helmets w/ muffs			
muffs alone			
(108-118) muffs/earplug comb			
muffs and earplugs			
(118 or >) with time limit			
other			
other			

Body	e*	R	U
aprons			
cold weather clothing			
coveralls			
full body suit			
heat reflective			
vest/suit			
safety [illegible]			
special prop. clothing			
other			

Head and Feet	e*	R	U
cold weather boots/hgs			
hard hats			
impermeable boots			
safety shoes (conductive)			
safety (nonconductive)			
other			
other			
other			
other			

e* = evaluator's recommendation or agreement

Reminders: ergonomics - dermatitis - physical agents - flammable storage
EYE (permanent) ____ - EYE (portable) ____ - SHW - GMV - LEV

ACO ADM DSA DSN LAB LCK
RAD ECB EPL RHS SPR WEL

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May, 2018

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[illegible] Industrial Hygiene Activity Form

Back page

	CAS code										PAC	SPC
PONOISECO	P	O	V	D	T	X	X	X	X		[illegible]	[illegible]
POFIZOTHAZ	P	O	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	X		[illegible]	[illegible]
POPLIERNEJ												
POEVEHAZA												
POFLAMNAZ												
POLIFTING												
POSHIRPOB												
POHOTOBJE												
POELSHOCK												
OEMSEOIL												

Hazard Description

[illegible]

Social Security Number or Unique Identifier

[illegible] personnel data provided by the facility is attached to this form

[illegible]

See Personnel [illegible]

First Name (20 characters max)

	MI	Sex	Category

Insert Privacy Act Statement

Comments

Operation described is administrative operations to include typing [illegible] phone and computer use. Some workstations were not part of the [illegible] [illegible] with [illegible]. Some workspaces [illegible] with [illegible]. Duties of admin employees vary, so that workbreaks can be taken as needed

[illegible] operation was explained to [illegible] that not [illegible] observed.

(continuate continued on attached)

There is a noise data sheet attached to this form [illegible]

There is a ventilation data sheet attached to this form [illegible]

2/9/95 CHPMBACK.XLS

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FOIA Requested Record #J-15-0085 (TN)
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Page 1358 of 2531

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FOIA Requested Record #J-15-0085 (TN)
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2/8/96 CHPMFRNT.XLS

HHIMS Industrial Hygiene Survey Form

Front page

ARLOC: A 7 0 0 0

Installation: Lexington Armory

Building:

Location: S A

Operation: 4 2 1

Survey Date: 0 3 0 8 9 6 (month, day)

Evaluator: [redacted]

Macom: N G

Subcommand: X X

Room Number:

Unit / Organization (45): Billy A 2nd BN 115th FA

Supervisor: Mr. [redacted] Ms. [redacted] Rank [redacted]

Supervisor, or Point of Contact Telephone Number:

RAC:

Lab Hoods: 0 0

Vapor Degreasers: 0 0

Spray Booths: 0 0

Open Surface Tanks: 0 0

OSH: [redacted]

Commercial: [redacted]

Ventilation Units: 0 0

Frequency (hrs/day): 0 0 8

No. CIVs: 0 1

No. MIL: 0 0

Contractors: 0 0

No. LOCs: 0 0

Controls Present (if >4, continue in comments/gs):

OTH

Evaluation (25 characters max): 28.6

Unit code: F T C

Controls Required (25 characters max):

50-100 PTC (Admin)
20-50 PTC (Shop)

Manufacturer's Description (10 characters max)

NIOSH TC # or Foreign equivalent (10 characters max)

Gloves	e*	R	U
acid	[redacted]		
cold surfaces	[redacted]		
hot surfaces	[redacted]		
NBC agents	[redacted]		
oil	[redacted]		
solvents	[redacted]		
surgical gloves	[redacted]		
leather / cotton	[redacted]		
other	[redacted]		

Respirator	e*	R	U
airline	[redacted]		
abrasive blasting hood	[redacted]		
disposable	[redacted]		
full face air purifying	[redacted]		
1/2 face air purifying	[redacted]		
powered air purifying	[redacted]		
1/4 face air purifying	[redacted]		
self-contained	[redacted]		
other	[redacted]		

Eyes and Face	e*	R	U
chemical splash	[redacted]		
full face shield	[redacted]		
chem/safety impact	[redacted]		
safety impact	[redacted]		
welding helmet	[redacted]		
sunglasses	[redacted]		
welding goggles/glasses	[redacted]		
facial eye protection	[redacted]		
other	[redacted]		

Hearing	e*	R	U
canal caps	[redacted]		
(>85-108 dBA steady) earplugs	[redacted]		
" helmets w/ muffs	[redacted]		
" muffs alone	[redacted]		
(108-118) muff/earplug combo	[redacted]		
muffs and earplugs	[redacted]		
(118 or >) with time limit	[redacted]		
other	[redacted]		
other	[redacted]		

Body	e*	R	U
apron	[redacted]		
cold weather clothing	[redacted]		
coveralls	[redacted]		
full body suit	[redacted]		
heat reflective	[redacted]		
bootbib	[redacted]		
safety harness	[redacted]		
special purp. clothing	[redacted]		
other	[redacted]		

Head and Feet	e*	R	U
cold weather boots/hat	[redacted]		
hard hats	[redacted]		
impermeable boots	[redacted]		
safety shoes (conductive)	[redacted]		
safety (nonconductive)	[redacted]		
other	[redacted]		
other	[redacted]		
other	[redacted]		
other	[redacted]		

e* = evaluator's recommendation or agreement

Reminders: ergonomics - dermatitis - physical agents - flammable storage
EYE (permanent) ____ - EYE (partially) ____ - SHW - GMV - LEV

ACO ADM OSA OSH LAB LCK
RAD ECB EPL RHS SPR WEL

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HH[illegible] Industrial Hygiene Survey Form

Back page

	CAS code	PAC	EPC
PONOISECO	P O Y D T X X X X	[illegible]	[illegible]
POFOOTHAZ	P O B [illegible]	[illegible]	[illegible]
POFLYPRBJ	P O L I F [illegible]	[illegible]	[illegible]
POEMERSA	7 4 3 9 - 9 [illegible]	[illegible]	[illegible]
POFLAMHAZ		[illegible]	[illegible]
POLIFTING			
POSHARPOB			
POHOTSEME			
PSELENSEX			
COMBECIL			

Hazard Description

[illegible] Video Display Terminal [illegible]

Social Security Number of Unique Identifier

List Name (20 characters max)

See Personnel List

First Name (20 characters max)

MI

Sex

Category

Personnel data provided by the facility is attached to this form

Insert Privacy Act Statement

Comments

Operation described is receive, inventory, issue. Critical unit items to include weapons and ammunition.

[illegible] operation was explained to the [illegible], but was not [illegible] observed.

There is a noise data sheet attached to this form [illegible]

There is a ventilation data sheet attached to this form [illegible]

Documents continued on attached)

2/8/95 CHPMBACK.XLS

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Page 1360 of 2531

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DEPARTMENT OF THE ARMY
Battery A 2nd BN 115th Field Artillery
National Guard Armory, 690 Airways Drive
Lexington, Tennessee 38351-6702

A 2-115-RNCO

26 FEB 03

MEMORANDUM FOR RECORD

SUBJECT: Full Time Manning Roster

1. Below is a list of FTM personnel at this unit:

Name

Non-Responsive

[redacted]

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ANNUAL WORKPLACE CHEMICAL LIST

WORKPLACE/UNIT NAME: Btry A, 2-115FA

STREET ADDRESS: 690 Airways Drive

CITY, STATE, ZIP CODE: Lexington, TN 38351

LOCAL POC (NAME & TEL #): Non-Responsive

DATE PREPARED: 8 JAN 03

CHEMICAL NAME	COMMON/TRADE NAME	NSN	* STORAGE LOCATION	AMT ON HAND
No Hazardous materials IAW OSHA, IARC or Williams	Grease GAA	9150-01-197-7689	20	5
Herbicide Glyphosate	Herbicide Round up	2117642-4	20	1
Allethrin, Naphtha, Isobutane Propane, Petroleum	Insecticide	6840-01-067-2137	20	2
Toluene, Acetone	Tent Patching Adhesive	8040-00-264-3848	20	5
Xylene, Dimethyl Benzene, Methyl toluene, Methyl Ethyl Ketone	Eco-Sure Flat Yellow Enamel	8010-01-338-3745	20	7
Same as above	Eco-Sure Gloss Red Enamel	8010-01-331-6110	20	7
Same as above	Krylon Enamel Flat Black	450301C	20	9
same as above	Enamel Eco-Sure Gloss Black	8010-01-331-6107	20	2
Ethyl Ether	Starter fluid	6752	20	10
Scotchgard	Camp Dry Fabric Protector	31600 12900	20	1

* Location number corresponds to storage location points on enclosed diagram

ANNUAL WORKPLACE CHEMICAL LIST

WORKPLACE/UNIT NAME: Bldg A, 2-115 FA

STREET ADDRESS: 640 Airways Drive

CITY, STATE, ZIP CODE: Lexington, TN 38351

LOCAL POC (NAME & TEL #): Non-Responsive

DATE PREPARED: 9 Jan 03

CHEMICAL NAME	COMMON/TRADE NAME	NSN	* STORAGE LOCATION	AMT ON HAND
XYLENE METHYL ALCOHOL Acetone Carbon Dioxide	PYROIL CARB and Choke Cleaner	6850-01-085-1423	20	1p
Butane, Enamel, Methyl Ethyl Ketone, Xylene, Acetate	Semi-Gloss ACE ROYAL TOUCH	ACE 1965474	20	1
Butane, Enamel, Methyl Ethyl Ketone, Xylene, Acetate	Semi-Gloss ACE ROYAL TOUCH	ACE 1965441	20	1
Hydrotreated Paraffinic Distillates, Zinc Salts of Dialkyldithiophosphoric acid	ENGINE OIL	9150-00-188-9858	20	2
1-Decene, Homopolymer, mineral oil, Petroleum distillate, soap	Grease GAA	9150-01-197-7692	20	1
Hydrotreated Paraffinic Distillates, Zinc Salts of Dialkyldithiophosphoric acid	ENGINE OIL	9150-00-186-6668	20	1
Same as above	ENGINE OIL	9150-01-152-4118	20	1
Respirable Crystalline Silica,	FLOOR SHEEP	7930-00-269-1272	20	2

* Location number corresponds to storage location points on enclosed diagram

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ANNUAL WORKPLACE CHEMICAL LIST

WORKPLACE/UNIT NAME: Btry A, 2-115 FA

STREET ADDRESS: 690 Airways Drive

CITY, STATE, ZIP CODE: Lexington, TN 38351

LOCAL POC (NAME & TEL #): Non-Responsive

DATE PREPARED: 0 Jan 93

CHEMICAL NAME	COMMON/TRADE NAME	NSN	* STORAGE LOCATION	AMT ON HAND
Refined Petroleum Oil, Calcium Dinonylnaphthalenesulfonate	CLEANER, LUBE, AND PRESERVATIVE	9150-01-054-6453	20	16
Same as above	CLEANER, LUBE, AND PRESERVATIVE	9150-01-102-1473	20	24
Mineral oil, Solvent, Barium, Petroleum Sulfonate	HYDRAULIC FLUID	9150-00-935-9808	20	8
Same as above	HYDRAULIC FLUID	9150-00-935-9807	20	36
Dimethyl Polysiloxane, Silicon Dioxide	Silicone	6850-00-880-7616	20	19
Hydraulic Fluid	DEXRON III	9150-01-353-4799	20	8
Petroleum Hydrocarbon	LSA, Lubricating oil	9150-00-889-3522	20	45
Poly Dimethyl Siloxane Additives	Brake Fluid Silicon	9150-01-102-9455	20	2
Lubricating Oil OE/HDO 15/40	Engine Oil	9150-01-178-4725	20	24
Solvents, Petroleum Distillates, Petroleum Hydrocarbons	2 Cycle Engine Oil STIHL EAGLE OIL 0781-319-8014	9150-00 F008333	20	3

* Location number corresponds to storage location points on enclosed diagram

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ANNUAL WORKPLACE CHEMICAL LIST

WORKPLACE/UNIT NAME: Bldg A, 2-115FA

STREET ADDRESS: 690 Airways Drive

CITY, STATE, ZIP CODE: Lexington TN 38351

LOCAL POC (NAME & TEL #): Non-Responsive

DATE PREPARED: 6 Jan 03

CHEMICAL NAME	COMMON/TRADE NAME	NSN	* STORAGE LOCATION	AMT ON HAND
Refined Petroleum oil, Calcium Dinoknaphthalene-Hesulfonate	CLP	9150-01-053-6680	20	1
Same as above	CLP	9150-01-054-6453	20	3
Calcium Hydroxy-stearate, mineral oil, Isobutylene	Grease GAA	9150-00-190-0905	20	1
Xylene, Dimethyl Benzene, Methyl Toluene, Methyl Ethyl Ketone	ECO-SURE GLOSS BLACK	8010-01-371-6107	20	1
Same as above	SD-SURE GLOSS OLIVE GREEN	8010-00-584-3149	20	2

* Location number corresponds to storage location points on enclosed diagram

ANNUAL WORKPLACE CHEMICAL LIST

WORKPLACE/UNIT NAME: Btry A, 2-115 FA

STREET ADDRESS: 690 Airways Drive

CITY, STATE, ZIP CODE: Lexington, TN 38351

LOCAL POC (NAME & TEL #): Non-Responsive

DATE PREPARED: 6 Jun 03 -

CHEMICAL NAME	COMMON/TRADE NAME	NSN	* STORAGE LOCATION	AMT ON HAND
Type 1 A-A-269 Chlorine Bleach Scouring Powder	Freepand TYPE 1 Scouring Powder	7930-00-721-8592	8	41
Sodium Carbonate Sodium Silicate	Proctor & Gamble CASCADE		8	1
Silicone butane Propane	TWINKLE Stainless Steel Polish		8	1
Isopropanol butoxyethanol	Formula 409		8	1
Isoparrafinic hydrocarbon	Stainless Steel Wipes		8	5
Tetrasodium EDTA	Betco / winning Hands Detergent		8	3
Propane/Isobutane Sodium Hydroxide Hexylene Glycol	Misty Oven and Grill Cleaner	7930-00-459-2247	8	17
Petroleum Distillate	Black Beauty Stove Polish		8	1
D-Trans Allethrin - Resmethrin	Insecticide	6840-01-067-2137	8	6
Ethylene Glycol monobutyl Ether Polyethylene Ether	Skillcraft All Purpose Cleaner	7930-00-926-3280	8	23

* Location number corresponds to storage location points on enclosed diagram

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ANNUAL WORKPLACE CHEMICAL LIST

WORKPLACE/UNIT NAME: Btry A, 2-115FA

STREET ADDRESS: 690 Airways Drive

CITY, STATE, ZIP CODE: Lexington, TN 38351

LOCAL POC (NAME & TEL #): Non-Responsive

DATE PREPARED: 6 Jan 03

CHEMICAL NAME	COMMON/TRADE NAME	NSN	* STORAGE LOCATION	AMT ON HAND
Perchloroethylene Nitrilotriacetic Acid, Titanium dioxide Phosphoric Acid	Betco Dust mop treatment	7930-00 F034678	8	1
Sodium metasilicate Nonionic Surfactant Sodium Hydroxide	State all Purpose Cleaner		8	4
Glycol Ether	Simple Green		8	2
Ethylene Glycol, Surfactant, Perfume oil, Acrylic Emulsion	Floor Cleaner BETCO DAE STEP	MSDS # 618	8	1
Isopropanol, Ammonium Hydroxide Methyl Alcohol	Glass Cleaner	7930-00-184-9423	8	3
Water, 2-Butoxyethanol Monoethanolamine	ACE Floor Stripper	6850-00 N093034	8	2
Water, surfactant, tetrasodium salt, Citric Acid, Perfume oil, Dye	PH7 Neutral Cleaner BETCO	MSDS # 135	8	1
Ethylene glycol-Monobutyl Ether, Monoethanolamine	Floor Stripper STATE	Product # 101206	8	1
Surfactant, Sodium Lauryl Ether sulfate, Tetrasodium Salt	Dishwashing Detersent BETCO Jw-3YNC	MSDS #190	8	1
No Hazardous materials	ZEP Hand soap DELIGHT	8520-01-432-2618	8	1

* Location number corresponds to storage location points on enclosed diagram

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ANNUAL WORKPLACE CHEMICAL LIST

WORKPLACE/UNIT NAME: Bldg A, 2-115FA

STREET ADDRESS: 690 Airways Drive

CITY, STATE, ZIP CODE: Lexington, TN 38351

LOCAL POC (NAME & TEL #): Non-Responsive

DATE PREPARED: 6 JAN 03

CHEMICAL NAME	COMMON/TRADE NAME	NSN	* STORAGE LOCATION	AMT ON HAND
Dodecyl Benzene Sulfonic Acid Nonylphenoxypolyethoxyethanol	LHB Ind. Kitchen Mate	7930-00-880-4454	8	10
Same as above	So-Sure	7930-00-880-4454	8	4
No Hazardous Materials	Kresto Select Hand Cleaner	Product # SK-104	8	1

* Location number corresponds to storage location points on enclosed diagram

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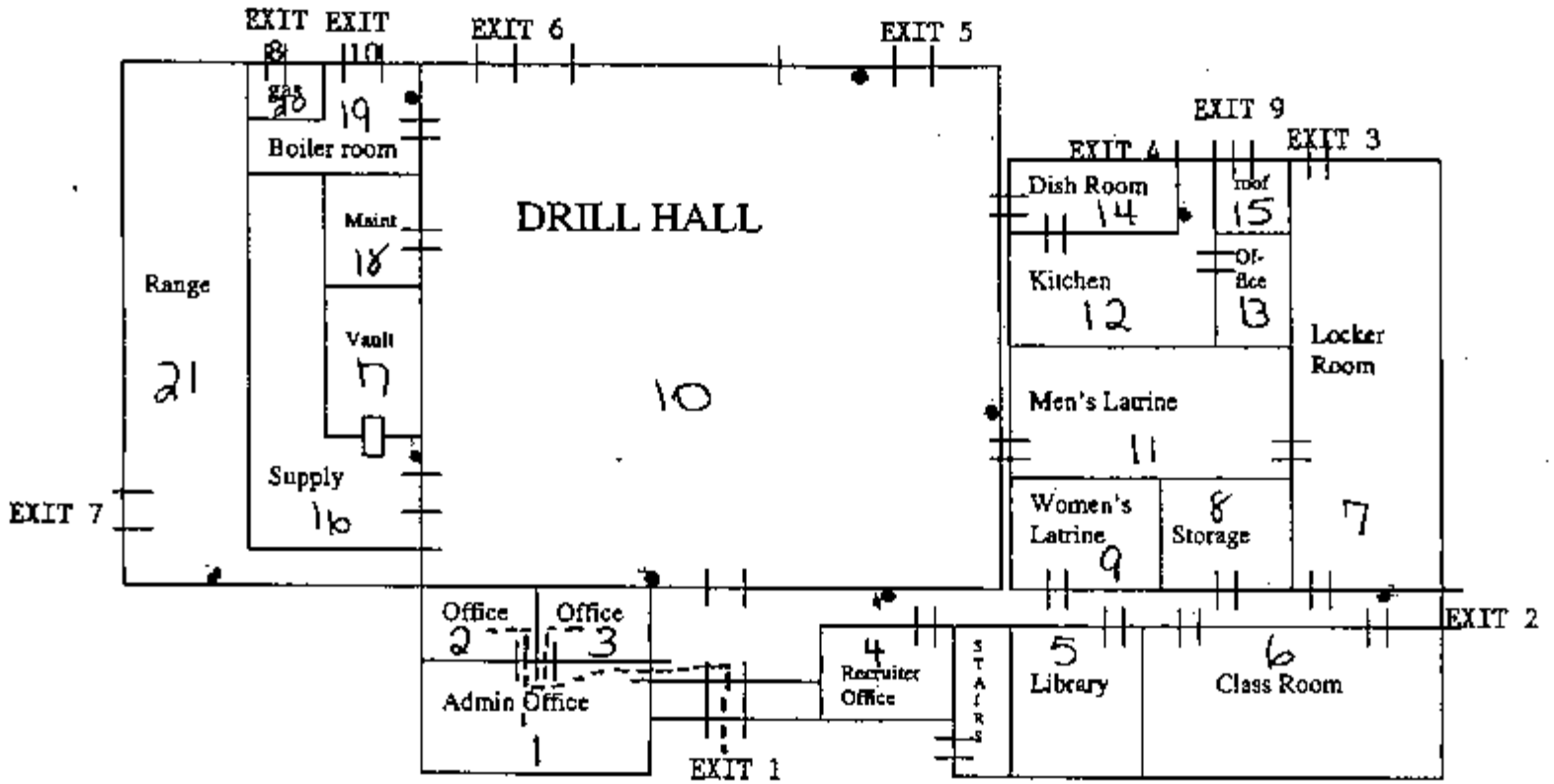
FIRE EXIT PLAN



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FOIA Requested Record #J-15-0085 (TN)
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Page 1369 of 2531

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APPENDIX C

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FOIA Requested Record #J-15-0085 (TN)
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Page 1370 of 2531

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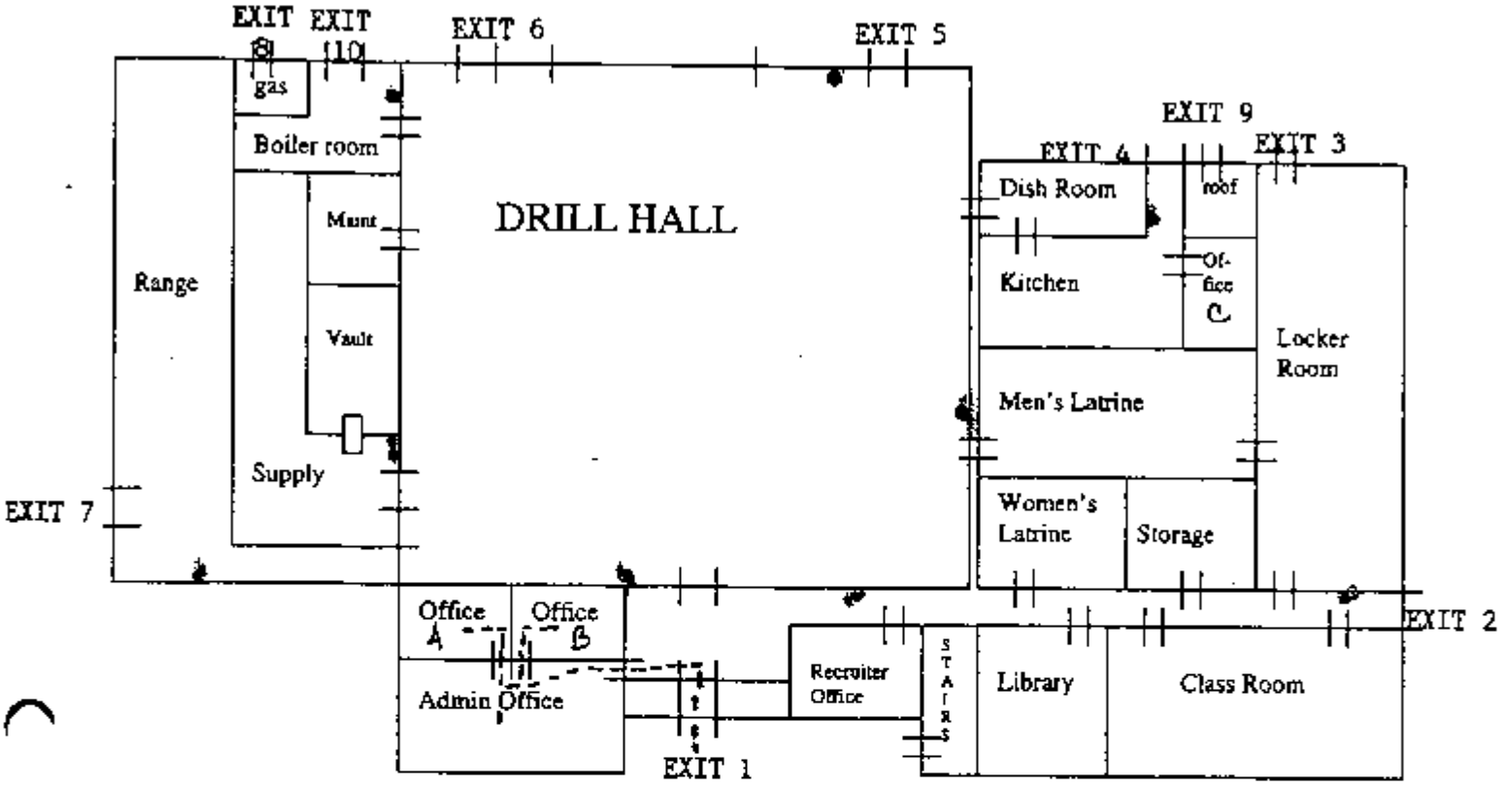
FIRE EXIT PLAN



** THE FIRE EXTINGUISHERS ARE LOCATED IN THE YELLOW HIGHLIGHTED AREAS
** THE FIRE EXITS ARE LOCATED IN THE ORANGE HIGHLIGHTED ARES
** THE RED LINES INDICATE THE CORRECT FIRE ESCAPE ROUTE

PERSONNEL IN THE FOLLOWING AREAS WILL USE THE FOLLOWING DESIGNATED FIRE EXITS

1. ADMIN, RECRUITING, LIBRARY & WOMEN'S LATRINE
2. CLASSROOM, LOCKER ROOM & STORAGE
3. LOCKER ROOM & MEN'S LATRINE
4. KITCHEN
5. DISH ROOM, KITCHEN, MEN'S LATRINE & DRILL HALL
6. DRILL HALL, MAINTENANCE, SUPPLY AND BOILER ROOM
7. RANGE
8. GAS HOUSE
9. ROOF
10. BOILER ROOM

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APPENDIX D

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FOIA Requested Record #J-15-0085 (TN)
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Page 1372 of 2531

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Analytical Environmental Servs, Inc.

Date: 3/25/2003

TOTAL LEAD IN WIPE SAMPLES
N7082

CLIENT:	Environmental Management Solutions	**Lab Order:**	0303464
Project:	Lexington Armory	**Date Received:**	3/17/2003 9:35:0
Project No:	Lexington Armor	**Matrix:**	Wipe
PO No:		**Analyst:**	SSS

Laboratory ID	Client Sample ID	Results	Units	MDL	DF	Date Collected	Date Analyzed
0303464-001A	LX-01	33.0	µg, Total	2.83	1	2/26/2003	3/19/2003
0303464-002A	LX-02	BRL	µg, Total	2.83	1	2/26/2003	3/19/2003
0303464-003A	LX-03	263	µg, Total	2.83	1	2/26/2003	3/19/2003
0303464-004A	LX-04	2600	µg, Total	6.65	2.35	2/26/2003	3/19/2003
0303464-005A	LX-05	BRL	µg, Total	2.83	1	2/26/2003	3/19/2003
0303464-006A	LX-06	BRL	µg, Total	2.83	1	2/26/2003	3/19/2003
0303464-007A	LX-07	BRL	µg, Total	2.83	1	2/26/2003	3/19/2003
0303464-008A	LX-08	2150	µg, Total	5.77	2.04	2/26/2003	3/19/2003
0303464-009A	LX-09	458	µg, Total	2.83	1	2/26/2003	3/19/2003
0303464-010A	LX-10	BRL	µg, Total	2.83	1	2/26/2003	3/19/2003
0303464-011A	LX-11A	BRL	µg, Total	2.83	1	2/26/2003	3/19/2003
0303464-012A	LX-12	70.0	µg, Total	2.83	1	2/26/2003	3/19/2003
0303464-013A	LX-13	BRL	µg, Total	2.83	1	2/26/2003	3/19/2003
0303464-014A	LX-14	164	µg, Total	2.83	1	2/26/2003	3/19/2003
0303464-015A	LX-15	BRL	µg, Total	2.83	1	2/26/2003	3/19/2003
0303464-016A	LX-16	BRL	µg, Total	2.83	1	2/26/2003	3/19/2003
0303464-017A	LX-17	84.0	µg, Total	2.83	1	2/26/2003	3/19/2003
0303464-018A	LX-11B	BRL	µg, Total	2.83	1	2/26/2003	3/21/2003

Qualifiers: MDL - Method Detection Limit DF - Dilution Factor
ND - Not Detected at the Reporting Limit

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1373 of 2531

Industrial Hygiene Surface Wipe Sample Sheet

Return Address Non-Responsive [redacted]

Point of Contact (name & phone # Non-Responsive [redacted]

Sampled Facility Levington Armory

City Levington

State TN

Location (bldg/area)

Description of Operation TN ARNG

Date Collected 2/26/03

Date Shipped 2/27/03

Analysis Desired Lead

Sampling Data

Lab Use Only	Sample #	Results	Remarks
	LX-01		Shelving, Right side storage
	LX-02		Weapons rack, vault
	LX-03		wooden shelf, left side facing bullet stop downrange
	LX-04		Middle of floor, backstop
	LX-05		Back wall, bullet stop right side apx 7'
	LX-06.		Food storage area, shelving
	LX-07		Right wall, apx. 5', Support Plt HQ
	LX-08		Floor, 2nd Platoon Ammo Section
	LX-09		Floor, In front of storage cages left side
	LX-10		Wall 6' Battery Supply
	LX-11		Right side wall, front of range
	LX-12		Shelving, Firing PLT HQ

Comments to Lab:

Industrial Hygiene Surface Wipe Sample Sheet

Return Address		**Point of Contact** *(name & phone #)*	
		Samples Collected By	
Sampled Facility	**City**	**State**	**Location** *(bldg/area)*
Description of Operation		**Date Collected**	**Date Shipped**
Analysis Desired			
Sampling Data			

Lab Use Only	Sample #	Results	Remarks
	LX-13		Shelf, Hallway to Range
	LX-14		Floor, Hallway to Range
	LX-15		Floor next to IFR entrance (right)
	LX-16		Kitchen, shelf below coffee maker
	LX-17		Pall Hall, Top of soda machine

Comments to Lab:

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NATIONAL GUARD REGION SOUTH
INDUSTRIAL HYGIENE OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

NGB-ARS-SEIH November 20, 2007

MEMORANDUM FOR: Non-Responsive RN, Occupational Health Nurse, Tennessee State Safety and Occupational Health Office, 250 8th Avenue, Smyrna, Tennessee 37167.

SUBJECT: Lexington Tennessee National Guard Armory, Lead Sampling Survey, 690 Airways Drive, Lexington, Tennessee.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 22 July 2005.

c. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, 1988.

d. AR 385-10, The Army Safety Program, 29 February 2000.

e. NGR Pam 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006.

f. NGR 385-15, Policy and Responsibilities, Evaluation and Operation of Army National Guard Indoor Firing Ranges, 3 November 2006.

g. DA PAM 40-503, The Army Industrial Hygiene Program, 30 October 2000.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2003, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. Title 29, Code of Federal Regulations (CFR), 2001 rev., part 1910, Occupational Safety and Health Standards.

2. General.

a. As requested by Non-Responsive Tennessee Occupational Health Office, personnel with the National Guard Region South Office performed a visual inspection at the referenced site. The apparent objective of the inspection was to collect surface wipe samples from the former Indoor Firing Range for analysis of total lead.

b. Non-Responsive with the National Guard Region South Industrial Hygiene Office in College Park Georgia performed the site visit.

3. Findings.

General Information

At the time of the sampling activity, the interior of the Lexington Armory Indoor Firing Range was emptied of the bullet stop and firing line. The surface areas were observed to be constructed of cinder-block walls with concrete floors and ceilings. The system appeared to be closed and the former range appeared to be generally cleaned of debris.

Sampling Activities

Based on the number of surfaces observed, samples were collected in accordance with NG Pam 420-15. Ghost Wipes™ are pre-moistened media made of non-woven polyvinyl alcohol fiber and approved by American Industrial Hygiene Association (AIHA) for lead sampling. The wipes also meet all American Standards Testing Materials (ASTM) Designation E1792-96E specifications for sampling materials for lead in surface dust.

The surface samples were collected by placing a 1 square foot sampling template on the surface area and wiping the outlined area with a Ghost Wipe™. After the area inside the template was wiped, the sampling media was placed into a labeled re-sealable plastic bag and sealed. After each sample collection, a new surface area template was used and new disposable gloves were donned. A total of 18 samples were collected, three from each surface area for submittal to Analytical Environmental Services, Inc. (AES) in Atlanta, Georgia for subsequent analysis of total lead. In addition, one wipe was placed into a re-sealable bag and submitted as a blank sample for analysis.

Photographs of the observation made during the inspection including sample locations are attached for reference.

Laboratory Results

The results of the lead dust sampling activities are summarized in the following table.

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1377 of 2531

Sample Number	Sample Location	Laboratory Results[1]
TNLX-01	Lower Wall, Bullet Stop	BRL[2]
TNLX-02	Middle Wall, Bullet Stop	BRL
TNLX-03	Upper Wall, Bullet Stop	BRL
TNLX-04	Lower Right Wall	BRL
TNLX-05	Middle Right Wall	BRL
TNLX-06	Upper Right Wall	BRL
TNLX-07	Lower Rear Wall	BRL
TNLX-08	Middle Rear Wall	BRL
TNLX-09	Upper Rear Wall	BRL
TNLX-10	Lower Left Wall	BRL
TNLX-11	Middle Left Wall	BRL
TNLX-12	Upper Left Wall	BRL
TNLX-13	Floor at Bullet	221
TNLX-14	Middle Floor	2,360
TNLX-15	Floor at Rear Wall	63
TNLX-16	Ceiling at Bullet Stop	BRL
TNLX-17	Middle Ceiling	BRL
TNLX-18	Ceiling at Rear Wall	BRL
TNLX-B1	Field Blank	BRL

[1] Results reported in micrograms per square feet ($\mu g/ft^2$)
[2] BRL = Below Reportable Limits

The laboratory results indicate lead concentrations detected above the IFR post cleaning standard of 200 $\mu g/ft^2$. In accordance with the National Guard Bureau Pamphlet 420-15, the Lebanon Armory IFR cannot be converted for other uses until the lead dust levels are detected below 200$\mu g/ft^2$ or lower depending on local requirements.

The laboratory results are attached for review.

4. Recommendations.

a. Prior to initiating decontamination activities and in accordance with 29 CFR 1910.1025, perform and conduct training for employees exposed to lead concentrations above the standard or who may suffer skin or eye irritation from exposure to lead.

b. Review NG Bureau Pamphlet 420-15 prior to conducting decontamination of the IFR and conduct cleaning activities in accordance with the regulatory document. Keep in mind that EPA (40 CFR 745 Subpart D) and your state may have lead reduction levels lower than the levels recommended in Pamphlet 420-15.

c. Ensure that appropriate personal protective equipment is worn during decontamination activities.

d. Consult with local Environmental Agency for guidance on proper disposal of materials used in decontaminating the IFR.

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1378 of 2531

e. Upon completion of the decontamination activities, contact the Regional IH office for evaluation and collection of confirmatory lead dust samples.

5. If additional information is needed about the [redacted]

Non-Responsive

CC: Non-Responsive CFMO, 3041 Sidco Drive, Nashville, Tennessee 37204-1504

Posted to NGB FOIA Reading Room
May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1379 of 2531

Posted to NGB FOIA Reading Room
May, 2018

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Photo 1: View of the Lexington, Tennessee Armory.

Photo 2: View of the former bullet stop and adjacent wall with sample locations.

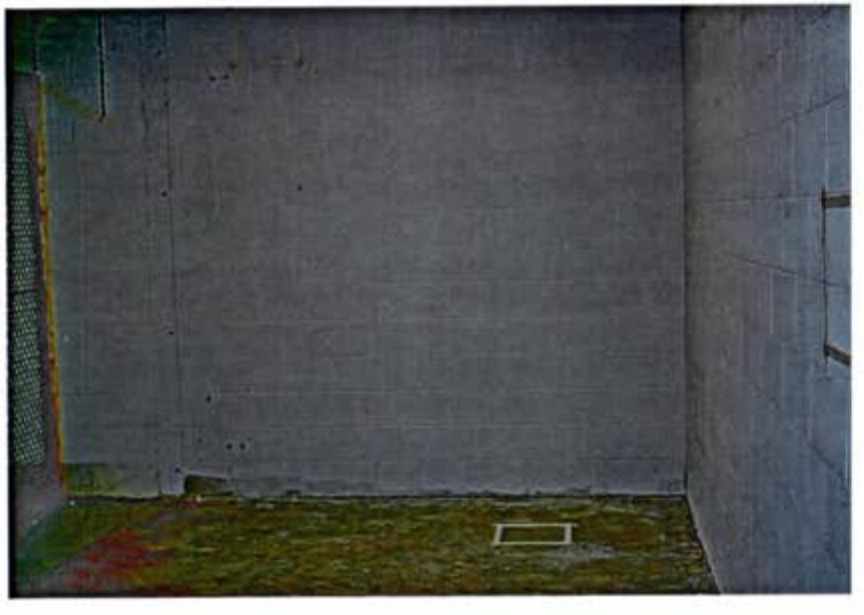

Photo 3: View of left wall closest to the former bullet stop.

Photo 4: View of rear wall with surface sample location.

Project Name: Lexington Tennessee Armory

Date Photos Taken: 18 October 2007

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Released by National Guard Bureau

Posted to NGB FOIA Reading Room
May, 2018

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Photo 5: View of the left wall of the former IFR.

Photo 6: View of floor of the former IFR with metal cages observed.

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Photo 7: View of IFR metal ceiling.

Project Name: Lexington Tennessee Armory

Date Photos Taken: 18 October 2007

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Analytical Environmental Services, Inc.

Date: 10/31/2007

LEAD ON WIPES (N9100/7082)
N7082

CLIENT: National Guard Bureau Region-South IH
Project: LEXINGTON TN ARMORY
Delivery Order:
PO No:

Lab Order: 0710D58
Date Received: 10/24/2007 12:55 PM
Matrix: Wipe

Laboratory ID	Client Sample ID	Results	Units	Report Limit	DF	Date Collected	Date Analyzed	Analyst
0710D58-001A	TNLX-01	BRL	µg/ft²	20	1	10/19/2007	10/26/2007	JY
0710D58-002A	TNLX-02	BRL	µg/ft²	20	1	10/19/2007	10/26/2007	JY
0710D58-003A	TNLX-03	BRL	µg/ft²	20	1	10/19/2007	10/26/2007	JY
0710D58-004A	TNLX-04	BRL	µg/ft²	20	1	10/19/2007	10/26/2007	JY
0710D58-005A	TNLX-05	BRL	µg/ft²	20	1	10/19/2007	10/26/2007	JY
0710D58-006A	TNLX-06	BRL	µg/ft²	20	1	10/19/2007	10/26/2007	JY
0710D58-007A	TNLX-07	BRL	µg/ft²	20	1	10/19/2007	10/26/2007	JY
0710D58-008A	TNLX-08	BRL	µg/ft²	20	1	10/19/2007	10/26/2007	JY
0710D58-009A	TNLX-09	BRL	µg/ft²	20	1	10/19/2007	10/26/2007	JY
0710D58-010A	TNLX-10	BRL	µg/ft²	20	1	10/19/2007	10/26/2007	JY
0710D58-011A	TNLX-11	BRL	µg/ft²	20	1	10/19/2007	10/26/2007	JY
0710D58-012A	TNLX-12	BRL	µg/ft²	20	1	10/19/2007	10/26/2007	JY
0710D58-013A	TNLX-13	221	µg/ft²	20	1	10/19/2007	10/26/2007	JY
0710D58-014A	TNLX-14	2360	µg/ft²	68	3.41	10/19/2007	10/26/2007	JY
0710D58-015A	TNLX-15	63	µg/ft²	20	1	10/19/2007	10/26/2007	JY
0710D58-016A	TNLX-16	BRL	µg/ft²	20	1	10/19/2007	10/26/2007	JY
0710D58-017A	TNLX-17	BRL	µg/ft²	20	1	10/19/2007	10/26/2007	JY
0710D58-018A	TNLX-18	BRL	µg/ft²	20	1	10/19/2007	10/26/2007	JY
0710D58-019A	TNLX B-1	BRL	µg, Total	20	1	10/19/2007	10/26/2007	JY

Qualifiers: BRL - Not Detected at the Reporting Limit DF - Dilution Factor

Results are blank corrected where applicable

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1382 of 2531

NATIONAL GUARD REGION SOUTH
INDUSTRIAL HYGIENE OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

NGB-AVS-SEIH 11 October 2006

MEMORANDUM THRU [redacted] Deputy State Surgeon, Tennessee National Guard, HQS, TNARNG STARC, Attn: AGTN-DCSPER-DSS, P.O. Box 41502, Houston Barracks, Nashville, Tennessee 37204-1501

TO: ATTN: [redacted] 30th TRP CMD, 1202 East Carroll, Tullahoma, TN 37388

SUBJECT: Industrial Hygiene sampling for Lead at the Indoor Firing Range of the Lexington National Guard Armory

1. References.

a. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1996 rev.

b. AR 40-5, Preventive Medicine, 22 July 2005.

c. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.

d. AR 385-10, 29 February 2000, Army Safety Program.

e. TB MED 503, The Army Industrial Hygiene Program, 30 October 2000.

f. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.

g. Industrial Ventilation, 25th, 2004, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

h. Title 29 Code of Federal Regulation (CFR), Part 1910.1025 Lead.

2. General.

a. At the request of [redacted] of the Tennessee National Safety and Occupational Health Office, a lead survey of the inactive Indoor Firing Range was conducted 15 September 2006.

b. [redacted] Industrial Hygiene Technician, of the Southeast Regional IH Office conducted the sampling with assistance from [redacted]

3. Findings.

a. Samples were taken in the inactive Indoor Firing Range along the rear of the Armory. The Indoor Firing Range was deactivated many years ago. The range has a sign posted on the door stating it was cleaned on July. Currently the Indoor Firing Range is being used for storage. The plenum has been removed, acoustical material is still up on some parts of the walls, and adhesive material is visible.

b. The backstop was removed and there is no visible evidence of a sand trap. A cage storage system has been installed in the range and bolted to the floor. There are shelving units and a table located in the storage cages and at the bullet stop end of the IFR. Heavy dust covers most of the shelving areas.

c. Twenty-two samples including two blank wipes were taken throughout the Indoor Firing Range. Results ranged from Below Reporting Limit (BRL) to 3910 µg/ft².

d. The three samples from the Indoor Firing Range that showed significant lead levels above the limit of 200µg/ft².

e. Post cleaning levels of surface wipes must be less than 200µg/ft² (40 µg/ft² in the case of child exposure during future use.) Otherwise this constitutes the range is not decontaminated and not able to be converted for other use.

f. Lead Wipe Sample Results:

Sample Number	Micrograms (µg) Of Lead per Square Foot	Sample Area
LEX01	BRL	Top left wall
LEX02	BRL	Middle left wall
LEX03	20	Bottom left wall
LEX04	BRL	Top left bullet stop end of wall
LEX05	143	Middle bullet stop end of wall
LEX06	55	Bottom right bullet stop end of wall
LEX07	BRL	Top right wall
LEX08	BLR	Middle right wall
LEX09	24	Bottom right wall
LEX10	BRL	Bottom rear wall
LEX11	BRL	BLANK
LEX12	BRL	Middle rear wall
LEX13	BRL	Rear Wall Top
LEX14	1320	Floor Rt Bullet Stop
LEX15	3910	Floor Center
LEX16	54	Floor Left Rear Wall
LEX17	74	Floor outside entrance to IFR
LEX18	208	Shelf in Bullet Stop area

LEX19	117	Table In bullet Stop Area
LEX20	164	Ceiling Vent/Fan Bullet Stop Area
LEX21	BRL	Shelf Unit in Bullet Stop Area
LEX22	BRL	BLANK

g. Attached: Sample results, diagram of where samples were taken and pictures.

4. Recommendations.

a. Decontamination of converted Indoor Firing Range (Supply/Storage room) of lead following NG PAM's 40-15 and 385-16. Keep in mind that EPA and your state may have lead reduction levels lower than the levels recommended.

b. Items stored in Indoor Firing Range must be decontaminated prior to removal.

c. To execute your responsibilities in correcting all deficiencies, coordinate with the Occupational Health Nurse, the FMO Environmental Office and the Occupational Safety and Health Office for technical guidance.

Non-Responsive

[redacted]

CF: NBG-AVN-SH

CF: Non-Responsive Occupational Health Nurse, Tennessee State Safety and Occupational Health Office, ATTN: AGTN-SAHO, Houston Barracks, 3041 Sidco Drive, Nashville, Tennessee 37204-1502

CF: Non-Responsive essee State Safety and Occupational Health Manager, 3041 Sidco Drive, Nashville, TN 37204-1504

Shelf in Plenum room

Ceiling Vent above Bullet Stop

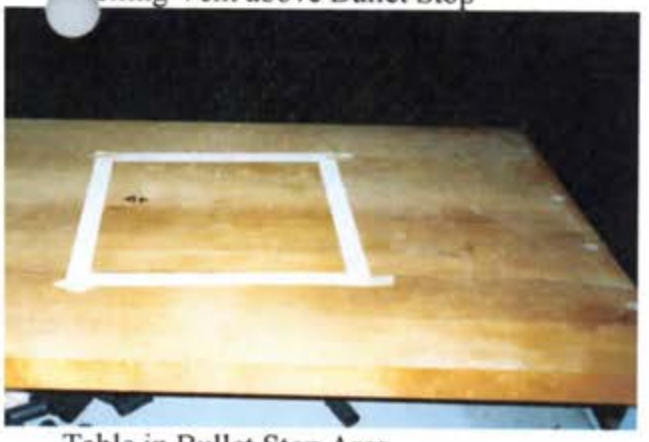
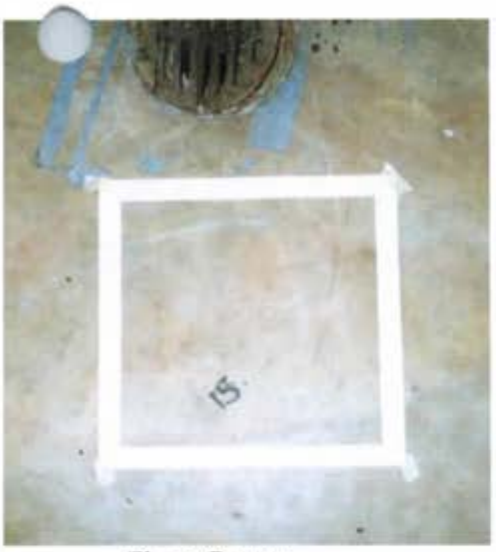


Table in Bullet Stop Area

Shelving unit in bullet stop area

Floor Out side Entrance to IFR

Floor Lt Rear Wall



Floor Center

Middle Rear Wall

Floor Rt Bullet Stop

Bottom Rear Wall

Rear Wall Top

Bottom Rt Wall

Bottom Rt Bullet Stop

Middle Rt Wall/ Top Rt Wall (below)

Middle Bullet Stop End

Top Left Bullet Stop End

Bottom Left Wall

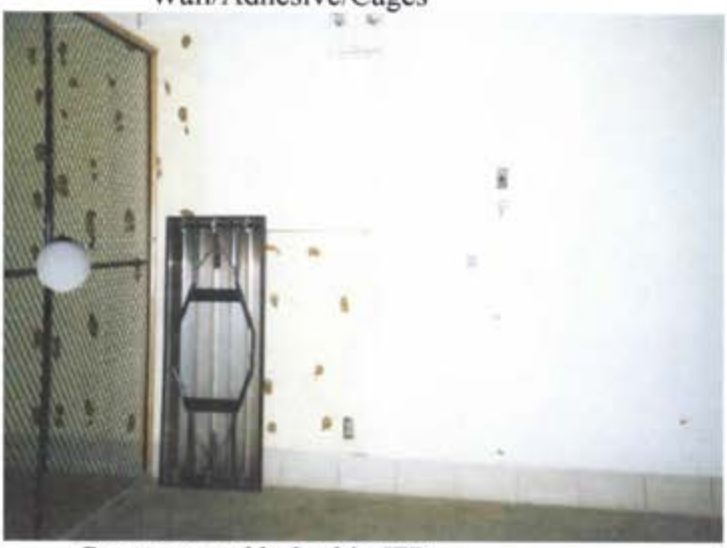
Top Left Wall

Middle Left Wall

Ceiling and Adhesive

Storage Cage in IFR

Wall/Adhesive/Cages



Cages set and bolted in IFR

*NG Pamphlet 40-15

Department of the Army and the Air Force
National Guard Bureau
Arlington, Virginia 22202-3231
XX XXX XXXX

Preventive Medicine

GUIDELINES AND PROCEDURES FOR REHABILITATION AND CONVERSION OF INDOOR FIRING RANGES (IFRs)

By Order of the Secretaries of the Army and Air Force:

Non-Responsive

XXXX XXXX
XXX, XXXX
XXXX,XXX

History. This printing supersedes NG Pamphlet 385-16, 31 January 1994. Because the pamphlet has been extensively revised, the changed portions have not been highlighted.

Summary. This pamphlet prescribes policy for rehabilitation and conversion of National Guard IFRs.

Applicability. This guidance applies to all persons responsible for the operation of National Guard IFRs. As no regulation/guidance can foresee all situations that might arise, the following is written in a broad scope and is intended to be interpreted so as to ensure compliance with all applicable Federal and State laws and regulations.

Proponent. Office of the Joint Surgeon, National Guard Bureau.

Supplementation. Supplementation of this pamphlet requires the approval of the National Guard Bureau Office of the Joint Surgeon, NGB-SG-IH, 1411 Jefferson Davis Highway, Arlington, VA 22202-3231.

Interim Changes. Interim changes to this pamphlet are not official unless authenticated by, Chief Office of Policy and Liaison, National Guard Bureau. Interim changes will be destroyed on their expiration dates, unless sooner superseded or rescinded.

Suggested Improvements. Users of this pamphlet are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) to the National Guard Bureau, Office of the Joint Surgeon, ATTN: NGB-SG-IH, 1411 Jefferson Davis Highway, Arlington, VA 22202-3231.

Distribution. A.

*This regulation supersedes NG Pamphlet 385-16, dated 31 January 1994.

8 May 2006

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1391 of 2531

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Table of Contents

Chapter 1
Introduction
1-1. Purpose

1-2. References
1-3. Explanation of abbreviations and terms
1-4. Policy and Procedures
1-5. Goal
1-6. Deviation

Chapter 2
Health and Medical Aspects
2-1. Health Effects
2-2. Medical Surveillance
2-3. Air Monitoring
2-4. Wipe Sampling Protocol and Media
2-5. Personal Protection Equipment

Chapter 3
Education, Maintenance, Cleaning and Conversion
3-1. Weapon Education
3-2. Range Cleaning Instructions
3-3. Cleaning Stored Contaminated Equipment
3-4. Contaminated Sand and Lead Waste
3-5. Range Rehabilitation
3-6. Conversion of Indoor Firing Ranges

Appendices
A. References
B. Protocol for Collecting Wipe Samples
C. Sampling Strategy for Collection of Wipe Samples

Glossary

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1392 of 2531

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1-1. Purpose
This pamphlet establishes the policy and procedures for rehabilitation and conversion, of National Guard IFRs.

1-2. References
Required and related publications and referenced and prescribed forms are listed in appendix A.

1-3. Explanation of abbreviations and terms
Abbreviations and special terms used in this publication are listed in the glossary.

1-4. Policy and Procedures
Indoor firing ranges can be safely rehabilitated or converted for other uses, such as a storage area, classrooms or office space, provided the following –

a. Prior to conversion active ranges must be thoroughly decontaminated and cleaned to acceptable levels. *All ranges converted prior to the publication date of this pamphlet, must be inspected and evaluated to determine lead contamination.* This will be accomplished by a certified National Guard Industrial Hygienist or a person certified to perform inspections, evaluations, and determinations of IFRs IAW with OSHA standards, other nationally accepted standards, and accepted IH practices for maintenance, cleaning, conversion, ventilation, and air sampling of IFRs.

b. The level of cleanliness is to be determined by sampling. The Occupational Safety and Health Administration's (OSHA) Technical Manual, 5th Edition, provides guidance on the methods and techniques needed to collect wipe samples (appendix B).

(1) Wipe samples must be collected and analyzed prior to and after cleaning.

(2) Post-cleaning surface wipe sample results must be less than 200 micrograms per square foot (ug/ft^2) (40 micrograms in the case of child exposure). The sampling strategy, which is the amount and location of wipe samples to be collected, is provided in appendix C.

c. Equipment/items previously stored in the range must be decontaminated and cleaned to acceptable levels as determined by a person certified to perform inspections, evaluations, and determinations of IFRs IAW with OSHA standards, other nationally accepted standards, and accepted IH practices for maintenance, cleaning, conversion, ventilation, and air sampling of IFRs.

(1) Samples must be collected from equipment/items stored in the range. Sample selection is critical, because the number of items stored, length of storage, and level of contamination differs from range to range. The amount and location of the samples should be representative of the areas where lead dust is most likely to accumulate. The more samples collected, the better the statistical comparison of the results.

(2) Samples must be collected from the smooth surfaces of the equipment/items, as much as possible. Results of samples collected from a rough surface will be inaccurate due to the minimal surface contact of the media. Further, the likelihood of tearing the media filter is greater on rough surfaces.

(3) Samples should also be collected on items stored the longest period of time, and which have not been disturbed. Items stored closest to the bullet trap and firing line are likely to have higher concentrations of lead dust.

1-5. Goal
To ensure every IFR is free of lead dust which means to test less than 200 micrograms and to reduce the number of unsafe National Guard IFRs.

1-6. Deviation
Deviations from this guidance will require a written exception to policy from your Regional Industrial Hygiene Office. Questions and/or comments regarding this subject should be directed to your Regional Industrial Hygiene Office or Chief, National Guard Bureau, Office of the Joint Surgeon, ATTN: NGB-SG-IH, 1411 Jefferson Davis Highway, Arlington, VA 22202-3231.

Chapter 2
Health and Medical Aspects

2-1. Health Effects

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1393 of 2531

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29 Code of Federal Regulations (CFR) 1910.1025, Appendix A, identifies lead as a highly toxic metal. Elemental lead is indestructible, and common in the environment. Lead can enter the body by inhalation (breathing) or ingestion (eating). In addition, lead is a cumulative poison. It accumulates in the blood, bones, and organs, including the kidneys, brain and liver. Effects include nervous and reproductive system disorders, delays in neurological and physical development, cognitive and behavioral changes, and hypertension. Symptoms include loss of appetite, difficulty sleeping, irritability, fatigue, headache, and inability to concentrate. It can stay in the bones for decades. Worker awareness and training are important to ensure that employees can recognize the symptoms of exposure and get prompt medical attention.

2-2. Medical Surveillance

All medical surveillance required by the standard must be performed by or under the supervision of a licensed physician. Medical surveillance is triggered by the results of individual air monitoring results. Medical surveillance must be made available to all employees who are exposed in excess of the action level for more than 30 days per year. IAW 29 CFR 1910.1025, appendix C, [redacted]

2-3. Air Monitoring

Worker breathing zone air samples must be collected to ensure personnel are not overexposed to airborne lead during the cleanup phase. Daily air samples will be collected on all personnel involved in the cleanup operation. These exposure levels will be used to evaluate work practices and medical surveillance requirements.

2-4. Wipe Sampling Protocol and Media

A template measuring 10 centimeters by 10 centimeters square, approximately 4 inches square, should be used to accurately measure and mark the area before collecting wipe samples. Samples should be staggered to different areas of the range. A grid system should be utilized. Samples should not be collected all on one section of a wall, or end of the building. OSHA Technical Manual provides the necessary guidance on the technique needed to collect wipe samples (appendix B). Only distilled or deionized water will be used to saturate dry sample media. At least one field blank must be submitted with every 10 samples. The field blank must be from the same lot, and labeled as a blank.

2-5. Personal Protective Equipment

29 CFR 1910.1025 (f) (2), for housekeeping and rehabilitation the employer shall select respirators from among those approved for protection against dust, fume, and mist by the National Institute for Occupational Safety and Health (NIOSH), under the provision of 42 CFR part 84. The employer shall institute a respiratory protection program in accordance with 29 CFR 1910.134 (b), (d), (e) and (f). As a minimum, personnel conducting the decontamination of the range will be provided with the following personal protective equipment.

a. Under 29 CFR 1910.1025 (g). For employees engaged in range rehabilitation and/or range conversion, the employer shall provide at no cost to the employee, and assure that the employee uses appropriate protective work clothing and equipment such as, but not limited to:

(1) Protective coveralls with hood and shoe covers or disposable Tyvek ™ full body suit.

(2) Disposable rubber gloves; and disposable shoe coverlets (if necessary).

(3) Full-face air purifying respirator with P-100 cartridges.

b. The employer shall provide the clothing required in a clean and dry condition at least daily to employees engaged in the conversion of IFRs.

c. The employer shall provide for the cleaning, laundering, or disposal of used or contaminated protective clothing and equipment.

d. The employer shall assure that all protective clothing is removed at the completion of a work shift only in areas designated for that purpose (Change Areas or Change Rooms).

e. The employer will ensure that contaminated protective clothing that is to be cleaned, laundered, or disposed of, is placed in a closed container in the change area that seals sufficiently enough to prevent dispersion of lead dust.

f. The employer will further inform in writing any person who cleans or launders protective clothing or equipment of the potentially harmful effects of exposure to lead.

g. The employer will ensure that the containers of contaminated protective clothing and equipment are labeled as follows: CAUTION: *CLOTHING CONTAMINATED WITH LEAD. DO NOT REMOVE DUST BY BLOWING OR SHAKING. DISPOSE OF LEAD CONTAMINATED WASH WATER IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, OR FEDERAL REGULATIONS.*

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1394 of 2531

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Chapter 3
Education, Maintenance, Cleaning and Conversion

3-1. Worker Education

a. 29 CFR 1910.1025, Appendix B, requires an information and training program for all employees exposed to lead above the action level or who may suffer skin or eye irritation from lead. The program must inform the employees of the specific hazards associated with their work environment, protective measures which can be taken, the danger of lead to their bodies (including their reproductive systems), and their rights under the standard. In addition you must make readily available to all employees, including those exposed below the action level, a copy of this standard and its appendices. This training program will be repeated annually for personnel in range cleanup operations.

b. The commander/supervisor will ensure that each soldier or Army National Guard (ARNG) employee is informed of the following:

(1) The content of the standard and its appendices.

(2) The specific nature of operations that could result in exposure to lead above the action level.

(3) The purpose, proper selection, fitting, use and limitations of respirators.

(4) The purpose and a description of medical surveillance program.

(5) Eating and drinking are prohibited in lead contaminated areas.

(6) Smoking and smoking materials will not be permitted in contaminated areas.

(7) Soldiers and ARNG employees must wash their hands and other exposed skin whenever they leave the work area.

(8) The engineering controls and work practices associated with the individual's job assignment.

(9) The contents of any compliance plan in effect.

(10) Instructions to soldiers and ARNG employees that chelating agents should not routinely be used to remove lead from their bodies and should not be used at all except under the direction of a licensed physician.

3-2. Range Cleaning Instructions

a. Written procedures, such as a scope of work, or Standing Operating Procedure that complies with all federal, state and local regulations must be established prior to decontamination operations.

b. The range ventilation system will be in operation during range cleaning to ensure that a negative pressure environment is maintained. In the absence of mechanical ventilation system, all doors and windows will be sealed to eliminate fugitive emissions.

c. A High Efficiency Particulate Air (HEPA) filtered vacuum system, which is designed to collect loose surface lead dust particles, is the preferred method of cleanup. If a HEPA filtered vacuum is not available, the range can be cleaned using a wet method.

d. Prohibited methods include:

(1) Wet cleaning using high-pressure systems, since this method may embed the lead into the substratum and generate large quantities of hazardous waste.

(2) Dry sweeping is not permitted.

e. All surface areas of the range must be cleaned. In addition, areas outside of the IFR where lead can be tracked must be cleaned.

f. The preferred progression of cleaning is from top to bottom and from behind the steel bullet trap to the firing line.

(1) Clean the steel bullet trap, areas in front of and behind the bullet trap, and the steel bullet trap plate(s), after removing the sand (if applicable).

(2) Clean the ceiling, floors, lights, baffles, retrieval system, heating system(s), and ventilation duct(s).

(3) Vacuum and remove acoustical material. *Painting over this material is not recommended.*

(4) Clean the floor the last, starting at the bullet trap and ending behind the firing line.

g. When using a HEPA filtered vacuum, vacuum all surface areas until no dust or residue is visible.

h. Any general purpose cleaning solutions can be used for the wet method. However, Spic and Span™ has been found to be an effective cleaning solution by other Army organizations. Mix new solutions of cleaning solution frequently. Wet wiping will require dual containers of water; one container for wetting the applicator

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1395 of 2531

(mops, rags, sponge, etc.) and the other container for rinsing the applicator after the dust has been wiped from the surfaces. After wet wiping all surfaces, permit the area to dry.

i. *Properly dispose of all hazardous waste. Do not place lead contaminated waste into the sewer system or onto the ground.*

(1) When placed in containers, wastewater should be left to evaporate.

(2) Mop-heads, sponges and rags will be discarded as hazardous waste following cleanup.

j. A thorough visual inspection to detect dust should be made following cleanup and prior to collecting post surface wipe samples.

k. Wood floors should receive a coat of deck enamel or urethane; concrete floors should be sealed with deck enamel.

l. As a variety of conditions exist in ranges, unique situation may arise and specific written guidance from your Regional Industrial Hygiene Office may be required.

m. Any cleaning activities must be under the supervision by a trained and competent personnel IAW with OSHA and other nationally accepted standards and the work shall be according to current industry engineering standards under the control of the State Construction and Facilities Management Officer. Cleaning must recognize that there likely will be "background" lead presence in the readiness center totally independent of the existence of an indoor range and that the method of cleaning is less important than achieving the goal of less than 200 micrograms (40 micrograms in the case of child exposure).

3-3. Cleaning Stored Contaminated Equipment

a. Equipment contaminated (sample result is higher than 200 ug/ft^2) with lead dust must be decontaminated before it is removed from the range.

b. Equipment located near the bullet trap and firing line should be cleaned first and then removed. The cleaning method depends on the size of the equipment and the material it is comprised of, i.e. metal, wood, concrete, porous, non-porous, smooth or rough finish etc. However, either HEPA vacuum or the wet wipe method will be used. Refer to paragraph 3-2 for additional guidance.

c. Every attempt should be made to clean and reclaim items since disposing of equipment, as hazardous waste is costly and wasteful. Only as a last resort will the item be discarded as hazardous waste. Porous items, such as office partitions and carpet that were present during firing should be considered greatly contaminated and be discarded unless analysis proves otherwise. Consult your State Environmental Office for the proper hazardous waste disposal methods.

3-4. Contaminated Sand and Lead Waste

Consult your State Environmental Office for specific disposal guidance to ensure compliance with local laws and regulations.

3-5. Range Rehabilitation

This chapter applies to all IFRs that have been identified as candidates for rehabilitation. It provides further guidance for cleaning and/or sampling that might be required prior to the start of rehabilitation.

a. The portion(s) of the range to under go rehabilitation must be sampled to determine the level of lead contamination. Wipe samples will be taken per the established sampling protocol. See appendix B.

b. All personnel involved in range rehabilitation will wear a NIOSH approved respirator (P-100) and proper personal protective equipment as prescribed in paragraph 2-5 above.

c. Prior to the start of rehabilitation, the environmental office must be notified to determine the disposition of any debris containing hazardous materials (lead).

d. Supervision shall be by a person who is certified to perform inspections, evaluations, and determinations of IFRs IAW with OSHA standards, other nationally accepted standards, and accepted IH practices for maintenance, cleaning, conversion, ventilation, and air sampling of IFRs. All work shall be according to current industry engineering standards under the control of the State Construction and Facilities Management Officer.

3-6. Conversion of Indoor Firing Ranges

Prior to the start of decontamination, employers must ensure that all procedures to be used comply with Federal, State, and local regulations. To ensure that all lead contamination is eradicated, the following procedure is established.

a. The State shall follow the project approval process as delineated in NGR 420-10 (or NGR 415-5 if the use of the military construction appropriation is required).

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1396 of 2531

b. All ranges slated for conversion will be inspected and evaluated NGB Regional Industrial Hygiene Office.

c. All equipment stored in the range, if applicable, prior to the start of decontamination must be sampled, decontaminated, re-sampled and removed or turned in as lead contaminated material.

d. All acoustical tiles and/or sound proofing material (if applicable) must be removed and turned in as lead contaminated material through the environmental office.

e. The bullet trap, target retrieval system and firing line stations must be removed and turned in as lead containing material through the environmental office.

f. Light fixtures and ventilation system grills must be removed and decontaminated.

g. Ventilation system ducts need to be decontaminated or removed and replaced.

h. The exhaust fans and/or the complete ventilation air-handling unit (if applicable) must be decontaminated or removed to include roof fans.

i. Cover all openings of any component previously decontaminated prior to start of interior decontamination of the firing range.

j. Prior to start of washing, the interior of the range should be vacuumed with a HEPA filtered vacuum. The range should be washed using a cleaning solution of hot water and Spic and Span in five gallons of hot water. A progression of cleaning from top to bottom, and from back to front should be used. All surface areas of the range must be cleaned. Mix new solutions of water frequently. Washing will require dual containers of water; one container for wetting the applicators (mops, rags, sponges, etc.), and the other container for rinsing the applicators. Waste water placed into containers can be left to evaporate. *Properly dispose of all hazardous waste and do not place any lead contaminated waste into the sewer system or onto the ground.* Mop heads, sponges and rags will be discarded as hazardous waste following decontamination of the range. After completion of decontamination, and prior to taking clearance samples, the ventilation system must be run for a period of 36 hours. Wipe clearance samples will be taken from ceiling, walls and floors. The range will be considered clean if no clearance sample is greater than 200 ug/ft^2, if any sample is above 200 ug/ft^2, the range is not considered clean, the range will need to be re-washed until clearance samples are below 200 ug/ft^2.

k. The regional industrial hygienist will do quality assurance sampling as needed.

l After obtaining clearance, the walls of the range will be coated with a sealant (Not Paint), which is smooth, wood floors will receive a coat of deck enamel or urethane, concrete floors will be sealed with deck enamel. After sealing, floors will be tiled or covered with linoleum.

m. As a variety of conditions exist in ranges, unique situations may arise and specific written guidance from the Regional Industrial Hygiene Office may be required.

n. All personnel involved in the decontamination/conversion of IFRs as a minimum will be provided with the following personal protective equipment.

(1). Full Face air purifying respirator with HEPA cartridges. The requirements outline in 29 CFR 1910.134, must be met prior to placing workers in respiratory protection.

(2). Individuals will be provided personal protective equipment as required per paragraph 2-5, this pamphlet.

o. Any conversion must be supervised by a person certified to perform inspections, evaluations, and determinations of IFRs IAW with OSHA standards, other nationally accepted standards, and accepted IH practices for maintenance, cleaning, conversion, ventilation, and air sampling of IFRs. All work shall be according to current industry engineering standards under the control of the State Construction and Facilities Management Officer. Cleaning must recognize that there likely will be "background" lead presence in the readiness center totally independent of the existence of an indoor range and that the method of cleaning is less important than achieving the goal of less than 200 micrograms (40 micrograms in the case of child exposure).

p. After conversion, lead testing shall continue on an annual basis to verify that no lead migration from the substrate is occurring.

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1397 of 2531

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Appendix A
References

Section I
Required Publications

There are no entries in this section

Section II
Related Publications

ASTM E1792-03
Standard Specification for Wipe Sampling Materials for Lead in Surface Dust

AR 11-34
The Respiratory Protection Program

AR 40-5
Preventive Medicine

DODI 6055.5
Industrial Hygiene and Occupational Health

29 CFR, Part 1910
Occupational Safety and Health Administration, Department of Labor

National Institute for Occupational Safety and Health (NIOSH) 76-130
Lead Exposure and Design Considerations for Indoor Firing Ranges, Department of Health, Education and Welfare

NGR 385-15
Policy and Responsibilities for Inspection, Evaluation and Operation Army National Guard National Guard Indoor Firing Ranges (IFRs).

NGR 415-5
Army National Guard Military Construction Program Development and Execution

NGR 420-10
Construction and Facilities Management Office Operations

Technical Manual, 5th Edition
Occupational Safety and Health Administration, Department of Labor

Section III
Prescribed Forms

There are no entries in this section

Section IV
Referenced Forms

There are no entries in this section

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1398 of 2531

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Appendix B
Protocol for Collecting Wipe Samples

B-1. If multiple samples are to be collected at the work site, prepare a rough sketch of the area(s) or room(s), which are to be wipe sampled.

B-2. A new set of clean, impervious gloves should be used for each sample to avoid contamination of the media by previous samples and to prevent contact with the substance.

B-3. Wipe Samples

a. If using Ghost Wipes™, tear open the individually sealed package. Remove the moistened wipe. Unfold the wipe.

b. If using a dry media such as MCE or Whatman™ filter, moisten the filter with distilled or deionized water prior to sampling.

B-4. Place a 10 centimeter by 10 centimeter template on the area to be wiped.

B-5. Apply uniform firm pressure while wiping the area inside the template.

B-6. To insure that all portions of the partitioned area are wiped, start at the outside edge and progress toward the center making concentric squares decreasing in size.

B-7. After collecting a sample, fold the filter or wipe inward and place into a container and number it. Note the number at the sample location on the sketch.

B-8. At least one blank filter treated in the same fashion but without wiping, should be submitted to the laboratory.

Appendix C
Sampling Strategy for Collection of Wipe Samples

C-1. Prior to cleaning the ranges, three samples must be collected and analyzed for total lead dust on each surface, i.e., floor, ceiling, bullet trap, and wall to include the plenum wall, if applicable. In addition, a total of three samples should be collected from areas which have been least disturbed by airflow. Established walkways should be avoided.

C-2. Samples should be collected from different areas of the range. A grid system should be utilized. Each range surface areas should be divided evenly into 3 by 3 sections. Samples should not be collected from only one section of a wall or end of the building.

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1399 of 2531

GLOSSARY

Section I
Abbreviations

ARNG
Army National Guard

CFR
Code of Federal Regulations

HEPA
High Efficiency Particulate Air

IFR
Indoor Firing Range

NIOSH
National Institute for Occupational Safety and Health

OSHA
Occupational Safety and Health Administration

ug/ft^2
Micrograms per square foot

Section II
Terms

Air monitoring
The sampling for and measuring of pollutants in the atmosphere.

Breathing zone
The imaginary globe of two feet radius surrounding the head.

General area
Collection of and later analysis of airborne contaminants in a given work environment. As the sampling pump and collection media are not attached to a worker, the concentrations found represent average concentrations in that area but may not representative of the actual exposure of the worker.

HEPA
Refers to high efficiency particulate air filter systems capable of capturing up to 99.97 percent of particles 0.3 microns in size or larger.

Lead-Contaminated Range
It is assumed that all IFRs, which have been fired in, are lead-contaminated.

Respirator
A device designed to provide the wearer with respiratory protection against inhalation of airborne contaminants.

Wipe Sample
The terms wipe, swipe, or smear samples are used synonymously to describe the techniques utilized for assessing lead surface contamination.

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1400 of 2531

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Section [1]
Special Abbreviations and Terms

This section contains no entries

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1401 of 2531

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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-AVN-SI July 7, 2003

MEMORANDUM FOR: The Adjutant General of Tennessee, ATTN: Non-Responsive [redacted] tate Occupational Health Office, P O Box 41502, Nashville, TN 37204-1502.

SUBJECT: Transmittal Maryville Armory Survey Report.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, 30 August 1986, Medical Service, Preventive Medicine.

c. National Guard Regulation (NGR) 385-10, 1988, Army National Guard Safety and Occupational Health Program.

d. AR 11-34, The Army Respiratory Protection Program, 15 February 1990.

e. TB MED 502, Occupational and Environmental Health Respiratory Protection Program, February 1982.

f. DA PAM 40-503, 30 October 2000, The Army Industrial Hygiene Program.

g. DA PAM 40-501, 10 December 1998, Hearing Conservation.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2001, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

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k. Title 29, Code of Federal Regulations (CFR), 2000 rev., part 1910, Occupational Safety and Health Standards.

l. Report dated 20 June 2003, Industrial Hygiene Survey, Environmental Mgmt. Solutions, Atlanta, GA.

2. General.

a. At the request of the TNARNG Safety and Occupational Health Office, an Industrial Hygiene Service was put together to conduct Health Hazard Information module (HHIM) Field surveys and industrial hygiene sampling of the Maryville Armory, Maryville, TN.

b. Environmental Mgmt. Solutions, 247 Mary Lane, Dallas, GA. 30132 conducted the surveys.

3. Findings. All HHIM field survey forms and survey findings of the reports. (See enclosure 1)

4. Recommendations.

a. Follow all recommendations made in reference 1.l., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Control water infiltration in the armory and/or replace or repair damaged surfaces or components (ceiling and floor tiles). Building conditions that present IAQ concerns or problems not only exacerbates normally minor health issues but also tend to promote or eccelerate building deterioration.

c. The recommendations given in the comment section of the HHIM data sheets and deta collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-03. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-04 IHIP.

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present survey, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

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SUBJECT: Transmittal Maryville Armory Survey Report.

f. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

5. If additional information is needed about the industrial hygiene survey or air sample

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NBG-AVN-SH

Encl
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ENVIRONMENTAL MANAGEMENT SOLUTIONS
INDUSTRIAL HYGIENE CONSULTING

TENNESSEE ARMY NATIONAL GUARD

MARYVILLE ARMORY
MARYVILLE, TENNESSEE

247 MARY LANE, DALLAS, GEORGIA 30157
PHONE: 770.459.4376 • FAX: 770.234.6297

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1406 of 2531

BEST AVAILABLE COPY

EXECUTIVE SUMMARY 1

SUBJECT 2

BACKGROUND 2

INTRODUCTION 2
SITE DESCRIPTION 2
SCOPE OF WORK 2
METHODOLOGY 2

FINDINGS AND DISCUSSION 4

LEAD WIPE SAMPLES 4
ASBESTOS SUSPECT BUILDING MATERIAL 4
NOISE SURVEY 5
ILLUMINATION SURVEY 5
BUILDING CONDITION 6
HAZARD COMMUNICATION 6
RADIATION PROTECTION PROGRAM 6
ERGONOMICS 6
PERSONAL PROTECTIVE EQUIPMENT 6

RECOMMENDATIONS 7

TECHNICAL ASSISTANCE 8

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1407 of 2531

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storage areas, indoor drill halls, and storage rooms with weapons vaults. The samples were collected in accordance to instructions published by Region South National Guard Bureau, which required the use of unscented baby wipes to wipe one square foot of surface. Samples were then placed in a sealed plastic bag and sent to an American Industrial Hygiene Associations (AIHA) accredited laboratory for analysis. Asbestos bulk samples and lead paint chips were collected from suspect friable and damaged building material. Each bulk sample was placed in a sealed bag and sent to an AIHA laboratory for analysis. All instruments used for assessment were factory calibrated and calibrated prior to the survey as applicable. Illumination readings were taken on work surfaces and approximately four feet from the floor.

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1408 of 2531

BEST AVAILABLE COPY

FINDINGS AND DISCUSSION

LEAD WIPE SAMPLES

Seven wipe samples were collected from areas of the indoor firing range, kitchen, supply and drill hall areas as listed in the table below.

SAMPLE NUMBER	SAMPLE LOCATION	MICROGRAMS OF LEAD (µg) PER SQUARE FOOT
1	Vault	188
2	Vault Supply Area	BRL*
3	Kitchen	BRL
4	Drill Hall Floor	BRL
5	Drill Hall Coke Machine	BRL
6	IFR shelf	22.0
7	IFR shelf	63.0

*Below Reporting Limit

The Army National Guard All States Log Number P01-0075, **Policies and Responsibilities for Inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges (IFR) and Guidelines for IFR Rehabilitation, Conversion, and Cleaning** requires a limit of 200 micrograms per square foot for surface contamination in and around indoor firing ranges. The Environmental Protection Agency standards (40 CFR 745) indicate lead in dust levels above 40 micrograms per square foot on bare and carpeted floors is considered dangerous for common areas. Lead results in the vault area were above recommended limits.

ASBESTOS SUSPECT BUILDING MATERIAL

Sampling for asbestos was limited to damaged material or material that could pose an exposure risk. No friable suspect material was found.

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1409 of 2531

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NOISE SURVEY

Area noise levels are well within the Army National Guard limit of 85 dBA and the Occupational Safety and Health Administration (OSHA) regulated limit of 90 dBA over an eight-hour period.

ILLUMINATION SURVEY

Lighting levels throughout the armory ranged between 11 foot-candles to 56 foot-candles. Specific readings are listed in the table below.

AREA	AVERAGE FOOT-CANDLES
Rifle range	23
Supply	11
Drill Hall	17
Orderly Room	27
Conference Room	34
Classroom	34
TNG	56
Classroom	34
Library	26
Kitchen	30
Battery CDR	13

These readings are not within the Army Design Guide (DG 415-2) minimum illumination level of 50 foot-candles for office areas and 20 foot-candles for parts storage/supply. The American National Standard Institute/Industrial Engineering Society (ANSI/IES) recommends a minimum illumination of 50 to 100 foot-candles for administrative and kitchen areas, and 20 to 50 foot-candles for storage areas. Luminance of 50 to 100 foot-candles is recommended for performance of visual

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1410 of 2531

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tasks of medium contrast or small size such as reading, pencil handwriting, and poorly printed, or reproduced material. Depending of the type of display, background luminance of 30 to 60 foot-candles is recommended for VDT work. Some areas had lighting that was burned out.

BUILDING CONDITION

The building was constructed in 1978. Housekeeping in the building was good. Water damage could be seen in the drill hall and locker room areas. The armory is cooled with a central heating, ventilating, and air conditioning (HVAC) system, which was in poor condition. Personnel did not have any specific complaints about the indoor air quality.

HAZARD COMMUNICATION

There are no Material Safety Data Sheets available for this location.

RADIATION PROTECTION PROGRAM

There are no radioactive materials kept at this facility.

ERGONOMICS

The full time employees in the supply or office areas did not express any ergonomic related injuries or concerns. Many workstations were not set up to provide neutral postures and appropriate ergonomically correct positions. Consideration should be given to providing all full time employees that spend the majority of their working time at a computer terminal ergonomic training or awareness. Such awareness should emphasize the importance of proper posture and set-up of the workstation to fit the user.

PERSONAL PROTECTIVE EQUIPMENT

Normal duties of full time employees at the armory do not require the use of personal protective equipment (PPE).

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1411 of 2531

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RECOMMENDATIONS

1) All items that are contaminated with lead should be thoroughly decontaminated with a detergent and water solution. Care should be taken to wipe down tables where weapons are issued and cleaned. Kitchen areas should be thoroughly cleaned on a regular basis and especially before serving personnel.

2) Personnel should be prohibited from eating, drinking, smoking, chewing tobacco or gum, or applying cosmetics in supply areas and should be instructed to clean hands with soap and water before doing any of these. Remove all refrigerators, cups, and other eating utensils from supply areas.

3) Upgrade lighting measurements as required. Lighting can be upgraded in the following ways:

   - Replace blown or broken lighting
   - Paint wall a light color
   - Clean existing light fixtures
   - Rearrange furniture to make better used of available light
   - Provide supplemental or task lighting

4) Develop a maintenance schedule for monitoring, inspecting and cleaning HVAC components such as outside air intakes, outside air dampers, air filters, drain pans, heating and cooling coils, the interiors of air handling units, fan motors ad belts, air humidification, controls and cooling towers. The schedule should also ensure that any leaks or standing water are identified, repaired, and prevented. Proper repairs and maintenance of the building infrastructure and interior surfaces can prevent water damage and moisture buildup which may lead to further indoor air quality issues.

5) An ergonomics survey should be completed for all supply and administrative personnel as a preventative measure to document and address any and all ergonomic concerns or problems. Provide ergonomics training and awareness to all employees who spend the majority of their time working at a computer terminal.

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1412 of 2531

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TECHNICAL ASSISTANCE

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1413 of 2531

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APPENDICES

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APPENDIX A

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1415 of 2531

BEST AVAILABLE COPY

- American conference of Governmental Industrial Hygieist (ACGIH), Industrial Ventilation, A Manual of Recommended Practice, 23rd Edition, 1998.American National Standards Institute (ANSI), /Illuminating Engineering Society (IES), Industrial Lighting, 1991.
- Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 1990.
- Army Regulation (AR) 40-5, Preventative Medicine, 15 October 1990.
- Army Regulation (AR) 385-10, The Army Safety Program, 29 Feb 2000.
- NGR 385-10, Army National Guard Safety and Occupational Health Program, 7 October 1988.
- TB MED 503, The Army Industrial Hygiene Program, February 1985.
- Title 29, Code of Federal Regulations (CFR), 1999, revision, Part 1910, Occupational Safety and Health Standards.
- TG 022, US Army Environmental Hygiene Agency (YSAEHA), Industrial Hygiene Evaluation Guide, October 1975.
- TG 141, US Army for Health Promotion and Preventative Medicine (USACHPPM) Industrial Hygiene Air Sampling Guide, November 1997.

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1416 of 2531

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1417 of 2531

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8/95 CHPMFRN

HHIMS Industrial Hygie. Survey Form

Front p.

ARLOC	Installation	Building	Room Number
47000	[illegible]		

Location	Operation	Survey Date (month / day)	Evaluator	Macom	Submacom	Unit / Organization (45)
AA	ADC	03 05 22	[illegible]	NG	XX	

[redacted] (hrs/day) 008 | RAC | No. CIVs 01 | No. MIL 00 | Contractors 00 | No. LOCs 00

Lab Hoods	Vapor Degreasers	Spray Booths	Open Surface Tanks	Ventilation Units
00	00	00	00	00

Controls Present (If >6, continue in comments)(25)	Evaluation (25 characters max)	Unit code	Controls Required (25 characters max)
CTH	13-56	FTC	50-100 FTC

Gloves	e*	R	U
acid			
cold surfaces			
hot surfaces			
NBC agents			
oil			
solvents			
surgical gloves			
leather / cotton			
other			

Respirator	e*	R	U	Manufacturer's Description (10 characters max)	NIOSH TC # or Foreign equivalent (10 characters max)
airline					
abrasive blasting hood					
disposable					
full face air purifying					
1/2 face air purifying					
powered air purifying					
1/4 face air purifying					
self-contained					
other					

Eyes and Face	e*	R	U
chemical splash			
full face shield			
chem/safety impact			
safety impact			
welding helmet			
sunglasses			
welding goggles/glasses			
laser eye protection			
other			

Hearing	e*	R	U
canal caps			
(>85-108 dBA steady) earplugs			
" helmets w/ muffs			
" muffs alone			
(108-118) muff/earplug comb			
muffs and earplugs (118 or >) with time limit			
other			
other			

Body	e*	R	U
aprons			
cold weather clothing			
coveralls			
full body suit			
heat reflective vest/suit			
safety belt/harness			
special purp. clothing			
other			

Head and Feet	e*	R	U
cold weather boots/hat			
hard hats			
impermeable boots			
safety shoes (conductive)			
safety (nonconductive)			
other			
other			
other			
other			

* = evaluator's recommendation or agreement

Reminders: ergonomics - dermatitis - physical agents - flammable storage
EYE (permanent) ____ - EYE (portable) ____ - SHW - GMV - LEV

ACO ADM DSA DSN LAB LCK
RAD ECB EPL PHS SPP WEL

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau

HHIMS Industrial Hygiene Survey Form

Back page

	CAS code	PAC	EPC	Hazard Description
PONOISECO	P O V D T X X X X	2	A	Computer use/video display Terminal
POFOOTHAZ	P O S T R E S S X	3	F	Ergonomics/Physical stress
POFLYPROJ				
POEYEHAZA				
POFLAMHAZ				
POLIFTING				
POSHARPOB				
POHOTOBJE				
POELSHOCK				
COLUBEOIL				

Social Security Number or Unique Identifier: [redacted]

Last Name (20 characters max): [redacted]

First Name (20 characters max): [redacted]

Category: C I V

Personnel data provided by the facility is attached to this form

Insert Privacy Act Statement

Comments

Operation described is administrative operations to include typing, filing, phone and computer use.
Some workstations were not set up to allow employees to work with neutral postures.
Some workspaces cramped with little space.
Duties of administrative personnel vary, so that microbreaks can be taken as needed.

This operation was explained to the evaluators, but was not actually observed.

(comments continued on attached)

There is a noise data sheet attached to this form

There is a ventilation data sheet attached to this form

2/8/95 CHPMBACK.XLS

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1419 of 2531

HHIMS Industrial Hygi Survey Form

Front p e

ARLOC	Installation	Building	Room Number
47000	[illegible]		

Location	Operation	Survey Date (month / day)	Evaluator	Macom	Submacom	Unit / Organization (45)
SA	421	03 05	[redacted]	NG	XX	

Supervisor	Mr.	Mr.	Rank	RAC
[redacted]				

(hrs/day)	No. CIVs	No. MIL	Contractors	No. LOCs
008	01	00	00	00

Lab Hoods	Vapor Degreasers	Spray Booths	Open Surface Tanks	Ventilation Units
00	00	00	00	00

Controls Present (if >8 , continue in comments)(25)	Evaluation (25 characters max)	Unit code	Controls Required (25 characters max)
OTH	11	F - C	50-100 (Admin)
			20-50 (Storage)

Gloves	e*	R	U
acid			
cold surfaces			
hot surfaces			
NBC agents			
oil			
solvents			
surgical gloves			
leather / cotton			
other			

Respirator	e*	R	U	Manufacturer's Description (10 characters max)	NIOSH TC # or Foreign equivalent (10 characters max)
airline					
abrasive blasting hood					
disposable					
full face air purifying					
1/2 face air purifying					
powered air purifying					
1/4 face air purifying					
self-contained					
other					

Eyes and Face	e*	R	U
chemical splash			
full face shield			
chem/safety impact			
safety impact			
welding helmet			
sunglasses			
welding goggles/glasses			
laser eye protection			
other			

Hearing	e*	R	U
canal caps			
(>85-108 dBA steady) earplugs			
" helmets w/ muffs			
" muffs alone			
(108-118)muff/earplug comb			
muffs and earplugs			
(118 or >) with time limit			
other			
other			

Body	e*	R	U
aprons			
cold weather clothing			
coveralls			
full body suit			
heat reflective vest/suit			
safety belt/harness			
special purp. clothing			
other			

Head and Feet	e*	R	U
cold weather boots/hat			
hard hats			
impermeable boots			
safety shoes (conductive)			
safety (nonconductive)			
other			
other			
other			
other			

* = evaluator's recommendation or agreement

Reminders: ergonomics - dermatitis - physical agents - flammable storage
EYE (permanent) ____ - EYE (portable) ____ - SHW - GMV - LEV

ACO ADM DSA DSN LAB LCK
RAD ECR EPL PHS SPP WSL

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FOIA Requested Record #J-15-0085 (TN)
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HHIMS Industrial Hygiene Survey Form

Back page

	CAS code	PAC	EPC	Hazard Description
PONOISECO	PONDTXXXX	2	A	Computer use, video display terminal
POFOOTHAZ	POSTRESSX	3	E	Ergonomics/Physical Stress
POFLYPROJ	POLIFTING	2	A	Heavy Lifting
POEYEHAZA	14391-92-1	3	A	Lead
POFLAMHAZ				
POLIFTING				
POSHARPOB				
POHOTOBJE				
POELSHOCK				
COLUBEOIL				

Social Security Number or Unique Identifier	Last Name (20 characters max)	First Name (20 characters max)	MI	Sex	Category
[redacted] Non-Responsive	[redacted] Non-Responsive	[redacted] Non-Responsive	[redacted] Non-responsive		C I ✓

☐ Personnel data provided by the facility is attached to this form

Insert Privacy Act Statement

Comments

Operation described is receive, inventory, issue critical unit items to include weapons and ammunition

☐ This operation was explained to the evaluators, but was not actually observed.

☐ (comments continued on attached

There is a noise data sheet attached to this form ☐

There is a ventilation data sheet attached to this form ☐

2/8/95 CHPMBACK.XLS

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Page 1421 of 2531

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APPENDIX C

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
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Page 1422 of 2531

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May, 2018

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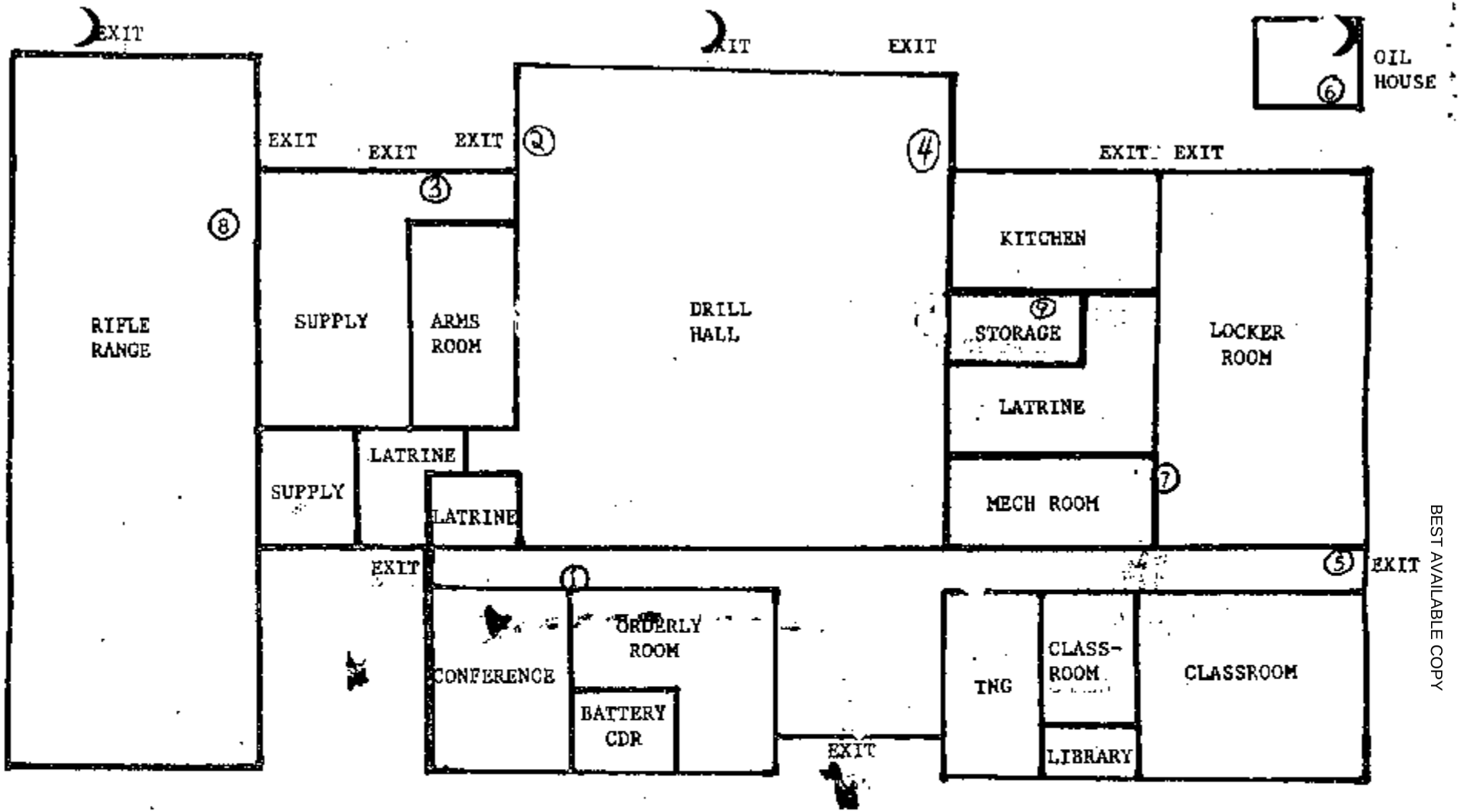

FIRE EVACUATION PLAN

AND

LOCATIONS OF FIRE POINTS 1 THRU 9

X [YOU ARE HERE]

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Page 1423 of 2531

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APPENDIX D

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1424 of 2531

Maryville Armory

Supply Area

Drill Hall Area

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Kitchen

Water Damage

Administrative Area

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Heating, Ventilating, and Air-Conditioning System

Indoor Firing Range Converted to Storage

Indoor Firing Range Converted to Storage

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Analytical Environmental Servs, Inc.

Date: 6/20/2003

TOTAL LEAD IN WIPE SAMPLES
N7082

CLIENT:	Environmental Management Solutions	**Lab Order:**	0306537
Project:	Maryville Armory	**Date Received:**	6/17/2003 9:45:0
Project No:	Maryville Armor	**Matrix:**	Wipe
PO No:		**Analyst:**	SSS

Laboratory ID	Client Sample ID	Results	Units	MDL	DF	Date Collected	Date Analyzed
0306537-001A	1	188	µg, Total	2.83	1	5/22/2003	6/19/2003
0306537-002A	2	BRL	µg, Total	2.83	1	5/22/2003	6/19/2003
0306537-003A	3	BRL	µg, Total	2.83	1	5/22/2003	6/19/2003
0306537-004A	4	BRL	µg, Total	2.83	1	5/22/2003	6/19/2003
0306537-005A	5	BRL	µg, Total	2.83	1	5/22/2003	6/19/2003
0306537-006A	6	22.0	µg, Total	2.83	1	5/22/2003	6/19/2003
0306537-007A	7	63.0	µg, Total	2.83	1	5/22/2003	6/19/2003

Qualifiers: MDL - Method Detection Limit
ND - Not Detected at the Reporting Limit
DF - Dilution Factor

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May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1428 of 2531

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BULK SAMPLE DATA

For use of this form see USAEHA TG 141; the proponent is MCHB-DC-LLC

Return Address *(complete address including zip code)*
Environmental Management S Hns.
347 Mary Ln
Dallas, GA 30157

Non-Responsive [redacted]

Sampled Installation Manville Armory	**Project Number** TN 052.003-01	**ARLOC**
Non-Responsive [redacted]	**Date Collected** 22 May 2003	**Date Shipped** 17 June 2003
Description of Operation Lead samples of Armory		**Location** *(BLDG/AREA)*

Associated Complaints *(be specific)*
None

Associated Air Samples *If yes, list sample numbers*
☐ YES ☒ NO

Label Information

Trade Name NA	**NSN** NA	**Manufacturer** NA
Address NA		**MSDS Attached** ☐ YES ☒ NO

Analysis Desired
Lead

Lab Use Only	Sample No.	Constituents	Results	Remarks
	1	Vault		
	2	Vault Supply Area		
	3	Kitchen		
	4	Drill Hall Floor		
	5	Drill Hall Cokemachine		
	6	IFR Shelf		
	7	" "		

Comments to Lab:

Lab Use Only

Analyst *(initials)*	**Reviewed By** *(initials)*	**Date Received**	**Date Reported**
Procedures Performed	**Comments:**		

CHPPM Form 8-R-E, 1 May 96 Replaces AEHA Form 8-R 1 Oct 84 which is obsolete.

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1429 of 2531

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NATIONAL GUARD REGION SOUTH
INDUSTRIAL HYGIENE OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

NGB-ARS-SEIH

December 21, 2007

MEMORANDUM FOR: Non-Responsive N, Occupational Health Nurse, Tennessee State Safety and Occupational Health Office, 250 8th Avenue, Smyrna, Tennessee 37167.

SUBJECT: Maryville National Guard Armory, 1721 W. Lamar Alexander Parkway, Maryville, Tennessee 37801-3764.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 22 July 2005.

c. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, October 1988.

d. AR 385-10, The Army Safety Program, 29 February 2000.

e. National Guard Pam 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006.

f. NGR 385-15, Policy and Responsibilities, Evaluation and Operation of Army National Guard Indoor Firing Ranges, 3 November 2006.

g. DA PAM 40-503, The Army Industrial Hygiene Program, 30 October 2000.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2003, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. Title 29, Code of Federal Regulations (CFR), 2001 rev., part 1910, Occupational Safety and Health Standards.

2. General.

a. As requested by Non-Responsive ennessee Occupational Health Office, personnel with the National Guard Region South Industrial Hygiene Office performed an inspection at the referenced site. The apparent objective of the inspection was to collect

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surface wipe samples from the former Indoor Firing Range (IFR) for analysis of total lead to confirm/deny the presence of lead dust.

b. On December 11, 2007, Non-Responsive [redacted] with the National Guard Region South Industrial Hygiene Office in College Park Georgia performed the site visit.

3. Findings.

General Information

At the time of the sampling activity, the interior of the Maryville Armory IFR was observed with metal cages separating supply/storage areas. The storage areas were unlocked and the area of the former bullet stop location was used for storing miscellaneous materials inhibiting access to areas of the wall. The surface areas were generally observed to be constructed of cinder-block walls with concrete floors with the ceiling observed as metal-constructed. The rear wall was observed as a metal roll-up door providing access to the former IFR. The former bullet trap location was identified along what was referred to as the front wall and the firing line was previously located at the rear wall.

Sampling Activities

Based on the number of surfaces observed, samples were collected in accordance with National Guard Bureau Pamphlet 420-15. Ghost Wipe™ is pre-moistened media made of non-woven polyvinyl alcohol fiber and approved by American Industrial Hygiene Association (AIHA) for lead sampling. The wipes also meet all American Standards Testing Materials (ASTM) Designation E1792-96E specifications for sampling materials for lead in surface dust.

The surface samples were collected by placing a 1 square foot sampling template on the surface area and wiping the outlined area with a Ghost Wipe™. After the area inside the template was wiped, each individual sampling media was placed into separate, labeled re-sealable plastic bags and sealed. After each sample collection, a new surface area template was used and new disposable gloves were donned. A total of 20 samples submitted to Analytical Environmental Services, Inc. (AES) in Atlanta, Georgia for subsequent analysis of total lead. Three samples were collected from each surface area and two samples were collected from surface tops of metal shelving and tables in accessible areas of the former IFR. Additionally, two wipes were placed into a re-sealable bag and submitted as blank samples for analysis.

Photographs of the observation made during the inspection including sample locations are attached for reference.

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FOIA Requested Record #J-15-0085 (TN)
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Page 1431 of 2531

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NGB-ARS-SEIH December 21, 2007

SUBJECT: Maryville National Guard Armory, 1721 W. Lamar Alexander Parkway, Maryville, Tennessee 37801-3764.

Laboratory Results

The results of the lead dust sampling activities are summarized in the following table.

Sample Number	Sample Location	Laboratory Results[1]
TNM-01	Upper Front Wall	BRL
TNM-02	Middle Front Wall	BRL
TNM-03	Lower Front Wall	BRL
TNM-04	Lower Right Wall	BRL
TNM-05	Middle Right Wall	44
TNM-06	Upper Right Wall	BRL
TNM-07	Lower Rear Wall	144
TNM-08	Middle Rear Wall	109
TNM-09	Upper Rear Wall	BRL
TNM-10	Lower Left Wall	28
TNM-11	Middle Left Wall	29
TNM-12	Upper Left Wall	BRL
TNM-13	Floor at Front Wall	509
TNM-14	Middle Floor	20
TNM-15	Floor at Rear Wall	BRL
TNM-16	Ceiling Front Wall	BRL
TNM-17	Middle Ceiling	BRL
TNM-18	Ceiling at Rear Wall	BRL
TNM-19	Metal Shelving Front Wall	55
TNM-20	Table top Left Wall	55
TNM-Blank-1	Field Blank	BRL
TNM-Blank-2	Field Blank	BRL

[1] Results reported in micrograms per square feet ($\mu g/ft^2$)
[2] BRL = Below Reportable Limits

The laboratory results indicate lead concentrations detected above the IFR post cleaning standard of 200 $\mu g/ft^2$. In accordance with the National Guard Bureau Pamphlet 420-15, the Maryville Armory IFR cannot be converted for other uses until the lead dust levels are detected below 200$\mu g/ft^2$ or lower depending on local requirements.

It should be noted that the samples collected from items stored inside the former IFR did not indicate lead concentrations greater than the referenced standard. However, the assessment of the IFR did not include comprehensive sampling of the stored equipment and may not be indicative of the lead concentrations in the former IFR. In accordance with the regulatory requirements, it is recommended that additional lead dust samples be collected from the equipment and supplies inside the former IFR to properly evaluate the presence of lead and determine the appropriate decontamination activities needed.

The laboratory results are attached for review.

Recommendations.

a. Conduct additional lead dust sampling to determine the absence/presence of lead on equipment/supplies inside the former IFR. Based on the laboratory results, initiate decontamination activities to include the equipment identified as having lead present above the regulatory standard of 200 $\mu g/ft^2$.

   i. Decontaminate Areas with elevated lead levels in the Indoor Firing Range following NGB PAM's 420-15 and NGB PAM 385-16. Remove all stored items before decontamination begins (see next paragraph for removal requirements).

   ii. Leaving stored items in the area may result in re-entrenchment of lead dust. Items stored in Indoor Firing Range must be decontaminated prior to their permanent removal.

   iii. After removal of store items and range equipment (such as; firing line, acoustical material and back stop) if any where left in place or in storage decontaminate the converted Indoor Firing Range (Supply/Storage room) of lead following NGB PAM 420-15

b. Prior to initiating decontamination activities and in accordance with 29 CFR 1910.1025, perform and conduct training for employees exposed to lead concentrations above the standard or who may suffer skin or eye irritation from exposure to lead.

c. Review NG Bureau Pamphlet 420-15 prior to conducting decontamination of the IFR and conduct cleaning activities in accordance with the regulatory document. Keep in mind that EPA (40 CFR Subpart D) and your state may have lead reduction levels lower than the levels recommended in NG Bureau Pamphlet 420-15.

d. Ensure that appropriate personal protective equipment is worn during decontamination activities.

e. Consult with local Environmental Agency for guidance on proper disposal of materials used in decontaminating the IFR.

f. Upon completion of the decontamination activities, contact the Regional IH office for evaluation and collection of confirmatory lead dust samples.

5. Non-Responsive [redacted]

CC: NGB-ARS-IH
Non-Responsive [redacted] FMO, 3041 Sidco Drive, Nashville, Tennessee 37204-1504

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1433 of 2531

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May, 2018

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Photo 1: View of the floor and metal storage cages observed in the former Maryville, Tennessee Armory Indoor Firing Range (IFR).

Photo 2: View of the right wall of the former IFR.

Photo 3: View of right wall of the former IFR.

Photo 4: View of the roll-up door observed at the rear of the former IFR.

Project Name: Maryville Tennessee Armory

Date Photos Taken: 11 December 2007

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May, 2018

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Photo 5: View of the left wall of the former IFR along with the metal caging observed.

Photo 7: View of the metal ceiling in the former IFR.

Photo 6: View of left wall with supplies stored.

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Project Name: Maryville Tennessee Armory

Date Photos Taken: 11 December 2007

FOIA Requested Record #J-15-0085 (TN)
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Analytical Environmental Services, Inc.

Date: 12/18/2007

LEAD ON WIPES (N9100/7082)
N7082

CLIENT: National Guard Bureau Region-South JII
Project: Maryville TN Armory
Delivery Order:
PO No:

Lab Order: 0712591
Date Received: 12/11/2007 1:40 PM
Matrix: Wipe

Laboratory ID	Client Sample ID	Results	Units	Report Limit	DF	Date Collected	Date Analyzed	Analyst
0712591-001A	TNM-01	BRL	µg/ft²	20	1	12/11/2007	12/13/2007	JY
0712591-002A	TNM-02	BRL	µg/ft²	20	1	12/11/2007	12/13/2007	JY
0712591-003A	TNM-03	BRL	µg/ft²	20	1	12/11/2007	12/13/2007	JY
0712591-004A	TNM-04	BRL	µg/ft²	20	1	12/11/2007	12/13/2007	JY
0712591-005A	TNM-05	44	µg/ft²	20	1	12/11/2007	12/13/2007	JY
0712591-006A	TNM-06	BRL	µg/ft²	20	1	12/11/2007	12/13/2007	JY
0712591-007A	TNM-07	144	µg/ft²	20	1	12/11/2007	12/13/2007	JY
0712591-008A	TNM-08	109	µg/ft²	20	1	12/11/2007	12/13/2007	JY
0712591-009A	TNM-09	BRL	µg/ft²	20	1	12/11/2007	12/13/2007	JY
0712591-010A	TNM-10	28	µg/ft²	20	1	12/11/2007	12/13/2007	JY
0712591-011A	TNM-11	29	µg/ft²	20	1	12/11/2007	12/13/2007	JY
0712591-012A	TNM-12	BRL	µg/ft²	20	1	12/11/2007	12/13/2007	JY
0712591-013A	TNM-13	509	µg/ft²	20	1	12/11/2007	12/13/2007	JY
0712591-014A	TNM-14	20	µg/ft²	20	1	12/11/2007	12/13/2007	JY
0712591-015A	TNM-15	BRL	µg/ft²	20	1	12/11/2007	12/13/2007	JY
0712591-016A	TNM-16	BRL	µg/ft²	20	1	12/11/2007	12/13/2007	JY
0712591-017A	TNM-17	BRL	µg/ft²	20	1	12/11/2007	12/13/2007	JY
0712591-018A	TNM-18	BRL	µg/ft²	20	1	12/11/2007	12/13/2007	JY
0712591-019A	TNM-BLANK-1	BRL	µg, Total	20	1	12/11/2007	12/13/2007	JY
0712591-020A	TNM-BLANK-2	BRL	µg, Total	20	1	12/11/2007	12/13/2007	JY
0712591-021A	TNM-19	55	µg/ft²	20	1	12/11/2007	12/13/2007	JY
0712591-022A	TNM-20	55	µg/ft²	20	1	12/11/2007	12/13/2007	JY

Qualifiers: BRL - Not Detected at the Reporting Limit DF - Dilution Factor

Results are blank corrected where applicable

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1436 of 2531

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NATIONAL GUARD REGION SOUTH
INDUSTRIAL HYGIENE OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

ARNG-CSG

July 20, 2014

MEMORANDUM FOR The Adjutant General of Tennessee, ATTN: Non-Responsive [redacted] TN ARNG Maryville Armory, 1721 W Lamar Alexander Pkwyon, Maryville, TN 37801.

THRU Non-Responsive [redacted] Deputy State Surgeon, Tennessee National Guard, HQS, AGTN-DCSPER-DSS, P.O. Box 41502, Houston Barracks, Nashville, Tennessee 37204-1501.

SUBJECT: Industrial Hygiene Survey of the TN ARNG Maryville Armory, Maryville, TN.

1. References.

a. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1996 rev.

a. Title 29, Code of Federal Regulations (CFR), 2009 rev., part 1910, Occupational Safety and Health Standards.

b. Title 29 CFR, General Industry, revised 1996 rev. Part 1940

c. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 25 May 2007

d. AR 385-10, The Army Safety Program, 23 August 2007.

e. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.

f. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, 12 September 2008.

g. TB MED 503, The Army Industrial Hygiene Program, 30 October 2000.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2010 American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 26th rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

k. NG PAM 420-15, 03 November 2006, Facilities Engineering, Rehabilitation and Conversion of Indoor Firing Ranges.

2. General. At the request of Non-Responsive [redacted] RN, of the Tennessee National Guard Occupational Health Office, an Industrial Hygiene Survey was put together to conduct a Health Hazard Information module (HHIM) Field survey of the s and industrial hygiene sampling of the TN ARNG Maryville Armory, Maryville, TN.

3. Findings. All Health Hazard information is on the survey findings of the report. (See enclosure 1). Operations of very short duration were not sampled due to the requirements of the

SUBJECT: Industrial Hygiene Survey of the TN ARNG Maryville Armory, Maryville, TN.

sampling method. If the operation changes or if the length of the operation is increased, contact this office to schedule sampling if it is deemed needed then.

4. Recommendations. Follow the recommendations made in the enclosed report, requesting industrial hygiene (IH) in the event operations performed or work schedule change to schedule a follow up survey of the facility earlier than the normal schedule.

a. Have all HHIM data entered into the HHIM computer module.

b. Use the report to help in correcting all deficiencies noted.

c. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present visits, especially if this will help eliminate health hazards and reduce medical surveillance cost.

d. Contact the State Occupational Health Office for any medical Surveillance that may be needed.

e. To execute your responsibilities in correcting all deficiencies, coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

f. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

g. Use the guidance given in the enclosed report as good IH practices, requesting industrial hygiene (IH) services where needed. The recommendations given in the comment section of the HHIM data sheets and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-14. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-15 IHIP.

5. If additional information is needed about the industrial hygiene

Non-Responsive

[redacted]

CF: ARNG-CSG

Non-Responsive Safety and Occupational Health Manager, Tennessee State Safety 3041 Sidco Drive, Nashville, TN 37204-1504

Non-Responsive Tennessee National Guard Occupational Health Office, 250 8th Ave, Smyrna, TN 37167

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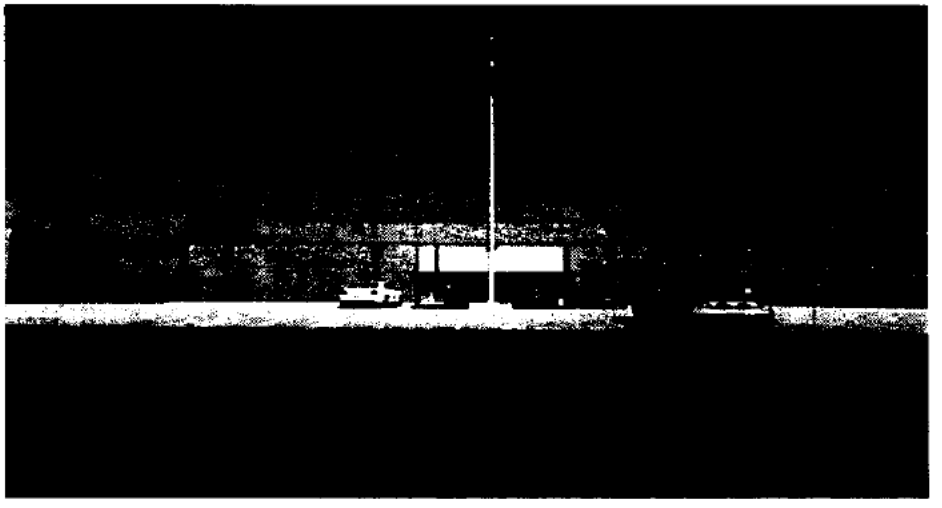
INDUSTRIAL HYGIENE SURVEY REPORT
FOR
TENNESSEE ARMY NATIONAL GUARD
(TNARNG)
1721 W LAMAR ALEXANDER PKWY
MARYVILLE, TN 37801



Thru

Indust

Non-Responsive

[redacted]

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1439 of 2531

INTRODUCTION

At the request of Non-Responsive f the National Guard Bureau (ARNG) Region South Industrial Hygiene Office; Non-Responsive [redacted] IH Surveying Inc. conducted a baseline Industrial Hygiene survey and walk through evaluation. This evaluation took place at the Maryville Armory of the Tennessee ARNG located at 1721 W Lamar Alexander Pkwy on May 20, 2013. The purpose of the survey was to evaluate any and all health hazards and controls present in the workplace. Collect bulk samples and or wipe samples (if necessary) to determine lead or asbestos exposures, perform illumination, ventilation and noise surveys, and make recommendations regarding health hazards associated with work at the site.

The facility was visually examined and site personnel interviewed regarding work activities, and type of materials/chemicals used during typical/atypical workdays, or stored on site.

Pre and Post Industrial Hygiene survey reports were held with Non-Responsive [redacted] who was the acting POC for the Maryville Armory at the time the survey was completed.

The writer would like to acknowledge the assistance and cooperation extended to him by site's population in general, and takes this opportunity to express his gratitude to all personnel.

FACILITY DESCRIPTION

This is a one story building which was constructed of concrete blocks with a brick outer layer for walls and concrete flooring in most areas. The building contains numerous work spaces which include offices, a kitchen, a gym, a classroom and a supply room office. There is also a drill hall and latrines. Floor coverings throughout the building were carpeting, tile or concrete. According to the POC, the Indoor Firing Range has been converted to storage space at this facility. All walls are painted or paneled. Ceiling tile is 36 inch drop panels in most areas and in some places the ceiling is a sheet rock type of material.

INSTRUMENTATION

The following instrumentation and/or sampling media were provided by the contractor and where necessary were used to obtain lead wipe samples, asbestos bulk samples, paint chip samples illumination and noise measurements. Equipment obtained from the NGB Southeast Regional Office and RAECO Inc.

Quest Q2700	Sound Level Meter	calibrated on 07/27/2013
Quest QC-10	Calibrator w/Adapter	calibrated on 07/27/2013
TSI 95511AQ	Meter	calibrated on 4/06/2013
EXTECH 407026	Light Meter	calibrated on 07/06/2013
"Ghost wipes" lead dust wipes		no expiration date

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1440 of 2531

BEST AVAILABLE COPY

FINDINGS

Office Spaces

The Maryville armory offices spaces are mostly equipped with the same furnishings. The offices contained at least a chair, desk and some had a computer stations. At the time of the survey, in some work areas there were stained ceiling tiles from exposure to water. There was no sign of mold or water damage on the floors or walls of the offices. While interviewing the employee at the armory that day, it appeared that the temperature and humidity were satisfactory for working conditions, the HVAC system effectively monitors and controls temperature and humidity.

Latrines

The latrines were clean and free of mold or water damage, also at the time of the survey there didn't appear to be any leaks or broken latrine fixtures.

Kitchen

The kitchen was in need of some light housekeeping behind reefers and stoves.

Classrooms

The classrooms were neat and in orderly conditions.

Supply

Most of the supply and storage areas were clean and orderly. Lead samples were taking from the IFR which was converted to a storage area, paint chip samples sent in as well.

Drill Hall

The facility's drill hall has a concrete floor and concrete block walls. The ceiling is flat with no signs of leaks; the POC informed me that the roof was repaired in 2013. The inside of the roof seemed in good shape at the time of the survey. The lighting fixtures and numerous windows provided ample illumination for an area of that size: illumination standards were met or exceeded. Lead swipe samples were taken from different areas of the floor.

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1441 of 2531

Sampling

Lead Swipe Sampling Results

Weapons Vault: The weapon vaults were tested for lead levels. Lead swipe samples were taken and sent to AES Inc. Any result over 200ug must be reported. During this survey all samples were below the reporting limit. Results of the samples are listed below. .

Sample Site	*Result/Units ug.*	*Reporting Limits*
Vault floor	56	200
Vault wall	BRL	200
Vault flat surfaces	BRL	200
Vault door inside	BRL	200
Vault wall 2	61	200
Floor Outside Vault	22	200
Vault door outside	BRL	200
Drill Hall floor center	BRL	200
Drill Hall floor by bay door	BRL	200
Drill hall floor by kitchen	BRL	200
IFR floor	BRL	200
IFR floor 2	53	200
IFR wall	BRL	200

Indoor Firing Range

According to the POC, the Indoor Firing Range was never used and turned into a supply area

IAQ

Based on interviews, measurements and observations overall there is no technical or instrumental basis for IAQ concerns in this facility. No evidence of mold, extreme particulate build up or condensation on walls or floors. There were no obvious roof leaks at the time of the survey. Throughout the building the average temperature was 74.1 (DF) and the average humidity was 53.8. Many factors such as personal activity may affect personal comfort. Acceptable relative humidity levels can range from 30 to 70% year round. Elevated humidity could promote growth of mold, bacteria and dust mites which can aggravate allergies and asthma. Carbon dioxide levels were very low and are a measure as to whether adequate volumes of fresh outdoor air are being introduced to indoor air. Outdoor levels of Carbon dioxide are usually 300-400 parts per million and indoor levels should be between 600-800 parts per million. The carbon dioxide levels in this facility did not exceed 527.7 parts per million. The ventilation system is in good working condition and maintains a comfortable working environment, although it appeared to be in need of servicing as mentioned earlier. At the time of the survey there was no record of a maintenance record program of the HVAC system.

Office/Areas	IAQ CO2 ppm /Temp/HM/CO
Vault	512/72/59/.1
M latrine	521/73/57/0
F Latrine	505/77/55/.1
gym	512/74/53/.1
classroom	517/73/53/.2
Kitchen	498/74/55/0
supply	523/78/50/0
Office avg	503/73/53/0
Conference room	502/74/53/.0
Drill hall	495/74/50/0

Noise Level

Readings throughout the main facility and the out buildings measured between 50 to 55 decibels "slow A scale". There was no activity out of office work going on at the time of the survey.

Office/Areas/Equipment	Noise dBa	Exceeds Noise 85 dBa Std
Vault	46	No
M latrine	46	No
F Latrine	47	No
gym	43	No
classroom	45	No
Kitchen	46	No
supply	47	No
Office avg	44	No
Conference room	52	No
Drill hall	50	No

Asbestos

Not applicable

Illumination

The average illumination in the offices, conference room and classrooms was 48. See the table below for illumination values. These values show that some areas do not meet the recommended illumination standard. The following table reflects foot candle measurements noted during this survey.

Office/Areas/Equipment	Illumination Foot Candles (ftc) Ftc/ lights/lights out/windows	Meets: IES Lighting Handbook
Vault	43 / 13 / 0 out /no windows	Yes
M latrine	40 / 1 / 0 out / no windows	Yes
F Latrine	52 / 4 / 0 out/ 1 window	Yes

gym	41 /12 /0 out / no windows	Yes
classroom	51 / 8 / 0 out / 4 windows	Yes
Kitchen	20 / 4 / 0 out /0 window	Yes
supply	22 /4 /1 out / no windows	Yes
Office avg	41 / 30 / 0 out / no windows	Yes
Conference room	49 /4 / 0 out/ 1 window	Yes
Drill hall	72 / 12 / 0 out/ 4 windows	Yes

5

Hazardous Materials

Materials used at this armory are standard in most armory sites. Haz-mat inventories are posted appropriate. The flammable cabinet was located in the drill hall and was properly marked. The MSDS Binder was visible.

Indoor Firing Range

According to the POC, the Indoor Firing Range was never used and turned into a supply area.

Technical Assistance

Non-Responsive

References

Title 29, Code of Federal Regulations (CFR) Part 1910, Occupational Safety and Health Administration (OSHA)

AR 40-5, Preventive Medicine, 25 May 2007.

AR 385-10, 29 February 2000, Army Safety Program.

TB MED 503, The Army Industrial Hygiene Program, 30 October 2000.

Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.

The IES Lighting Handbook, Tenth Edition; Illuminating Engineering Society / 2011

Threshold Limit Values (TLV's) For Chemical Substances and Physical Agents, And Biological Exposure Indices (BEI's), 2009, ACGIH, Cincinnati Ohio

Industrial Ventilation, 25th Edition, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio

AR 11-34 Army Respiratory Protection Program, 15 February 1990

DA Pam 40-501, Hearing Conservation Program, 10 December 1998

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NFPA 10: Standard for Portable Fire Extinguishers

Recommended values from IES Lighting Handbook Application Volume 1987

ENCLOSED

1. Recommendations
2. Photos
3. Lead swipe testing results

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ATTACHMENT 1

RECOMMENDATIONS

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1446 of 2531

Based on interviews with the POC and other personnel as well as observations by Non-Responsive Surveying Inc. staff and IAQ measurements, it appears the overall condition of this facility is in good condition.

- Numerous areas came back with lead levels over the reporting limit of 20 ug. for the lab; however NGB standards are 200ug. At the time of the survey these levels do not pose an immediately danger to health or life. General housekeeping of these areas should keep reading at safe levels **RAC 3**

- General housekeeping behind the reefers should be addressed to keep vermin at a minimum **RAC 3**

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ATTACHEMENT 2

PHOTOS

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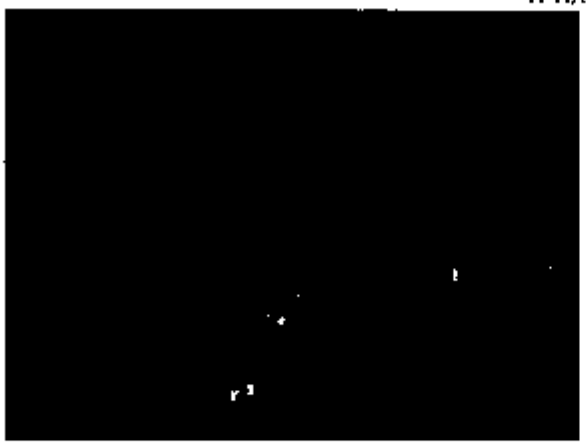
IFR/Storage now



Entrance to armory

Office

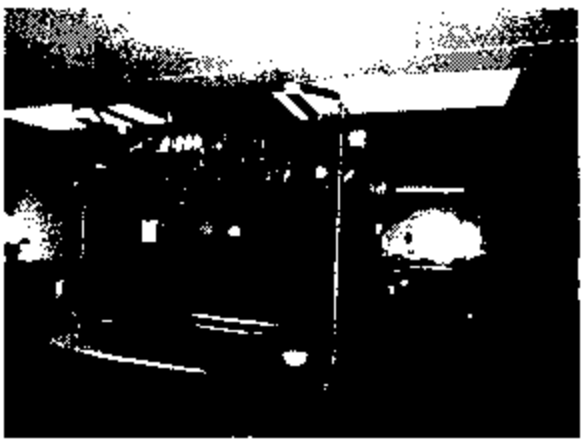
Office

Classroom

Gym

Latrine

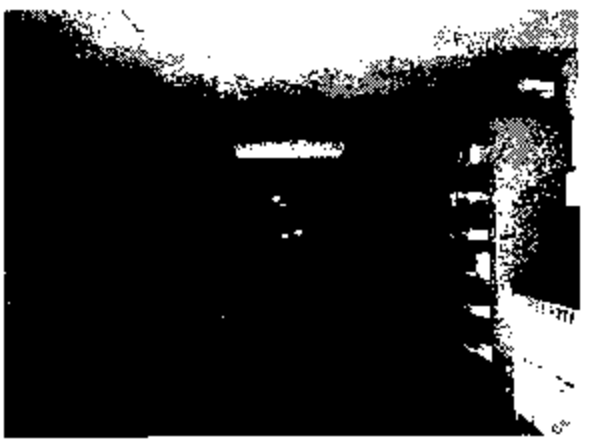
Kitchen



Pantry

Supply

Weapons Vault



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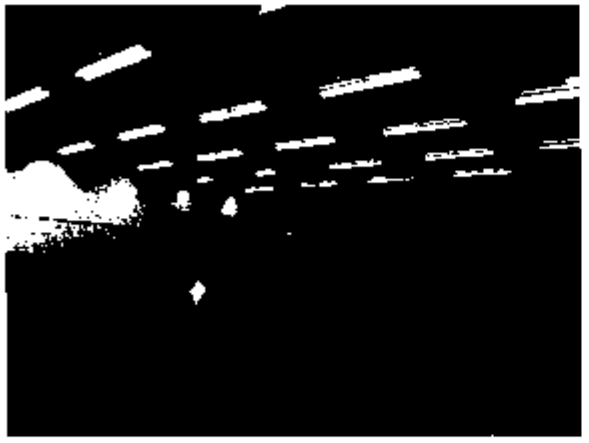
Drill Hall



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ATTACHEMENT 3

LAB RESULTS

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AES

ANALYTICAL ENVIRONMENTAL SERVICES, INC.

June 04, 2014

Non-Responsive

[redacted]

RE: Maryville Armory

Dear Non-Responsive [redacted]

Order No: 1405P66

Analytical Environmental Services, Inc. received 12 samples on 5/28/2014 3:00:00 PM for the analyses presented in following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.
AES' certifications are as follows:
-NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/13-06/30/14.
-AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) effective until 09/01/15.

These results relate only to the items tested. This report may only be reproduced in full.

If you have any questions regarding these test results, please feel free to call.

Non-Responsive

[redacted]

3080 Presidential Drive • Atlanta, Georgia 30340 • Tel: 770.457.8177 • Fax: 770.457.8188 • Toll Free: 800.972.4889
www.aesatlanta.com

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1453 of 2531

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Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client GA Army Nat'l Guard Work Order Number 1405P66

Checklist completed by Non-Responsive [redacted] 6/29/14
Signa[redacted]Date

Carrier name: FedEx __ UPS __ Courier __ Client __ US Mail ✓ Other _____

Shipping container/cooler in good condition? Yes ✓ No __ Not Present __

Custody seals intact on shipping container/cooler? Yes __ No __ Not Present ✓

Custody seals intact on sample bottles? Yes __ No __ Not Present ✓

Container/Temp Blank temperature in compliance? ~~(4°C±2)~~* Yes ✓ No __

Cooler #1 amb. Cooler #2 _____ Cooler #3 _____ Cooler #4 _____ Cooler#5 _____ Cooler #6 _____

Chain of custody present? Yes ✓ No __

Chain of custody signed when relinquished and received? Yes ✓ No __

Chain of custody agrees with sample labels? Yes ✓ No __

Samples in proper container/bottle? Yes ✓ No __

Sample containers intact? Yes ✓ No __

Sufficient sample volume for indicated test? Yes ✓ No __

All samples received within holding time? Yes ✓ No __

Was TAT marked on the COC? Yes ✓ No __

Proceed with Standard TAT as per project history? Yes __ No __ Not Applicable ✓

Water - VOA vials have zero headspace? No VOA vials submitted ✓ Yes __ No __

Water - pH acceptable upon receipt? Yes __ No __ Not Applicable ✓

Adjusted? _____ Checked by _____

Sample Condition: Good ✓ Other(Explain) _____

(For diffusive samples or AIHA lead) Is a known blank included? Yes __ No ✓

See Case Narrative for resolution of the Non-Conformance.

* Samples do not have to comply with the given range for certain parameters.

\L\Quality Assurance\Checklists Procedures Sign-Off Templates\Checklists\Sample Receipt Checklists\Sample_Cooler_Receipt_Checklist

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1454 of 2531

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ANALYTICAL ENVIRONMENTAL SERVICES, INC
3785 Presidential Parkway, Atlanta GA 30340-3704
TEL.: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

Work Order: 1405P66

Date: 5/20/14 Page 1 of ____

COMPANY: NGB SOUTHEAST

ADDRESS: 515 PLAZA DR SUITE 1534 COLLEGE PARK, GA

PHONE:

FAX:

SAMP[redacted]

SIG[redacted]

ANALYSIS REQUESTED: LEAD

Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.

#	SAMPLE ID	SAMPLED DATE	SAMPLED TIME	Grab	Composite	Matrix (See codes)	PRESERVATION (See codes)	REMARKS	No # of Containers
1	001MAR0520	5/20		✓				VAULT FLOOR	
2	002MAR0520			✓				VAULT WALL	
3	003MAR0520			✓				FLAT SURFACES	
4	004MAR0520			✓				VAULT DOOR IN	
5	005MAR0520			✓				VAULT WALL (2)	
6	006MAR0520			✓				FLOOR OUTSIDE VAULT	
7	007MAR0520			✓				VAULT DOOR OUTSIDE	
8	008MAR0520			✓				DRILL HALL FIR CTR	
9	009MAR0520			✓				DRILL HALL FIR BAY	
10	010MAR0520			✓				KITCHEN AREA	
11	011MAR0520			✓				IFR FLOOR	
12	012MAR0520			✓				IFR FLOOR 2	
13								IFR WALL	
14									

RELINQUISHED BY DATE/TIME: [redacted]

RECEIVED BY DATE/TIME:

3:

3:

PROJECT INFORMATION: [redacted] ILE ARMORY

PROJECT #:

SITE ADDRESS: 1721 W LAMAR ALEXANDER MARYVILLE, TN 37801

SEND REPORT T[redacted]

INVOICE TO: (IF DIFFERENT FROM ABOVE)

QUOTE #: PO#:

RECEIPT

Total # of Containers

Turnaround Time Request
- [x] Standard 5 Business Days
- [ ] 2 Business Day Rush
- [ ] Next Business Day Rush
- [ ] Same Day Rush (auth req.)
- [ ] Other

STATE PROGRAM (if any):

E-mail? Y/N; Fax? Y/N

DATA PACKAGE: [ ] I [ ] II [ ] III [ ] IV

SPECIAL INSTRUCTIONS/COMMENTS:

SHIPMENT METHOD
OUT / / VIA:
IN / / VIA:
[ ] CLIENT [ ] FedEx [ ] UPS [x] MAIL [ ] COURIER
[ ] GREYHOUND [ ] OTHER

SAMPLES RECEIVED AFTER 3PM OR ON SATURDAY ARE CONSIDERED RECEIVED THE NEXT BUSINESS DAY; IF NO TAT IS MARKED ON COC AES WILL PROCEED WITH STANDARD TAT.

SAMPLES ARE DISPOSED OF 30 DAYS AFTER COMPLETION OF REPORT UNLESS OTHER ARRANGEMENTS ARE MADE.

MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Water (Blanks) WW=Wastewater DW=Drinking Water O = Other (specify)

PRESERVATIVE CODES: H+I = Hydrochloric acid + ice I = Ice only N = Nitric acid S+I = Sulfuric acid + ice S/M+I = Sodium Bisulfate/Methanol + ice O = Other (specify) NA = None

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FOIA Requested Record #J-15-0085 (TN)
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Page 1455 of 2531

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May, 2018

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Analytical Environmental Services, Inc

Date: 6-Jun-14

Lab Order: 1405P66
Client: National Guard Bureau Region-South III
Project: Maryville Armory
Matrix: Wipe
Date Received: 5/28/2014 3:00:00 PM

LEAD ON WIPES (N7082)

N7082

Laboratory ID	Client Sample ID	Result	Units	Reporting Limit	DF	Qual	Date Collected	Date Analyzed	Analyst
1405P66-001A	001MAR0520	56	ug, Total	20	1		05/20/2014	06/03/2014	JS
1405P66-002A	002MAR0520	BRL	ug, Total	20	1		05/20/2014	06/03/2014	JS
1405P66-003A	003MAR0520	BRL	ug, Total	20	1		05/20/2014	06/03/2014	JS
1405P66-004A	004MAR0520	BRL	ug, Total	20	1		05/20/2014	06/03/2014	JS
1405P66-005A	005MAR0520	61	ug, Total	20	1		05/20/2014	06/03/2014	JS
1405P66-006A	006MAR0520	22	ug, Total	20	1		05/20/2014	06/03/2014	JS
1405P66-007A	007MAR0520	BRL	ug, Total	20	1		05/20/2014	06/03/2014	JS
1405P66-008A	008MAR0520	BRL	ug, Total	20	1		05/20/2014	06/03/2014	JS
1405P66-009A	009MAR0520	BRL	ug, Total	20	1		05/20/2014	06/03/2014	JS
1405P66-011A	011MAR0520	BRL	ug, Total	20	1		05/20/2014	06/03/2014	JS
1405P66-012A	012MAR0520	53	ug, Total	20	1		05/20/2014	06/03/2014	JS

Lab Order: 1405P66
Client: National Guard Bureau Region-South III
Project: Maryville Armory
Matrix: Paint
Date Received: 5/28/2014 3:00:00 PM

TOTAL LEAD IN PAINT (N7082)

PAINT

Laboratory ID	Client Sample ID	Result	Units	Reporting Limit	DF	Qual	Date Collected	Date Analyzed	Analyst
1405P66-010A	010MAR0520	BRL	wt%	0.00876	1		05/20/2014	06/03/2014	JS

Qualifiers: BRL - Not Detected at the Reporting Limit; DF - Dilution Factor
B - Analyte detected in the associated Method Blank

Results are blank corrected where applicable

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1456 of 2531

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NATIONAL GUARD REGION SOUTH
INDUSTRIAL HYGIENE OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

ARNG-CSG-P (40-5f) July 29, 2011

MEMORANDUM FOR THE ADJUTANT GENERAL OF TENNESSEE, ATTN Non-Responsive Non-Responsive Readiness NCO, McKenzie Armory, HWY 110 140 South, McKenzie, Tennessee 38344.

THRU Non-Responsive Deputy State Surgeon, Tennessee National Guard, HQS, AGTN-DCSPER-DSS, P.O. Box 41502, Houston Barracks, Nashville, Tennessee 37204-1501.

SUBJECT: Industrial Hygiene Survey of the TN ARNG McKenzie Armory, McKenzie, TN.

1. References.

a. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1996 rev.

   a. Title 29, Code of Federal Regulations (CFR), 2009 rev., part 1910, Occupational Safety and Health Standards.

   b. Title 29 CFR, General Industry, revised 1996 rev. Part 1940

   c. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 25 May 2007

   d. AR 385-10, The Army Safety Program, 23 August 2007.

   e. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.

   f. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, 12 September 2008.

   g. TB MED 503, The Army Industrial Hygiene Program, 30 October 2000.

   h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2010 American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

   i. Industrial Ventilation, 26th rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

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j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

k. NG PAM 420-15, 03 November 2006, Facilities Engineering, Rehabilitation and Conversion of Indoor Firing Ranges.

2. General. At the request of Non-Responsive [redacted] RN, of the Tennessee National Guard Occupational Health Office, an Industrial Hygiene Survey was put together to conduct a Health Hazard Information module (HHIM) Field survey of the s and industrial hygiene sampling of the TN ARNG McKenzie Armory, McKenzie, TN.

3. Findings. All Health Hazard information is on the survey findings of the report. (See enclosure 1). Operations of very short duration were not sampled due to the requirements of the sampling method. If the operation changes or if the length of the operation is increased, contact this office to schedule sampling if it is deemed needed then.

4. Recommendations.

a. Follow the recommendations made in the enclosed report, requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. The recommendations given in the comments section of the HHIM data sheets and data collected will serve as an update of the baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY2011. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY2012 IHIP.

c. Have all HHIM data entered into the HHIM computer module.

d. Use the report to help in correcting all deficiencies noted.

e. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present visits, especially if this will help eliminate health hazards and reduce medical surveillance cost.

f. Contact the State Occupational Health Office, for any medical Surveillance that may be needed.

g. To execute your responsibilities in correcting all deficiencies, coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

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5. If additional information is needed about the industrial hygiene survey or air sample results

Non-Responsive

[redacted]

CF: ARNG-CSG-P
Safety and Occupational Health Manager, Tennessee State Safety and Occupational Health Manager, 3041 Sidco Drive, Nashville, TN 37204-1504

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INDUSTRIAL HYGIENE INITIAL BASELINE SURVEY

TENNESSEE NATIONAL GUARD

MCKENZIE NATIONAL GUARD ARMORY
HWY 110 140 SOUTH
MCKENZIE, TN 38344

DATE: JUNE 8, 2011

PREPARED BY

Non-Responsive

[redacted]

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau

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TABLE OF CONTENTS

BACKGROUND	Pg 1
Introduction	Pg 1
Scope of Work	Pg 1
INSTRUMENTATION	Pg 1
OBSERVATION	Pg 2
ADMINISTRATIVE OFFICES	Pgs 2 & 3
AIRFLOW/VENTILATION	Pg 3
KITCHEN	Pgs 3 & 4
RESTROOMS	Pg 4
DRILL HALL	Pgs 4 & 5
SUPPLY	Pgs 5 & 6
MATERIAL SAFETY DATA SHEETS	Pg 6
CLASSROOMS	Pg 6
GYMNASIUM	Pgs 6 & 7
RECRUITING OFFICE	Pg 7
OLD INDOOR FIRING RANGE	Pg 7
MAINTENANCE BUILDING	Pgs 7 & 8
FINDINGS	Pgs 8 thru 10
TABLE 1A GENERAL ILLUMINATION LEVEL	Pgs 10 & 11
TABLE 1B TASK TROUBLED AREAS AT WORKSTATIONS	Pg 11
TABLE 2A (DRILL HALL LEAD WIPE SAMPLES RESULTS)	Pg 11
TABLE 2B (OLD INDOOR FIRING RANGE SAMPLE RESULTS)	Pg 12
TABLE 3(SUPPLY PAINT CHIP SAMPLE RESULT)	Pg 12
TECHNICAL ASSISTANCE	Pg 12
APPENDIX A, PROBLEM AREAS OF MCKENZIE ARMORY	Pgs 13 & 14
APPENDIX B, (DRILL HALL LEAD WIPE SAMPLE LOCATION)	Pg 14
APPENDIX C (OLD INFOOR FIRING RANGE SAMPLE LOCATONS)	Pgs 15 thru17
APPENDIX D (SUPPLY PAINT CHIP SAMPLE LOCATION)	Pg 17
APPENDIX E (PICTURES OF MCKENZIE ARMORY)	Pg 18

ATTACHMENTS:

Facility Diagram
List of MSDS on Hand
HHIM Sheet
Analytical Environmental Services, Inc. Chain of Custody
Analytical Environmental Service, Inc. Analytical Results

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MEMORANDUM FOR: Tennessee National Guard, Attn: Non-Responsive Readiness NCO, McKenzie Armory, HWY 110 140 South, McKenzie, Tennessee 38344

Subject: Industrial Hygiene Initial Baseline Survey of McKenzie Army National Guard Armory, McKenzie, Tennessee

BACKGROUND:

Introduction:

At the request of Non-Responsive National Guard Bureau Regional Industrial Hygiene South Office, Atlanta, GA., an initial baseline industrial hygiene survey was conducted at McKenzie Army National Guard Armory, McKenzie, Tennessee on June 8, 2011 as part of the Tennessee Army National Guard Occupational Health in the workplace. The point of contact for this facility was Non-Responsive Non-Responsive

Scope of Work:

The survey consisted of a general illumination survey, task lighting survey, lead wipe sampling and evaluating the condition of the building, including the airflow of the heating Ventilation and Air Conditioning (HVAC) System as it relates to indoor air quality. A review of several industrial programs, such as hazard communication, hearing conservation and personal protective equipment was also performed. A field survey form is complete on all industrial operations at the facility, and the data is contained in this report.

INSTRUMENTATION:

The following survey instrumentation was provided by or for the contractor, and was used to obtain illumination measurements, task lighting measurements. All instruments were pre-calibrated according to the manufacturer's instructions.

Instrument	Serial Number	Calibration
Extech Light Meter	L098665	21 June 2010

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1462 of 2531

OBSERVATION

McKenzie Armory (Bldg 00001) is home to Det 2 Troop C RTS. Duty hours are from 8:00 - 16:00 hours Monday thru Friday. The armory is a one level brick structure with a flat roof in the front and drill hall in the back and was built in 2000.The armory indoor firing range was no longer useful and therefore, it was gutted and thoroughly cleaned to remove the lead dust from the walls and floor. The armory is now waiting for approval to use the space for storage. Sixteen lead wipe samples were collected from the walls and floor of the old indoor firing range and four lead wipe samples were collected from the drill hall walls and sent to Analytical Environmental Services, inc., in Atlanta, Georgia for lead dust analyses. See Table 2B (Old Indoor Firing Range Lead Wipe Sample Results) and Table 2A (Drill Hall Lead Wipe Sample Results).

ADMINISTRATIVE OFFICES

There are five administrative offices where personnel use computer systems, files, read, writes and performs administrative tasks as necessary. Computer use occurs throughout the day. All the administrative offices except for the supply office met IES, Illuminating Engineering Society Handbook, 8th Edition requirement of 50 FC – 100 FC (Foot Candles) see Table 1A (General Illumination Levels) for results. Task lighting was taken at computer workstations in each administrative office and all met IES requirement of 50 FC – 100 FC except for [redacted] computer workstation in the orderly room. See Table 1B (Task Troubled Areas at Work Station) for results.

Commander's Office

1SG Office

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1463 of 2531

Recruiting Office

Supply Office

Orderly Room

Orderly Room

AIRFLOW/VENTILATION

McKenzie armory administrative offices are on a central HVAC system. Drill hall has two exhaust fans and two supply air vents and four radiant heaters.

KITCHEN

The kitchen is small and not used during drill weekend to prepare food for troops, it is normally used for day to day storage of full time personnel food and when the hall is rented. Food for drill weekend is catered. General illumination levels in prep/serving area and dishwashing met IES requirement of 50 FC – 100 FC. General illumination levels in the storage area met IES requirement of 20 FC – 50 FC.

Kitchen Prep/Serving Area

Kitchen Dishwashing Area

Kitchen Storage Area

RESTROOMS - There are two restrooms in the drill hall (one men restroom and one ladies restroom) and a restroom next to old indoor firing range.

The men restroom has three sinks, three urinals, three stalls and shower room. General illumination levels met IES requirement of 10 FC – 20 FC.

The ladies restroom has two sinks, two stalls and a shower room. General illumination levels met IES requirement of 10 FC – 20 FC.

The restroom next to the old indoor firing range has 1 sink, 1 urinal and 1 commode. General illumination levels met IES requirement of 10 FC – 20 FC.

DRILL HALL

The hall is heated by four radiant heaters during the colder months and comfort ventilation is provided by two room exhaust fans and two supply air vents. The industrial hygiene representative was told that the drill hall roof leaks when it rains, however, there were no signs water stains. General illumination levels did not meet IES requirement of 50 FC – 100 FC.

Four lead wipe samples were taken from the wall in the drill hall and the samples were sent to Analytical Environmental Services, Inc., Atlanta, Georgia for analyses and the results came back BRL = Not Detected at the Reporting Limit. The MSDS master binder is located on the wall of the drill hall and one in supply. The MSDS binder was in good order and a copy is attached to this report. The drill hall is up for rent out every Monday through Friday except for drill weekends.

Drill Hall

Drill Hall

SUPPLY

Non-Responsive is the Admin/Supply NCO for McKenzie Armory. The supply storage general illumination levels met IES requirement of 20 FC – 50 FC. Supply storage had a crack in the wall and paint peeling from the walls. See Appendix a (Problem Areas of McKenzie Armory) for a picture of the crack in the wall and paint peeling. A paint chip sample was collected and sent to Analytical Environmental Services, Inc., Atlanta, Georgia to determine whether it contained lead and the results came back BRL = Not Detected at the Reporting Limit. General illumination levels in the supply office did not meet IES requirement of 50 FC – 100 FC. The arms vault general illumination levels met IES requirement.

Supply Storage

Supply Storage Cage Area

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1466 of 2531

Supply Office

MATERIAL SAFETY DATA SHEETS

The MSDS master binder is located in the drill hall and another in supply. The MSDS binder was inspected and found to be in good order. A copy of the MSDS index is attached to this report. Flammable storage cabinet were inspected and found to be in good order.

CLASSROOM

There are two separate classrooms, classroom #1 and classroom #2 with classroom #1 being smaller of the two. Classroom #2 has a room divider that can be closed to make to separate rooms. The back corner floor of classroom #2 is slightly sunk-in however, it was hardly noticeable. General illumination levels in both classrooms meet IES requirement of 50 FC – 100 FC.

Classroom #1

Classroom #2

GYMNASIUM

The gym and exercise equipment was very impressive. General illumination met IES requirement of 20 FC – 50 FC.

Gym

Gym

RECRUITING OFFICE

General illumination levels and task lighting taken at computer workstation met IES requirement of 50FC – 100 FC.

Recruiting Office

OLD INDOOR FIRING RANGE

The old indoor firing range has been gutted and cleaned and closed while waiting for approval to be used for storage. The lighting inside the indoor firing range was too poor to take a picture of the room or general area illumination readings. Sixteen lead wipe samples were taken of the walls and floor and sent to Analytical Environmental Services, Inc., Atlanta, Georgia for analyses and the results can be found in Table 2B (Indoor Firing Range Lead Wipe Sample Results).

MAINTENANCE BUILDING

The two bay service garages had not been used to service any equipment in a long time and were currently being used as storage. There's a carbon monoxide alarm that has been unplugged and not used in awhile. The carbon monoxide exhaust ventilation system has two drop down flexible hose that has been detached from the system.

General illumination levels in the bay and dispatch office did not meet IES requirement of 50 FC – 100 FC. General illumination levels in supply did not meet IES requirement of 20 FC – 50 FC. The restroom has a sink, urinal and commode and the general illumination levels did meet IES requirement of 10 FC – 20 FC.

Maintenance Building

Service Bay Area

FINDINGS

A. Administrative Offices

1. Supply office was the only administrative office that did not meet IES general illumination requirement of 50 FC – 100 FC.
2. Task lighting taken at computer work stations (CWS) met IES requirement of 50 FC – 100 FC except for Non-Responsive CWS in the Orderly Room.

B. Kitchen – General illumination levels in all areas met IES requirement.

C. Restrooms – General illumination in all three restrooms met IES requirement of 10 FC – 20 FC

D. Drill Hall

1. When it rains the roof leaks.
2. General illumination did not meet IES requirement of 50 FC – 100 FC.
3. The four lead wipe samples collected from the drill hall walls results came back BRL = Not Detected at the Reporting Limit.

E. Supply

1. General illumination levels in supply storage met IES requirement of 20 FC – 50 FC.
2. Supply storage a crack in the corner of the wall.
3. In supply storage the paint on the walls were peeling.

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1469 of 2531

4. Paint chip sample were collected and sent to a certified analytical laboratory for lead analyses and the results came back BRL = Not Detected at the Reporting Limit.
5. Task lighting taken at the computer work station in the supply office did not meet IES requirement of 50 FC – 100 FC.
6. General illumination in the small arms vault met IES requirement of 20 FC – 50 FC.

F. MSDS – The master msds binder was found in good condition and the flammable storage cabinets were found in compliance order.

G. Classrooms

1. General illumination met IES requirement of 50 FC – 100 FC in both classrooms.
2. The back corner floor of classroom #2 is slightly sunk-in.

H. Gymnasium - General illumination levels met IES requirement of 20 FC – 50 FC.

I. Recruiting Office Room

1. General Illumination levels met IES requirement of 50 FC – 100 FC.
2. Task lighting taken at computer workstation met IES requirement of 50 FC – 100 FC.

J. Old Indoor Firing Range

1. Lighting was very poor.
2. Sixteen lead wipe samples were collected and sent to a certified laboratory for lead analyses and the results can be found in Table 2B (Old Indoor Firing Range Lead wipe Sample results.

K. Maintenance Building

1. The maintenance building is not being used to maintain equipment. It is currently being used as storage.
2. The general illumination in the service bays did not meet IES requirement of 50 FC – 100 FC...
3. The carbon monoxide alarm system had been unplugged.
4. The vehicle carbon monoxide exhaust system had been detached from the two drop down flexible hose.
5. The general illumination levels in the dispatch office did not meet IES requirement of 50 FC – 100 FC.
6. The general illumination levels in supply storage did not meet IES requirement of 20 FC – 50 FC.

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1470 of 2531

L. Fulltime employees have only administrative duties and they are not exposed to hazardous chemicals. No ambient or breathing zone air sampling accomplished during this survey.

M. Fulltime employees have only administrative duties and they are not exposed to any hazardous noise. No noise dosimeter or sound level survey accomplished during this survey.

N. No record indicating dates of the following training; HazCom, Hearing Protection and Personal Protective Equipment.

O. Water stained ceiling in hallway over bulletin board.

P. Water stained light fixture in Library.

Q. Water stained ceiling tiles in hallway next to storage room.

R. Water stained ceiling tile at entrance to drill hall.

TABLE 1A (General Illumination Levels)

Location	Range in Foot Candles (FC)	Average FC	IES Standard in FC
Drill Hall	13 – 25	20	50 – 100
Gymnasium	35 – 45	40	50 – 100
Kitchen Pre/Serving	41 – 88	66	50 – 100
Kitchen Storage	65 – 80	71	20 – 50
Kitchen Dishwashing	48 – 92	73	50 – 100
Men Restroom	28 – 52	40	10 – 20
Ladies Restroom	22 – 54	44	10 - 20
Orderly Room	50 – 62	56	50 – 100
Commander's Office	70 – 75	72	50 - 100
1SG Office	60 – 85	71	50 - 100
Restroom next to Indoor Firing Range	8 – 14	10	10 – 20
Conference Room	27 – 68	48	50 – 100
Classroom #1	99 – 111	105	50 – 100
Library	97 – 116	108	50 – 100
Recruiter's Office	72 – 91	83	50 - 100
Briefing Room	85 – 92	88	50 – 100
Classroom #2	78 – 105	93	50 – 100
Supply Storage	12 – 23	17	20 – 50
Supply Office	37 – 47	40	50 – 100
Supply Arms Vault	33 – 35	33	20 - 50

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1471 of 2531

TABLE 1A continued (General Illumination Levels)

Location	Range in Foot Candles (FC)	Average FC	IES Standard in FC
Maintenance Building			
Service Bays	31 – 47	39	50 – 100
Supply	18 – 19	19	20 – 50
Tool Room	37 – 41	39	20 – 50
Restroom	26 – 31	29	10 - 20
Radio Storage	22 – 31	27	10 - 20
Supply Storage	5 – 27	14	20 - 50
Supply Office	48 – 76	58	50 – 100
Gym	13 – 28	20	
Kitchen Prep/Serving	37 – 56	46	50 – 100
Kitchen Storage/Supervisor Office	27 – 84	45	50 – 100
Kitchen Dishwashing Area	34 – 74	52	50 – 100
Old 3rd Platoon Orderly Room	18 – 30	23	50 – 100
Recruiting Office	102 – 130	114	50 – 100
Computer Room	28 – 127	73	50 - 100

TABLE 1B (Task Troubled Areas at Work Stations)

Location	Average FC	IES Standard
Orderly Room, SSG Saylor's Computer Workstation (CWS)	43	50 – 100

TABLE 2A (Drill Hall Lead Wipe Samples Results)

Location	Sample Number	Analytical Results
Front Wall	LWS20110608-17	BRL
Wall Next to Supply	LWS20110608-18	BRL
Back Wall	LWS20110608-19	BRL
Wall Next to Coffee Maker	LWS20110608-20	BRL

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1472 of 2531

TABLE 2B (Old Indoor Firing Range Lead Wipe Samples Results)

Location	Sample Number	Analytical Results
Front Floor	LWS20110608-01	21 µg/ft²
Floor	LWS20110608-02	BRL
Floor	LWS20110608-03	BRL
Floor	LWS20110608-04	BRL
Floor	LWS20110608-05	BRL
Floor	LWS20110608-06	BRL
Back Wall	LWS20110608-07	BRL
Side Wall	LWS20110608-08	BRL
Side Wall	LWS20110608-09	BRL
Side Wall	LWS20110608-10	353 µg/ft²
Side Wall	LWS20110608-11	BRL
Front Wall	LWS20110608-12	BRL
Right Side Wall	LWS20110608-13	170 µg/ft²
Right Side Wall	LWS20110608-14	BRL
Right Side Wall	LWS20110608-15	BRL
Right Side Wall	LWS20110608-16	BRL

Remarks: BRL – Not Detected at the Reporting Limit

TABLE 3 (Supply Paint Chip Samples Results)

Location	Sample Number	Analytical Results
Wall	PC20110608-1	BRL

TECHNICAL ASSISTANCE

Non-Responsive

[redacted]

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1473 of 2531

APPENDIX A, Problem Area of McKenzie Armory

Corner Floor Sinking
Classroom #2

Water Stained Ceiling Tile
Hallway over Bulletin Board

Water Stained Light Fixture
Library

Crack in Corner Wall
Supply

Water Stained Ceiling Tile
Hallway Outside Storage Room

Water Stained ceiling Tile
Entrance to Drill Hall

APPENDIX A continued, Problem Area of McKenzie Armory

Water Stained Ceiling Tile
Maintenance Dispatch Office

Detached Exhaust System
Maintenance Service Bay

APPENDIX B (DRILL HALL LEAD WIPE SAMPLE LOCATIONS)

LWS20110608-17
Front Wall

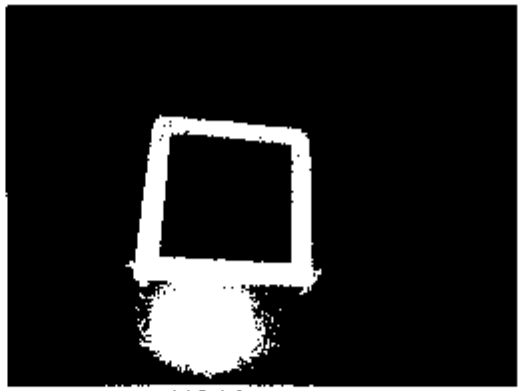
LWS20110608-18
Wall Next To Supply

LWS20110608-19
Back Wall

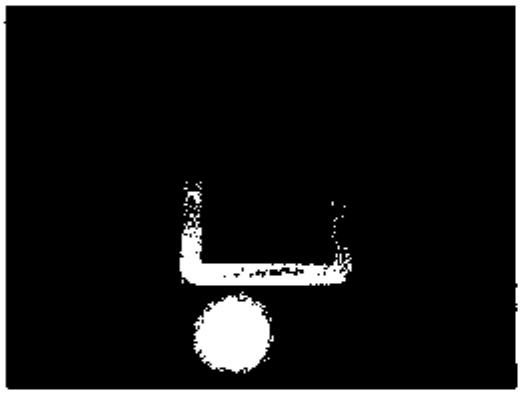
LWS20110608-20
Next to Coffee Maker

APPENDIX C, (OLD INDOOR FIRING RANGE LEAD WIPES SAMPLE LOCATIONS)

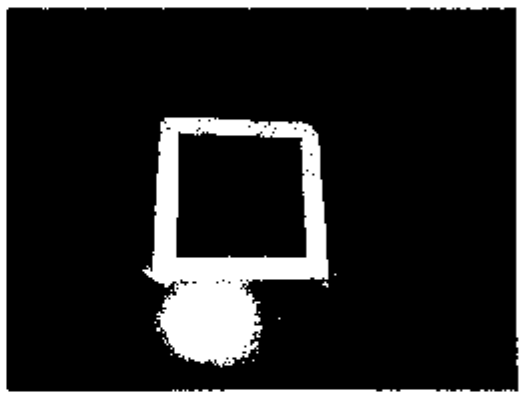
LWS20110608-01
Front Floor



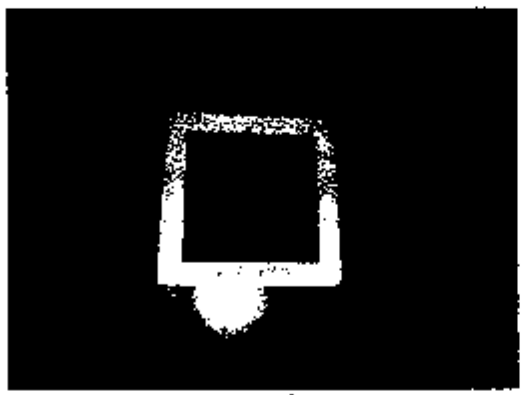
LWS20110608-02
Floor



LWS20110608-03
Floor



LWS20110608-04
Floor



LWS20110608-05
Floor

LWS20110608-06
Floor

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1476 of 2531

APPENDIX C continued, (OLD INDOOR FIRING RANGE LEAD WIPE SAMPLE LOCATIONS)

LWS20110608-07
Back Wall

LWS20110608-08
Side Wall

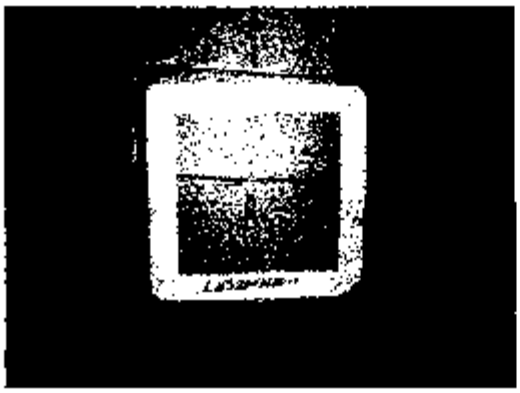
LWS20110608-09
Side Wall

LWS20110608-10
Side Wall

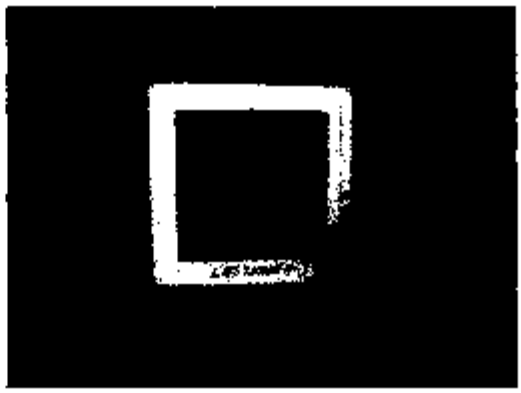
LWS20110608-11
Side Wall

LWS20110608-12
Front Wall

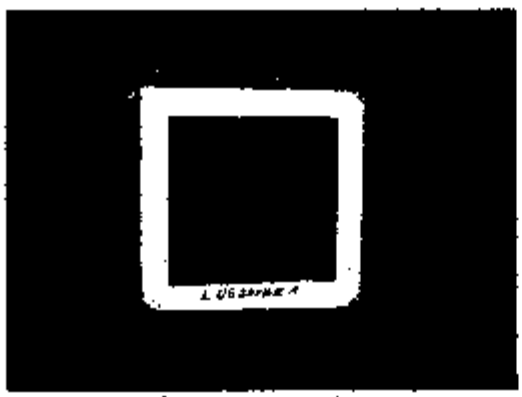
APPENDIX C continued, (OLD INDOOR FIRING RANGE LEAD WIPE SAMPLE LOCATIONS)



LWS20110608-13
Right Side wall



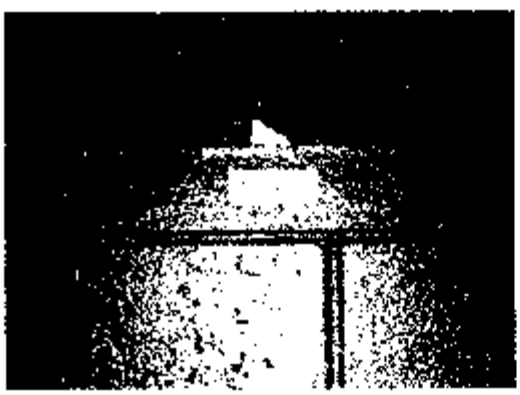
LWS20110608-14
Right Side Wall



LWS20110608-15
Right Side Wall

LWS20110608-16
Right Side Wall

APPENDIX D (SUPPLY PAINT CHIP SAMPLE LOCATION)



PC20110608-1
Supply

APPENDIX E (PICTURES OF MCKENZIE ARMORY)

Conference Room

Library

Briefing Room

Motor Pool

POV Parking

AED

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1479 of 2531

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FIRE EVACUATION PLAN

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
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MSDS INDEX

	SUBSTANCE NAME		
1	SCOURING POWDER	CLEANING SUPPLY	1
2	A-33DRY	CLEANING SUPPLY	1
3	DETERGENT	CLEANING SUPPLY	1
4	EASYOFF OVEN CLEANER	CLEANING SUPPLY	1
5	FINISH FLOOR NONBUFFING	CLEANING SUPPLY	1
6	FLOOR FINISH REMOVER	CLEANING SUPPLY	1
7	FLOORFINISH RESTORER	CLEANING SUPPLY	1
8	FREEDOM SPEED STRIPPER	CLEANING SUPPLY	1
9	GLARE	CLEANING SUPPLY	1
10	MISTY BARRIER CREAM	CLEANING SUPPLY	1
11	SO-SURE GREEN	CLEANING SUPPLY	1
12	SPARKLE GLASS CLEANER	CLEANING SUPPLY	1
13	STAR GLASS CLEANER	CLEANING SUPPLY	1
14	STERIPHENE II DRAND DISINFECTANT	CLEANING SUPPLY	1
15	WATERLESS HAND CLEANER CREAM	CLEANING SUPPLY	1
16	WAX FLOOR WATER EMULSHION TYPE	CLEANING SUPPLY	1
17	WINDSHIELD WASHER CONCENTRATE	CLEANING SUPPLY	1
18	XL-100 W/LIQUESSENT GAMMA	CLEANING SUPPLY	1
19	2-CYCLE OIL	OIL	2
20	AMALIEATFDEXRON III/MERCON	OIL	2
21	DELO 400 MULTIGRADE SAE 15W40	OIL	2
22	GEAR OIL	OIL	2
23	LUBRICATING GREESE	OIL	2
24	MIL-PRF-2104 G	OIL	2
25	ROYCO 634	OIL	2
26	SILICONE BRAKE OIL	OIL	2
27	MARKING INK	PAINT	3
28	POLYURETHANE FINISH SATIN	PAINT	3
29	SEALING COMPOUND	PAINT	3
30	SPRAY ADHESIVE	PAINT	3
31	STENCIL INK BLACK	PAINT	3
32	WEATHER SEAL PLASTIC ROOF CEMENT	PAINT	3
33	BLOC AID	SOLVENT	4
34	BREAK FREE	SOLVENT	4
35	CHARCOAL LIGHTER FLUID	SOLVENT	4
36	CROEN MINERAL SPIRITS	SOLVENT	4
37	GREEN ZENTHENE	SOLVENT	4
38	ISOPROPALENE RUBBING ALCOHOL	SOLVENT	4
39	MURPHY'S LIQUIDTIRE MOUNTING COUM	SOLVENT	4

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HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC: 47000	INSTALLATION: MCKENZIE ARMORY HWY 110 140 SOUTH MCKENZIE, TN 38344	BLDG/RM NO.
LOCATION/CODE: AA		OPERATION/CODE: ADO
SURVEY DATE: 8 JUNE 2011	EVALUATOR (Initials): [redacted]	
MACOM/CODE: NG	SUBMACOM/CODE: XX	[redacted]
[redacted]	ORGANIZATION: MCKENZIE ARMORY	RAC:	FREQUENCY (Hrs/Day): 8hrs/day
0	2	NO. CONTRACTOR(S): 0	NO. LOC(S): 0	NO. OTHER: 0

SECTION 2. FACILITY DATA

LAB HOODS: 0	VAPOR DEGREASERS: 0	SPRAY BOOTHS: 0
MAINTENANCE BAYS: 2	OPEN SURFACE TANKS: 0	VENTILATION UNITS: 1

SECTION 3. SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS

PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

GLOVES	R/U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R/U
COD	/	AIRLINE			
COLD SURFACES	/	ABRASIVE BLASTING HOOD			
HOT SURFACES	/	DISPOSABLE			
ABC AGENTS	/	FULL FACE AIR PURIFYING			
OIL	/	1/2 FACE AIR PURIFYING			
SOLVENTS	/	POWERED AIR PURIFYING			
SURGICAL GLOVES	/	1/4 FACE AIR PURIFYING			
		SELF CONTAINED			

EYES/FACE	R/U	HEARING	R/U	BODY	R/U	HEAD/FT	R/U
CHEMICAL SPLASH	/	CANAL CAPS	/	APRONS	/	COLD WEATHER BOOTS/HATS	
FULL FACE SHIELD	/	EARPLUGS	/	COLD WEATHER CLOTHING	/	HARD HATS	/
CHEMICAL/SAFETY	/	HELMETS	/	COVERALLS	/	IMPERMEABLE BOOTS	/
SAFETY/IMPACT	/	MUFFS	/	FULL BODY SUIT	/	SAFETY/CONDUCTIVE SHOES	/
WELDING HELMET	/	MUFF/EARPLUG COMBO	/	HEAT REFLECTIVE VEST/SUIT	/	SAFETY/NON CONDUCTIVE SHOES	
		MUFF/EARPLUG W/TIME LIMIT	/	SAFETY BELT/HARNESS	/		

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AES

ANALYTICAL ENVIRONMENTAL SERVICES, INC.

June 20, 2011

Non-Responsive

[redacted]

Order No: 1106C09

Analytical Environmental Services, Inc. received 21 samples on 6/14/2011 12:15:00 PM for the analyses presented in following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.
AES' certifications are as follows:
-NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/10-06/30/11.
-AIHA Certification ID #100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) effective until 09/01/11.

These results relate only to the items tested. This report may only be reproduced in full.

If you have any questions regarding these test results, please feel free to call.

Non-Responsive

[redacted]

3785 Presidential Parkway • Atlanta, Georgia 30340 • Tel (770) 457-8177 • FAX (770) 457-8188

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1483 of 2531

ANALYTICAL ENVIRONMENTAL SERVICES, INC
3785 Presidential Parkway, Atlanta GA 30340-3704
TEL: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

Work Order: 1106 C09

Date: 6-13-2011 Page 1 of 2

[redacted] Non-Responsive

ADDRESS: 7043 STONECREEK DRIVE DOUGLASVILLE, GA 30134

FAX: [redacted] Non-Responsive

ANALYSIS REQUESTED: LEAD IN DUST

PRESERVATION (See codes)

Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.

#	SAMPLE ID	DATE	TIME	Grab	Composite	Matrix (See codes)	LEAD IN DUST	REMARKS	No # of Containers
1	LWS20H0608-01	6-8-2011					✓	1FT² wiped	
2	LWS20H0608-02	6-8-2011					✓		
3	LWS20H0608-03	6-8-2011					✓		
4	LWS20H0608-04	6-8-2011					✓		
5	LWS20H0608-05	6-8-2011					✓		
6	LWS20H0608-06	6-8-2011					✓		
7	LWS20H0608-07	6-8-2011					✓		
8	LWS20H0608-08	6-8-2011					✓		
9	LWS20H0608-09	6-8-2011					✓		
10	LWS20H0608-10	6-8-2011					✓		
11	LWS20H0608-11	6-8-2011					✓		
12	LWS20H0608-12	6-8-2011					✓		
13	LWS20H0608-13	6-8-2011					✓		
14	LWS20H0608-14	6-8-2011					✓		

RELINQUISHED BY / DATE/TIME / RECEIVED BY / DATE/TIME

1: [redacted] Non-Responsive
2: 12:15
3:

SPECIAL INSTRUCTIONS/COMMENTS:

SHIPMENT METHOD: OUT / / VIA: [redacted] Non-Responsive
IN / / VIA:
CLIENT FedEx UPS MAIL COURIER
GREYHOUND OTHER

PROJECT INFORMATION

PROJECT NAME: McKENZIE ARMORY

PROJECT #:

SITE ADDRESS: Hwy 110 140 South McKenzie, TN 38344

SEND REPORT TO:

INVOICE TO: Mr. Etienne Rodriguez
(IF DIFFERENT FROM ABOVE) NGB Regional Industrial Hygiene South
510 Plaza Drive, Suite 1530
College Park, GA 30349

QUOTE #: PO#:

RECEIPT

Total # of Containers

Turnaround Time Request
- ⊗ Standard 5 Business Days
- ○ 2 Business Day Rush
- ○ Next Business Day Rush
- ○ Same Day Rush (auth req.)
- ○ Other

STATE PROGRAM (if any)
E-mail? Y / N, Fax? Y / N
DATA PACKAGE I II III IV

SAMPLES RECEIVED AFTER 3PM OR SATURDAY ARE CONSIDERED AS RECEIVED ON THE NEXT BUSINESS DAY; IF NO TAT IS MARKED ON COC AES WILL PROCEED AS STANDARD TAT.
SAMPLES ARE DISPOSED OF 30 DAYS AFTER COMPLETION OF REPORT UNLESS OTHER ARRANGEMENTS ARE MADE.

MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify)
PRESERVATIVE CODES: H+I = Hydrochloric acid + ice I = Ice only N = Nitric acid S+I = Sulfuric acid + ice S/M+I = Sodium Bisulfite/Methanol + ice O = Other (specify) NA = None

White Copy - Original; Yellow Copy - Client

ANALYTICAL ENVIRONMENTAL SERVICES, INC
3785 Presidential Parkway, Atlanta GA 30340-3704
TEL.: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

Work Order: 1106C09

Date: 6-13-2011 Page 2 of 2

COMPANY: [redacted] Non-Responsive

ADDRESS: 7043 Stonecreek Drive Douglasville, GA 30134

FAX: [redacted] Non-Responsive

SIG[redacted]

ANALYSIS REQUESTED

Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.

#	SAMPLE ID	DATE	TIME	Grab	Compos	Matrix (See code)	Lead in Dust	Lead in Paint	REMARKS	No # of Containers
1	LWS20110608-15	6-8-2011					✓		1FT² wiped	
2	LWS20110608-16	6-8-2011					✓			
3	LWS20110608-17	6-8-2011					✓			
4	LWS20110608-18	6-8-2011					✓			
5	LWS20110608-19	6-8-2011					✓			
6	LWS20110608-20	6-8-2011					✓			
7										
8	PCS20110608-1	6-8-2011						✓		
9										
10										
11										
12										
13										
14										

PRESERVATION (See codes)

[redacted] Non-Responsive DATE/TIME

[redacted] 2:15

SPECIAL INSTRUCTIONS/COMMENTS.

SHIPMENT METHOD
OUT / / VIA:
IN / / VIA:
CLIENT FedEx UPS MAIL COURIER
GREYHOUND OTHER

PROJECT INFORMATION
PROJECT NAME: McKenzie Armory
PROJECT #:
SITE ADDRESS: Hwy 110 140 South [redacted]
SEND RE[redacted] Non-Responsive
INVOICE [redacted] Trial
(IF DIFFE[redacted]
Hygiene South
570 Plaza Drive, Suite 1530
College Park, GA 30349
QUOTE #: PO#:

RECEIPT
Total # of Containers

Turnaround Time Request
☒ Standard 5 Business Days
○ 2 Business Day Rush
○ Next Business Day Rush
○ Same Day Rush (auth req.)
○ Other

STATE PROGRAM (if any)
E-mail? Y/N Fax? Y/N
DATA PACKAGE I II III IV

SAMPLES RECEIVED AFTER 3PM OR SATURDAY ARE CONSIDERED AS RECEIVED ON THE NEXT BUSINESS DAY; IF NO TAT IS MARKED ON COC AES WILL PROCEED AS STANDARD TAT.
SAMPLES ARE DISPOSED OF 30 DAYS AFTER COMPLETION OF REPORT UNLESS OTHER ARRANGEMENTS ARE MADE.

MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify)
PRESERVATIVE CODES: H+I = Hydrochloric acid + ice I = Ice only N = Nitric acid S+I = Sulfuric acid + ice S/M+I = Sodium Bisulfate/Methanol + ice O = Other (specify) NA = None

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Analytical Environmental Services, Inc

Date: 20-Jun-11

Lab Order: 1106C09
Client: National Guard Bureau Region-South IH
Project: McKenzie Armory
Matrix: Wipe
Date Received: 6/14/2011 12:15:00 PM

LEAD ON WIPES (N9100/7082)

N7082

Laboratory ID	Client Sample ID	Result	Units	Reporting Limit	DF	Qual	Date Collected	Date Analyzed	Analyst
1106C09-001A	LWS 20110608-01	21	µg/ft²	20	1		06/08/2011	06/17/2011	MP
1106C09-002A	LWS 20110608-02	BRL	µg/ft²	20	1		06/08/2011	06/17/2011	MP
1106C09-003A	LWS 20110608-03	BRL	µg/ft²	20	1		06/08/2011	06/17/2011	MP
1106C09-004A	LWS 20110608-04	BRL	µg/ft²	20	1		06/08/2011	06/17/2011	MP
1106C09-005A	LWS 20110608-05	BRL	µg/ft²	20	1		06/08/2011	06/17/2011	MP
1106C09-006A	LWS 20110608-06	BRL	µg/ft²	20	1		06/08/2011	06/17/2011	MP
1106C09-007A	LWS 20110608-07	BRL	µg/ft²	20	1		06/08/2011	06/17/2011	MP
1106C09-008A	LWS 20110608-08	BRL	µg/ft²	20	1		06/08/2011	06/17/2011	MP
1106C09-009A	LWS 20110608-09	BRL	µg/ft²	20	1		06/08/2011	06/17/2011	MP
1106C09-010A	LWS 20110608-10	353	µg/ft²	20	1		06/08/2011	06/17/2011	MP
1106C09-011A	LWS 20110608-11	BRL	µg/ft²	20	1		06/08/2011	06/17/2011	MP
1106C09-012A	LWS 20110608-12	BRL	µg/ft²	20	1		06/08/2011	06/17/2011	MP
1106C09-013A	LWS 20110608-13	170	µg/ft²	20	1		06/08/2011	06/17/2011	MP
1106C09-014A	LWS 20110608-14	BRL	µg/ft²	20	1		06/08/2011	06/17/2011	MP
1106C09-015A	LWS 20110608-15	BRL	µg/ft²	20	1		06/08/2011	06/17/2011	MP
1106C09-016A	LWS 20110608-16	BRL	µg/ft²	20	1		06/08/2011	06/17/2011	MP
1106C09-017A	LWS 20110608-17	BRL	µg/ft²	20	1		06/08/2011	06/17/2011	MP
1106C09-018A	LWS 20110608-18	BRL	µg/ft²	20	1		06/08/2011	06/17/2011	MP
1106C09-019A	LWS 20110608-19	BRL	µg/ft²	20	1		06/08/2011	06/17/2011	MP
1106C09-020A	LWS 20110608-20	BRL	µg/ft²	20	1		06/08/2011	06/17/2011	MP

Lab Order: 1106C09
Client: National Guard Bureau Region-South IH
Project: McKenzie Armory
Matrix: Paint
Date Received: 6/14/2011 12:15:00 PM

TOTAL LEAD IN PAINT (N7082)

PAINT

Laboratory ID	Client Sample ID	Result	Units	Reporting Limit	DF	Qual	Date Collected	Date Analyzed	Analyst
1106C09-021A	PCS 20110608-1	BRL	wt%	0.00994	1		06/08/2011	06/15/2011	MP

Qualifiers: BRL - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
DF - Dilution Factor

Results are Blank corrected where applicable

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Page 1486 of 2531

Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client GA Army Work Order Number 1106C09

Checklist completed by Non-Responsive Sig[redacted]ate 6/14/11

Carrier name: FedEx __ UPS __ Courier __ Client __ US Mail ✓ Other _____

Shipping container/cooler in good condition? Yes ✓ No __ Not Present __

Custody seals intact on shipping container/cooler? Yes __ No __ Not Present ✓

Custody seals intact on sample bottles? Yes __ No __ Not Present ✓

Container/Temp Blank temperature in compliance? (4°C±2)* Yes ✓ No __ ND 6/14

Cooler #1 Cooler #2 _____ Cooler #3 _____ Cooler #4 _____ Cooler#5 _____ Cooler #6 _____

Chain of custody present? Yes ✓ No __

Chain of custody signed when relinquished and received? Yes ✓ No __

Chain of custody agrees with sample labels? Yes ✓ No __

Samples in proper container/bottle? Yes ✓ No __

Sample containers intact? Yes ✓ No __

Sufficient sample volume for indicated test? Yes ✓ No __

All samples received within holding time? Yes ✓ No __

Was TAT marked on the COC? Yes ✓ No __

Proceed with Standard TAT as per project history? Yes __ No __ Not Applicable __

Water - VOA vials have zero headspace? No VOA vials submitted ✓ Yes __ No __

Water - pH acceptable upon receipt? Yes __ No __ Not Applicable __

Adjusted? _____ Checked by _____

Sample Condition: Good ✓ Other(Explain) _____

(For diffusive samples or AIHA lead) Is a known blank included? Yes __ No ✓

See Case Narrative for resolution of the Non-Conformance.

* Samples do not have to comply with the given range for certain parameters.

U:\Quality Assurance\Checklists Procedures Sign-Off Templates\Checklists\Sample Receipt Checklists\Sample_Cooler_Receipt_Checklist

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1487 of 2531

Client: National Guard Bureau Region-South IH
Project: McKenzie Armory
Lab Order: 1106C09

Dates Report

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1106C09-001A	LWS 20110608-01	6/8/2011 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		06/16/2011	06/17/2011
1106C09-002A	LWS 20110608-02	6/8/2011 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		06/16/2011	06/17/2011
1106C09-003A	LWS 20110608-03	6/8/2011 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		06/16/2011	06/17/2011
1106C09-004A	LWS 20110608-04	6/8/2011 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		06/16/2011	06/17/2011
1106C09-005A	LWS 20110608-05	6/8/2011 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		06/16/2011	06/17/2011
1106C09-006A	LWS 20110608-06	6/8/2011 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		06/16/2011	06/17/2011
1106C09-007A	LWS 20110608-07	6/8/2011 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		06/16/2011	06/17/2011
1106C09-008A	LWS 20110608-08	6/8/2011 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		06/16/2011	06/17/2011
1106C09-009A	LWS 20110608-09	6/8/2011 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		06/16/2011	06/17/2011
1106C09-010A	LWS 20110608-10	6/8/2011 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		06/16/2011	06/17/2011
1106C09-011A	LWS 20110608-11	6/8/2011 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		06/16/2011	06/17/2011
1106C09-012A	LWS 20110608-12	6/8/2011 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		06/16/2011	06/17/2011
1106C09-013A	LWS 20110608-13	6/8/2011 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		06/16/2011	06/17/2011
1106C09-014A	LWS 20110608-14	6/8/2011 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		06/16/2011	06/17/2011
1106C09-015A	LWS 20110608-15	6/8/2011 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		06/16/2011	06/17/2011
1106C09-016A	LWS 20110608-16	6/8/2011 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		06/16/2011	06/17/2011
1106C09-017A	LWS 20110608-17	6/8/2011 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		06/16/2011	06/17/2011
1106C09-018A	LWS 20110608-18	6/8/2011 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		06/16/2011	06/17/2011
1106C09-019A	LWS 20110608-19	6/8/2011 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		06/16/2011	06/17/2011
1106C09-020A	LWS 20110608-20	6/8/2011 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		06/16/2011	06/17/2011
1106C09-021A	PCS 20110608-1	6/8/2011 12:00:00AM	Paint	TOTAL LEAD IN PAINT (N7082)		06/15/2011	06/15/2011

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FOIA Requested Record #J-15-0085 (TN)
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Page 1488 of 2531

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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-AVN-SI 31 March 2003

MEMORANDUM FOR: The Adjutant General of Tennessee, ATTN: Non-Responsive
106 Security Circle, McMinnville, TN 37110.

SUBJECT: Transmittal of the McMinnville, Tennessee Armory Survey Report.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, 30 August 1986, Medical Service, Preventive Medicine.

c. National Guard Regulation (NGR) 385-10, 1988, Army National Guard Safety and Occupational Health Program.

d. AR 11-34, The Army Respiratory Protection Program, 15 February 1990.

e. TB MED 502, Occupational and Environmental Health Respiratory Protection Program, February 1982.

f. DA PAM 40-503, 30 October 2000, The Army Industrial Hygiene Program.

g. DA PAM 40-501, 10 December 1998, Hearing Conservation.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2001, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

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k. Title 29, Code of Federal Regulations (CFR), 2000 rev., part 1910, Occupational Safety and Health Standards.

l. Report dated 11 March 2003, Industrial Hygiene Survey, LAE Consulting, Severn, Maryland.

2. General.

a. At the request of the TNARNG Safety and Occupational Health Office, an Industrial Hygiene Service was put together to conduct Health Hazard Information module (HHIM) Field surveys and industrial hygiene sampling of the McMinnville Armory, McMinnville, Tennessee .

b. LAE Consulting, 1218 Scattered Pines Court, Severn, Maryland 21144 conducted the survey.

3. Findings. All HHIM field survey forms and survey findings of the report. (See enclosure 1)

4. Recommendations.

a. Follow all recommendations made in reference 1.l., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Control water infiltration in the armory and/or replace or repair damaged surfaces or components (ceiling and floor tiles). Building conditions that present IAQ concerns or problems not only exacerbates normally minor health issues but also tend to promote or accelerate building deterioration.

c. The recommendations given in the comment section of the HHIM data sheets and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-03. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-04 IHIP.

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present survey, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

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NGB-AVN-SI
SUBJECT: Transmittal of the McMinnville Armory Survey Report.

f. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

5. If additional information is needed about the industrial hygiene survey or air sample

Non-Responsive

[redacted]

CF:
NBG-AVN-SH
State Occupational Health Office, P O Box 41502, Nashville, TN 37204-1502.
State Safety Manager, P O Box 41502, Nashville, TN 37204-1502.

Encl
as

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LAE CONSULTING
1218 Scattered Pines Court, Severn, MD, 21144
Tel: (410) 551-2717

9 March 2003

MEMORANDUM FOR: Troop I, 3/278th ACR, ATTN: Non-Responsive, 106 Security Circle McMinnville, TN 37110

SUBJECT: Industrial Hygiene Survey of McMinnville National Guard Armory, McMinnville, TN

1. References.

a. Title 29, Code of Federal Regulations (CFR) Part 1910, Occupational Safety and Health Administration (OSHA).

b. AR 40-5, Preventive Medicine, 15 October 1990.

c. AR 385-10, 23 May 1988, Army Safety Program.

d. TB MED 503, The Army Industrial Hygiene Program.

e. Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.

f. National Guard Pamphlet (NG Pam) AR 385-16, Safety, Guidelines for Converting Indoor Firing Ranges to Other Uses.

g. Title 40, Code of Federal Regulations (CFR) Part 745, Lead, Identification of Dangerous Levels of Lead: Final rule.

h. IES Lighting Handbook, Application Volume 1981, Illumination Engineering Society of North America.

i. Occupational Safety and Health Administration (OSHA), 29 CFR, 1926.1101, Asbestos.

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SUBJECT: Industrial Hygiene Survey of McMinnville National Guard Armory, McMinnville, TN

2. Purpose. The purpose of this survey was to conduct a baseline Industrial Hygiene survey of the McMinnville Tennessee National Guard Armory. The facility was visually examined and the building Custodian was interviewed for historical information related to the building and the operations performed. A diagram of the building can be found in Enclosure 1. Laboratory results of Lead wipe samples at Enclosure 2. Photographs of the facility can be found in Enclosure 3. Health Hazard Inventories can be found in Enclosure 4.

3. Background. At the request of Non-Responsive [redacted] the National Guard Bureau Region South Industrial Hygiene Office, [redacted] E Consulting conducted an industrial hygiene survey at the McMinnville National Guard Armory on 10 February 2003.

4. Facility Description. This facility houses Troop I, 3/278th ACR. The personnel perform administrative duties Monday through Friday between 0800 and1630. The Armory is utilized for drills on the weekend. The Armory was built around 1957. The facility houses administrative areas, one kitchen/mess hall, a Drill hall, Supply rooms, and an Arms rooms.

5. Findings.

a. A deactivated Indoor Firing Range is located on the Drill Hall floor. The pit was cemented in and the backstop and all associated range materials have been removed. Wall lockers line the wall of the former backstop and pit. The firing line was located on the Drill Hall floor near the entrance of the building. 22 caliber weapons were fired in this range. Six (6) wipe samples were taken (Table 1), Four (4) from the former range area and three (3) from various location throughout the Armory. All six samples are below the EPA clearance level of 40 ug/ft^2 indicated in reference g.

Table 1.

Sample Number	Sample Location	Results
1	Back wall of range 4ft from floor	15 ug/ft^2
2	Former pit floor	31 ug/ft^2
3	Rear side of wall locker #93	13 ug/ ft^2
4	The floor in front of supply room door	<12 ug/ft^2
5	Kitchen on top of black wall locker	<12 ug/ft^2
6	Drill Hall floor middle	<12 ug/ft^2
7	Blank	<12 ug/ft^2

LAE Consulting
1218 Scattered Pines Court, Severn, Maryland 21144
Telephone: (410) 551-2717

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Page 1497 of 2531

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b. An illumination survey was performed in supply room. One person in the supply performs administrative duties eight hours a day. The worker has no apparent problems with the lighting. Illumination measurements were taken in two critical areas in the supply room a desk and a computer workstation. The average readings were 59.5 foot-candles (FC) at the desk and 5.9 FC at the computer work station. This is below the IES/ANSI-RP7-1991 for 50 FC in general office areas, but is appropriate for computer use.

c. A motor pool building is located outside the rear Armory. The motor pool has four maintenance bays. A maintenance section is assigned to the unit. The motor pool was not in operation during the time of this survey. General vehicle maintenance is performed in the bays.

d. Material Safety Data Sheets were not available for chemicals utilized by the Armory personnel. Personnel have not received Hazard Communication Training.

e. The Drill Hall is used primarily for drills. Visual examination and interview with personnel indicated no apparent vehicle maintenance being performed in this area. The Tennessee State National Guard has order that all Armories store a vehicle in the Armory during inclement weather for emergency assistance to the state. Lead wipe sample was taken in the Drill Hall (Table 1). Results were below the reporting limit.

Recommendations.

a. All lead wipe samples in the Armory were below the EPA standards of 40 ug/ft^2. Contact the Tennessee State Safety and Occupational Health Office prior to any conversion of this area.

b. Lighting at the desk in the Supply room should be upgrades to meet the required 30-50 FC recommended [IES/ANSI RP1-1991]. Consider purchasing supplemental lighting such as desk lamps and/or floor lamp.

c. Operations commonly associated with a motor pool could not be evaluated since the motor pool was not in operation during this survey. Recommend further evaluation when the motor pool is in operation.

LAb Consulting
1218 Scattered Pines Court, Severn, Maryland 21144
Telephone: (410) 551-2717

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Page 1499 of 2531

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d. Recommend producing a Chemical Inventory for the chemicals that are used and stored in the Armory. The Chemical inventory must contain at a minimum the name of the product, quantity, and the location of the product. MSDSs may be obtained and/or generated from the Tennessee Occupational Safety and Health office or from the product manufacturer. Place MSDSs with chemical inventory in a location that is accessible to all Armory personnel. Suggest all Armory personnel obtain education on Hazard Communication. Contact the Tennessee Occupational Safety and Health Office for assistance with Hazard Communication training.

e. Continue to discourage the use of the Drill Hall as a motor vehicle maintenance bay.

7. Technical Assistance. For technical assistance, regarding information found in this

Non-Responsive

2. Sample Results
3. Photos of Facility
4. HHIM

CF: Safety Occupational Health Office, Houston Barracks
ATTN: AGTN-SAHO, 3041 Sidco Drive, Nashville, TN 37204-1501

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Page 1501 of 2531

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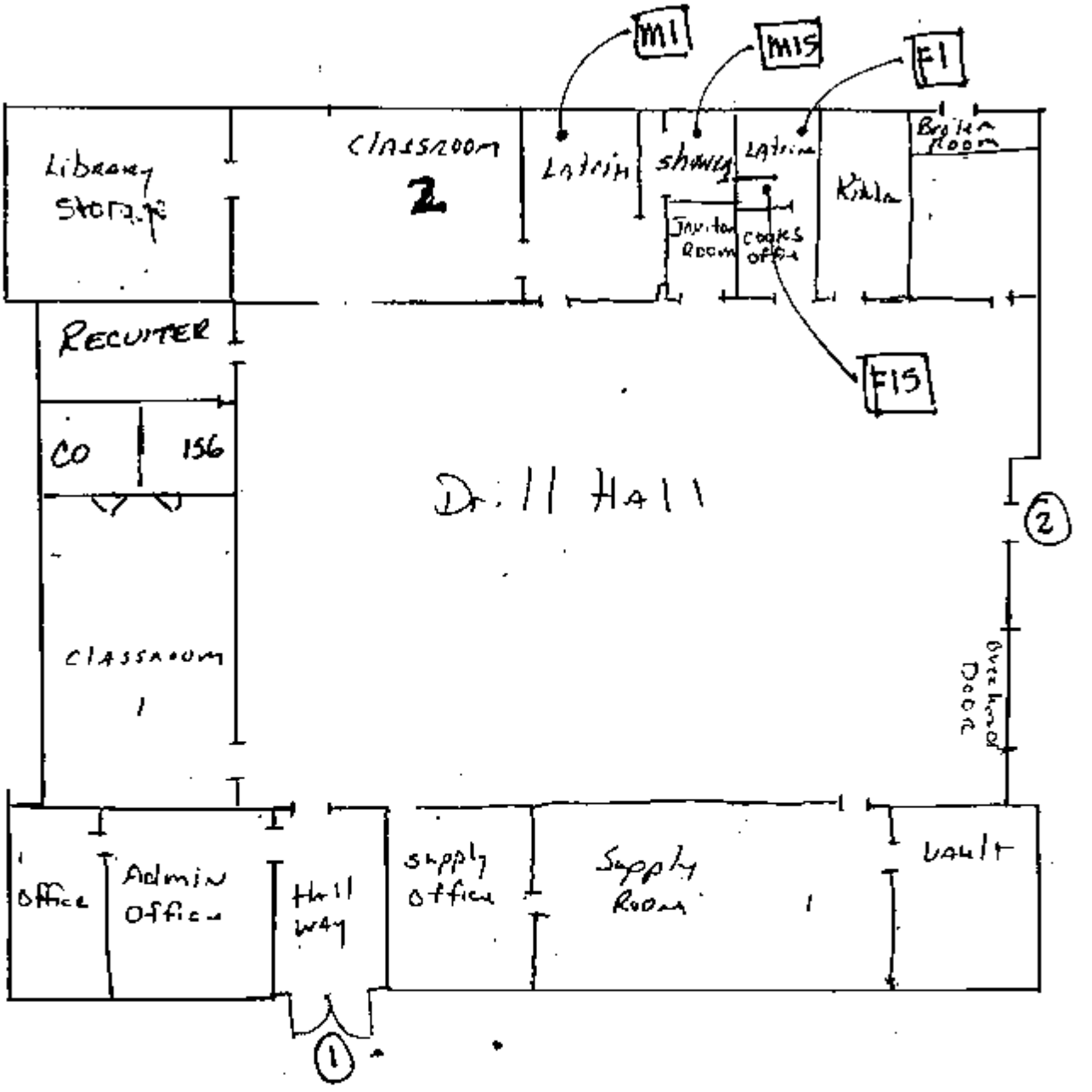

Facility Plan

National Guard
Armory / Drill Hall Building
Sparta Road
McMinnville, Tn.

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AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client:	LAE Consulting	**Job Name:**	McMinnville Armory, McMinnville, TN	**Chain Of Custody:**	109640
Address:	1218 Scattered Pine Court	**Job Location:**	Not Provided	**Date Analyzed:**	02/21/2003
	Severn, Maryland 21144	**Job Number:**	Not Provided	**Person Submitting:**	[redacted]
		P.O. Number:	Not Provided	**Report Date:**	21-Feb-03

Attention: [redacted]

Page 1 of 1

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit		Final Result			Comments
0326971	1	Flame	Wipe	****	1.000	12.00	ug/ft²		15	ug/ft²	
0326972	2	Flame	Wipe	****	1.000	12.00	ug/ft²		31	ug/ft²	
0326973	3	Flame	Wipe	****	1.000	12.00	ug/ft²		13	ug/ft²	
0326974	4	Flame	Wipe	****	1.000	12.00	ug/ft²	<	12	ug/ft²	
0326975	5	Flame	Wipe	****	1.000	12.00	ug/ft²	<	12	ug/ft²	
0326976	6	Flame	Wipe	****	1.000	12.00	ug/ft²	<	12	ug/ft²	
0326977	7	Flame	Wipe Blank	****	N/A	12.00	ug	<	12	ug	

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7420; Water: SM-3111B

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7421; Water: SM-3113B

N/A = Not Applicable mg/Kg = parts per million (ppm) by weight mg/L = parts per million (ppm)

%Pb = percent lead by weight ug = micrograms ug/L = parts per billion (ppb)

Note: All results have two significant digits. Any additional digits shown should not be [redacted] considered when interpreting the result.

[redacted] Manager: [redacted]

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples.

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Page 1505 of 2531

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View of McMinnville NG Armory, McMinnville, TN
Troop I, 3/278 ACR

Exterior view of motorpool building

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Interior views of the motorpool

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Interior view of the Flammable cabinet

Views of lead wipe sample locations #1, #2, #6
of the deactivated indoor firing range

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Views of lead wipe sample #3
location on the Drill Hall floor

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View of lead wipe sample #4 location in front of Supply room door

View of lead wipe sample #5 location on top of the black wall locker in the kitchen

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HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

[redacted]

ARLOC	INSTALLATION: McMinnville NG Armory, TN	BLDG/RM NO.: 106 Security Circle
LOCATION/CODE: AA	OPERATION/CODE: ADO	
SURVEY DATE: 10 Feb03	EVALUATOR: LAE Consulting	
MACOM/CODE	SUBMACOM/CODE	Non-Responsive
Non-Responsive	UNIT/ORGANIZATION: Troop I, 3/278 ACR	RAC / FREQUENCY (hrs/day): 8+ hrs
NO. MIL	NO. CONTRACTORS	NO. LOC(S) / NO. OTHER

SECTION 2: FACILITY DATA

LAB HOODS	VAPOR DEGREASERS	SPRAY BOOTHS
MAINTENANCE BAYS	OPEN SURFACE TANKS	VENTILATION UNITS

SECTION 3: SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS

PERSONAL PROTECTIVE EQUIPMENT (R= REQUIRED; U = UTILIZED)

GLOVES	R/U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R/U
ACID	/	AIR LINE			/
COLD SURFACES	/	ABRASIZE BLASTING HOOD			/
HOT SURFACES	/	DISPOSABLE			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	1/2 FACE AIR PURIFYING			/
SOLVENTS	/	1/4 FACE AIR PURIFYING			/
SURGICAL GOLVES	/	SELF CONTAINED			/

EYES/FACE	R/U	HEARING	R/U	BODY	R/U	HEAD/FIT	R/U
CHEMICAL SPLASH	/	CANAL CAPS	/	APRONS	/	COLD WEATHER BOOTS/HATS	/
FULL FACE SHEILD	/	EARPLUGS	/	COLD WEATHER CLOTHING	/	HARD HATS	/
CHEMICAL/SAFETY	/	HELMETS	/	COVERALLS	/	IMPERMEABLE BOOTS	/
SAFETY/IMPACT	/	MUFFS		FULL BODY SUIT	/	SAFETY/CONDUCTIVE SHOES	/
WELDING HELMET	/	MUFF/EARPLUG COMBO	/	HEAT REFELECTIVE VEST/SUIT	/	SAFETY/NON-CONDUCTIVE SHOES	/
		MUFF/EARPLUG W/TIME LIMIT	/	SAFETY BELT/HARNESS	/		/

SECTION 4: HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	LEAD, INORGANIC, FUMES & DUST		

SECTION 5: PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

SECTION 6: COMMENTS

☐ No comments ☒ See attached sheet

TN Safety + Occupational Health Office has Personnel data

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NATIONAL GUARD REGION SOUTH
INDUSTRIAL HYGIENE OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

ARNG-CSG-P (40-5f) September 6, 2011

MEMORANDUM FOR THE ADJUTANT GENERAL OF TENNESSEE, ATTN Non-Responsive Non-Responsive, Facility Armory Manager, 5650 ATTU Street, Millingtion, Tennessee 38054.

THRU Non-Responsive Deputy State Surgeon, Tennessee National Guard, HQS, AGTN-DCSPER-DSS, P.O. Box 41502, Houston Barracks, Nashville, Tennessee 37204-1501.

SUBJECT: Industrial Hygiene Survey of the TN ARNG Millingtion Armory, Millingtion, TN.

1. References.

a. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1996 rev.

a. Title 29, Code of Federal Regulations (CFR), 2009 rev., part 1910, Occupational Safety and Health Standards.

b. Title 29 CFR, General Industry, revised 1996 rev. Part 1940

c. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 25 May 2007

d. AR 385-10, The Army Safety Program, 23 August 2007.

e. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.

f. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, 12 September 2008.

g. TB MED 503, The Army Industrial Hygiene Program, 30 October 2000.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2010 American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 26th rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

k. NG PAM 420-15, 03 November 2006, Facilities Engineering, Rehabilitation and Conversion of Indoor Firing Ranges.

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ARNG-CSG-P (40-5f)
SUBJECT: Industrial Hygiene Survey of the TN ARNG Millingtion Armory, Millingtion, TN.

2. General. At the request of Non-Responsive N, of the Tennessee National Guard Occupational Health Office, an Industrial Hygiene Survey was put together to conduct a Health Hazard Information module (HHIM) Field survey of the s and industrial hygiene sampling of the TN ARNG Millingtion Armory, Millingtion, TN.

3. Findings. All Health Hazard information is on the survey findings of the report. (See enclosure 1). Operations of very short duration were not sampled due to the requirements of the sampling method. If the operation changes or if the length of the operation is increased, contact this office to schedule sampling if it is deemed needed then.

4. Recommendations. Follow the recommendations made in the enclosed report, as good industrial hygiene (IH) practices and follow the recommendations given herein.

a. Decontaminate the vault floor thoroughly. Wiped down and or wet mopped with an industrial cleaner using tri-phosphate, Mr. Kleen or Spic-n-Span. For additional lead cleaning measures, see enclosed report. (RAC 3)

b. Ensure the indoor firing range is properly cleaned in accordance with NG PAM 420-15. (RAC 3)

c. The recommendations given in the comments section of the HHIM data sheets and data collected will serve as an update of the baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY2011. A follow up operation and hazard specific air sampling survey based on the findings will be included in the FY2012 IHIP.

d. Have all HHIM data entered into the HHIM computer module.

e. Use the report to help in correcting all deficiencies noted.

f. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present visits, especially if this will help eliminate health hazards and reduce medical surveillance cost.

g. Contact the State Occupational Health Office, for any medical Surveillance that may be needed.

h. To execute your responsibilities in correcting all deficiencies, coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

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ARNG-CSG-P (40-5f)
SUBJECT: Industrial Hygiene Survey of the TN ARNG Millingtion Armory, Millingtion, TN.

5. If additional information is needed about the industrial hygiene survey or air sample results,

Non-Responsive

CF: ARNG-CSG-P
Safety and Occupational Health Manager, Tennessee State Safety and Occupational Health Manager, 3041 Sidco Drive, Nashville, TN 37204-1504

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Industrial Hygiene Report
For
Tennessee National Guard
(TNARNG)
Millington Armory
5650 ATTU Street
Millington, Tennessee 38054

Prepared for:
Department of the Army and Air Force
National Guard Bureau
Regional Industrial Hygiene Office
Region South
510 Plaza Drive, Suite 1530
College Park, Georgia 30349
by
DBA Non-Responsive [redacted]

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Table of Contents

Subject ..... Page 1

Background ..... Page 1
- Introduction
- Site Description
- Scope of Work
- POC

Instrumentation ..... Page 1

Findings:
- EEE, Sustainment Brigade..... Pages 1-2
- Lead Wipe Results ..... Page 2
- Lighting and Miscellaneous Deficiencies..... Pages 3-4

Attachments:
1. Health Hazard Information Module (HHIM) Survey Form
2. List of Hazardous Chemicals/Materials at the Facility
3. Analytical Lead Wipe Results and Chain of Custody Form
4. Personnel Roster
5. Armory Floor Plan
6. Lead Clean up Procedures
7. References
8. Pictures: 1-22
9. Restroom Ventilation
10 Recommendations

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FOIA Requested Record #J-15-0085 (TN)
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August 20, 2011

MEMORANDUM FOR: Kentucky Army National Guard, Attn: Non-Responsive, Facility Armory Manager, 5650 ATTU Street, Millington, Tennessee 38054

SUBJECT: Industrial Hygiene Consultation and Health Hazard Information Module (HHIM) Survey, at the Memphis Armory, 2610 East Holmes Road, Memphis, Tennessee 38118-8004

1. REFERENCES: See Attachment 6

2. BACKGROUND: At the request of Non-Responsive, National Guard Bureau Regional Industrial Hygienist, Atlanta, Georgia, an Industrial Hygiene Consultation and Health Hazard Information Module Field Survey were performed at the Millington Armory, Army National Guard, Millington, Tennessee on 10 August 2011. Non-Responsive was in charge of the facility. His phone number was Non-Responsive Non-Responsive performed the survey. The facility unit was the Early Entry Element (EEE), 230th Sustainment Brigade. The armory was built in 1989. The purpose of the survey was to perform lead wipe samples; ventilation measurements, lighting levels, and a HHIM field survey form on industrial operations at the facility (see attachment 1 for completed HHIM Survey Form).

3. INSTRUMENTATION: The following survey instrumentation was provided by the contractor and the Illinois Safety Office. It was used to obtain lead wipe dust samples and illumination measurements. All other instrumentation was operated according to manufacture recommendations.

   a. Sper Scientific, Model No.840021 S/N: Q29997, Calibrated: 1/29/2011
   b. Ghost Lead Dust Wipes, Lot No. April 27, 2010, Expiration: 10/2013
   c. TSI VelociCalc 8386A, SN:57010138, Calibrated: 10/8/2010

4. Findings: (Photos 1 to 22)

   a. EEE (Early Entry Element), 230th Sustainment Brigade:

      1. The unit supported many different MOS's. Administrative duties included pay, promotions, schools, family support, assignments, intelligence and supplies. The supply areas were broken down into classes 1 thru 10 items: rations, expendables, POL, barrier material, ammunition, personal demand items, major end items, medical, repair parts and nation building.

   b. Material Safety Data Sheets (MSDS) were in binder with a chemical inventory list. All employees must be initially trained in the Federal Hazardous Communication Program.

   c. Ceiling water leaks were evident in the facility such as in the hallways, Family Readiness Area and Log Operations Room. All deficiencies and locations are in paragraph 5 of the report.

   d. Loose light fixtures, burned out tubes, and stained light covers; stained, broken and warped tile, and dirty exhaust vent ducts in restrooms were evident during the survey. All deficiencies and locations are in paragraph 5 of the report.

   e. Loose door stoppers were evident in the facility. Some screws were stripped and unable to hold the stoppers brackets to the doors.

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f. The old indoor firing range had been cleaned and new smooth epoxy grey coating applied to the floor. Floor tiles were going to be installed; however, there was no decision on what type of tiles to use. The sound proofing material had been removed from the walls. Plywood had been placed over the louvers at the front of the old range.

g. Seven lead dust wipe samples using a 4 inch by 4 inch template were taken inside the building area. Four samples were above the federal standard of 40µg/ft² and four samples were above the Army National Guard standard of 200µg/ft². Pictures of the lead sample wipes were taken (see attachment 8). The analytical lead result sheet included the sampled locations and corrected results. The sample submission and analytical sheets were enclosed in the report as attachment 3. The following table notes where the samples were taken, the surveyor's field number, and the lead results:

Location:	Surveyor's Field No:	Results:
Floor next to Covered Louver	M06611	361 µg/ft²
Underneath the Exhaust Duct Opening	M06711	BRL
North Wall	M06811	BRL
East End Wall	M06911	999 µg/ft²
Outside on the Louver Surface	M07011	BRL
Exhaust Vent Duct Wall Near Ceiling	M07111	104000 µg/ft²
Vault Floor	M07211	228 µg/ft²

Note 1: µg/ft² refers to micrograms or one millionth of a gram per square foot
Note 2: BRL means below recorded level.

h. Drill Hall: The area was well maintained. Illumination levels ranged from 72 to 173 FC's with the large door open. Two general mechanical wall mechanical exhaust fans were in the area. One of the exhaust fans was turning slowly. Unit functions, physical training and city events were conducted in the hall.

i. Due to the low noise levels (administrative areas) there was no requirement for a Hearing Conservation Program. The only requirement for hearing protection would be when the AGR's and the M-Day troops were working on vehicles or firing their weapons.

j. The pull fire alarms in the facility were inoperative. Work order was submitted.

k. A listing of Armory personnel was in attachment 4.

l. A design floor plan of the armory was in attachment 5.

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5. ILLUMINATION SURVEY AND DEFICIENCY RESULTS:

a. Illumination Levels: The following illumination level readings were taken during the survey and are reported below in foot candles (FC's). Facility deficiencies were also noted.

Location, 1st Floor	Number of Fixtures/ Lights per Fixture	Number of Burned Out Bulbs, Tubes, Lamps & Other Deficiencies	Illumination Foot Candles (FC)
Conference Room	4 Fixtures, 3 each		53-88
Administrator's Office	4 Fixtures, 4 each 3 Fixtures, 1 each		81-100
Administrator's Storage Rm	2 Fixtures, 1 each		4-5
South End Hallway	6 Fixtures, 2 each	Ceiling tile stained & cracked Roof leaks;	
SPO Office	4 Fixtures, 2 each	Warped ceiling tile	57-72
SPO Supply Room	4 Fixtures, 1 each	Exposed wires	9-10
S-1 Office	2 Fixtures, 3 each		100-105
S-3, Family Assistance	2 Fixtures, 3 each		86-89
LOG OPNS Office	3 Fixtures, 3 each	Water inside light cover	37-82
LOG OPNS 2 Office		Locked	
PBO Office	2 Fixtures, 4 each		84-85
Men's Restroom	1 Fixtures, 2 each	Exhaust fan wks.; missing light cover.	18-20
Women's Restroom	1 Fixtures, 2 each	Exhaust fan wks.	30-34
Brake & Copy Area	2 Fixtures, 4 each	4 tubes out	8-40
Recruit/Admin. Area	3 Fixtures, 3 each		50-58
Recruiting Room No.1	1 Fixture, 4 each		100-103
Recruiting Room No.2	1 Fixture, 4 each		100-102
Foyer, Entrance Area	4 Fixtures, 2 each	Ceiling tile stained	
Drill Hall	12 Fixtures, 4 each	4 tubes out; 2 GMV's, 1 has low output; 2 louvers wk.	72-173
Kitchen, Main Area	5 Fixtures, 3 each 2 Fixtures, 1 each	6 tubes out; kitchen exhaust hood wks.;	17-54
Kitchen Wash Area	3 Fixtures, 3 each		36-45
Kitchen Refrigerator Area	2 Fixtures, 3 each	4 tubes out	.4-3
Locker Room	5 Fixtures, 2 each	No exhaust fan-taken out	9-24
Men's Restroom/Shower	5 Fixtures, 2 each	2 tubes out; exhaust wks.	5-49
Women's Restroom/Shower	2 Fixtures, 2 each	Exhaust wks.-loose cover; low lighting at sinks	5-46
Maintenance Room	2 Fixtures, 2 each	Paint peeling from ceiling	16-24
Supply Area	17 Fixtures, 2 each	Paint peeling from ceiling; no exhaust fan-opening for one; loose wires to louver	20-34
Classroom	12 Fixtures, 4 each	4 tubes out; missing ceiling Tile.	33-96

As indicated in the IES Lighting Handbook, Application Volume 1987, Offices: 20-50 FC's, Supply and Publication Areas: 20-50 FC's, Assembly 20-50 FC's, Restrooms: 5-10 FC's, Classrooms: 50-100 FC's, Kitchen: 20-50 FC's, FC's, Library: 50-100 FC's, Storage Rooms: 10-20 FC's, Mail Room: 20-50 FC's.

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Location	Number of Fixtures/ Lights per Fixture	Number of Burned Out Bulbs, Tubes, Lamps & Other Deficiencies	Illumination Foot Candles (FC)
Classroom Storage Rm.		No lights	.5-1
CSM Room	1 Fixture, 1 each	Storage/Electrical Area	9-10
North Hallway	7 Fixtures, 2 each	Tile stained; 4 missing tile	
Recruiting Room	4 Fixture, 3 each		71-94
Administration Area	4 Fixtures, 3 each	1 tube out	55-72
Dayroom	2 Fixtures, 2 each	Paint chipping from ceiling	24-31
Old Indoor Range	14 Fixtures, 2 each	12 tubes out; wipes taken	.3-33
Small Restroom	1 Fixture, 1 each	Exhaust wks. dirty cover	7-8
Vault	2 Fixtures, 2 each	Wipe taken from floor	17-29

As indicated in the IES Lighting Handbook, Application Volume 1987, Offices: 20-50 FC's, Supply and Publication Areas: 20-50 FC's, Assembly 20-50 FC's, Restrooms: 5-10 FC's, Classrooms: 50-100 FC's, Kitchen: 20-50 FC's, FC's, Library: 50-100 FC's, Storage Rooms: 10-20 FC's, Mail Room: 20-50 FC's.

6. RECOMMENDATIONS: See Attachment 10.

TECHNICAL ASSISTANCE::

POC for further assistance concerning this evaluation i Non-Responsive [redacted]

CF:

Occupational Health Office
ATTN: Non-Responsive [redacted] TNANG, NC
Tennessee Army National Guard
AGTN-SAHO
Houston Barracks
3041 Sidco Drive
Nashville, TN 37204-1501

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HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

[redacted]

ARLOC	INSTALLATION	BLDG/RM NO.
47000	TENNESSEE ARMY NATIONAL GUARD	MILLINGTON ARMORY

LOCATION/CODE	OPERATION/CODE
AA	ADO/SAH

SURVEY DATE	EVALUATOR
10 AUGUST 2011	Non-Responsive

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
NG	XX	Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	
Non-Responsive	EE 230TH SUSTAINMENT BDE	3	8

NO		NO. CONTRACTORS	NO. LOC(S)	NO. OTHER:
	6			

SECTION 2: FACILITY DATA

LAB HOODS	VAPOR DEGREASERS	SPRAY BOOTHS
0	0	0
MAINTENANCE BAYS	**OPEN SURFACE TANKS**	**VENTILATION UNITS**
0	0	2

SECTION 3: SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS
OTH (DRILL HALL)	72-173 FTC'S ADEQUATE	FTC	50 FTC	ACCOM
OLD INDOOR FIRING RANGE	.3-33 FTC'S INADEQUATE	FTC	50 FTC	RECMD
GENERAL MECH VENT	INADEQUATE	GMV	GMV	RECMD

PERSONAL PROTECTIVE EQUIPMENT (R= REQUIRED; U = UTILIZED)

GLOVES	R/U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R/U
ACID	/	AIR LINE			/
COLD SURFACES	/	ABRASIZE BLASTING HOOD			/
HOT SURFACES	/	DISPOSABLE			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	1/2 FACE AIR PURIFYING			/
SOLVENTS	/	1/4 FACE AIR PURIFYING			/
SURGICAL GLOVES	/	SELF CONTAINED			/

EYES/FACE	R/U	HEARING	R/U	BODY	R/U	HEAD/FIT	R/U
CHEMICAL SPLASH	/	CANAL CAPS	/	APRONS	/	COLD WEATHER BOOTS/HATS	/
FULL FACE SHEILD	/	EARPLUGS	X/X	COLD WEATHER CLOTHING	/	HARD HATS	/
CHEMICAL/SAFETY	/	HELMETS	/	COVERALLS	/	IMPERMEABLE BOOTS	/
SAFETY/IMPACT	/	MUFFS	X/X	FULL BODY SUIT	/	SAFETY/CONDUCTIVE SHOES	/
WELDING HELMET	/	MUFF/EARPLUG COMBO	/	HEAT REFELECTIVE VEST/SUIT	/	SAFETY/NON-CONDUCTIVE SHOES	/
		MUFF/EARPLUG W/TIME LIMIT	/	SAFETY BELT/HARNESS	/		/

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HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

(CONTINUATION)
SECOND PAGE

ARLOC	INSTALLATION	BLDG/RM NO.
47000	TENNESSEE ARMY NATIONAL GUARD	MILLINGTON ARMORY

LOCATION/CODE	OPERATION/CODE
AA	ADO/SAH

SURVEY DATE	EVALUATOR
10 AUGUST 2011	Non-Responsive

SECTION 4: HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead, Inorganic Dusts & Fumes, as PB	2	B
74-82-8	Methane	2	B
7783-06-4	Hydrogen Sulfide	2	B

SECTION 5: PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY
See Personnel Roster					

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HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

(CONTINUATION)
THIRD PAGE

ARLOC	INSTALLATION	BLDG/RM NO.
47000	TENNESSEE ARMY NATIONAL GUARD	MILLINGTION ARMORY

LOCATION/CODE	OPERATION/CODE
AA	ADO/SAH

SURVEY DATE	EVALUATOR
10 AUGUST 2011	Non-Responsive

SECTION 6: COMMENTS

The supply areas handled classes 1 thru 10.

7 lead wipes were taken from the vault, old indoor firing range and drill hall.

Ceiling leaks were evident in the hallways (see report)

Some light fixtures were loose, missing and burned out. Many ceiling tile were warped, stained and missing, due to roof leaks. See paragraph 5 of the report.

Paint was peeling from the supply and maintenance area ceilings.

Restroom exhaust vent ducts were dusty.

One of the two general mechanical exhaust vent in the drill hall was barely running.

Low lighting levels in the old indoor firing range.

MSDS's were stored in a binder and a material chemical list was on site.

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Attachment 2

NAVAL SUPPORT ACTIVITY MID-SOUTH INSTALLATION
GENERAL AUTHORIZED USE LIST

NOMENCLATURE	USE
Absorbent	Absorb spilled liquids
Adhesive, School	Glue things together
Adhesive, Tube	Glue things together
Alcohol Pads	Cleaning
Alcohol, Isopropyl Rubbing	Cleaning
Anti-freeze	In Radiators
Baking Soda	Cleaning
Battery, 6 Volts	Beepers & Phones, Etc.
Battery, AA	Beepers & Phones & Radios, Etc.
Battery, AAA	Beepers & Phones & Radios, Etc.
Battery, Automotive all kinds	Cars, Lawnmowers
Battery, Button	Phones & Radios, Etc.
Battery, C	Lights & Phones & Radios, Etc.
Battery, Coin	Beepers & Phones & Radios, Etc.
Battery, D	Lights & Phones & Radios, Etc.
Battery, Lithium	Lights & Phones & Radios, Etc.
Battery, NICAD	
Bleach, House hold	Cleaning
Brake Fluid, DOT 3	Automobiles & Equip
Bubble Soap	Cleaning
Caulk, Silicone Acrylic - Latex Based	Fill Holes
Cement, Portland	Glue things together
Cement, Tire Patch	Repair Inner-tubes
Charcoal, Briquets (not pre-soaked w/ fluid)	Cooking with a grill
Clay, Modeling	Create Models
Cleaner, Antistatic agent wipes	Cleaning
Cleaner, Calcium, Lime, Rust	Cleaning
Cleaner, Carpet (non-aerosol, non-industrial)	Cleaning Carpet
Cleaner, Dry Erase Marker Board	Cleaning Dry Boards
Cleaner, General Disposable wipes	Surface contact cleaning
Cleaner, Glass (non-industrial)	Cleaning Glass
Cleaner, Hand (all types)	Cleaning Hands

NAVAL SUPPORT ACTIVITY MID-SOUTH INSTALLATION
GENERAL AUTHORIZED USE LIST

Cleaner, Lens (anti-static, anti-fog)	Cleaning Lenses
Cleaner, Lubricant, Preservative (non-aerosol)	Clean, Lubricate & Preservation
Cleaner, Mildew, stain remover (Non aerosol)	Cleaning Mildew & Stains
Cleaner, Pine Oil	Cleaning
Cleaner, Simple Green (all types)	Cleaning
Cleaner, Toilet Bowl, tablets	Cleaning Toilets
Cleanser, Scouring Powder	Cleaning
Deodorant,Carpet, Powdered (all types)	Deoderizing Carpets
Deodorizer, Room (gels)	Deoderizing Rooms
Deodorizer, Room (non-aerosols)	Deoderizing Rooms
Detergent, Automatic Dish Washing (non-industrial)	In Automatic Dish Washers
Detergent, General Purpose	Washing Clothing
Detergent, Hand, Dishwashing (non aerosol)	Washing Dishes & Hands
Disc Brake Quiet	Vehicle Breaks
Dishwahser Rinse Additive	In Automatic Dish Washers
Disinfectant wipes, general disposable	Surface contact disinfecting
Fabric Softener (dryer sheets)	In Clothes Dryers
Film, Camera	In Cameras
Floor Finish Wax (Non-Industrial)	Waxing Floors
Freshener, Air, (Plug-in)	Deoderizing Rooms
Freshener, Fabric (Non-Aerosol)	Deoderizing Fabrics
Grease, Wheel Bearing	Grease Bearings in Wheels
Grout, Wall	Repair Bathroom tiles
Hydraulic Fluid	Equipment
Ink, Correction Fluid	Corrections on documents
Ink, Laundry Marking	Marking Clothing
Ink, Stamp Pad	With Stamps
Insulation, Fiberglass (Walls & Attics)	To insulate buildings
Joint Compound (For Drywall)	To fill & cover cracks
Lumber (All Types)	Wood for construction
Markers, Crayols, Washable	Writing
Markers, Poster Paint	Writing
Media Mix, Finger Paint	Painting

NAVAL SUPPORT ACTIVITY MID-SOUTH INSTALLATION
GENERAL AUTHORIZED USE LIST

Mineral Oil	Cleaning paints
Mineral Spirits	Cleaning paints
Moistener, Finger	On fingers making sticky
Oil, 2-Cycle	Out Board Motors & Chainsaws
Oil, Engine	Vehicle & Equipment Engines
Oil, Lubricating, Mineral	Lubrication
Oil, Lubricating, Vegetable	Lubrication
Pads, Soap, Brillo	Cleaning
Paint, Crayola, Washable	Writing, painting
Paint, Latex, (Exterior)	Painting
Paint, Latex, (Interior)	Painting
Paint, Latex, Acrylic (Concrete, wood, stucco)	Painting
Paraffin	CDC Laminating Mach. Super Tack
Paraffin	Chapel when burning candles
Plaster Wall Patch	Repair walls
Polish, Furniture (Non-Industrial)	Polishing furniture
Polish, Metal (Impregnated Pad)	Polishing Metal
Polish, Metal (Liquid)	Polishing Metal
Power Steering Fluid	Vehicles & Equipment steering
Quaternary Ammonium Salt	Ice removal
Rock Salt	Ice removal
Scratch Cover	Covering furniture scratches
Sealant, Gasket, Silicone	Seal Gaskets
Shampoo, Carpet	Cleaning Carpets
Sheetrock, (Drywall)	Nail or Glue up to create Walls
Solution, Eyewash	Cleaning Eyes
Solution, Eyewash,Preservative	Preserve eye wash
Stain Blocker (Water-Base Wall Coating)	Painting over stains
Stainless Putty	Cleaning
Static Spray, Non-Aerosol	Remove Static
Sterno	Heat food
Tempera, Liquid	
Tempera, Powdered	

NAVAL SUPPORT ACTIVITY MID-SOUTH INSTALLATION
GENERAL AUTHORIZED USE LIST

Toner, Dry (For Copier)	
Toner, Dry (For Fax)	
Toner, Dry (For Printer)	
Transmission Fluid, Automotive	
Urinal Cakes	
Vinegar, Household (White Distilled)	
Water Color Marker	
Water, Battery (AKA Distilled Water)	
Wax Polish, Automobile	
Windshield Washing Solvent	
Wood Filler	

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ANALYTICAL ENVIRONMENTAL SERVICES, INC.

AES

August 19, 2011

Non-Responsive
[redacted]

RE: Millington Armory

Dear Non-Responsive [redacted]

Order No: 1108C91

Analytical Environmental Services, Inc. received 7 samples on 8/15/2011 10:20:00 AM for the analyses presented in following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.
AES' certifications are as follows:
-NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/11-06/30/12.
-AIHA Certification ID #100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) effective until 09/01/13.

These results relate only to the items tested. This report may only be reproduced in full.

If you have any questions regarding these test results, please feel free to call.

Non-Responsive
[redacted]

3785 Presidential Parkway • Atlanta, Georgia 30340 • Tel: (770) 457-8177 • FAX: (770) 457-8188

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Page 1535 of 2531

ANALYTICAL ENVIRONMENTAL SERVICES, INC
3785 Presidential Parkway, Atlanta GA 30340-3704
TEL.: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

Work Order: 1108C91

Date: 8/10/11 Page 1 of 1

COMPANY: MINCKLER & Associates
1503 ZAIGER DRIVE
COLO. SPGRS. COLO 80915

ADDRESS: SAME

PHONE: [redacted]
FAX: [redacted]
SIGN: [redacted]

ANALYSIS REQUESTED: LEAD WIPE (4" x 4")

Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.

#	SAMPLE ID	DATE	TIME	Grab	Compo	Matrix (See codes)	PRESERVATION (See codes)	REMARKS	No # of Containers
1	M06611-IFR FLOOR (covered louver)	8/10/11	11:05a			O	X		
2	M06711-IFR: FLOOR BELOW EXH. VENT	8/10/11	11:15a			O	X		
3	M06811-NORTH WALL-IFR	8/10/11	11:25a			O	X		
4	M06911-East End WALL-IFR	8/10/11	11:35a			O	X		
5	M07011-Louver SURFACE	8/10/11	11:45a			O	X		
6	M07111-EXH. WALL SIDE (near ceiling)	8/10/11	11:55a			O	X		
7	M07211-VAULT FLOOR	8/10/11	12:10a			O	X		
8									
9									
10									
11									
12									
13									
14									

[redacted] DATE/TIME: 1020

3:

SPECIAL INSTRUCTIONS/COMMENTS:

SHIPMENT METHOD
OUT / / VIA:
IN / / VIA:
CLIENT (FedEx) UPS MAIL COURIER
GREYHOUND OTHER

PROJECT INFORMATION
PROJECT NAME: MILLINGTON ARMORY
PROJECT #: 12
SITE ADDRESS: 5650 ATTU STREET
M[redacted]
SEND REPORT TO: [redacted]
INVOICE TO: N[redacted]
(IF DIFFERENT FRO[redacted]
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA
QUOTE #: PO#:

RECEIPT
Total # of Containers

Turnaround Time Request
(X) Standard 5 Business Days
( ) 2 Business Day Rush
( ) Next Business Day Rush
( ) Same Day Rush (auth req.)
( ) Other

STATE PROGRAM (if any):
E-mail? Y/N; Fax? Y/N
DATA PACKAGE: I II III IV

SAMPLES RECEIVED AFTER 3PM OR SATURDAY ARE CONSIDERED AS RECEIVED ON THE NEXT BUSINESS DAY; IF NO TAT IS MARKED ON COC AES WILL PROCEED AS STANDARD TAT.
SAMPLES ARE DISPOSED OF 30 DAYS AFTER COMPLETION OF REPORT UNLESS OTHER ARRANGEMENTS ARE MADE.

MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify)
PRESERVATIVE CODES: H+I = Hydrochloric acid + ice I = Ice only N = Nitric acid S+I = Sulfuric acid + ice S/M+I = Sodium Bisulfite/Methanol + ice O = Other (specify) NA = None

White Copy - Original; Yellow Copy - Client

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Oct. 4. 2006 11:46 No. 2880 P. 2
FOIA Requested Record #J-15-0085 (TN)
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Page 1536 of 2531
Posted to NGB FOIA Reading Room
May, 2018

Analytical Environmental Services, Inc

Date: 22-Aug-11

Lab Order: 1108C91
Client: Non-Responsive
Project: Millington Armory
Matrix: Wipe
Date Received: 8/15/2011 10:20:00 AM

LEAD ON WIPES (N9100/7082)

N7082

Laboratory ID	Client Sample ID	Result	Units	Reporting Limit	DF	Qual	Date Collected	Date Analyzed	Analyst
1108C91-001A	11-IFR FLOOR COVERED LOU	361	µg/ft²	180	1		08/10/2011	08/18/2011	MP
1108C91-002A	11-IFR FLOOR BELOW EXH. '	BRL	µg/ft²	180	1		08/10/2011	08/18/2011	MP
1108C91-003A	M06811-NORTH WALL-IFR	BRL	µg/ft²	180	1		08/10/2011	08/18/2011	MP
1108C91-004A	M06911-EAST END WALL-IFR	999	µg/ft²	180	1		08/10/2011	08/18/2011	MP
1108C91-005A	M07011-LOUVER SURFACE	BRL	µg/ft²	180	1		08/10/2011	08/18/2011	MP
1108C91-006A	1-EXH.WALL SIDE NEAR CE	104000	µg/ft²	3930	21.83		08/10/2011	08/18/2011	MP
1108C91-007A	M07211-VAULT FLOOR	228	µg/ft²	180	1		08/10/2011	08/18/2011	MP

Qualifiers: BRL - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
DF - Dilution Factor

Results are blank corrected where applicable.

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Page 1537 of 2531

Attachment 4

Millington Armory Personnel Roster:

Non-Responsive

[redacted]

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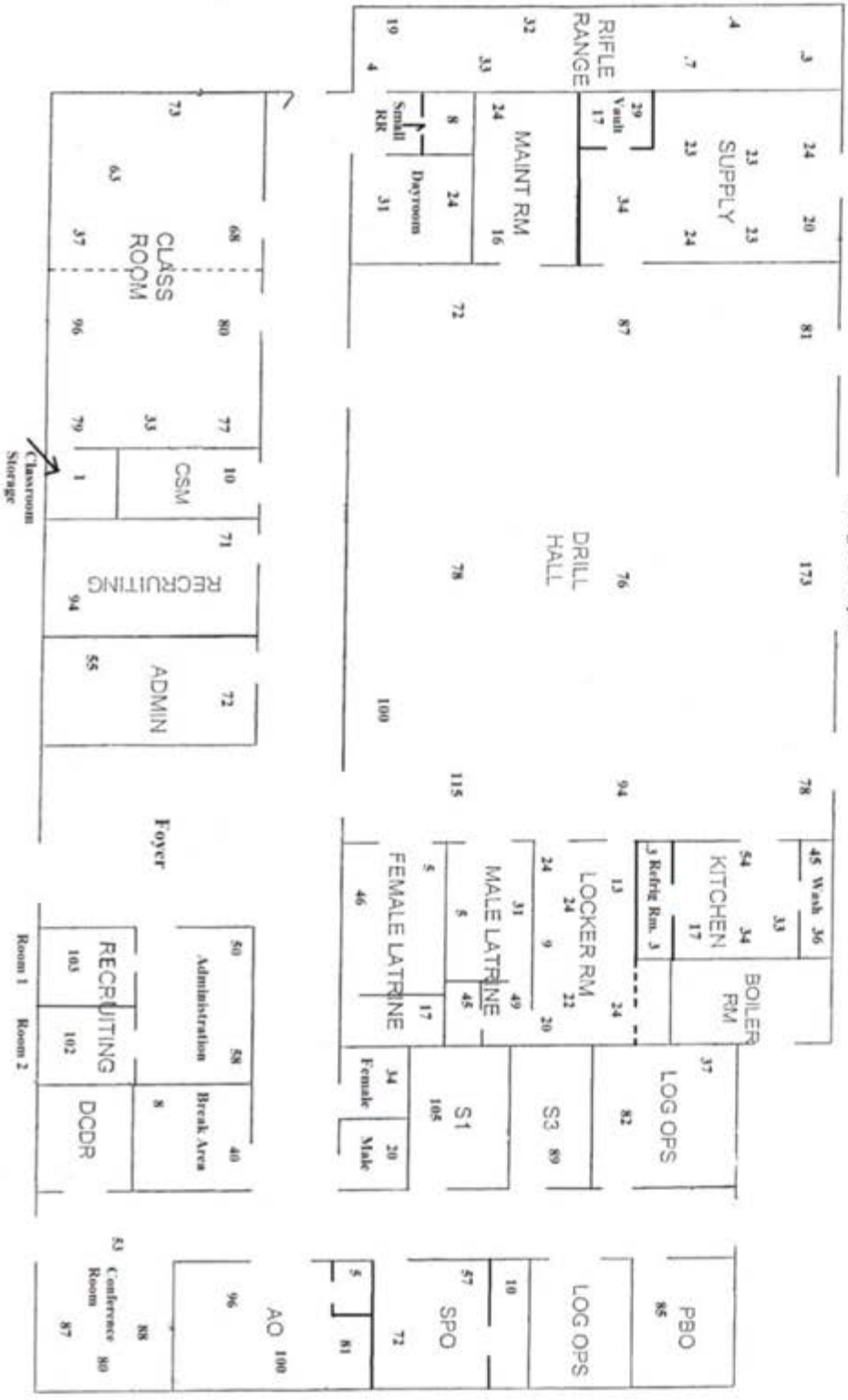
Attachment 5

Millington Armory
Lighting Levels



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Step-by-Step Summary

Cleaning: How To Do It

1. Include step-by-step procedures for precleaning, cleaning during the job, and daily and final cleaning in project design or specifications.

2. Assign responsibilities to specific workers for cleaning and for maintaining cleaning equipment.

3. Have sufficient cleaning equipment and supplies before beginning work.

4. If contamination is extensive, conduct precleaning of the dwelling unit. Move or cover all furniture and other objects.

5. Conduct ongoing cleaning during the job, including regular removal of large and small debris and dust. Decontamination of all tools, equipment, and worker protection gear is required before it leaves containment areas. Electrical equipment should be wiped and high-efficiency particulate air (HEPA) vacuumed, not wetted down, to minimize electrocution hazards.

6. Schedule sufficient time (usually 30 minutes to an hour) for a complete daily cleaning, starting at the same time near the end of each workday after lead hazard control activity has ceased.

7. For final cleaning, wait at least 1 hour after active lead hazard control activity has ceased to let dust particles settle.

8. Use a vacuum cleaner equipped with a HEPA exhaust filter. HEPA vacuum all surfaces in the room (ceilings, walls, trim, and floors). Start with the ceiling and work down, moving toward the entry door. Completely clean each room before moving on.

9. Wash all surfaces with a lead specific detergent, high-phosphate detergent, or other suitable cleaning agent such as Mr. Clean or Spic-n- Span to dislodge any ground-in contamination, then rinse. Change the cleaning solution after every room is cleaned.

10. Repeat step 8. To meet clearance standards consistently, a HEPA vacuum, wet wash, and HEPA vacuum cycle is recommended. For interim control projects involving dust removal only, the final HEPA vacuuming step is usually not needed. Other cleaning methods are acceptable, as long as clearance criteria are met and workers are not overexposed.

11. After final cleaning, perform a visual examination to ensure that all surfaces requiring lead hazard control have been addressed and all visible dust and debris have been removed. Record findings and correct any incomplete work. This visual examination should be performed by the owner of an owner's representative who is independent of the lead hazard control contractor.

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12. If other construction work will disturb the lead-based paint surfaces, it should be completed at this point. If those surfaces are disturbed, repeat the final cleaning step after the other construction work has been completed.

13. Paint or otherwise seal treated surfaces and interior floors.

14. Conduct a clearance examination.

15. If clearance is not achieved, repeat the final cleaning.

16. Continue clearance testing and repeated cleaning until the dwelling achieves compliance with all clearance standards. As an incentive to conduct ongoing cleaning and a thorough final cleaning, the cost of repeated cleaning after failing to achieve clearance should be borne by the contractor as a matter of the job specifications, not the owner.

17. Do not allow residents to enter the work area until cleaning is completed and clearance is established.

18. Cleaning equipment list:

* HEPA vacuums.

* Detergent.

* Waterproof gloves.

* Rags.

* Sponges.

* Mops.

* Buckets.

* HEPA vacuum attachments (crevice tools, beater bar for cleaning rugs).

* 6-mil plastic bags.

* Debris containers.

* Waste water containers.

* Shovels.

* Rakes.

* Water-misting sprayers.

* 6-mil polyethylene sheeting (or equivalent).

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REFERENCES:

a) Title 29, Code of Federal Regulations (CFR) Part 1910, Occupational Safety and Health Administration (OSHA).

b) ARNG PAM 385-16, Guidelines for Converting Indoor Firing Ranges to Other Uses, 31 January 1994.

c) NGR 385-15, Policy and Responsibilities for Inspection/Evaluation and Use of National Guard Indoor Firing Ranges.

d) Army Regulation (AR) 40-5, 15 October 1990, Medical Service. Preventive.

e) AR 11-34, 15 February 1990, The Army Respiratory Program.

f) AR 385-10, 23 May 1988, Army Safety Program.

g) FC-Reg. 385-2, 1 July 1999, Ionizing and Nonionizing Radiation Protection Program

h) Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.

i) Technical Bulletin Medical (TB MED) 530, 1 January 1991, Food Service Sanitation

j) Department of the Army Pamphlet 40-503, 30 October 2000, The Army Industrial Hygiene Program.

k) National Guard Regulation (NGR) 385-10, 20 December 1989, Army National Guard Safety and Occupational Health Program.

l) Industrial Ventilation, 26th Edition, American Conference of Governmental Industrial Hygienist (ACGIH), Cincinnati, Ohio.

m) IES Lighting Handbook, Application Volume, 1995, Illumination Engineering Society of North America.

n) DoD Instruction 1010.15 "Smoke Free DoD Workplace"

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South End Hallway, Roof Leak Photo 1

SPO Office, Ceiling Tile Warped Photo 2

SPO Supply Room, Loose Wires Photo 3

Family Readiness Storage Rm., H20 in Fixture Photo 4

Foyer, Entrance Area, Tile Stained Photo 5

Drill Hall Photo 6

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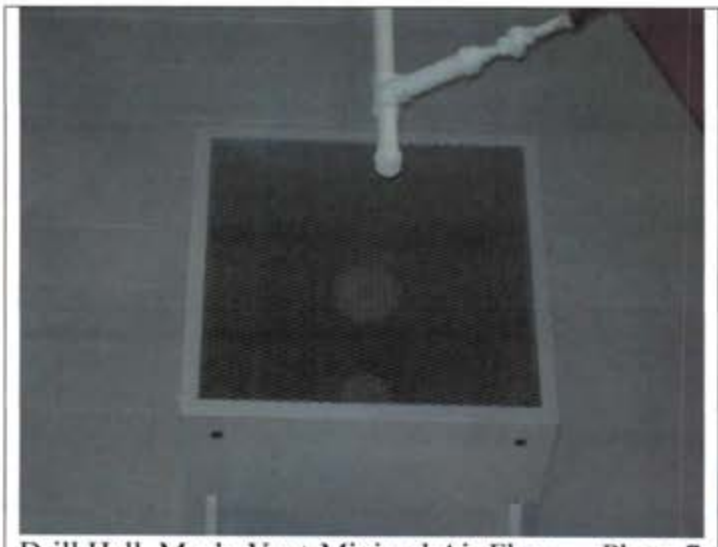
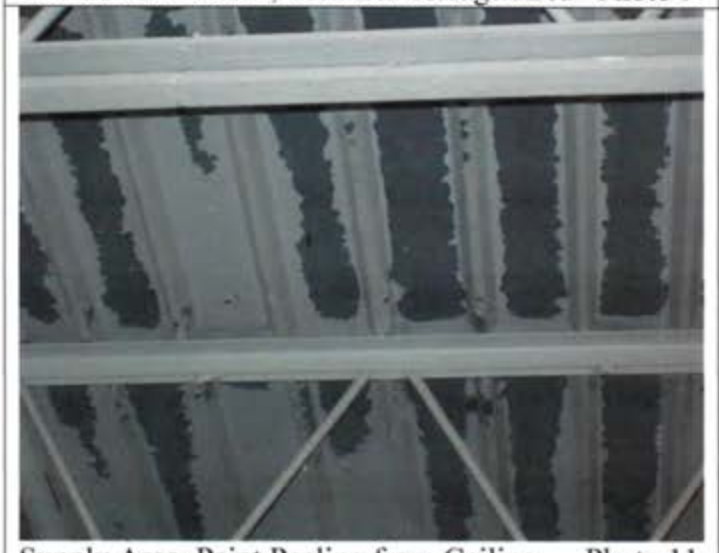


Drill Hall, Mech. Vent-Minimal Air Flow Photo 7

Female Restroom./Shower, Loose Vent Cover Photo 8

Maintenance Room, Cleanser Storage Area Photo 9

Supply Area, Loose Wires to Louver Photo 10



Supply Area, Paint Peeling from Ceiling Photo 11

North Hallway, Tile Stained and Missing Photo 12

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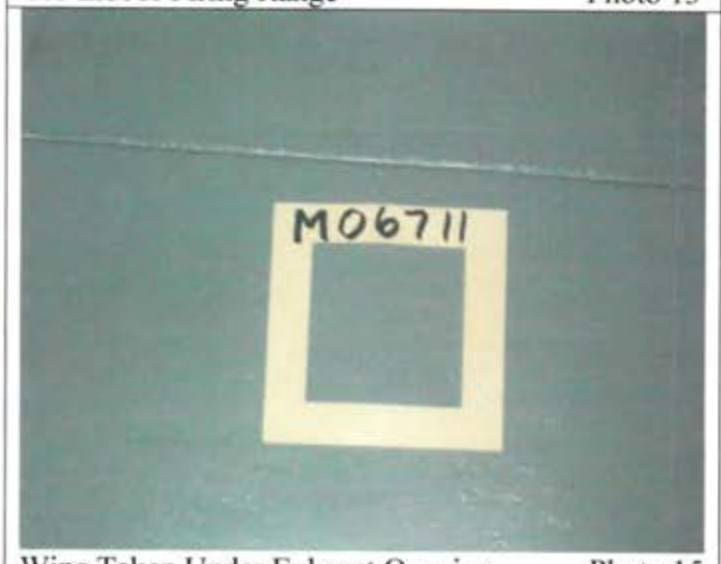
Old Indoor Firing Range Photo 13

Wipe Taken on Floor Next to Louver Photo 14



Wipe Taken Under Exhaust Opening Photo 15

Wipe Taken North End Wall, Old IFR Photo 16

Paint Peeling from Dayroom Ceiling Photo 17

Wipe Taken East End Wall, Old IFR Photo 18

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Wipe Taken Outside Louver Surface Photo 19

Wipe Taken on Exhaust Vent Wall, Old IFR Photo 20

Wipe Taken on Floor in Vault Photo 21

Fire Alarm System was Temporarily Disabled Photo 22

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Attachment 9

Restrooms:

1. To solve the capture velocity in cubic feet/minute (CFM) of a round or rectangular shaped duct opening, the formula Q = AV must be used. The TSI air velocity meter automatically figured out the CFM once the data was inputted into the instrument. Based on that fact, the capture velocity of the functioning exhaust ducts are listed below:

   a. Large Men's Restroom/Shower Velocity readings: (22.5 inch by 22.5 inch)
      Vent Duct: 935, 1150, 1270, 1090, 945, 1085 = **1080 CFM AVG**

   b. Large Women's Shower Restroom Velocity readings: (22.5inch by 22.5 inch)
      Vent Duct: 810, 710, 810, 840, 785, 910 = **810 CFM AVG**

   c. Small Restroom next to Dayroom Velocity readings:
      Vent Duct: 71, 75, 151, 90 = **97 CFM AVG** (9.7 inch by 9.7 inch)

   d. South End Male Restroom Velocity readings:
      Vent Duct: 150, 117, 109, 129 = **126 CFM AVG** (9.7 inch by 9.7 inch)

   e. South End Female Restroom Velocity readings:
      Vent Duct: 131, 117, 109, 129 = **121 CFM AVG** (9.7 inch by 9.7 inch)

Section 1203.5 of the 1997 SBC references ASHRAE 62, which requires 50 cfm of ventilation per water closet or urinal for most occupancies. Table 403.3 of the 1998 IMC (International Mechanical Code) requires 75 cfm of ventilation per water closet or urinal in toilet rooms for most occupancies (the International Building Code will reference the IMC for ventilation requirements). The Council decided that the 1998 IMC would govern the ventilation requirements of toilet rooms since this is the direction that the codes are headed with the International Codes. The proposed International Mechanical Code (IMC) for mechanical exhaust rates in restrooms is 75 CFM. The men and women's restroom was slightly below the IMC requirement.

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Recommendations:

a) Due to the inadequate lighting levels in the old indoor firing range increase the lighting levels to a uniform 30 FC's. Replace the fluorescent tubes. Contact Grainger Industrial Supply for guidance. (RAC 3)

b) Due to the lead dust wipe results, it is recommended that the vault floor; the old indoor range exhaust vent area near the ceiling; the floor next to the covered (plywood) louvers, and the old indoor range walls be thoroughly wiped down and or wet mopped with an industrial cleaner using tri-phosphate, Mr. Kleen or Spic-n-Span. For additional lead cleaning measures see attachment 6. (RAC 2)

c) Fix the deficiencies in paragraph 5 of the report such as stained light fixtures; stained ceiling tiles and hallway roof leaks; and cleaning ceiling exhaust vents. (RAC 2)

d) Ensure every effort is made in getting the old indoor firing range properly cleaned in order to provide an adequate utilization of space. (RAC 3)

e) Check with the environmental office on what type of tile to put over the epoxy coating that was applied to the old indoor range floor. If the floor is epoxy coated take a knife and etch a tic tack toe on the surface of the epoxy coating surface. Then take a piece of duct tape and place it on the tick tack toe floor surface. When you pull the tape off of the floor, if any epoxy is on the tape the tile won't stick to the floor.(RAC 3)

f) Check the status of the fire alarm system. (RAC 3)

g) Hook up the loose wires to the supply area louver unit. (RAC 2)

h) If work practices change, a new assessment should be made on the controls in place.

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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-AVN-SI July 7, 2003

MEMORANDUM FOR: The Adjutant General of Tennessee, ATTN: Non-Responsive
Non-Responsive State Occupational Health Office, P O Box 41502, Nashville, TN 37204-1502.

SUBJECT: Transmittal Newport Armory Survey Report.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, 30 August 1986, Medical Service, Preventive Medicine.

c. National Guard Regulation (NGR) 385-10, 1988, Army National Guard Safety and Occupational Health Program.

d. AR 11-34, The Army Respiratory Protection Program, 15 February 1990.

e. TB MED 502, Occupational and Environmental Health Respiratory Protection Program, February 1982.

f. DA PAM 40-503, 30 October 2000, The Army Industrial Hygiene Program.

g. DA PAM 40-501, 10 December 1998, Hearing Conservation.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2001, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

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k. Title 29, Code of Federal Regulations (CFR), 2000 rev., part 1910, Occupational Safety and Health Standards.

l. Report dated 20 June 2003, Industrial Hygiene Survey, Environmental Mgmt. Solutions, Atlanta, GA.

2. General.

a. At the request of the TNARNG Safety and Occupational Health Office, an Industrial Hygiene Service was put together to conduct Health Hazard Information module (HHIM) Field surveys and industrial hygiene sampling of the Newport Armory, Newport, TN.

b. Environmental Mgmt. Solutions, 247 Mary Lane, Dallas, GA. 30132 conducted the surveys.

3. Findings. All HHIM field survey forms and survey findings of the reports. (See enclosure 1)

4. Recommendations.

a. Follow all recommendations made in reference 1.l., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Control water infiltration in the armory and/or replace or repair damaged surfaces or components (ceiling and floor tiles). Building conditions that present IAQ concerns or problems not only exacerbates normally minor health issues but also tend to promote or accelerate building deterioration.

c. The recommendations given in the comment section of the HHIM data sheets and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-03. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-04 IHIP.

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present survey, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nursa and the Occupational Safety and Health Office for technical guidance.

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NGB-AVN-SI
SUBJECT: Transmittal Newport Armory Survey Report.

f. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

5. If additional information is needed about the industrial hygiene survey or air sample

Non-Responsive

[redacted]

CF:
NBG-AVN-SH

Encl
as

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ENVIRONMENTAL MANAGEMENT SOLUTIONS
INDUSTRIAL HYGIENE CONSULTING

TENNESSEE ARMY NATIONAL GUARD

NEWPORT ARMORY
NEWPORT, TENNESSEE

247 MARY LANE, DALLAS, GEORGIA 30157
PHONE: 770.459.4376 • FAX: 770.234.6297

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EXECUTIVE SUMMARY 1

SUBJECT 2

BACKGROUND 2

INTRODUCTION 2
SITE DESCRIPTION 2
SCOPE OF WORK 2
METHODOLOGY 2

FINDINGS AND DISCUSSION 4

LEAD WIPE SAMPLES 4
ASBESTOS SUSPECT BUILDING MATERIAL 4
NOISE SURVEY 5
ILLUMINATION SURVEY 5
BUILDING CONDITION 6
HAZARD COMMUNICATION 6
RADIATION PROTECTION PROGRAM 6
ERGONOMICS 6
PERSONAL PROTECTIVE EQUIPMENT 6

RECOMMENDATIONS 7

TECHNICAL ASSISTANCE 8

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1553 of 2531

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EXECUTIVE SUMMARY

An initial baseline industrial hygiene survey was conducted at the Newport Armory on 19 May 2003 as part of the Tennessee Army National Guard Occupational Health Program to identify potential health hazards in the workplace. The survey consisted of collecting lead wipe samples and bulk asbestos samples as needed, conducting a noise and illumination survey and an evaluation of the condition of the building as it related to indoor air quality. A review of the Hazard communication program, ergonomics, and personal protective equipment was also performed.

The following table summarizes the survey findings and recommendations for each topic surveyed.

TOPIC	SUMMARY OF FINDINGS	RECOMMENDATIONS
Lead Wipe Samples	41.0 to 397 micrograms	Clean surfaces in the indoor firing range area, decontaminate all contaminated items, and follow good hygiene and housekeeping practices
Asbestos Bulk Samples	No findings	No action
Noise Survey	Under 85 dBA	No action
Illumination Survey	13 to 76 foot-candles.	Upgrade lighting to appropriate levels.
Building Condition	Water damage to ceiling and floor tiles	Clean damaged surfaces, control sources of water infiltration, and create a maintenance schedule for HVAC units
Hazard Communication	MSDS are available for chemicals used	Personnel responsible for these items should receive annual training in HAZCOM requirements
Ergonomics	Poor workstations design in some offices	Complete ergonomics survey on all personnel and offer ergonomic training or awareness to employees who spend the majority of their time working on a computer terminal
Personal Protective Equipment	No findings	No action

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MEMORANDUM FOR

Tennessee Army National Guard
Newport Armory
Non-Responsive
Newport, Tennessee 37821

SUBJECT

Initial Baseline Industrial Hygiene Survey of the Newport Armory performed 19 May 2003 in Newport, Tennessee.

BACKGROUND

INTRODUCTION

At the request of Non-Responsive of the National Guard Bureau Region South Industrial Hygiene Office, an initial baseline industrial hygiene survey was performed at the Newport Armory in Newport, Tennessee. Environmental Management Solutions conducted the survey on 19 May 2003. The purpose of the survey was to perform an initial baseline industrial hygiene survey to evaluate potential health hazards present at the armory.

SITE DESCRIPTION

The facility houses the Troop E 2nd 278th which includes two full time personnel. The one story building contains several administrative offices, three classrooms, a drill hall, a kitchen, and motor pool area. A firing range is present at this facility and is being used as storage space. Refer to Building layout in Appendix C.

SCOPE OF WORK

The work included collecting wipe samples for lead, bulk samples for suspect asbestos containing building material, noise readings, illumination levels, and an evaluation of the ventilation system as it pertains to indoor air quality. A list of occupational health programs and procedures were verbally covered with the armory personnel.

METHODOLOGY

Lead wipe samples were collected from surfaces that showed signs of lead contamination in armories that have a renovated, inactive, or closed indoor firing range (IFR), kitchen or mess hall storage areas, indoor drill halls, and storage rooms with weapons vaults. The samples were collected

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1556 of 2531

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in accordance to instructions published by Region South National Guard Bureau, which required the use of unscented baby wipes to wipe one square foot of surface. Samples were then placed in a sealed plastic bag and sent to an American Industrial Hygiene Associations (AIHA) accredited laboratory for analysis. Asbestos bulk samples and lead paint chips were collected from suspect friable and damaged building material. Each bulk sample was placed in a sealed bag and sent to an AIHA laboratory for analysis. All instruments used for assessment were factory calibrated and calibrated prior to the survey as applicable. Illumination readings were taken on work surfaces and approximately four feet from the floor.

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FOIA Requested Record #J-15-0085 (TN)
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Page 1557 of 2531

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FINDINGS AND DISCUSSION

LEAD WIPE SAMPLES

Eight wipe samples were collected from areas of the indoor firing range, kitchen, supply and drill hall areas as listed in the table below.

SAMPLE NUMBER	SAMPLE LOCATION	MICROGRAMS OF LEAD (µg) PER SQUARE FOOT
1	Kitchen	BRL*
2	Drill Hall, Coke Machine	BRL
3	Drill Hall Floor	**75.0**
4	Vault Area	**397**
5	Motor Pool	**361**
6	IFR Floor	**201**
7	IFR Floor	90.0
8	IFR Wall	41.0

*Below Reporting Limit

The Army National Guard All States Log Number P01-0075, **Policies and Responsibilities for Inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges (IFR) and Guidelines for IFR Rehabilitation, Conversion, and Cleaning** requires a limit of 200 micrograms per square foot for surface contamination in and around indoor firing ranges. The Environmental Protection Agency standards (40 CFR 745) indicate lead in dust levels above 40 micrograms per square foot on bare and carpeted floors is considered dangerous for common areas. Lead results of samples taken in the drill hall, motor pool, and vault areas were above recommended limits.

ASBESTOS SUSPECT BUILDING MATERIAL

Sampling for asbestos was limited to damaged material or material that could pose an exposure risk. No friable suspect material was found.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1558 of 2531

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NOISE SURVEY

Area noise levels are well within the Army National Guard limit of 85 dBA and the Occupational Safety and Health Administration (OSHA) regulated limit of 90 dBA over an eight-hour period.

ILLUMINATION SURVEY

Lighting levels throughout the armory ranged between 13 foot-candles to 76 foot-candles. Specific readings are listed in the table below.

AREA	AVERAGE FOOT-CANDLES
Orderly room	47
TNG	18
CDR	61
Classroom #1	41
Classroom #2	76
Food Storage	33
Drill Hall	44
Maintenance work bay	15
Maintenance Office	13
Kitchen	19

These readings are not within the Army Design Guide (DG 415-2) minimum illumination level of 50 foot-candles for office areas and 20 foot-candles for parts storage/supply. The American National Standard Institute/Industrial Engineering Society (ANSI/IES) recommends a minimum illumination of 50 to 100 foot-candles for administrative and kitchen areas, and 20 to 50 foot-candles for storage areas. Luminance of 50 to 100 foot-candles is recommended for performance of visual tasks of medium contrast or small size such as reading, pencil handwriting, and poorly printed, or

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1559 of 2531

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reproduced material. Depending of the type of display, background luminance of 30 to 60 foot-candles is recommended for VDT work. Some areas had lighting that was burned out.

BUILDING CONDITION

The building was originally constructed in 1984. Housekeeping in the area was very good. Several areas of the armory have damaged ceiling or floor tiles due to water damage. Water damage could be seen in the classroom and latrine areas. The armory is cooled with a central heating, ventilating, and air conditioning (HVAC) system. The HVAC room had some debris on the system itself and on the floor. Personnel did not have any specific complaints about the indoor air quality.

The motor pool building does not have an emergency eyewash/shower present. A general exhaust system is available for vehicle exhaust. Vehicles maintained by the maintenance personnel include 2 ½ ton and 5 ton vehicles. A noise survey has not been performed on maintenance equipment, vehicles, or other noise hazards in the area.

HAZARD COMMUNICATION

Material Safety Data Sheets were available and easily accessible. SSG Seaman updates the Material Safety Data Sheets.

RADIATION PROTECTION PROGRAM

There are no radioactive materials kept at this facility.

ERGONOMICS

The full time employees in the supply or office areas did not express any ergonomic related injuries or concerns. Many workstations were not set up to provide neutral postures and appropriate ergonomically correct positions. Consideration should be given to providing all full time employees that spend the majority of their working time at a computer terminal ergonomic training or awareness. Such awareness should emphasize the importance of proper posture and set-up of the workstation to fit the user.

PERSONAL PROTECTIVE EQUIPMENT

Normal duties of full time employees at the armory do not require the use of personal protective equipment (PPE).

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1560 of 2531

BEST AVAILABLE COPY

6) A plumbed eye lavage and shower should be placed within 10 seconds from where a chemical eye hazard exists and should be placed in the area. Install an eyewash in the motor pool area.

7) Install a carbon monoxide monitor in the motor pool area to warn personnel about dangerous levels of carbon monoxide from vehicles idling in or around the area. The maintenance bay door should be left open while vehicles or running or left idling in order to provide adequate ventilation during these times.

8) Complete noise dosimetry and a noise survey on all maintenance equipment and mark equipment and areas as noise hazardous, where appropriate.

9) An ergonomics survey should be completed for all supply and administrative personnel as a preventative measure to document and address any and all ergonomic concerns or problems. Provide ergonomics training and awareness to all employees who spend the majority of their time working at a computer terminal.

TECHNICAL ASSISTANCE

Non-Responsive

[redacted]

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1561 of 2531

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RECOMMENDATIONS

1) All items that are contaminated with lead should be thoroughly decontaminated with a detergent and water solution. Care should be taken to wipe down tables where weapons are issued and cleaned. Kitchen areas should be thoroughly cleaned on a regular basis and especially before serving personnel.

2) Personnel should be prohibited from eating, drinking, smoking, chewing tobacco or gum, or applying cosmetics in supply areas and should be instructed to clean hands with soap and water before doing any of these. Remove all refrigerators, cups, and other eating utensils from supply areas.

3) Lead results indicate that some areas of the indoor firing range are not completely free from contamination. **An indoor firing range should not be used for any purpose other than firing until it has been appropriately cleaned and converted.** Consult the Army National Guard All States Log Number P01-0075, Policies and Responsibilities for inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges (IFR) and Guidelines for IFR Rehabilitation, Conversion, and Cleaning on guidelines for cleaning and converting Indoor Firing Range. Decontaminate and remove all items until the range has been properly cleaned and converted.

4) Upgrade lighting measurements as required. Lighting can be upgraded in the following ways:

   - Replace blown or broken lighting
   - Paint wall a light color
   - Clean existing light fixtures
   - Rearrange furniture to make better used of available light
   - Provide supplemental or task lighting

5) Develop a maintenance schedule for monitoring, inspecting and cleaning HVAC components such as outside air intakes, outside air dampers, air filters, drain pans, heating and cooling coils, the interiors of air handling units, fan motors ad belts, air humidification, controls and cooling towers. The schedule should also ensure that any leaks or standing water are identified, repaired, and prevented. Proper repairs and maintenance of the building infrastructure and interior surfaces can prevent water damage and moisture buildup which may lead to further indoor air quality issues.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1562 of 2531

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reproduced material. Depending of the type of display, background luminance of 30 to 60 foot-candles is recommended for VDT work. Some areas had lighting that was burned out.

BUILDING CONDITION

The building was originally constructed in 1984. Housekeeping in the area was very good. Several areas of the armory have damaged ceiling or floor tiles due to water damage. Water damage could be seen in the classroom and latrine areas. The armory is cooled with a central heating, ventilating, and air conditioning (HVAC) system. The HVAC room had some debris on the system itself and on the floor. Personnel did not have any specific complaints about the indoor air quality.

The motor pool building does not have an emergency eyewash/shower present. A general exhaust system is available for vehicle exhaust. Vehicles maintained by the maintenance personnel include 2 ½ ton and 5 ton vehicles. A noise survey has not been performed on maintenance equipment, vehicles, or other noise hazards in the area.

HAZARD COMMUNICATION

Material Safety Data Sheets were available and easily accessible. SSG Seaman updates the Material Safety Data Sheets.

RADIATION PROTECTION PROGRAM

There are no radioactive materials kept at this facility.

ERGONOMICS

The full time employees in the supply or office areas did not express any ergonomic related injuries or concerns. Many workstations were not set up to provide neutral postures and appropriate ergonomically correct positions. Consideration should be given to providing all full time employees that spend the majority of their working time at a computer terminal ergonomic training or awareness. Such awareness should emphasize the importance of proper posture and set-up of the workstation to fit the user.

PERSONAL PROTECTIVE EQUIPMENT

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1563 of 2531

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APPENDICES

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APPENDIX A

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1565 of 2531

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- American conference of Governmental Industrial Hygieist (ACGIH), Industrial Ventilation, A Manual of Recommended Practice, 23rd Edition, 1998.American National Standards Institute (ANSI), /Illuminating Engineering Society (IES), Industrial Lighting, 1991.
- Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 1990.
- Army Regulation (AR) 40-5, Preventative Medicine, 15 October 1990.
- Army Regulation (AR) 385-10, The Army Safety Program, 29 Feb 2000.
- NGR 385-10, Army National Guard Safety and Occupational Health Program, 7 October 1988.
- TB MED 503, The Army Industrial Hygiene Program, February 1985.
- Title 29, Code of Federal Regulations (CFR), 1999, revision, Part 1910, Occupational Safety and Health Standards.
- TG 022, US Army Environmental Hygiene Agency (YSAEHA), Industrial Hygiene Evaluation Guide, October 1975.
- TG 141, US Army for Health Promotion and Preventative Medicine (USACHPPM) Industrial Hygiene Air Sampling Guide, November 1997.

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1566 of 2531

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APPENDIX B

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1567 of 2531

HHIMS Industrial Hygiene Survey Form

Front page

ARLOC	Installation	Building	Room Number
47000	New Cumberland		

Location	Operation	Survey Date	month	day	Evaluator	Macom	Submacom	Unit / Organization (45)
SA	421	03	05	19	[redacted]	NG	XX	

[redacted] Non-responsive

RAC

DSN	Commercial	Frequency (hrs/day)	No. CIVs	No. MIL	Contractors	No. LOCs
[redacted]	[redacted]	008	02	00	00	00

Lab Hoods	Vapor Degreasers	Spray Booths	Open Surface Tanks	Ventilation Units
00	00	00	00	08

Controls Present (if >8, continue in comments)(25)	Evaluation (25 characters max)	Unit code	Controls Required (25 characters max)
OTH	13-76	FTC	50-100 (Admin)
			20-50 (Storage)

Gloves	e*	R	U
acid			
cold surfaces			
hot surfaces			
NBC agents			
oil			
solvents			
surgical gloves			
leather / cotton			
other			

Respirator	e*	R	U	Manufacturer's Description (10 characters max)	NIOSH TC # or Foreign equivalent (10 characters max)
airline					
abrasive blasting hood					
disposable					
full face air purifying					
1/2 face air purifying					
powered air purifying					
1/4 face air purifying					
self-contained					
other					

Eyes and Face	e*	R	U
chemical splash			
full face shield			
chem/safety impact			
safety impact			
welding helmet			
sunglasses			
welding goggles/glasses			
laser eye protection			
other			

Hearing	e*	R	U
canal caps			
(>85-108 dBA steady) earplugs			
" helmets w/ muffs			
" muffs alone			
(108-118) muff/earplug comb			
muffs and earplugs			
(118 or >) with time limit			
other			
other			

Body	e*	R	U
aprons			
cold weather clothing			
coveralls			
full body suit			
heat reflective vest/suit			
safety belt/harness			
special purp. clothing			
other			

Head and Feet	e*	R	U
cold weather boots/hat			
hard hats			
impermeable boots			
safety shoes (conductive)			
safety (nonconductive)			
other			
other			
other			
other			

e* = evaluator's recommendation or agreement

Reminders: ergonomics - dermatitis - physical agents - flammable storage
EYE (permanent) ____ - EYE (portable) ____ - SHW - GMV - LEV

ACO ADM DSA DSN LAB LCK
RAD ECB EPL PHS SPD WSI

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau

HHIMS Industrial Hygiene Survey Form

back page

	CAS code	PAC	EPC	Hazard Description
PONOISECO	PONDIXXXX	2	A	Computer use video display terminal
POFOOTHAZ	POSTRESSX	3	F	Ergonomics/Physical Stress
POFLYPROJ	POLIFTING	2	A	Heavy lifting
POEYEHAZA	14391-92-1	3	A	Lead
POFLAMHAZ				
POLIFTING				
POSHARPOB				
POHOTOBJE				
POELSHOCK				
COLUBEOIL				

Social Security Number or Unique Identifier

[redacted] Non-Responsive

Last Name (20 characters max)

[redacted] Non-Responsive

First Name

[redacted] Non-Responsive

Category

C	1	V
C	1	V

☒ Personnel data provided by the facility is attached to this form

Insert Privacy Act Statement

Comments

Operation described is receive, inventory, issue critical unit items to include weapons and ammunition

☐ This operation was explained to the evaluators, but was not actually observed.

☐ (comments continued on attached

There is a noise data sheet attached to this form ☐

There is a ventilation data sheet attached to this form ☐

2/8/95 CHPMBACK.XLS

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1569 of 2531

HHIMS Industrial Hygie. Survey Form

Front p.

ARLOC	Installation	Building	Room Number
4 7 0 0 0	[illegible]		

Location	Operation	Survey Date (month / day)	Evaluator	Macom	Submacom	Unit / Organization (45)
A A	A D O	0 3 0 5 1 9	[redacted]	N G	X X	

[redacted]

RAC	DSN	Commercial	Frequency (hrs/day)	No. CIVs	No. MIL	Contractors	No. LOCs
	[redacted]	[redacted]	0 0 8	0 2	0 0	0 0	0 0

Lab Hoods	Vapor Degreasers	Spray Booths	Open Surface Tanks	Ventilation Units
0 0	0 0	0 0	0 0	0 0

Controls Present (if >5, continue in comments)(25)	Evaluation (25 characters max)	Unit code	Controls Required (25 characters max)
OTH	13-76	F T C	50-100 FTC

Gloves	e*	R	U
acid			
cold surfaces			
hot surfaces			
NBC agents			
oil			
solvents			
surgical gloves			
leather / cotton			
other			

Respirator	e*	R	U
airline			
abrasive blasting hood			
disposable			
full face air purifying			
1/2 face air purifying			
powered air purifying			
1/4 face air purifying			
self-contained			
other			

Manufacturer's Description (10 characters max)

NIOSH TC # or Foreign equivalent (10 characters max)

Eyes and Face	e*	R	U
chemical splash			
full face shield			
chem/safety impact			
safety impact			
welding helmet			
sunglasses			
welding goggles/glasses			
laser eye protection			
other			

Hearing	e*	R	U
canal caps			
(>85-108 dBA steady) earplugs			
" helmets w/ muffs			
" muffs alone			
(108-118) muff/earplug comb			
muffs and earplugs			
(118 or >) with time limit			
other			
other			

Body	e*	R	U
aprons			
cold weather clothing			
coveralls			
full body suit			
heat reflective			
vest/suit			
safety belt/harness			
special purp. clothing			
other			

Head and Feet	e*	R	U
cold weather boots/hat			
hard hats			
impermeable boots			
safety shoes (conductive)			
safety (nonconductive)			
other			
other			
other			
other			

* = evaluator's recommendation or agreement

Reminders: ergonomics - dermatitis - physical agents - flammable storage
EYE (permanent) ____ - EYE (portable) ____ - SHW - GMV - LEV

ACO ADM DSA DSN LAB LCK
RAD FCR FPL RUS SPR WEL

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau

HHIMS Industrial Hygiene Survey Form

Back page

	CAS code	PAC	EPC
PONOISECO	P O V D T X X X X	2	A
POFOOTHAZ	P O S T R E S S X	3	F
POFLYPROJ			
POEYEHAZA			
POFLAMHAZ			
POLIFTING			
POSHARPOB			
POHOTOBJE			
POELSHOCK			
COLUBEOIL			

Hazard Description: Computer use/video display Terminal Ergonomics/Physical Stress

Social Security Number or Unique Identifier: [redacted] Non-Responsive

Last Name (20 characters max): [redacted] Non-Responsive

First Name (20 characters max): [redacted] Non-Responsive

MI: M

Category: C 1 ✓; C ✓

☒ Personnel data provided by the facility is attached to this form

Insert Privacy Act Statement

Comments

Operation described is administrative operations to include typing, filing, phone and computer use. Some workstations were not set up to allow employees to work with neutral postures. Some workspaces cramped with little space. Duties of administrative personnel vary, so that microbreaks can be taken as needed.

☐ This operation was explained to the evaluators, but was not actually observed.

There is a noise data sheet attached to this form ☒

☒ (comments continued on attached)

There is a ventilation data sheet attached to this form ☒

2/8/95 CHPMBACK.XLS

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1571 of 2531

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APPENDIX C

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May, 2018

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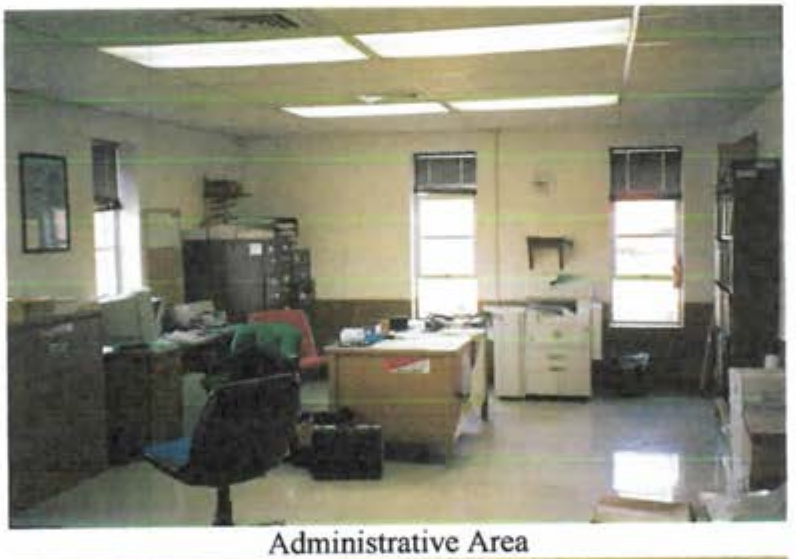
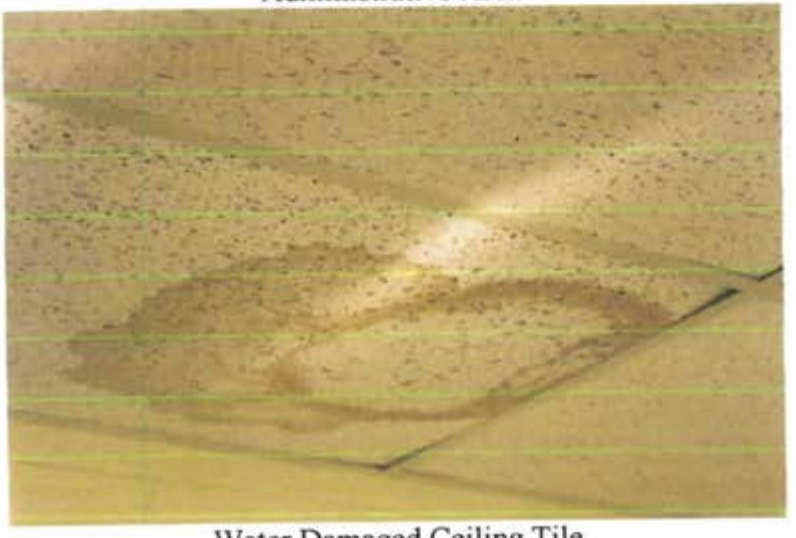
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1572 of 2531

Newport Armory



Administrative Area



Water Damaged Ceiling Tile

Kitchen

Drill Hall

Motor Pool Area

Indoor Firing Range Converted to Storage

Supply Area

Motor Pool General Mechanical Ventilation

Heating, Ventilating, and Air-Conditioning

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May, 2018

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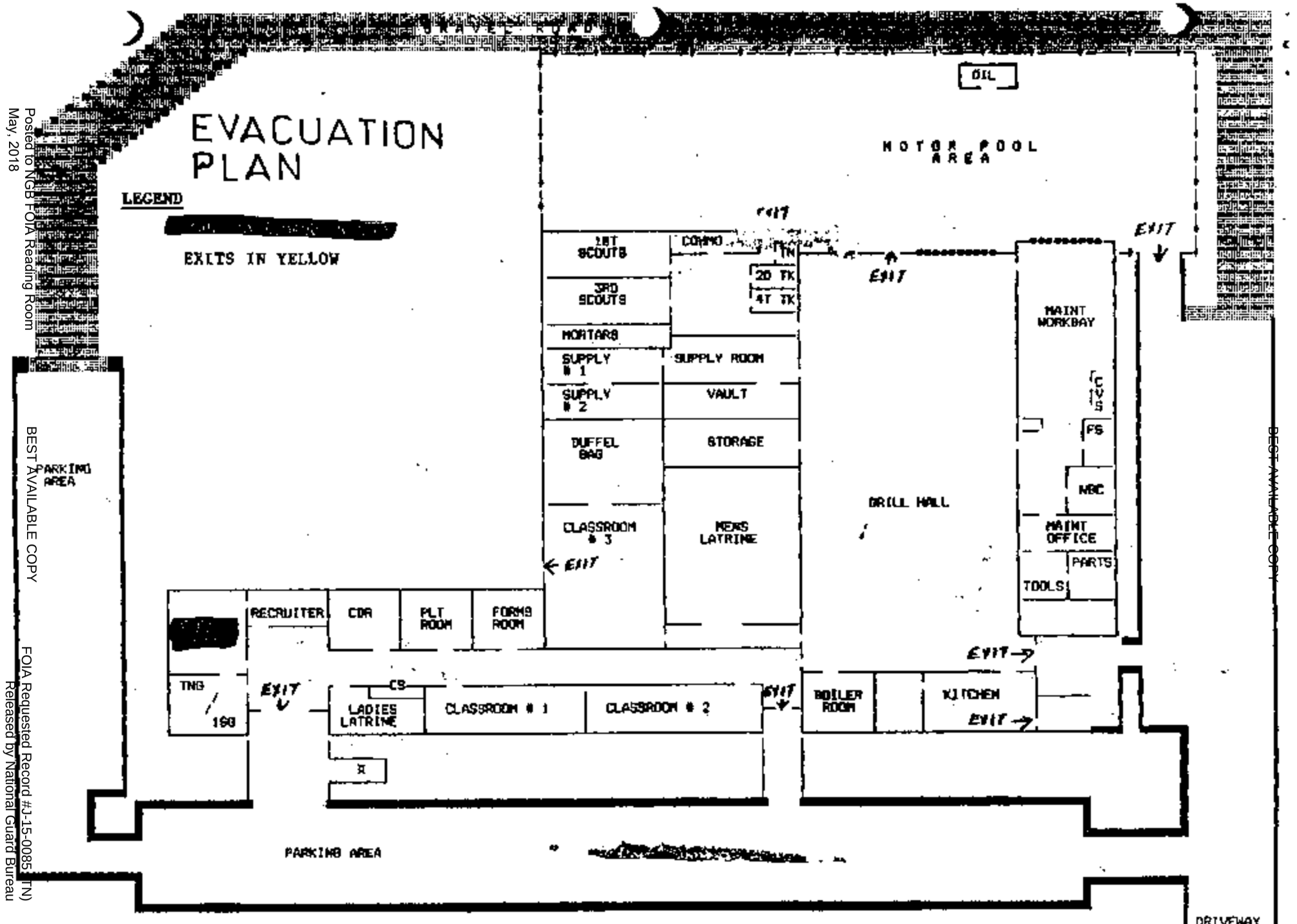
EVACUATION PLAN

LEGEND

[redacted]

EXITS IN YELLOW



IN THE EVENT OF A BUILDING EVACUATION, ALL PERSONNEL SHOULD USE THE NEAREST EXIT. AFTER EVACUATING THE BUILDING ALL PERSONNEL MUST MEET IN FRONT OF THE BUILDING, NEXT TO THE MORTAR RANGE ((BLUE)). AFTER REACHING THIS LOCATION, THE PLATOON SGT WILL MAKE A HEAD COUNT OF PERSONNEL.

[redacted]

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APPENDIX D

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1578 of 2531

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Analytical Environmental Servs, Inc.

Date: 6/20/2003

TOTAL LEAD IN WIPE SAMPLES
N7082

CLIENT:	Environmental Management Solutions	Lab Order:	0306539
Project:	Newport Armory	Date Received:	6/17/2003 9:45:0
Project No:	Newport Armory	Matrix:	Wipe
PO No:		Analyst:	SSS

Laboratory ID	Client Sample ID	Results	Units	MDL	DF	Date Collected	Date Analyzed
0306539-001A	1	BRL	µg, Total	2.83	1	5/19/2003	6/19/2003
0306539-002A	2	BRL	µg, Total	2.83	1	5/19/2003	6/19/2003
0306539-003A	3	75.0	µg, Total	2.83	1	5/19/2003	6/19/2003
0306539-004A	4	397	µg, Total	2.83	1	5/19/2003	6/19/2003
0306539-005A	5	361	µg, Total	2.83	1	5/19/2003	6/19/2003
0306539-006A	6	201	µg, Total	2.83	1	5/19/2003	6/19/2003
0306539-007A	7	90.0	µg, Total	2.83	1	5/19/2003	6/19/2003
0306539-008A	8	41.0	µg, Total	2.83	1	5/19/2003	6/19/2003

Qualifiers: MDL - Method Detection Limit
ND - Not Detected at the Reporting Limit
DF - Dilution Factor

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May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1579 of 2531

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BULK SAMPLE DATA

For use of this form see USAEHA TG 141; the proponent is MCHB-DC-LLC

Non-Responsive [redacted]

Return Address *(complete address including zip code)*
Environmental Mgmt Sttns
247 Mary Ln.
Dallas, GA 30157

Sampled Installation Troop E 2nd 278th
Newport Armory

Project Number TN052003-01

Non-Responsive [redacted]

Date Collected 19 May 2003

Date Shipped 17 June 2003

Location *(BLDG/AREA)*

Lead Sampling of Armory ~~IFR~~

Associated Complaints *(be specific)*
None

Associated Air Samples ☐ YES ☒ NO — If yes, list sample numbers

Label Information

Trade Name	NSN	Manufacturer
NA	NA	NA

Address NA

MSDS Attached ☐ YES ☒ NO

Analysis Desired Lead

Lab Use Only	Sample No.	Constituents	Results	Remarks
	1	Kitchen		
	2	Drill Hall (Coke)		
	3	Drill Hall Floor		
	4	Vault Area		
	5	Motor Pool		
	6	Lead trap & Floor		
	7	IFR Floor		
	8	IFR Wall		

Comments to Lab:

Lab Use Only

Analyst *(initials)*	Reviewed By *(initials)*	Date Received	Date Reported

Procedures Performed | **Comments:**

CHPPM Form 8-R-E, 1 May 96 — Replaces AEHA Form 8-R 1 Oct 84 which is obsolete.

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1580 of 2531

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NATIONAL GUARD REGION SOUTH
INDUSTRIAL HYGIENE OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

ARNG-CSG

July 20, 2014

MEMORANDUM FOR The Adjutant General of Tennessee, ATTN: SSGT Neeley, TN ARNG Newport Armory, 1721 W Lamar Alexander Pkwy, Newport, TN 37821.

THRU: Non-Responsive Deputy State Surgeon, Tennessee National Guard, HQS, AGTN-DCSPER-DSS, P.O. Box 41502, Houston Barracks, Nashville, Tennessee 37204-1501.

SUBJECT: Industrial Hygiene Survey of the TN ARNG Newport Armory, Newport, TN.

1. References.

a. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1996 rev.

a. Title 29, Code of Federal Regulations (CFR), 2009 rev., part 1910, Occupational Safety and Health Standards.

b. Title 29 CFR, General Industry, revised 1996 rev. Part 1940

c. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 25 May 2007

d. AR 385-10, The Army Safety Program, 23 August 2007.

e. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.

f. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, 12 September 2008.

g. TB MED 503, The Army Industrial Hygiene Program, 30 October 2000.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2010 American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 26th rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

k. NG PAM 420-15, 03 November 2006, Facilities Engineering, Rehabilitation and Conversion of Indoor Firing Ranges.

2. General. At the request of Non-Responsive of the Tennessee National Guard Occupational Health Office, an Industrial Hygiene Survey was put together to conduct a Health Hazard Information module (HHIM) Field survey of the s and industrial hygiene sampling of the TN ARNG Newport Armory, Newport, TN.

3. Findings. All Health Hazard information is on the survey findings of the report. (See enclosure 1). Operations of very short duration were not sampled due to the requirements of the

sampling method. If the operation changes or if the length of the operation is increased, contact this office to schedule sampling if it is deemed needed then.

4. Recommendations. Follow the recommendations made in the enclosed report, requesting industrial hygiene (IH) in the event operations performed or work schedule change to schedule a follow up survey of the facility earlier than the normal schedule.

a. Have all HHIM data entered into the HHIM computer module.

b. Use the report to help in correcting all deficiencies noted.

c. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present visits, especially if this will help eliminate health hazards and reduce medical surveillance cost.

d. Contact the State Occupational Health Office for any medical Surveillance that may be needed.

e. To execute your responsibilities in correcting all deficiencies, coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

f. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

g. Use the guidance given in the enclosed report as good IH practices, requesting industrial hygiene (IH) services where needed. The recommendations given in the comment section of the HHIM data sheets and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-14. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-15 IHIP.

5. If additional information is needed about the industrial hygiene survey or air sample results

Non-Responsive

[redacted]

CF: ARNG-CSG

Non-Responsive [redacted] Safety and Occupational Health Manager, Tennessee State Safety 3041 Sidco Drive, Nashville, TN 37204-1504

Non-Responsive [redacted] nnessee National Guard Occupational Health Office, 250 8th Ave, Smyrna, TN 37167

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INDUSTRIAL HYGIENE SURVEY REPORT
FOR
TENNESSEE ARMY NATIONAL GUARD
(TNARNG)
7051 ARMORY ROAD
NEWPORT, TN 37821

Thru

Industr

Non-Responsive

07 June 2013

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1583 of 2531

INTRODUCTION

At the request of Non-Responsive of the National Guard Bureau (ARNG) Region South Industrial Hygiene Office; Non-Responsive IH Surveying Inc. conducted a baseline Industrial Hygiene survey and walk through evaluation. This evaluation took place at the Newport Armory of the Tennessee ARNG located at 7051 Armory Rd on May 21, 2013. The purpose of the survey was to evaluate any and all health hazards and controls present in the workplace. Collect bulk samples and or wipe samples (if necessary) to determine lead or asbestos exposures, perform illumination, ventilation and noise surveys, and make recommendations regarding health hazards associated with work at the site.

The facility was visually examined and site personnel interviewed regarding work activities, and type of materials/chemicals used during typical/atypical workdays, or stored on site.

Pre and Post Industrial Hygiene survey reports were held with SSGT Neeley who was the acting POC for SFC Grayson at the Newport Armory; at the time the survey was completed.

The writer would like to acknowledge the assistance and cooperation extended to him by site's population in general, and takes this opportunity to express his gratitude to all personnel.

FACILITY DESCRIPTION

This is a one story building which was constructed of concrete blocks with a brick outer layer for walls and concrete flooring in most areas. The building contains work spaces which include offices, a kitchen, a gym, a classroom and a supply room office. There is also a drill hall and latrines. Floor coverings throughout the building were carpeting, tile or concrete. All walls are painted. Ceiling tile is 36 inch drop panels in most areas and in some places the ceiling is a sheet rock type of material.

INSTRUMENTATION

The following instrumentation and/or sampling media were provided by the contractor and where necessary were used to obtain lead wipe samples, asbestos bulk samples, paint chip samples illumination and noise measurements. Equipment obtained from the NGB Southeast Regional Office and RAECO Inc.

Quest Q2700	Sound Level Meter	calibrated on 07/27/2013
Quest QC-10	Calibrator w/Adapter	calibrated on 07/27/2013
TSI 95511AQ	Meter	calibrated on 4/06/2013
EXTECH 407026	Light Meter	calibrated on 07/06/2013

"Ghost wipes" lead dust wipes no expiration date

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1584 of 2531

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FINDINGS

Office Spaces

The Newport armory offices spaces are mostly equipped with the same furnishings. The offices contained at least a chair, desk and some had a computer stations. There was no sign of mold or water damage on the floors or walls of the offices. While interviewing the employee at the armory that day, it appeared that the temperature and humidity were satisfactory for working conditions, the HVAC system effectively monitors and controls temperature and humidity.

Latrines

The latrines were in need of housekeeping. There appeared to be large amounts of mold on the ceiling in some areas of the latrine. Samples were taken and show no harmful mold spores. See lab results in attachments. Pipes and tiles seemed in good condition

Kitchen

The kitchen was in need of housekeeping behind reefers, stoves and under the sink and counters. There appeared to be mold spores on the ceiling in kitchen. Samples were taken and lab results showed no evidence of harmful spores. See attachment for lab results

Classrooms

The classrooms had numerous damaged and stained ceiling tiles. Floor tiles were broken or cracked. Samples were taken for asbestos.

Supply

Supply areas were in need of housekeeping. Lead samples were taking from the floor outside of the vault as well as from the paint chips found on the floor. Lead levels samples were below the reporting limits.

Drill Hall

The facility's drill hall has a concrete floor and concrete block walls. The ceiling inside is metal. The inside of the roof seemed in good shape at the time of the survey; except for large amounts of the paint peeling and chipping. Paint chips were taking for possible lead levels. These samples showed no signs of harmful lead levels. The lighting fixtures and windows provided ample illumination for an area of that size; illumination standards were met or exceeded. Lead swipe samples were taken from different areas of the floor. See attachment for laboratory results.

Indoor Firing Range

According to the POC, the indoor firing range has been turned into a caged supply area. Samples have been taken from this area.

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Sampling

Lead Swipe Sampling Results

Weapons Vault: The weapon vaults were tested for lead levels. Lead swipe samples were taken and sent to AES Inc. Any result over 200ug must be reported. During this survey all samples were below the reporting limit. Results of the samples are listed below.

Sample Site	*Result/Units ug.*	*Reporting Limits*
Vault wall left side	BRL	20
Vault floor inside	BRL	20
Vault door inside	BRL	20
Vault flat surfaces	BRL	20
Floor outside vault	BRL	20
Vault door outside	BRL	20
Blank	BRL	20
Paint chips/supply ceiling	BRL	0.00862
IFR floor/bay door	BRL	20
IFR Floor center	BRL	20
IFR Back wall	BRL	20
Drill hall floor center	BRL	20
Drill hall floor 2	BRL	20

Mold sampling results

Sample Site	*Result/Units spores seen*
Male latrine ceiling	BRL
Kitchen ceiling	BRL

IAQ

Based on interviews, measurements and observations overall there is no technical or instrumental basis for IAQ concerns in this facility. No evidence of mold, extreme particulate build up or condensation on walls or floors. There were no obvious roof leaks at the time of the survey. Throughout the building the average temperature was 75.2 (DF) and the average humidity was 45.5. Many factors such as personal activity may affect personal comfort. Acceptable relative humidity levels can range from 30 to 70% year round. Elevated humidity could promote growth of mold, bacteria and dust mites which can aggravate allergies and asthma. Carbon dioxide levels were very low and are a measure as to whether adequate volumes of fresh outdoor air are being introduced to indoor air. Outdoor levels of Carbon dioxide are usually 300-400 parts per million and indoor levels should be between 600-800 parts per million. The carbon dioxide levels in this facility did not exceed 514.2 parts per million. The ventilation system is in good working condition and maintains a comfortable working environment, although it appeared to be in need of servicing as mentioned earlier. At the time of the survey there was no record of a maintenance record program of the HVAC system.

Office/Areas	IAQ CO2 ppm /Temp/HM/CO
Vault	545/76/48/.1
M latrine	492/74/55/.0
F Latrine	489/74/58/.0
Storage	531/76/41/.1
Supply	512/75/42/1
Drill Hall	503/77/37/.1
Kitchen	536/76/48/.0
Office avg	508/74/38/.1
Classroom	512/75/43/0

Noise Level

Readings throughout the main facility measured between 40 to 55 decibels "slow A scale". Diesel truck running in the drill hall was the only measureable noise activity other than AC unit background noise.

Office/Areas/Equipment	Noise dBa	Exceeds Noise 85 dBa Std
Vault	44	No
M latrine	40	No
F Latrine	40	No
Storage	43	No
Supply	43	No
Drill Hall/diesel truck running in drill hall	62	No
Kitchen	50	No
Office avg	52	No
Classroom	50	No

Asbestos

Not applicable

Illumination

The average illumination in the offices, conference room and classrooms was 42.8ftc. See the table below for illumination values. The following table reflects foot candle measurements noted during this survey. These values show that some areas do or do not meet the recommended illumination standard.

Office/Areas/Equipment	Illumination Foot Candles (ftc) Ftc/ lights/lights out	Meets: IES Lighting Handbook
Vault	30 /3 / 0 out	Yes
M latrine	32 /8 / 0 out	Yes
F Latrine	34 / 2 / 0 out	Yes
Storage	36 /21 /0 out	Yes
Supply	51 / 17 / 3 out	Yes
Drill Hall	56 / 12 /0out	Yes
Kitchen	36/ 8 /1 out	Yes
Office avg	46 / 4 / 0 out	Yes
Classroom	65 /12 / 0 out	Yes

Hazardous Materials

Materials used at this armory are standard in most armory sites. Haz-mat inventories are posted appropriate. The flammable cabinet was located in the drill hall and was properly marked. The MSDS Binder was visible.

Technical Assistance

Non-Responsive

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References

Title 29, Code of Federal Regulations (CFR) Part 1910, Occupational Safety and Health Administration (OSHA)

AR 40-5, Preventive Medicine, 25 May 2007.

AR 385-10, 29 February 2000, Army Safety Program.

TB MED 503, The Army Industrial Hygiene Program, 30 October 2000.

Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.

The IES Lighting Handbook, Tenth Edition; Illuminating Engineering Society / 2011

Threshold Limit Values (TLV's) For Chemical Substances and Physical Agents, And Biological Exposure Indices (BEI's), 2009, ACGIH, Cincinnati Ohio

Industrial Ventilation, 25th Edition, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio

AR 11-34 Army Respiratory Protection Program, 15 February 1990

DA Pam 40-501, Hearing Conservation Program, 10 December 1998

NFPA 10: Standard for Portable Fire Extinguishers

Recommended values from IES Lighting Handbook Application Volume 1987

ENCLOSED

1. Recommendations
2. Photos
3. Lead swipe testing results

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ATTACHMENT 1

RECOMMENDATIONS

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Based on interviews with the POC as well as observations by Non-Responsive urveying Inc. staff and IAQ measurements, it appears the overall condition of this facility is fair. Some recommendations are listed below

- Sheet rock ceilings in both the latrine and kitchen have water damage and as a preventative measure these areas should be repaired. At the time of the surveys, results came back negative for harmful mold spores. **RAC 3**

- General housekeeping behind the reefers and supply areas should be addressed to keep vermin at a minimum **RAC 3**

- The ceiling areas where paint is chipping and falling should be addressed, to stop paint chip dust from becoming a possible health hazard. **RAC 3**

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ATTACHEMENT 2

PHOTOS

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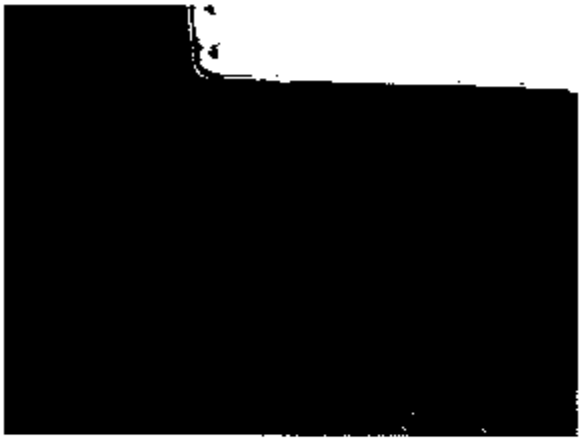
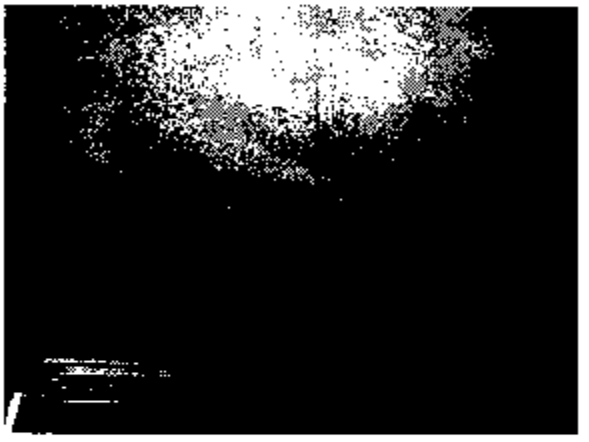
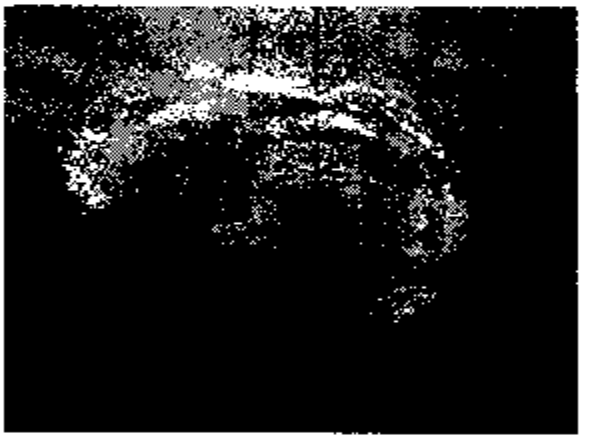
Possible mold in male latrine



Water damage and mold in male latrine



Water damage and mold in kitchen

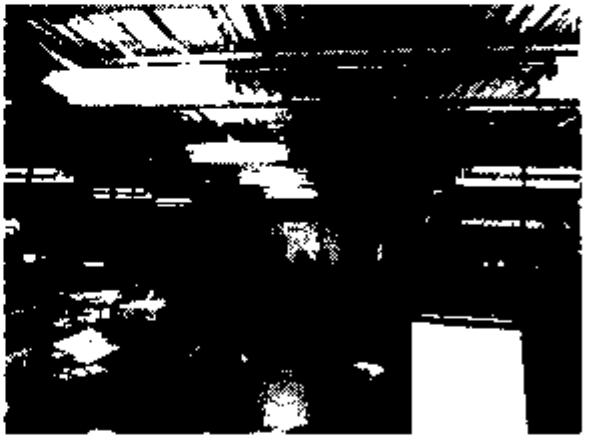


Plastic bag had water inside it

Drill hall/paint chipping

Old IFR/now supply area

Supply area/paint chipping



Weapons Vault

Hallways clear of debris

Housekeeping needed

Classroom

Office area

Supply closet

Out building

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ATTACHEMENT 3

LAB RESULTS

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AES

ANALYTICAL ENVIRONMENTAL SERVICES, INC.

June 09, 2014

Non-Responsive

[redacted]

RE: Mold

Dear Non-Responsive [redacted]

Order No: 1405P68

Analytical Environmental Services, Inc. received 2 samples on 5/28/2014 3:00:00 PM for the analyses presented in following report.

No problems were encountered during analysis, except where noted in the case narrative.

AES' certifications are as follows:
-AIHA-Laboratory Accreditation Program, LLC Laboratory ID: 100671 for analysis of Environmental Microbiology (Fungal) Direct Examination, effective until 09/01/15.

These results relate only to the items tested. Results are not blank corrected unless stated in the Case Narrative. This report may only be reproduced in full.

If you have any questions regarding these test results, please feel free to call.

Sincerely,

Non-Responsive

[redacted]

3080 Presidential Drive • Atlanta, Georgia 30340 • Tel: 770.457.8177 • Fax: 770.457.8188 • Toll Free: 800.922.4889
www.aesatlanta.com

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Page 1599 of 2531

ANALYTICAL ENVIRONMENTAL SERVICES, INC
3785 Presidential Parkway, Atlanta GA 30340-3704
TEL.: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

Work Order: 14D5P68

Date: 5/21/14 Page ____ of ____

COMPANY: NGB SOUTHEAST REGIONAL FH OFFICE

ADDRESS: 510 PLAZA DR 1534 SUITE COLLEGE PARK, GA 30349

[redacted] Non-Responsive

FAX:

SIGN [redacted] Non-Resp

ANALYSIS REQUESTED: MOLD

Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.

#	SAMPLE ID	SAMPLED DATE	SAMPLED TIME	Grab	Composite	Matrix (See codes)	PRESERVATION (See codes)	REMARKS	No # of Containers
1	015NP6521	5/21	1030	✓				MENS LATRINE	
2	016NP6521	5/21	1105	✓				KITCHEN	
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									

RELINQUISHED BY / DATE/TIME

1:

2:

3:

RECEIVED BY / DATE/TIME

1: [redacted] Non-Responsive 5/23/14 3:00PM

2:

3:

SPECIAL INSTRUCTIONS/COMMENTS:

SHIPMENT METHOD

OUT / / VIA:

IN / / VIA:

☐ CLIENT ☐ FedEx ☐ UPS ☑ MAIL ☐ COURIER

☐ GREYHOUND ☐ OTHER ____

PROJECT INFORMATION

PROJECT NAME:

PROJECT #:

SITE ADDRESS:

SEND REPORT TO:

INVOICE TO:
(IF DIFFERENT FROM ABOVE)

QUOTE #: ____ PO#: ____

RECEIPT

Total # of Containers

Turnaround Time Request

☐ Standard 5 Business Days
☐ 2 Business Day Rush
☐ Next Business Day Rush
☐ Same Day Rush (auth req.)
☐ Other ____

STATE PROGRAM (if any): ____

E-mail? Y / N; Fax? Y / N

DATA PACKAGE: ☐ I ☐ II ☐ III ☐ IV

SAMPLES RECEIVED AFTER 3PM OR ON SATURDAY ARE CONSIDERED RECEIVED THE NEXT BUSINESS DAY; IF NO TAT IS MARKED ON COC AES WILL PROCEED WITH STANDARD TAT.

SAMPLES ARE DISPOSED OF 30 DAYS AFTER COMPLETION OF REPORT UNLESS OTHER ARRANGEMENTS ARE MADE.

MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Water (Blanks) WW=Wastewater DW=Drinking Water O = Other (specify)

PRESERVATIVE CODES: H+I = Hydrochloric acid + ice I = Ice only N = Nitric acid S+I = Sulfuric acid + ice S/M+I = Sodium Bisulfate/Methanol + ice O = Other (specify) NA = None

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Analytical Environmental Services, Inc.

3080 Presidential Drive, Atlanta GA 30340-3704 TEL:(770) 4578177 /TOLL FREE: (800) 972-4889 /FAX: (770-) 457-8188

Authorized Signature

Client: National Guard Bureau Region-South III
510 Plaza Drive
Atlanta, GA 30349
Attn: Ken FuBer

Client Project: Mold
Date Collected: 5/21/2014
Date Received: 5/28/2014
Date Analyzed: 6/3/2014

Work Order: 1405P68
Analyst: JW
Date Reported: 6/3/2014
Date Modified:

Direct Examination for Mold spores: Tape, Swab, or Bulk

Sample ID	015NP0521	016NP0521	-	-	-	-
Laboratory ID	1405P68-001A	1405P68-002A	-	-	-	-
Sample Location	Mens Latrine	Kitchen	-	-	-	-
Fungal Species	Result	Result	-	-	-	-
Agrocybe/Coprinus	-	-	-	-	-	-
Alternaria	-	-	-	-	-	-
Ascomycetes	-	-	-	-	-	-
Aspergillus/Penicillium	-	-	-	-	-	-
Arthrinium	-	-	-	-	-	-
Basidiomycetes	-	-	-	-	-	-
Bipolaris	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-
Cladosporium	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-
Myxomycete/Smut	-	-	-	-	-	-
Pithomyces	-	-	-	-	-	-
Paecilomyces	-	-	-	-	-	-
Scopulariopsis	-	-	-	-	-	-
Stachybotrys	-	-	-	-	-	-
Stemphilium	-	-	-	-	-	-
Torula	-	-	-	-	-	-
Ulocladium	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-
Aureobasidium	-	-	-	-	-	-
	-	-	-	-	-	-
Unidentifiable	-	-	-	-	-	-

Semi-Quantitative Concentrations

Rare:	1-25 spores seen on Prep
Few:	26-50 spores seen on Prep
Moderate:	51-75 spores seen on Prep
Many:	76-100 spores seen on Prep
Loaded:	Greater than 100 spores seen on Prep

* Hyphae and Fruiting Structures Present

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Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client GA Army Nat'l Guard Work Order Number 1405P66

Checklist completed by Non-Responsive [redacted] 5/29/14
Sig Date

Carrier name: FedEx __ UPS __ Courier __ Client __ US Mail ✓ Other _____

Shipping container/cooler in good condition?	Yes ✓	No __	Not Present __
Custody seals intact on shipping container/cooler?	Yes __	No __	Not Present ✓
Custody seals intact on sample bottles?	Yes __	No __	Not Present ✓
Container/Temp Blank temperature in compliance? [redacted]*	Yes ✓	No __	

Cooler #1 amb. Cooler #2 _____ Cooler #3 _____ Cooler #4 _____ Cooler#5 _____ Cooler #6 _____

Chain of custody present?	Yes ✓	No __
Chain of custody signed when relinquished and received?	Yes ✓	No __
Chain of custody agrees with sample labels?	Yes ✓	No __
Samples in proper container/bottle?	Yes ✓	No __
Sample containers intact?	Yes ✓	No __
Sufficient sample volume for indicated test?	Yes ✓	No __
All samples received within holding time?	Yes ✓	No __
Was TAT marked on the COC?	Yes __	No ✓
Proceed with Standard TAT as per project history?	Yes ✓	No __ Not Applicable __
Water - VOA vials have zero headspace?	No VOA vials submitted ✓	Yes __ No __
Water - pH acceptable upon receipt?	Yes __	No __ Not Applicable ✓

Adjusted? _____ Checked by _____

Sample Condition: Good ✓ Other(Explain) _____

(For diffusive samples or AIHA lead) Is a known blank included? Yes __ No ✓

See Case Narrative for resolution of the Non-Conformance.

* Samples do not have to comply with the given range for certain parameters.

\\L\Quality Assurance\Checklists Procedures Sign-Off Templates\Checklists\Sample Receipt Checklists\Sample_Cooler_Receipt_Checklist

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Page 1601 of 2531

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AES

ANALYTICAL ENVIRONMENTAL SERVICES, INC.

June 04, 2014

Non-Responsive [redacted]

RE: Newport Armory

Dear Non-Responsive [redacted]

Order No: 1405P67

Analytical Environmental Services, Inc. received 14 samples on 5/28/2014 3:00:00 PM for the analyses presented in following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.
AES' certifications are as follows:
-NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/13-06/30/14.
-AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) effective until 09/01/15.

These results relate only to the items tested. This report may only be reproduced in full.

If you have any questions regarding these test results, please feel free to call.

Non-Responsive [redacted]

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FOIA Requested Record #J-F3008-(FN)
Page 1 of 1
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Page 1603 of 2531

ANALYTICAL ENVIRONMENTAL SERVICES, INC
3785 Presidential Parkway, Atlanta GA 30340-3704
TEL.: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

Work Order: 1405P67

Date: 5/21/14 Page 1 of

COMPANY: NGB IR OFFICE SOUTHEAST REGION

ADDRESS: 510 PLAZA DR SUITE 1530 COLLEGE PARK, GA 30349

PHONE [redacted] Non-Responsive

FAX:

SAMPL[redacted]

SIGNATU[redacted] Non-Responsive

ANALYSIS REQUESTED: LEAD

Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.

#	SAMPLE ID	SAMPLED DATE	SAMPLED TIME	Grab	Composite	Matrix (See codes)	PRESERVATION (See codes)	REMARKS	No. # of Containers
1	001NP0521	5/21/14		/				VAULT WALL LEFT	
2	002NP0521			/				VAULT AIR IN	
3	003NP0521			/				VAULT FLOOR IN	
4	004NP0521			/				FLAT SURFACE VAULT	
5	005NP0521			/				FLOOR OUTSIDE VAULT	
6	006NP0521			/				VAULT DOOR OUT	
7	007NP0521			/				BLANK	
8	008NP0521			/				SUPPLY CEILING	
9	009NP0521			/				IFR FLOOR BAY 1	
10	010NP0521			/				IFR FLOOR	
11	011NP0521			/				BAY DOOR IFR	
12	012NP0521			/				IFR BACK WALL	
13	013NP0521			/				ARM WALL FIR JG	
14	014NP0521	5/21/14		/				ARM WALL FIR	

[redacted] Non-Responsive

DA[redacted] Non-Responsive DATE/TIME

5/2[redacted] 5/28/14 3:00AM

3: 3:

SPECIAL INSTRUCTIONS/COMMENTS:

SHIPMENT METHOD
OUT / / VIA:
IN / / VIA:
☐ CLIENT ☐ FedEx ☐ UPS ☐ MAIL ☐ COURIER
☐ GREYHOUND ☐ OTHER

PROJECT INFORMATION
PROJECT NAME: NEWPORT ARMORY
PROJECT #:
STA[redacted] Non-Responsive
SE[redacted]
IN[redacted]
(IF[redacted]
NGB
QUOTE #: PO#:

RECEIPT
Total # of Containers

Turnaround Time Request
☐ Standard 5 Business Days
☐ 2 Business Day Rush
☐ Next Business Day Rush
☐ Same Day Rush (auth req.)
☐ Other

STATE PROGRAM (if any):
E-mail? Y/N: Fax? Y/N
DATA PACKAGE: ☐ I ☐ II ☐ III ☐ IV

SAMPLES RECEIVED AFTER 3PM OR ON SATURDAY ARE CONSIDERED RECEIVED THE NEXT BUSINESS DAY; IF NO TAT IS MARKED ON COC AES WILL PROCEED WITH STANDARD TAT.
SAMPLES ARE DISPOSED OF 30 DAYS AFTER COMPLETION OF REPORT UNLESS OTHER ARRANGEMENTS ARE MADE.

MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Water (Blanks) WW=Wastewater DW=Drinking Water O = Other (specify)
PRESERVATIVE CODES: H+I = Hydrochloric acid + ice I = Ice only N = Nitric acid S+I = Sulfuric acid + ice S/M+I = Sodium Bisulfate/Methanol + ice O = Other (specify) NA = None

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Analytical Environmental Services, Inc Date: 4-Jun-14

Lab Order:	1405P67
Client:	National Guard Bureau Region-South III
Project:	Newport Armory
Matrix:	Wipe
Date Received:	5/28/2014 3:00:00 PM

LEAD ON WIPES (N7082)

N7082

Laboratory ID	Client Sample ID	Result	Units	Reporting Limit	DF	Qual	Date Collected	Date Analyzed	Analyst
1405P67-001A	001NP0521	BRL	ug, Total	20	1		05/21/2014	06/03/2014	JS
1405P67-002A	002NP0521	BRL	ug, Total	20	1		05/21/2014	06/03/2014	JS
1405P67-003A	003NP0521	BRL	ug, Total	20	1		05/21/2014	06/03/2014	JS
1405P67-004A	004NP0521	BRL	ug, Total	20	1		05/21/2014	06/03/2014	JS
1405P67-005A	005NP0521	BRL	ug, Total	20	1		05/21/2014	06/03/2014	JS
1405P67-006A	006NP0521	BRL	ug, Total	20	1		05/21/2014	06/03/2014	JS
1405P67-007A	007NP0521	BRL	ug, Total	20	1		05/21/2014	06/03/2014	JS
1405P67-009A	009NP0521	BRL	ug, Total	20	1		05/21/2014	06/03/2014	JS
1405P67-010A	010NP0521	BRL	ug, Total	20	1		05/21/2014	06/03/2014	JS
1405P67-011A	011NP0521	BRL	ug, Total	20	1		05/21/2014	06/03/2014	JS
1405P67-012A	012NP0521	BRL	ug, Total	20	1		05/21/2014	06/03/2014	JS
1405P67-013A	013NP0521	BRL	ug, Total	20	1		05/21/2014	06/03/2014	JS
1405P67-014A	014NP0521	BRL	ug, Total	20	1		05/21/2014	06/03/2014	JS

Lab Order:	1405P67
Client:	National Guard Bureau Region-South III
Project:	Newport Armory
Matrix:	Paint
Date Received:	5/28/2014 3:00:00 PM

TOTAL LEAD IN PAINT (N7082)

PAINT

Laboratory ID	Client Sample ID	Result	Units	Reporting Limit	DF	Qual	Date Collected	Date Analyzed	Analyst
1405P67-008A	008NP0521	BRL	wt%	0.00862	1		05/21/2014	06/03/2014	JS

Qualifiers: BRL - Not Detected at the Reporting Limit; B - Analyte detected in the associated Method Blank; DF - Dilution Factor

Results are blank corrected where applicable

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Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client GA Army Nat'l Guard Work Order Number 1405P67

Non-Responsive

Checklist completed by [redacted] 5/29/14
Sig Date

Carrier name: FedEx __ UPS __ Courier __ Client __ US Mail ✓ Other _____

Shipping container/cooler in good condition? Yes ✓ No __ Not Present __

Custody seals intact on shipping container/cooler? Yes __ No __ Not Present ✓

Non-Responsive

Custody seals intact on sample bottles? [redacted] es __ No __ Not Present ✓

Container/Temp Blank temperature in compliance? ~~(4°C±2)*~~ Yes ✓ No __

Cooler #1 amb. Cooler #2 _____ Cooler #3 _____ Cooler #4 _____ Cooler#5 _____ Cooler #6 _____

Chain of custody present? Yes ✓ No __

Chain of custody signed when relinquished and received? Yes ✓ No __

Chain of custody agrees with sample labels? Yes ✓ No __

Samples in proper container/bottle? Yes ✓ No __

Sample containers intact? Yes ✓ No __

Sufficient sample volume for indicated test? Yes ✓ No __

All samples received within holding time? Yes ✓ No __

Was TAT marked on the COC? Yes __ No ✓

Proceed with Standard TAT as per project history? Yes ✓ No __ Not Applicable __

Water - VOA vials have zero headspace? No VOA vials submitted ✓ Yes __ No __

Water - pH acceptable upon receipt? Yes __ No __ Not Applicable ✓

Adjusted? _____ Checked by _____

Sample Condition: Good ✓ Other(Explain) _____

(For diffusive samples or AIHA lead) Is a known blank included? Yes __ No ✓

See Case Narrative for resolution of the Non-Conformance.

* Samples do not have to comply with the given range for certain parameters.

\\L\Quality Assurance\Checklists Procedures Sign-Off Templates\Checklists\Sample Receipt Checklists\Sample_Cooler_Receipt_Checklist

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May, 2018

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Page 1605 of 2531

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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-AVN-SI July 7, 2003

MEMORANDUM FOR: The Adjutant General of Tennessee, ATTN: Non-Responsive State Occupational Health Office, P O Box 41502, Nashville, TN 37204-1502.

SUBJECT: Transmittal Paris Armory Survey Report.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, 30 August 1986, Medical Service, Preventive Medicine.

c. National Guard Regulation (NGR) 385-10, 1988, Army National Guard Safety and Occupational Health Program.

d. AR 11-34, The Army Respiratory Protection Program, 15 February 1990.

e. TB MED 502, Occupational and Environmental Health Respiratory Protection Program, February 1982.

f. DA PAM 40-503, 30 October 2000, The Army Industrial Hygiene Program.

g. DA PAM 40-501, 10 December 1998, Hearing Conservation.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2001, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

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k. Title 29, Code of Federal Regulations (CFR), 2000 rev., part 1910, Occupational Safety and Health Standards.

l. Report received at NGB RIHS 2 July 2003, dated 30 May 2003, Industrial Hygiene Survey, Environmental Mgmt. Solutions, Atlanta, GA.

2. General.

a. At the request of the TNARNG Safety and Occupational Health Office, an Industrial Hygiene Service was put together to conduct Health Hazard Information module (HHIM) Field surveys and industrial hygiene sampling of the Paris Armory, Paris, TN.

b. Environmental Mgmt. Solutions, 247 Mary Lane, Dallas, GA. 30132 conducted the surveys.

3. Findings. All HHIM field survey forms and survey findings of the reports. (See enclosure 1)

4. Recommendations.

a. Follow all recommendations made in reference 1.l., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Control water infiltration in the armory and/or replace or repair damaged surfaces or components (ceiling and floor tiles). Building conditions that present IAQ concerns or problems not only exacerbates normally minor health issues but also tend to promote or accelerate building deterioration.

c. The recommendations given in the comment section of the HHIM data sheets and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-03. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-04 IHIP.

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present survey, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

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NGB-AVN-SI
SUBJECT: Transmittal Paris Armory Survey Report.

f. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

5. If additional information is needed about the industrial hygiene survey or air sample

Non-Responsive

[redacted]

CF:
NBG-AVN-SH

Encl
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ENVIRONMENTAL MANAGEMENT SOLUTIONS
INDUSTRIAL HYGIENE CONSULTING

TENNESSEE ARMY NATIONAL GUARD

PARIS ARMORY
PARIS, TENNESSEE

247 MARY LANE, DALLAS, GEORGIA 30157
PHONE: 770.459.4376 • FAX: 770.234.6297

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EXECUTIVE SUMMARY 1

SUBJECT 2

BACKGROUND 2

INTRODUCTION 2
SITE DESCRIPTION 2
SCOPE OF WORK 2
METHODOLOGY 2

FINDINGS AND DISCUSSION 3

LEAD WIPE SAMPLES 3
ASBESTOS SUSPECT BUILDING MATERIAL 4
NOISE SURVEY 4
ILLUMINATION SURVEY 4
BUILDING CONDITION 5
HAZARD COMMUNICATION 5
RADIATION PROTECTION PROGRAM 5
ERGONOMICS 6
PERSONAL PROTECTIVE EQUIPMENT 6

RECOMMENDATIONS 7

TECHNICAL ASSISTANCE 8

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1610 of 2531

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EXECUTIVE SUMMARY

An initial baseline industrial hygiene survey was conducted at the Paris Armory on April 28, 2003 as part of the Tennessee Army National Guard Occupational Health Program to identify potential health hazards in the workplace. The survey consisted of collecting lead wipe samples and bulk asbestos samples as needed, conducting a noise and illumination survey and an evaluation of the condition of the building as it related to indoor air quality. A review of the Hazard communication program, ergonomics, and personal protective equipment was also performed.

The following table summarizes the survey findings and recommendations for each topic surveyed.

TOPIC	SUMMARY OF FINDINGS	RECOMMENDATIONS
Lead Wipe Samples	120 to 3680 micrograms	Clean surface in the converted IFR Area, decontaminate all contaminated items, and follow good hygiene and housekeeping practices
Asbestos Bulk Samples	No findings	No action
Noise Survey	Under 85 dBA	No action
Illumination Survey	11 to 57 foot-candles	Upgrade lighting to appropriate levels.
Building Condition	Water damage to ceiling and floor tiles	Clean damaged surfaces, control sources of water infiltration, and create a maintenance schedule for HVAC units
Hazard Communication	MSDS are available for chemicals used	Personnel responsible for these items should receive annual training in HAZCOM requirements
Ergonomics	Poor workstations design in some offices	Complete ergonomics survey on all personnel and offer ergonomic training or awareness to employees who spend the majority of their time working on a computer terminal
Personal Protective Equipment	No findings	No action

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SUBJECT

Initial Baseline Industrial Hygiene Survey of the Paris Armory performed April 28 2003 in Paris, Tennessee.

BACKGROUND

INTRODUCTION

At the request of Non-Responsive of the National Guard Bureau Region South Industrial Hygiene Office, an initial baseline industrial hygiene survey was performed at the Paris Armory in Paris, Tennessee. Environmental Management Solutions conducted the survey on 28 April 2003. The purpose of the survey was to perform an initial baseline industrial hygiene survey to evaluate potential health hazards present at the armory.

SITE DESCRIPTION

The facility houses the 46th Engineering Battalion Company C, Detachment, with 3 full-time personnel. The one story building contains several administrative offices, two classrooms, a drill hall, kitchen, and Locker Room/converted Indoor Firing Range (IFR). Refer to Building layout in Appendix C.

SCOPE OF WORK

The work included collecting wipe samples for lead, bulk samples for suspect asbestos containing building material, noise readings, illumination levels, and an evaluation of the ventilation system as it pertains to indoor air quality. A list of occupational health programs and procedures were verbally covered with the armory personnel.

METHODOLOGY

Lead wipe samples were collected from surfaces that showed signs of lead contamination in armories that have a renovated, inactive, or closed indoor firing range (IFR), kitchen or mess hall storage areas, indoor drill halls, and storage rooms with weapons vaults. The samples were collected in accordance to instructions published by Region South National Guard Bureau, which required the use of unscented baby wipes to wipe one square foot of surface. Samples were then placed in a sealed plastic bag and sent to an American Industrial Hygiene Associations (AIHA) accredited laboratory for analysis. Asbestos bulk samples and lead paint chips were collected from suspect friable and damaged building material. Each bulk sample was placed in a sealed bag and sent to an AIHA laboratory for analysis. All instruments used for assessment were factory calibrated and calibrated prior to the survey as applicable. Illumination readings were taken on work surfaces and approximately four feet from the floor.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1612 of 2531

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FINDINGS AND DISCUSSION

LEAD WIPE SAMPLES

Eleven wipe samples were collected from the areas supply, drill hall, kitchen, and converted indoor firing range areas as listed in the table below.

SAMPLE NUMBER	SAMPLE LOCATION	MICROGRAMS OF LEAD (µg) PER SQUARE FOOT
PA-01	Drill Hall Floor	BRL
PA-02	Kitchen Island	BRL
PA-03	IFR Bullet Backstop Lower Floor	**3680**
PA-04	IFR Exit Floor	**794**
PA-05	IFR Lid Storage Box	**517**
PA-06	IFR Lid of 5 Gallon Paint Bucket	**277**
PA-07	Entrance IFR Floor	**403**
PA-08	Heating Intake Supply room	**1040**
PA-09	Ducting HVAC System	**354**
PA-10	Intake Administrative Office	**120**
PA-11	Intake 2 Administrative Area	**151**

*Below Reporting Limit

The Army National Guard All States Log Number P01-0075, **Policies and Responsibilities for Inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges (IFR) and Guidelines for IFR Rehabilitation, Conversion, and Cleaning** requires a limit of 200 micrograms per square foot for surface contamination in and around indoor firing ranges. The Environmental Protection Agency standards (40 CFR 745) indicate lead in dust levels above 40 micrograms per square foot on

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1613 of 2531

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bare and carpeted floors is considered dangerous for common areas. Several samples in and around the indoor firing range and in the drill hall were above required limits. Nine of the eleven samples taken were above recommended limits.

ASBESTOS SUSPECT BUILDING MATERIAL

Sampling for asbestos was limited to damaged material or material that could pose a risk. No friable suspect material was found.

NOISE SURVEY

Area noise levels are well within the Army National Guard limit of 85 dBA and the Occupational Safety and Health Administration (OSHA) regulated limit of 90 dBA over an eight-hour period.

AREA	dBA Range
Drill Hall	66.7 to 68.9

ILLUMINATION SURVEY

Lighting levels throughout the armory ranged between 11 foot-candles to 57 foot-candles. Specific readings are listed in the table below.

AREA	AVERAGE FOOT-CANDLES
Drill Hall	20.9
Kitchen	15.2
Locker Room	10.7
Platoon Storage	14.4
Learning Center	26.4
Library	28.9
Classroom	17.5

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1614 of 2531

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Audio Visual Room	28.1
Driving Test Room	13.7
Training	34.05
Classroom 2	57.1
Administration Office	37.2
Recruiter Office	21.4
1st Sgt Office	28.9

These readings are not within the Army Design Guide (DG 415-2) minimum illumination level of 50 foot-candles for office areas and 20 foot-candles for parts storage/supply. The American National Standard Institute/Industrial Engineering Society (ANSI/IES) recommends a minimum illumination of 50 to 100 foot-candles for administrative and kitchen areas, and 20 to 50 foot-candles for storage areas. Luminance of 50 to 100 foot-candles is recommended for performance of visual tasks of medium contrast or small size such as reading, pencil handwriting, and poorly printed, or reproduced material. Depending of the type of display, background luminance of 30 to 60 foot-candles is recommended for VDT work. Some areas had lighting that was burned out.

BUILDING CONDITION

Several areas of the armory have damaged ceiling or floor tiles due to water damage. Water damage could be seen in surfaces above the Driver Test Room, Drill Hall, Storage Room, Library, Learning Center, and Audio & Visual areas. Several HVAC vents were found with dust. The armory is cooled with a central heating, ventilating, and air conditioning (HVAC) system located in the mechanical room near the converted IFR. Personnel did not have any specific complaints about the indoor air quality. The Indoor Firing Range (IFR) was officially converted three years prior. It now serves as a storage area for personnel equipment.

HAZARD COMMUNICATION

Material Safety Data Sheets were available, current, and cross-referenced.

RADIATION PROTECTION PROGRAM

Several pieces of equipment stored at the facility contain radioactive materials. Radiac meters and alarms are among stored equipment. An inventory and designated safety officer are present.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1615 of 2531

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ERGONOMICS

The full time employees in the supply or office areas did not express any ergonomic related injuries or concerns. Many workstations were not set up to provide neutral postures and appropriate ergonomically correct positions. Consideration should be given to providing all full time employees that spend the majority of their working time at a computer terminal ergonomic training or awareness. Such awareness should emphasize the importance of proper posture and set-up of the workstation to fit the user.

PERSONAL PROTECTIVE EQUIPMENT

Normal duties of full time employees at the armory do not require the use of personal protective equipment (PPE).

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1616 of 2531

PARIS ARMORY FRONT VIEW

CONVERTED IFR STORAGE AREA

WATER DAMAGE TO CEILING

PARIS ARMORY CEILING DRIVING TEST ROOM

CONVERTED IFR PICTURE 2

DRILL HALL PARIS ARMORY

WATER DAMAGE ON CEILING ADMIN

OFFICE/STORAGE PARIS

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RECOMMENDATIONS

1) All items that are contaminated with lead should be thoroughly decontaminated with a detergent and water solution. Care should be taken to wipe down tables where weapons are issued and cleaned. Kitchen areas should be thoroughly cleaned on a regular basis and especially before serving personnel.

2) Lead levels in the storage area indicate that methods used to encapsulate surfaces may not have been completely effective, a detailed survey consult The Army National Guard All States Log Number P01-0075, Policies and Responsibilities for Inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges (IFR) and Guidelines for IFR Rehabilitation, Conversion, and Cleaning.

3) Lead results indicate that some areas of the indoor firing range are not completely free from contamination. An indoor firing range should not be used for any purpose other than firing until it has been appropriately cleaned and converted. Consult the Army National Guard All States Log Number P01-0075, Policies and Responsibilities for inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges (IFR) and Guidelines for IFR Rehabilitation, Conversion, and Cleaning on guidelines for cleaning and converting Indoor Firing Range. Decontaminate and remove all items until the range has been properly cleaned and converted.

4) Personnel should be prohibited from eating, drinking, smoking, chewing tobacco or gum, or applying cosmetics in supply areas and should be instructed to clean hands with soap and water before doing any of these. Remove all refrigerators, cups, and other eating utensils from supply areas.

5) Upgrade lighting measurements as required. Lighting can be upgraded in the following ways:

   - Replace blown or broken lighting
   - Paint wall a light color
   - Clean existing light fixtures
   - Rearrange furniture to make better used of available light
   - Provide supplemental or task lighting

6) Develop a maintenance schedule for monitoring, inspecting and cleaning HVAC components such as outside air intakes, outside air dampers, air filters, drain pans, heating and cooling coils, the interiors of air handling units, fan motors ad belts, air

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1621 of 2531

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humidification, controls and cooling towers. The schedule should also ensure that any leaks or standing water are identified, repaired, and prevented. Proper repairs and maintenance of the building infrastructure and interior surfaces can prevent water damage and moisture buildup which may lead to further indoor air quality issues.

7) Any initial water infiltration should be stopped and cleaned immediately. An immediate response (within 24 to 48 hours) and thorough clean up, drying, and/or removal of water damaged materials will prevent or limit mold growth. If the source of water is elevated humidity, relative humidity should be maintained at levels below 60% to inhibit mold growth.31 Emphasis should be on ensuring proper repairs of the building infrastructure, so that water damage and moisture buildup does not recur.

8) Contaminated materials that cannot be cleaned should be removed from the building in a sealed plastic bag. There are no special requirements for the disposal of moldy materials.

9) Complete noise dosimetry and a noise survey on all maintenance equipment and mark equipment and areas as noise hazardous, where appropriate.

10) Material Safety Data Sheets (MSDS) are required to be kept at the primary workplace facility and to be easily accessible in case of emergency. Personnel responsible for these items should receive annual training in the requirements of the Hazardous Communication Program and the appropriate keeping and storage of all MSDS.

11) An ergonomics survey should be completed for all supply and administrative personnel as a preventative measure to document and address any and all ergonomic concerns or problems. Provide ergonomics training and awareness to all employees who spend the majority of their time working at a computer terminal.

TECHNICAL ASSISTANCE

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Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1622 of 2531

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Non-Responsive

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1623 of 2531

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APPENDICES

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APPENDIX A

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1626 of 2531

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- American conference of Governmental Industrial Hygieist (ACGIH), Industrial Ventilation, A Manual of Recommended Practice, 23rd Edition, 1998.American National Standards Institute (ANSI), /Illuminating Engineering Society (IES), Industrial Lighting, 1991.
- Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 1990.
- Army Regulation (AR) 40-5, Preventative Medicine, 15 October 1990.
- Army Regulation (AR) 385-10, The Army Safety Program, 29 Feb 2000.
- NGR 385-10, Army National Guard Safety and Occupational Health Program, 7 October 1988.
- TB MED 503, The Army Industrial Hygiene Program, February 1985.
- Title 29, Code of Federal Regulations (CFR), 1999, revision, Part 1910, Occupational Safety and Health Standards.
- TG 022, US Army Environmental Hygiene Agency (YSAEHA), Industrial Hygiene Evaluation Guide, October 1975.
- TG 141, US Army for Health Promotion and Preventative Medicine (USACHPPM) Industrial Hygiene Air Sampling Guide, November 1997.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1627 of 2531

INSTRUMENTATION:
The following survey instrumentation was provided by the National Guard Bureau and was utilized to obtain noise, illumination or ventilation measurements. All equipment was used according to manufacturer / manual recommendations. All equipment was calibrated prior to and after use

Nomenclature	Model No.	Serial No.
Alnor Thermoanemometer Cal 08/07/02	8565	2800
Metrosonics Sound Level Meter Cal 08/07/02	DB3100	4877
Metrosonics Calibrator Cal 08/07/02	CL304	5630
Sper Scientific Light Meter Cal 01/23/01	840020	025432

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APPENDIX B

Posted to NGB FOIA Reading Room
May, 2018

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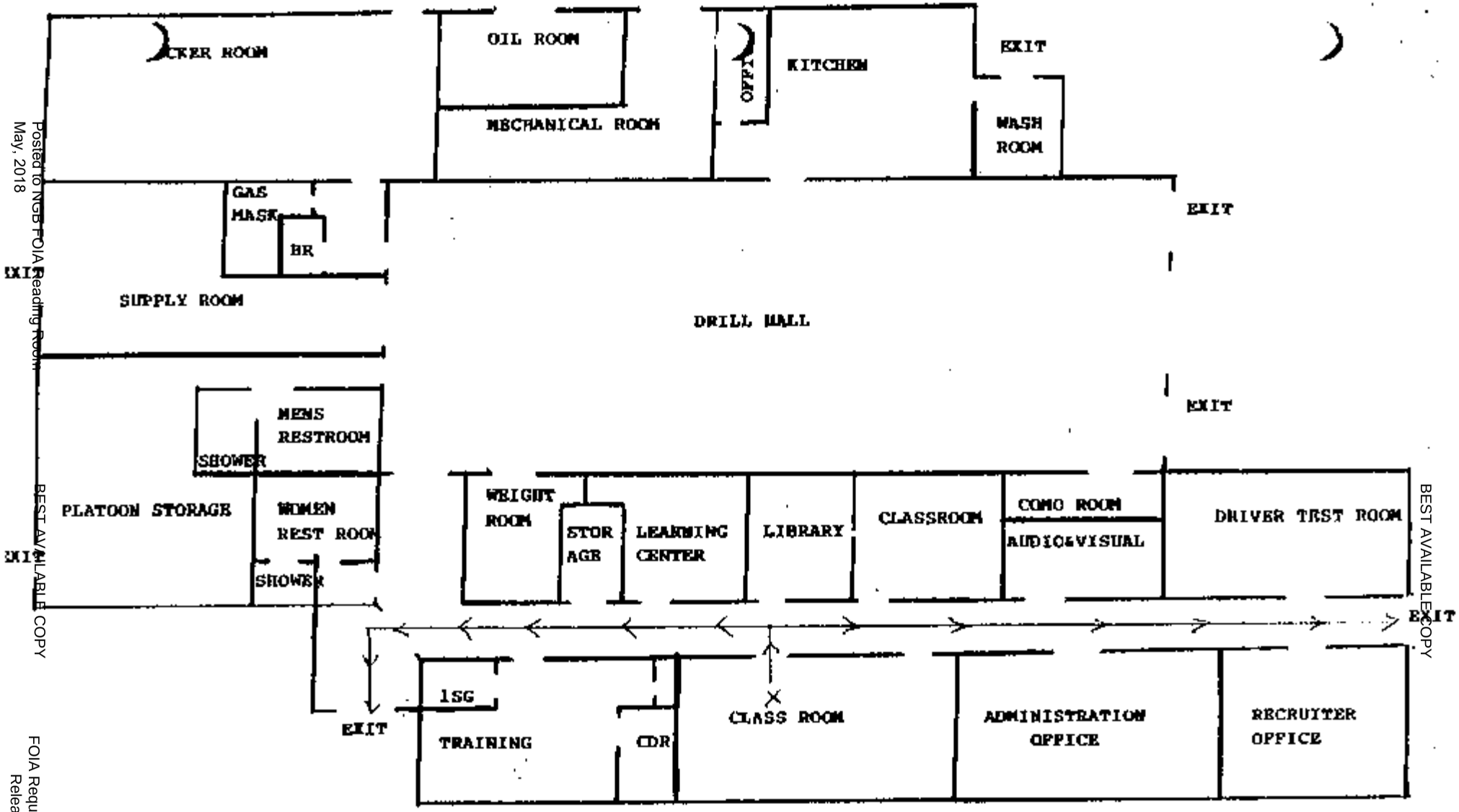
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1629 of 2531

Posted to NGB FOIA Reading Room
May, 2018



EVAC PLAN

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1630 of 2531

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Full time Personnel Paris Armory

C46 Engineering Battalion
285 County Home Road
Paris, TN 38242

Non-Responsive

[redacted]

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APPENDIX C

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May, 2018

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Released by National Guard Bureau
Page 1632 of 2531

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WORKPLACE CHEMICAL LIST

EMPLOYER NAME: TENNESSEE ARMY NATIONAL GUARD

ADDRESS: P.O. BOX 41502, 3041 SIDCO DR.

NASHVILLE, TN 37204-1501

FEDERAL EMPLOYER'S IDENTIFICATION NUMBER: [ ][ ] - [ ][ ][ ][ ][ ][ ][ ]

PRIMARY SIC CODE: 9 7 1 1

SECONDARY SIC CODE: OPTIONAL

TERTIARY SIC CODE: OPTIONAL

NUMBER EMPLOYEES: 0 0 0 3

WORKPLACE LOCATION (Not P.O. Box), IDENTIFICATION (If any), AND COUNTY: OM SHOP # 12A
COUNTY HOME ROAD
PARIS, TENNESSEE 38242
(COUNTY): HENRY

DESCRIPTION OF PROCESS OR OPERATION: ENGINEER COMPANY HVY AND OM SHOP

POC: Non-Responsive [redacted]

CHEMICAL/SUBSTANCE NAME	CHEMICAL ABSTRACTS SERVICES (CAS) NO.	COMMON OR TRADE NAME(S) (LABEL IDENTITY)	WORK AREA WHERE CHEMICAL IS NORMALLY USED OR STORED
CARBON MONOXIDE		CARBON MONOXIDE	WORK BAY INSIDE SHOP
OXYGEN		OXYGEN	WORKBAY INSIDE SHOP
LFURIC ACID		BATTERY ACID	OUTSIDE STORAGE BUILDING
FUEL OIL # 2		DIESEL FUEL	MOTORPOOL AREA
ETHYLENE GLYCOL		ANTIFREEZE	OIL HOUSE IN NOTORPOOL
WELDING FUMES		WELDING FUMES	WORKBAY INSIDE SHOP
SILICONE FULID		BRAKE FULID	OIL HOUSE INSIDE MOTOR POOL
MOTOR OIL		15W40	OIL HOUSR IN MOTORPOOL
HYDRAULIC FULID		FULID TRANSMISSION	OIL HOUSE IN MOTOR POOL
GEAR OIL		85W40	OIL HOUSE IN MOTOR POOL
SOLVENT MS		CLEANING SOL	WORK BAY INSIDE SHOP
CLASS 55 CLEANING COMPOUND		RIPPER I	WORK BAY IN SHOP MOTOR POOL AREA
PAINT		SPRAY PAINT	WORKBAY IN SHOP MOTOR POOL AREA
FLUID ENGINE STARTING		UN1960	WORKBAY IN SHOP MOTORPOOL AREA
ERASE LUBRICANT		GAA	WORKBAY IN SHOP MOTORPOOL AREA

* May be obtained by calling (615) 741-6384.

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1633 of 2531

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ANNUAL RADIOACTIVE COMMODITIES INVENTORY

WORKPLACE/UNIT NAME: OM SHOP # 12A

STREET ADDRESS: 285 COUNTY HOME ROAD

CITY, STATE, ZIP CODE: PARIS, TENNESSEE 38242

LOCAL POC (NAME & #): Non-Responsive

DATE PREPARED: 19 MAR 98

ITEM	NSN	SERIAL #	QUANTITY
DETECTR UNIT	6665-01-081-8140	Z03D34591	1
" "	"	Z03D34591	1
" "	"	Z03D37108	1
" "	"	Z03D25484	1

Reference: TARNGR 385-11

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May, 2018

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Released by National Guard Bureau
Page 1635 of 2531

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HHIMS INDUSTRIAL HYGIENE SURVEY FORM

ARLOC: 22000
Installation: Paris Armory, TN
Building Number:
Room Number:

Location: SC
Operation: STG
Survey Date: Year 03 Month 04 Day 28
MACOM: MG
Sub-MACOM:
RAC:
Unit/Organization: C46th EN BN

Supervisor: [redacted]
Supervisor or Point of Contact Telephone Number: [redacted]
DSN:
Comm/Cl: X
Cy (hrs/day): 008
No. CIVs: 03
No. MIL: 00
Contractors: 00
No. LOCs: 00

Lab Hoods: 00
Vapor Degreasers: 00
Open Surface Tanks: 00
Ventilation Units: 00

Controls present (if >6, continue in comments)[25]	Evaluation [25 char max per line]	Unit Code	Controls Required [25 char max per line]
OTH- Storage - IFR	3680	µg	200 Micrograms per sq ft
OTH- Kitchen	15.2	FTC	50-100 FTC
Platoon Storage	14.2	FTC	20-50 FTC

Glove	e*	R	U
acid			
cold surfaces			
hot surfaces			
NBC agents			
oil			
solvents			
surgical gloves			
leather/cotton			
other			

Respirator	e*	R	U
airline			
abrasive blasting hood			
disposable			
full face air purifying			
1/2 face air purifying			
powered air purifying			
1/4 face air purifying			
self-contained			
other			

Manufacturer's Description [10 char max]	NIOSH TC# or foreign equiv. [10 char max]

Eyes and Face	e*	R	U
chemical splash			
full face shield			
chem/safety impact			
safety impact			
welding helmet			
sunglasses			
welding goggles/glasses			
laser eye protection			
other			

Hearing	e*	R	U
canal caps			
(>85-108dBA steady) earplugs			
helmets w/muffs			
muffs alone			
(108-118) muff/earplug comb			
muffs and earplugs			
(118 or >) with time limit			
other			
other			

Body	e*	R	U
aprons			
cold weather clothing			
coveralls			
full body suit			
heat reflective vest/suit			
safety belt/harness			
special purpose clothing			
other BDUs		1	1
other			

Head and Feet	e*	R	U
cold weather boots/hat			
hard hats			
impermeable boots			
safety shoes (conductive)			
safety shoes (nonconductive)			
other			
other			
other			
other			

e* = evaluator's recommendation or agreement

Reminders: ergonomics - dermatitis - physical agents - flammable storage
EYE (permanent) ____ - EYE (portable) ____ - SHW - GMV - LEV

ACO ADM DSA DSN LAB LCK
RAD ECB EPL RHS SPR WEL

MEDDAC (FT MEADE) 1 MAY 95 FORM 609-R

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Page 1636 of 2531

Posted to NGB FOIA Reading Room
May, 2018

CAS Code		PAC	EPC	Hazard Description
PONOISECO	7439-92-1	2	4	Lead Dust
POFOOTHAZ	POLIGHTIN	3	4	Inadequate Lighting
POFLYPROJ				
POEYEHAZA				
POFLAMHAZ				
POLIFTING				
POSHARPOB				
POHOTOBJE				
POELSHOCK				
COLUBEOIL				

Social Security Number or Other Unique Identifier	Last Name		MI	Sex	Category
	Non-Responsive [redacted]	Non-Responsive [redacted]		M	C1
				M	C1
				M	C1

☐ Personnel data provided by the facility is attached to this form

Comments **Remember to comment on problems, recommendations, and needed control items**

Operation described is

Converted IFR - used for storage of unit equipment

(Comments continued on attached sheet)

☐ This operation was explained to the evaluators, but was not actually observed.

☐ There is a noise data sheet attached to this form

☐ There is a ventilation data sheet attached to this form

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Page 1637 of 2531
Posted to NGB FOIA Reading Room
May, 2018

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NOISE SURVEY
(Sound Level Meter Survey)

DATE (Year Month Day): 013 014 28

TYPE SURVEY: [X] 1-INITIAL SURVEY 2-RE-SURVEY 3-OTHER

SOUND LEVEL METER		MICROPHONE		CALIBRATOR	
MANUFACTURER: Metrosonics		MANUFACTURER: Metrosonics		MANUFACTURER: Metrosonics	
MODEL: DB300	SERIAL NO: 4877	MODEL:	SERIAL NO:	MODEL: CL304	SERIAL NO: 5630
LAST ELECTROACOUSTIC CALIB. DATE (year month day): 02 08 07		LAST ELECTROACOUSTIC CALIB DATE (year month day):		LAST ELECTROACOUSTIC CALIB DATE (year month day): 02 08 07	

WIND SCREEN: [X] USED [ ] NOT USED

MEASUREMENTS OBTAINED: [X] INDOORS [ ] OUTDOORS

DESCRIPTION OF AREAS/DUTIES WHERE NOISE SURVEY CONDUCTED (Illustrate on additional sheet and attach to form)

Drill Hall - Reserve unit performs minimal maintenance and cleaning during drill weekend

PRIMARY SOURCE OF NOISE: Lights (Warming)

SECONDARY SOURCE OF NOISE:

SOUND LEVEL DATA

LOCATION	METER ACTION	dBC	dBA	RISK ASSESSMENT CODE	PROTECTION REQUIRED (re: dBA Level) NONE less than 85	PLUG OR MUFF 85–108	PLUG AND MUFF 108–118	PLUG + MUFF + TIME LIMIT greater than 118
Paris, TN - Armory	Slow		66.7 / 68.9		✓			

NOTES: Range of levels noted by /: i.e., 102/109. At operator work stations, measure at ear level.
METER ACTION: Enter F for fast meter action and S for slow meter action.

REMARKS (i.e., Area and equipment posted, hearing protection in use, etc.)

MORE DETAILED NOISE EVALUATION REQUIRED: [ ] YES [X] NO (If "YES", identify type evaluation needed.)

NAME(S) OF PERSONS IDENTIFIED FOR AUDIOMETRIC MONITORING (Use additional sheet if more space is needed and attach to form)

Non-Responsive

[redacted]

RATION

ITOR (Last Name, First Name, MI)

DD FORM 1 SEP 78 2214

1

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Page 1638 of 2531

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030543

Industrial Hygiene Surface Wipe Sample Sheet

Return Address: Environmental Management Solutions
247 Mary Lane
Dallas, GA 30157

Non-Responsive

Sampled Facility: Paris Armory
City: Paris
Description of Operation: Tenn Army National Guard
Date Collected: 4/23/03
Date Shipped: 5/5/03
Analysis Desired: Lead
Sampling Date:

Lab Use Only	Sample #	Results	Remarks
	PA-01		Drill Hall Floor
	PA-02		Kitchen Island
	PA-03		IFR Bulk + Bucket Lower Floor
	PA-04		IFR Exit Floor
	PA-05		IFR Lid - Storage Box
	PA-06		IFR Lid of Gallon Paint Bucket
	PA-07		Entrance IFR Floor
	PA-08		Heating Intake Equipment Room
	PA-09		Heating HVAC - System
	PA-10		Intake Admin Off
	PA-11		Intake 2 Admin

Comments to Lab:

Arnold Harris
5/6/03
8:10

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Analytical Environmental Servs, Inc.

Date: 5/12/2003

TOTAL LEAD IN WIPE SAMPLES
N7082

CLIENT:	Environmental Management Solutions	Lab Order:	0305143
Project:	Paris Armory	Date Received:	5/6/2003 8:10:00
Project No:	Paris Armory	Matrix:	Wipe
PO No: -		Analyst:	LIK

Laboratory ID	Client Sample ID	Results	Units	MDL	DF	Date Collected	Date Analyzed
0305143-001A	PA-01	BRL	µg, Total	2.83	1	4/28/2003	5/8/2003
0305143-002A	PA-02	BRL	µg, Total	2.83	1	4/28/2003	5/8/2003
0305143-003A	PA-03	3680	µg, Total	8.14	2.91	4/28/2003	5/8/2003
0305143-004A	PA-04	794	µg, Total	2.83	1	4/28/2003	5/8/2003
0305143-005A	PA-05	517	µg, Total	2.83	1	4/28/2003	5/8/2003
0305143-006A	PA-06	277	µg, Total	2.83	1	4/28/2003	5/8/2003
0305143-007A	PA-07	403	µg, Total	2.83	1	4/28/2003	5/8/2003
0305143-008A	PA-08	1040	µg, Total	2.83	1	4/28/2003	5/8/2003
0305143-009A	PA-09	354	µg, Total	2.83	1	4/28/2003	5/8/2003
0305143-010A	PA-10	120	µg, Total	2.83	1	4/28/2003	5/8/2003
0305143-011A	PA-11	151	µg, Total	2.83	1	4/28/2003	5/8/2003

Qualifiers: MDL - Method Detection Limit DF - Dilution Factor
ND - Not Detected at the Reporting Limit

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1640 of 2531

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NATIONAL GUARD REGION SOUTH
INDUSTRIAL HYGIENE OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

NGB-ARS-IHSE (40-5f)

January 12, 2010

MEMORANDUM FOR The Adjutant General of Tennessee, ATTN: Non-Responsive TN Army National Guard Armory Paris, Armory, 285 County Home Road, Paris, TN 38242

THRU Non-Responsive, Deputy State Surgeon, Tennessee National Guard, HQS, AGTN-DCSPER-DSS, P.O. Box 41502, Houston Barracks, Nashville, Tennessee 37204-1501.

SUBJECT: Transmittal of IH Survey of TN ARNG Paris Armory, Paris, TN.

1. References.

   a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 19 August 1998.

   b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1996 rev.

   c. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 25 May 2007

   d. AR 385-10, The Army Safety Program, 23 August 2007.

   e. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.

   f. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, 23 May 2008.

   g. TB MED 503, The Army Industrial Hygiene Program, 30 October 2000.

   h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2008, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

   i. Industrial Ventilation, 26th rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

   j. Title 29, Code of Federal Regulations (CFR), 2001 rev., part 1910, Occupational Safety and Health Standards.

   k. Reports of Paris Armory Industrial Hygiene Survey, Non-Responsive Fayetteville, GA.

2. General.

   a. At the request of Non-Responsive, of the Tennessee National Occupational Health Office, an Industrial Hygiene Survey was put together to conduct Health Hazard

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Information module (HHIM) Field survey of the s and industrial hygiene sampling of the TN ARNG Paris Armory, Paris, TN.

b. The survey was conducted by Non-Responsive
Fayetteville, GA 30214

3. Findings: The information that follows is based on the findings of the survey performed. All HHIM field survey forms, industrial hygiene sampling and survey findings of the report are enclosed (See ENCL 1). Operations of very short duration were not sampled due to the requirements of the sampling method. If the operation changes or if the length of the operation is increased, contact this office to schedule sampling if it is deemed needed then.

4. Recommendations. Understand that all findings documented in the enclosed report have been reviewed by the Regional Industrial Hygienist and the following recommendations are the ones to be followed.

a. Use the guidance given in the enclosed report as good IH practices, requesting industrial hygiene (IH) services where needed. The recommendations that follow are based on the survey findings as reported for the areas surveyed:

i Ensure personnel using computers for extended periods of time take occasional breaks and change position to minimize the possibility of eyes and/or hands/wrist injury. (RAC 2)

ii Continue to ensure that weapon maintenance and cleaning is done in a well-ventilated area. Continue to practice good personal hygiene by washing hands after handling and cleaning weapons and ammunition. Ensure that the weapons racks are well cleaned before placing them back in the vault. Also, consider the use of disposable plastic table cloth to cover the tables while the weapons are cleaned to prevent contamination of the tables. (RAC 2)

iii Place the MSDS book at a visible location in an easy to access area of the armory. Ensure that personnel and troops have knowledge of the location of the MSDS book, and are take the hazardous materials safety training. Also a Hazardous Materials Inventory List should be made from the MSDS forms and be placed in the POL storage. (RAC 3)

b. The recommendations given in the comments section of the HHIM data sheets and data collected will serve as an update of the baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY2009. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY2010 IHIP.

c. Have all HHIM data entered into the HHIM computer module.

d. Use the report to help in correcting all deficiencies noted.

e. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present visits, especially if this will help eliminate health hazards and reduce medical surveillance cost.

f. Contact the State Occupational Health Office for any medical Surveillance that may be needed.

g. To execute your responsibilities in correcting all deficiencies, coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed about the industrial hygiene survey or air sample

Non-Responsive

[redacted]

CF:
Non-Responsive [redacted] ennessee State Safety and Occupational Health Manager, 3041 Sidco Drive, 1504
[redacted] RN, Occupational Health Nurse, Tennessee State Safety and Occupational Health Office, Smyrna, TN 37167

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FINAL REPORT

FOR

BASELINE INDUSTRIAL HYGIENE SURVEY

TENNESSEE ARMY NATIONAL GUARD

PARIS ARMORY

PARIS, TN

DATE:

NOVEMBER 18, 2009

PREPARED BY

Non-Responsive

[redacted]

Posted to NGB FOIA Reading Room
May, 2018

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CONTENTS

1.0 INTRODUCTION

2.0 INSTRUMENTATION

3.0 FINDINGS

4.0 REFERENCES

Attachment 1 HHIM Forms

Attachment 2 Laboratory Reports: Weapons Vault, Kitchen Drill Hall

Attachment 3 Weapons Vault and Drill Hall Sampling Areas

Attachment 4 Photographs of the Facility

Attachment 5 Schematic Drawing of Facility

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1.0 INTRODUCTION

At the request of the National Guard Bureau South Region Industrial Hygiene Office, Non-Responsive [redacted] performed a Baseline Industrial Hygiene Survey at the TN ARNG Paris Armory. The purpose of the survey was to perform a baseline survey to evaluate health hazards, controls present in the work site, collect lead swipe samples from renovated/inactive or closed Indoor Firing Ranges, Weapons Vault, A/C-Heating System, illumination survey and to make recommendations regarding health hazards associated with the work at the Paris Armory.

The facility was built in 1989. Personnel reported that a major remodeling job was been done at the time of the survey. The facility houses the 212th Engineer Company. The armory is used by the troops of the above mentioned unit for their monthly weekend drills.

The 212th Engineer Company with about160 had two full time AGR personnel at the time of the survey. The AGR employees are assigned to perform administrative duties Monday-Friday 8:00am-4:30pm. The facility houses administrative areas, a drill hall, classrooms, a supply room, a weapons vault, a kitchen, and a deactivated Indoor Firing Range. The remodeling work that is been done at the facility involved the installation of new A/C-Heating units, conduits, wiring and A/C-Heating outlets. It also included replacement of the ceiling tiles in the offices and classrooms. Also new light fixtures were already installed at the time of the survey. The ceiling tiles had not been installed at the time of the survey. They would be installed after the last inspection of the job was performed. A schematic drawing of the facility can be found in Attachment 5.

The facility was visually examined and personnel consulted to assess potential hazards present. Health Hazard Information Modules were completed. Illumination survey was performed throughout the facility.

2.0 INSTRUMENTATION/CALIBRATION

The following instrumentation was used to obtain light measurements. The instrument used has been calibrated and was operated according to the manufacturer's recommendations:

- SPER SCIENTIFIC Light Meter
- GHOST WIPES, Lead Wipes

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3.0 FINDINGS

Illumination

Illumination levels were recorded in administration offices, classrooms, the conference room, the kitchen, the drill hall and the supply room. Light measurements were within IES minimum standards throughout the facility. The installation of new light fixtures has contributed to the good lighting found throughout the facility. See Light Readings Table at the end of this section.

Administration

Personnel perform administrative duties that consist of reading, handling and generating paper work. Computer use comprises a large portion of the working day, four to five hours per day. This continuous use of computers can in the long run lead to eyestrain and hand/wrist soreness. One personnel reported that he has had health problems with his feet. He has been treated and has gone through therapy which has helped him get better.

Motor Pool

The motor pool is located behind the building. It consists of trucks and Humvees. It is fenced and locked. Operator level PMCS are performed at the armory on weekend drills with road testing. When major repairs are needed the vehicles are taken to the maintenance shop facility located behind the Armory.

Drill Hall

The Drill Hall is located towards the rear of the building. It is used primarily for formation on weekend drills. Two new heaters, located at the roof were recently installed in the Drill Hall. The Drill Hall is used to clean weapons about three times a year according to personnel. There are air exhaust ventilation fans, located at the roof of the room. At the time of the survey both air exhaust ventilation fans were working. There are two louvers located at the opposite side of the air exhaust fans. One of the louvers did no open when the fans were turned on the day of the survey. Personnel reported that the weapons are cleaned on tables at the Drill Hall in an area close to the roll-up door which is raised when weapons are cleaned. A table is placed outside the DH with CLP. The troops use brushes to start the process then use rags on tables inside to wipe and finish. The tables are not covered. The used rags are collected and placed in bags by the supply Sgt. who turns them to the maintenance shop for disposal. When weapons are used in the field, the rags and CLP are taken there to use afterwards. They do not rent the Drill Hall for outside activities. Five wipe samples were taken in the Drill Hall, three of them on the floor in the area where weapons are cleaned and on top of ice machine and the water cooler. All samples were below the clearance level of 200 ug/ft2. See table below for results.

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- National Safety Council, Fundamentals of Industrial Hygiene, 4th edition, 1996.
- AR 385-16, National Guard Pamphlet, Safety Guidelines for Converting Indoor Firing Ranges to Other uses.
- TB MED 503, The Army Industrial Hygiene Program, February 1985.
- Department of the Army Pamphlet (DA PAM) 40-501,27 August 1991, Hearing Conservation.
- Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.

Non-Responsive

[redacted]

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RECOMMENDATIONS

- Recommend that when using computers for extended periods of time, personnel should take occasional breaks and change position to minimize the possibility of eyes and/or hands/wrist injury.

- Continue to ensure that weapon maintenance and cleaning is done in a well-ventilated area. Continue to practice good personal hygiene by washing hands after handling and cleaning weapons and ammunition. Ensure that the weapons racks are well cleaned before placing them back in the vault.

- Recommend the use of disposable plastic table cloth to cover the tables while the weapons are cleaned to prevent contamination of the tables.

- Recommend that A/C filters should be change regularly according to manufacturers' recommendation).

- Recommend that Hazardous Materials Inventory Lists should be made from the MSDS forms of the chemicals used in the armory and be kept in the Supply room for reference.

- Ensure that personnel and troops have knowledge of the location of the MSDS book. And is enrolled hazardous materials safety training.

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SECTION 1. DEMOGRAPHIC DATA

a. ARLOC 47000 b. INSTALLATION Paris, TN Armory c. BLDG/RM NUMBER Orderly Room

d. LOCATION/CODE [redacted], TN e. OPERATION/CODE ADO f. DESCRIPTION Training NCO, Admin work,

g. MACOM/CODE NG / [redacted] DE / [redacted] i. SUPERVIS [redacted]

j. TELEPHONE/AUTOVON NUMBER [redacted] . RAC [redacted] l. FREQUENCY (H [redacted]

m. NO CIV(S) [redacted] n. NO MIL [redacted] o. NO CONTRACTOR(S) [redacted] p. NO LOC(S) [redacted] q. NO OTHER [redacted]

SECTION 2. IH STAFFING DATA

a. LAB HOODS [redacted] b. VAPOR DEGREASERS [redacted] c. MAINTENANCE BAYS [redacted] d. SPRAY BOOTHS [redacted]

e. OPEN SURFACE TANKS [redacted] f. VENTILATION UNITS [redacted]

SECTION 3. SURVEY DATA

a. SURVEY DATE 11-18-09 b. EVALUATOR (INITI [redacted]

c. CONTROLS PRESENT	d. EVALUATION	e. UNIT CODE	f. CONTROLS REQUIRED	g. STATUS
Lighting	75-187; Adj 107	FC	50-100	Adjust.

h. PERSONAL PROTECTIVE EQUIPMENT (R=REQUIRED; A=AVAILABLE)

1. RESPIRATOR	MANUFACTURER	NIOSH TC NO	R/A
DISPOSABLE			
FACE AIR PURIFYING			
FACE AIR PURIFYING			
FULL FACE AIR PURIFYING			
POWERED AIR PURIFYING			
AIRLINE			
SELF-CONTAINED			
ABRASIVE BLASTING HOOD			

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	R/A
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	
OIL	/	SAFETY/IMPACT	/	EARPLUGS	/	COVERALLS	/	IMPERMEABLE BOOTS	
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/ HARNESS	/	SAFETY/NONCONDUCTIVE SHOES	
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/								

SECTION 4. HAZARD INVENTORY DATA

a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC or EPC	d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO)
POVDT	eyestrain. Computer work for long periods of time	3	

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SECTION 1. DEMOGRAPHIC DATA

a. ARLOC _____ b. INSTALLATION Paris, TN Armory c. BLDG/RM NUMBER Supply Room

d. LOCATION/CODE 15* e. OPERATION/CODE ADO, SAH f. DESCRIPTION Supply Sgt., Property Book Manager, State commanders friend.

g. MACOM/CODE NG / [redacted] DE / i. SUPERVISO[redacted]

j. TELEPHONE/AUTOVON NUMBER [redacted] RAC _____ l. FREQUENCY (Hz [redacted]

m. NO CIV(S) _____ n. NO MIL _____ o. NO CONTRACTOR(S) _____ p. NO LOC(S) _____ q. NO OTHER _____

SECTION 2. IH STAFFING DATA

a. LAB HOODS _____ b. VAPOR DEGREASERS _____ c. MAINTENANCE BAYS _____ d. SPRAY BOOTHS _____

e. OPEN SURFACE TANKS _____ f. VENTILATION UNITS _____

SECTION 3. SURVEY DATA

a. SURVEY DATE 11-18-09 b. EVALUATOR (INITIALS [redacted]

c. CONTROLS PRESENT	d. EVALUATION	e. UNIT CODE	f. CONTROLS REQUIRED	g. STATUS
~~Lighting [illegible]~~				
Lighting [illegible]				
" Storage	20-38; Aug 25	FC	20	adequate

h. PERSONAL PROTECTIVE EQUIPMENT (R=REQUIRED; A=AVAILABLE)

1. RESPIRATOR	MANUFACTURER	NIOSH TC NO	R/A
DISPOSABLE			
¼ FACE AIR PURIFYING			/
½ FACE AIR PURIFYING			/
FULL FACE AIR PURIFYING			/
POWERED AIR PURIFYING			/
AIRLINE			/
SELF-CONTAINED			/
ABRASIVE BLASTING HOOD			/

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	R/A
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	
OIL	/	SAFETY/IMPACT	/	EARPLUGS	/	COVERALLS	/	IMPERMEABLE BOOTS	
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/ HARNESS	/	SAFETY/NONCONDUCTIVE SHOES	
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/								

SECTION 4. HAZARD INVENTORY DATA

a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC or EPC	d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO)
POVDT	Eye/hand strain computer work for long periods of time	3	
PO Lifting	Heavy lifting	3	
FOOT HAZ	Falling objects	3	

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Analytical Environmental Services, Inc.

Date: 12/3/2009

LEAD ON WIPES (N9100/7082)
N7082

CLIENT: Non-Responsive
Project: Paris, TN Armory
Delivery Order:
PO No:

Lab Order: 0911J01
Date Received: 11/23/2009 2:45 PM
Matrix: Wipe

Laboratory ID	Client Sample ID	Results	Units	Report Limit.	DF	Date Collected	Date Analyzed	Analyst
0911J01-001A	33	86	ug, Total	20	1	11/18/2009	11/27/2009	MAW
0911J01-002A	34	31	ug, Total	20	1	11/18/2009	11/27/2009	MAW
0911J01-003A	35	178	ug, Total	20	1	11/18/2009	11/27/2009	MAW
0911J01-004A	36	59	ug, Total	20	1	11/18/2009	11/27/2009	MAW
0911J01-005A	37	125	ug, Total	20	1	11/18/2009	11/27/2009	MAW
0911J01-006A	38	BRL	ug, Total	20	1	11/18/2009	11/27/2009	MAW
0911J01-007A	39	BRL	ug, Total	20	1	11/18/2009	11/27/2009	MAW
0911J01-008A	40	BRL	ug, Total	20	1	11/18/2009	11/27/2009	MAW
0911J01-009A	41	BRL	ug, Total	20	1	11/18/2009	11/27/2009	MAW
0911J01-010A	42	BRL	ug, Total	20	1	11/18/2009	11/27/2009	MAW
0911J01-011A	43	BRL	ug, Total	20	1	11/18/2009	11/27/2009	MAW
0911J01-012A	44	BRL	ug, Total	20	1	11/18/2009	11/27/2009	MAW
0911J01-013A	45	BRL	ug, Total	20	1	11/18/2009	11/27/2009	MAW
0911J01-014A	46	BRL	ug, Total	20	1	11/18/2009	11/27/2009	MAW

Qualifiers: BRL - Not Detected at the Reporting Limit DF - Dilution Factor

Results are blank corrected where applicable

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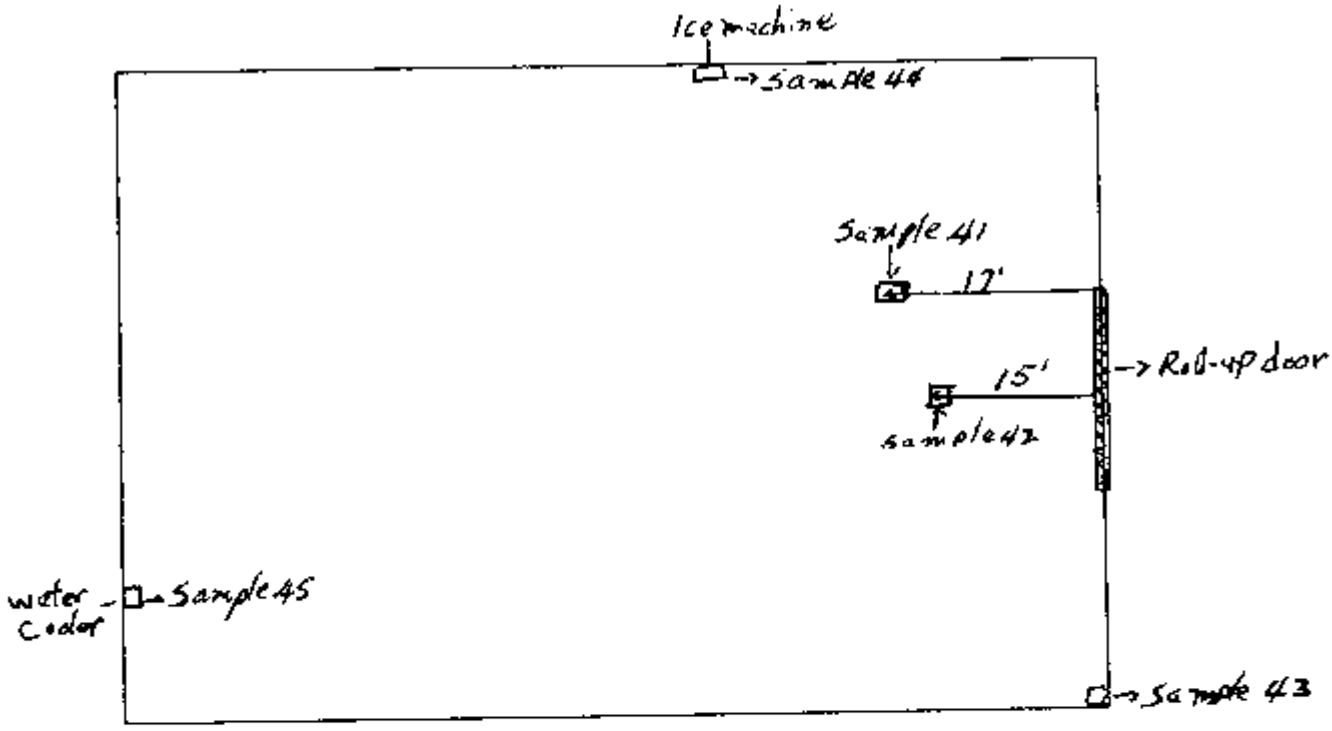
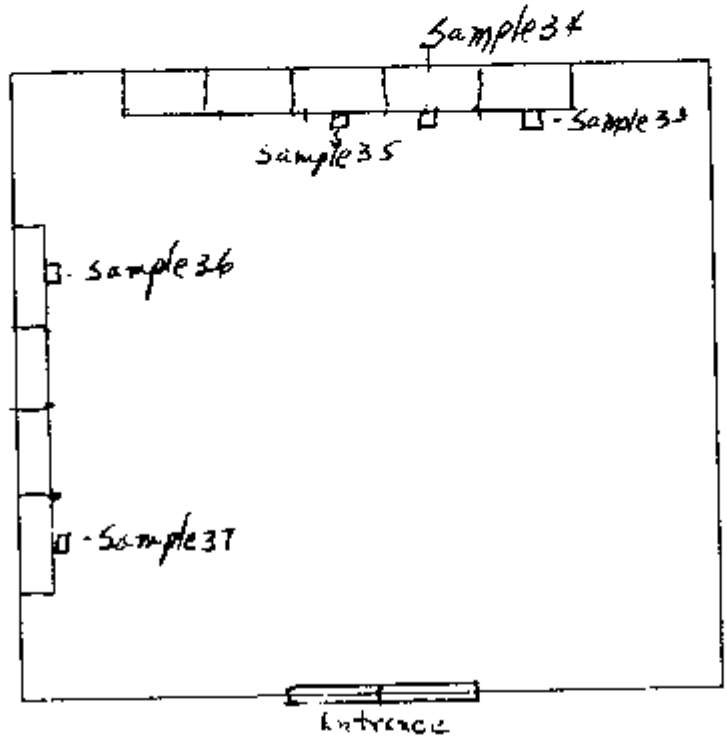
Page 1652 of 2531



Converted IFR Sampling Areas



Weapons Vault Sampling Areas

Paris, TN Armory

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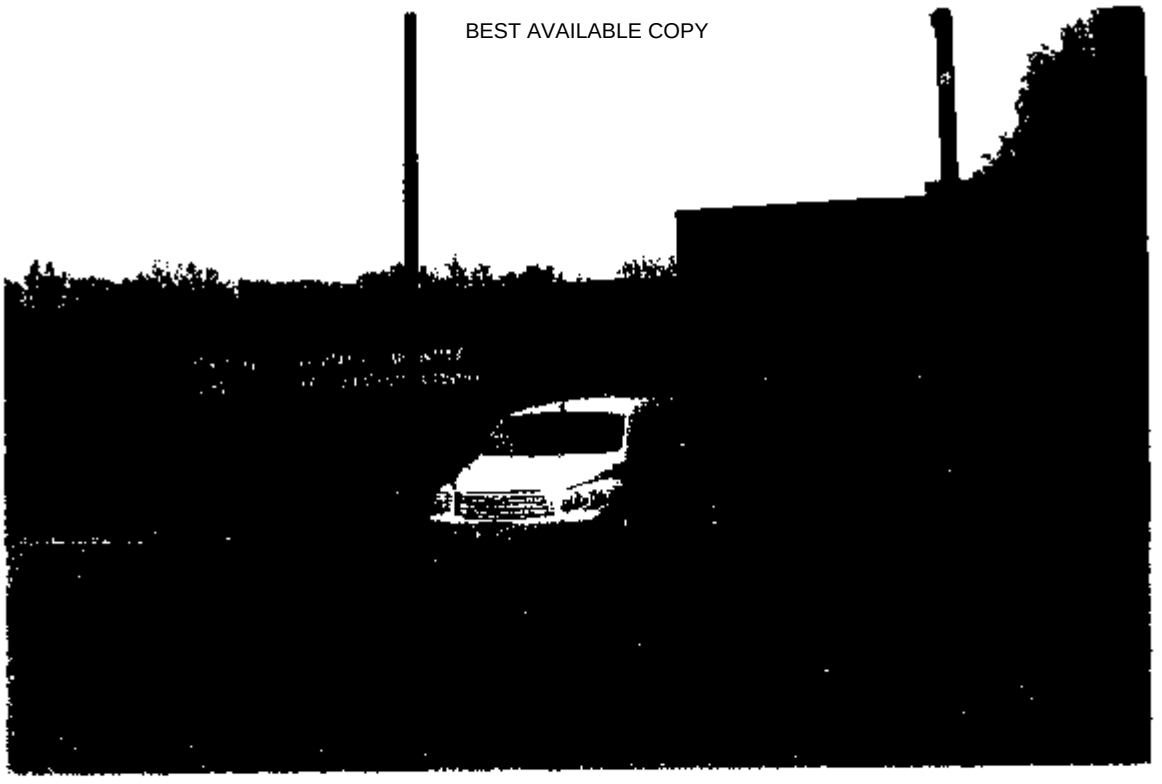
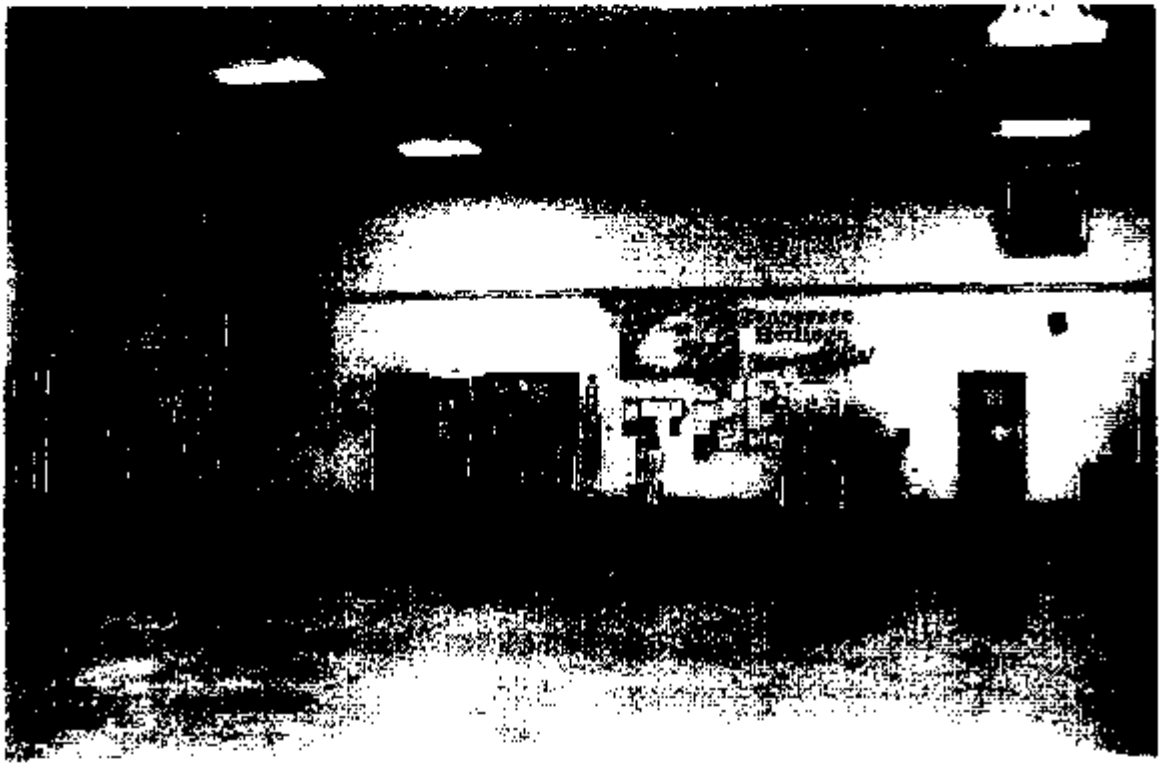


PARIS, TN ARMORY

DRILL HALL, AIR EXHAUST FANS



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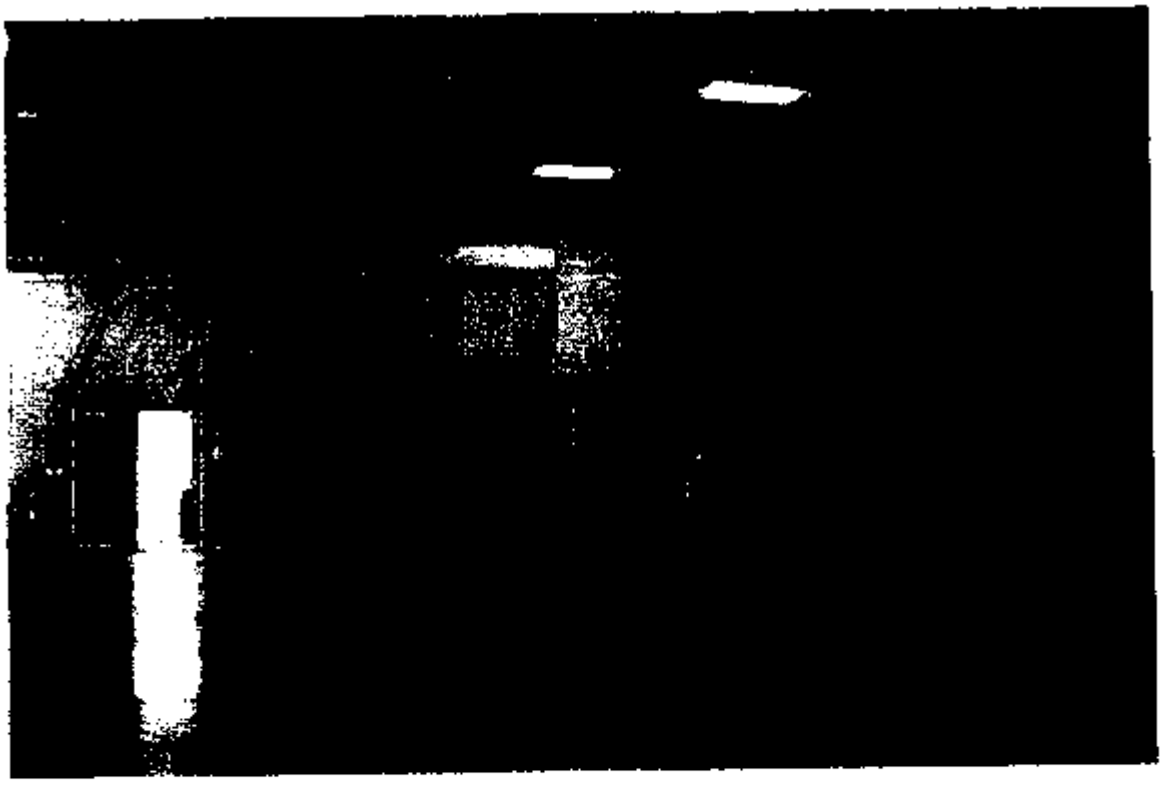
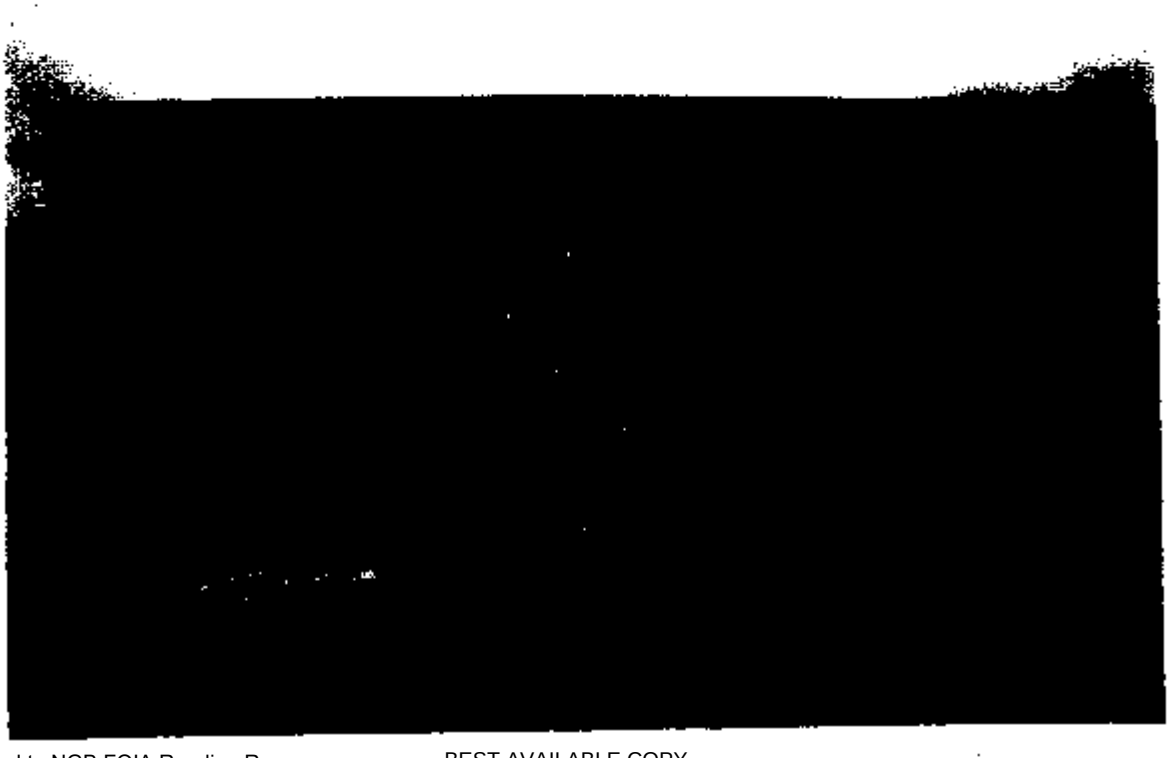


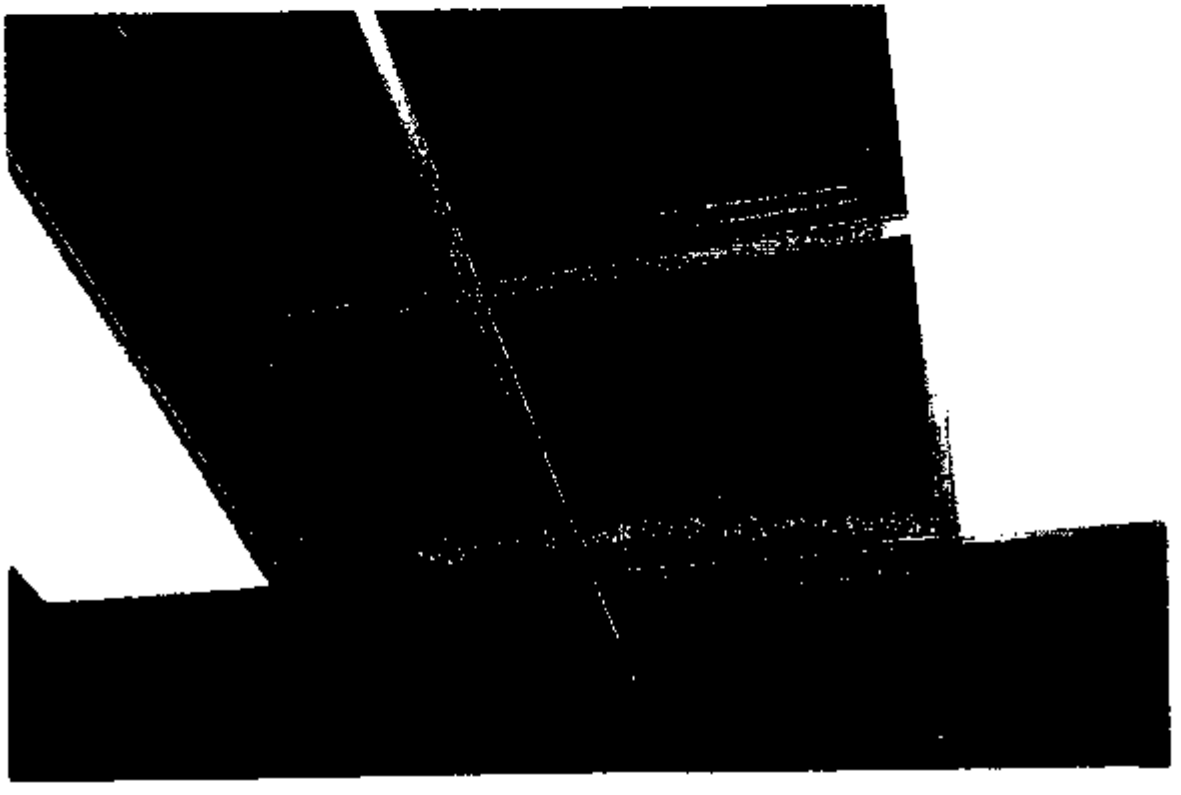
DRILL HALL, SAMPLING AREA, AIR INTAKE GRILLS

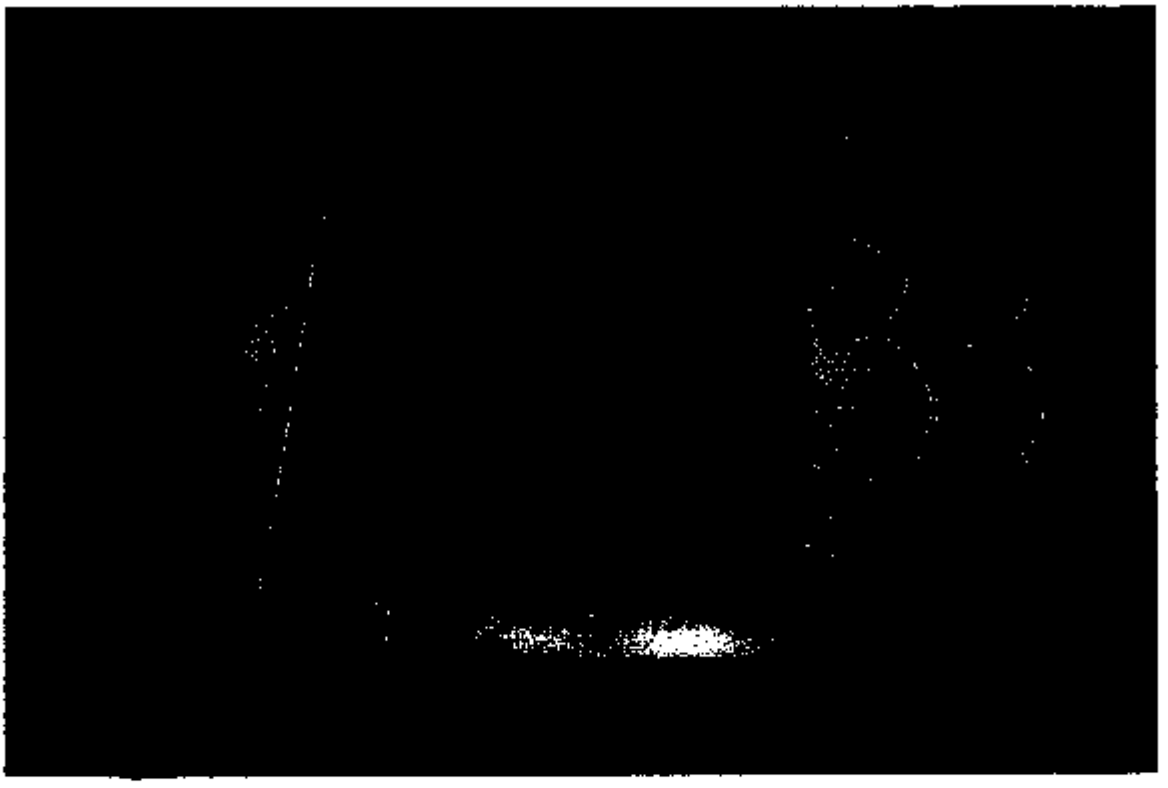
HAZARDOUS MATERIALS SHED, NEXT TO FIELD MAINTNANCE SHOP



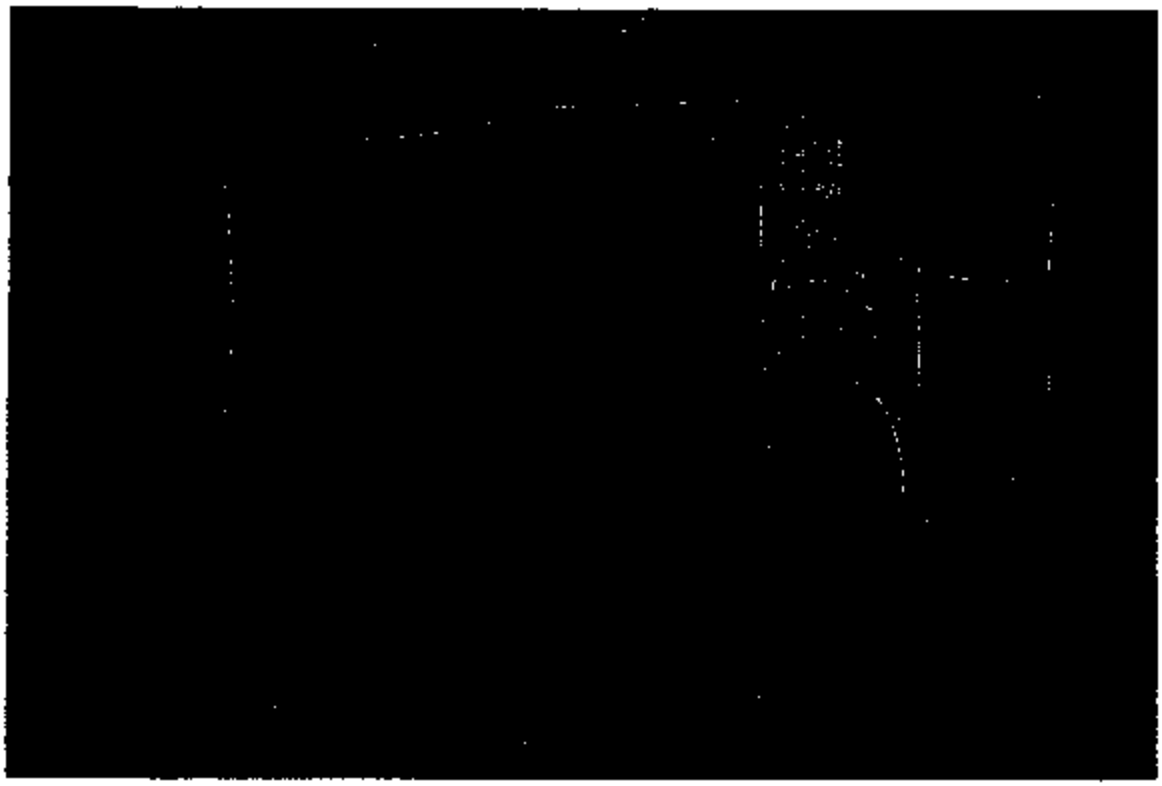
NEW A/C-HEATING
OUTLET

CEILING TILES, YET
TO BE INSTALLED

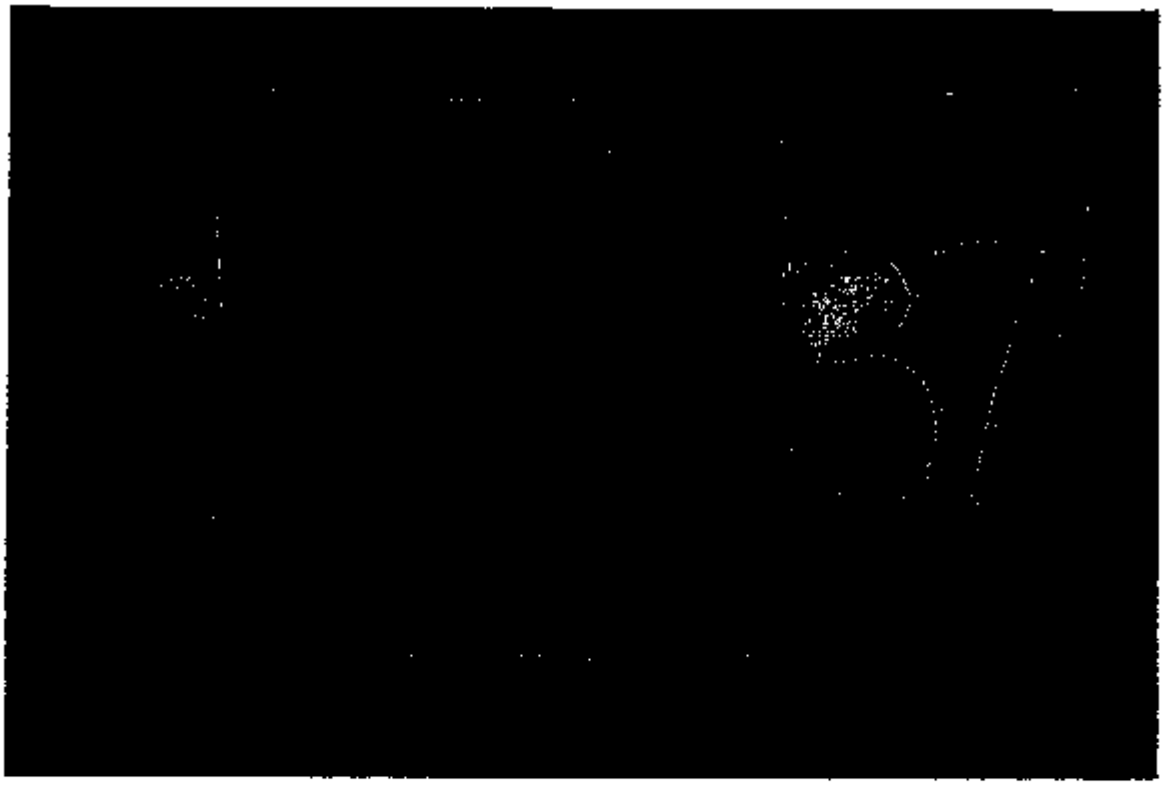




WEAPONS VAULT,
SAMPLES 33 & 34

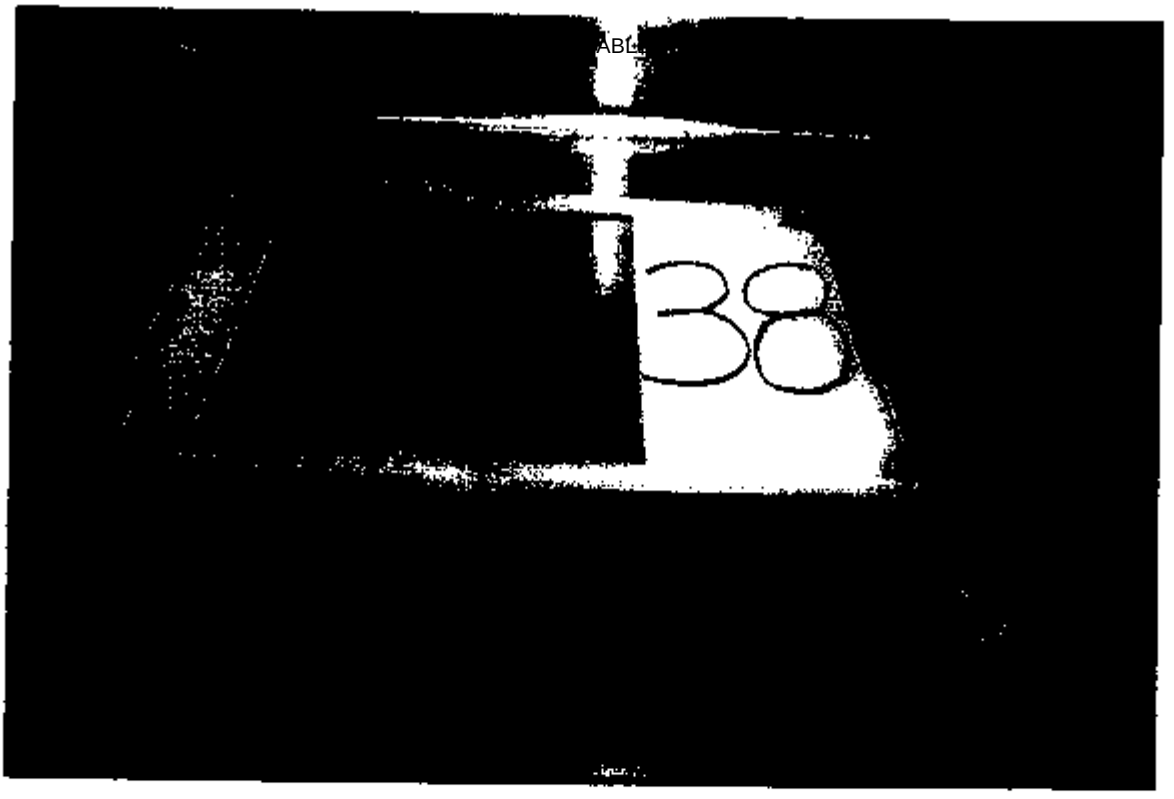


WEAPONS VAULT,
SAMPLES 35 & 36

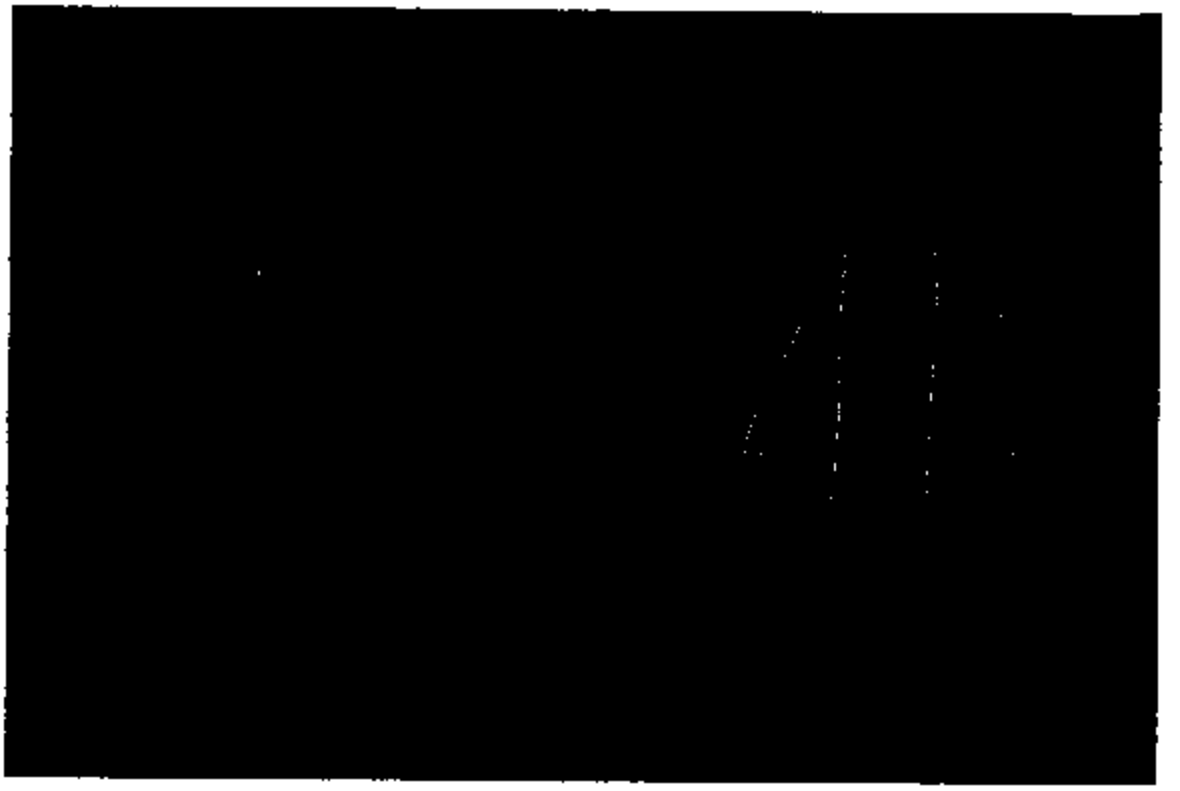


**WEAPONS VAULT,
SAMPLE 37**

MOTOR POOL



KITCHEN, SAMPLES
38 & 39



DRILL HALL,
SAMPLES 41 & 43

DRILL HALL,
SAMPLES 44 & 45

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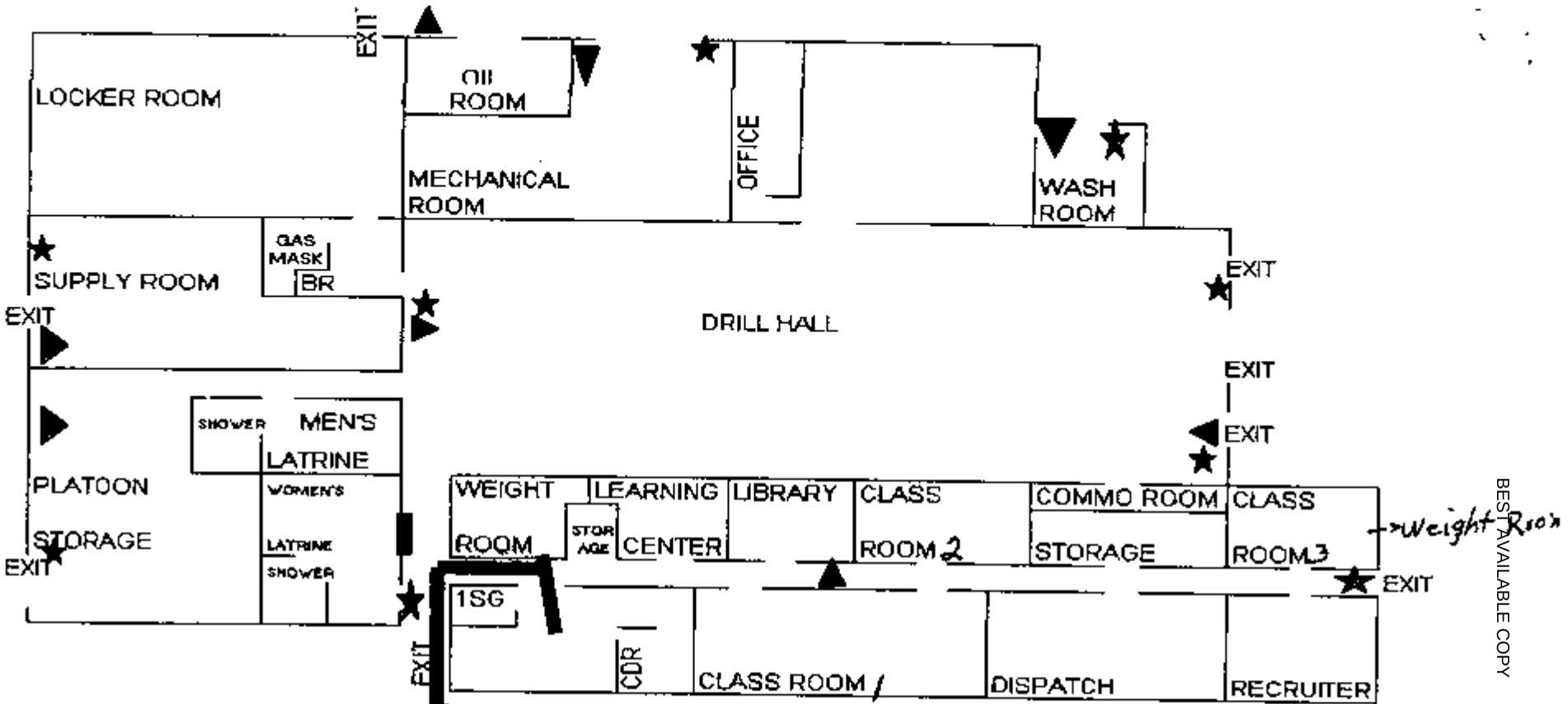

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▲ FIRE EXTINGUISHER LOCATION

▬ AED – AUTOMATED EXTERNAL DIFIBRILLATOR

★ FIRE ALARM

Paris, TN Armory

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NATIONAL GUARD REGION SOUTH
INDUSTRIAL HYGIENE OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

NGB-ARS-SEIH

November 21, 2007

MEMORANDUM FOR: Non-Responsive, Occupational Health Nurse, Tennessee State Safety and Occupational Health Office, 250 8th Avenue, Smyrna, Tennessee 37167.

SUBJECT: Paris National Guard Armory, Lead Sampling Survey, 285 County Home Road, Paris, Tennessee.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 22 July 2005.

c. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, October 1988.

d. AR 385-10, The Army Safety Program, 29 February 2000.

e. National Guard Pam 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006.

f. NGR 385-15, Policy and Responsibilities, Evaluation and Operation of Army National Guard Indoor Firing Ranges, 3 November 2006.

g. DA PAM 40-503, The Army Industrial Hygiene Program, 30 October 2000.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2003, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. Title 29, Code of Federal Regulations (CFR), 2001 rev., part 1910, Occupational Safety and Health Standards.

2. General.

a. As requested by Non-Responsive Tennessee Occupational Health Office, personnel with the National Guard Region South Industrial Hygiene Office performed an inspection at the referenced site. The apparent objective of the inspection was to collect surface wipe samples from the former Indoor Firing Range (IFR) for analysis of total lead to confirm/deny the presence of lead dust.

b. Non-Responsive th the National Guard Region South Industrial Hygiene Office in College Park Georgia performed the site visit.

3. Findings.

General Information

At the time of the sampling activity, the interior of the Paris Armory IFR was emptied of all equipment including the bullet trap and firing line. The surface areas were observed to be constructed of cinder-block walls with concrete floors and ceilings. The supply vent serving the IFR was observed to be closed and the former range appeared to be generally cleaned of debris. The former bullet trap location was identified along what was referred to as the front wall and the firing line was previously located at the rear wall.

Sampling Activities

Based on the number of surfaces observed, samples were collected in accordance with National Guard Bureau Pamphlet 420-15. Ghost Wipe™ is pre-moistened media made of non-woven polyvinyl alcohol fiber and approved by American Industrial Hygiene Association (AIHA) for lead sampling. The wipes also meet all American Standards Testing Materials (ASTM) Designation E1792-96E specifications for sampling materials for lead in surface dust.

The surface samples were collected by placing a 1 square foot sampling template on the surface area and wiping the outlined area with a Ghost Wipe™. After the area inside the template was wiped, each individual sampling media was placed into separate, labeled re-sealable plastic bags and sealed. After each sample collection, a new surface area template was used and new disposable gloves were donned. A total of 18 samples were collected, three from each surface area for submittal to Analytical Environmental Services, Inc. (AES) in Atlanta, Georgia for subsequent analysis of total lead. In addition, one wipe was placed into a re-sealable bag and submitted as a blank sample for analysis.

Laboratory Results

The results of the lead dust sampling activities are summarized in the following table.

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1665 of 2531

Sample Number	Sample Location	Laboratory Results[1]
TNP-01	Lower Front Wall	BRL
TNP-02	Middle Front Wall	BRL
TNP-03	Upper Front Wall	BRL
TNP-04	Lower Right Wall	BRL
TNP-05	Middle Right Wall	BRL
TNP-06	Upper Right Wall	BRL
TNP-07	Lower Rear Wall	BRL
TNP-08	Middle Rear Wall	BRL
TNP-09	Upper Rear Wall	BRL
TNP-10	Lower Left Wall	BRL
TNP-11	Middle Left Wall	BRL
TNP-12	Upper Left Wall	BRL
TNP-13	Ceiling at Front Wall	BRL
TNP-14	Middle Ceiling	BRL
TNP-15	Ceiling at Rear Wall	BRL
TNP-16	**Floor Front Wall**	**439**
TNP-17	**Middle Floor**	**12,500**
TNP-18	Floor at Rear Wall	BRL
TNP-Blank	Field Blank	BRL

[1] Results reported in micrograms per square feet ($\mu g/ft^2$)
[2] BRL = Below Reportable Limits

The laboratory results indicate lead concentrations detected above the IFR post cleaning standard. In accordance with the National Guard Bureau Pamphlet 420-15, the Paris Armory IFR cannot be converted for other uses until the lead dust levels are reduced to $200\mu g/ft^2$ or lower depending on local requirements.

The laboratory results are attached for review.

4. Recommendations.

a. Prior to initiating decontamination activities and in accordance with 29 CFR 1910.1025, perform and conduct training for employees exposed to lead concentrations above the standard or who may suffer skin or eye irritation from exposure to lead.

b. Review NG Bureau Pamphlet 420-15 prior to conducting decontamination of the IFR and conduct cleaning activities in accordance with the regulatory document. Keep in mind that EPA (40 CFR 745 Subpart D) and your state may have lead reduction levels lower than the levels recommended in Pamphlet 420-15.

c. Ensure that appropriate personal protective equipment is worn during decontamination activities.

d. Consult with local Environmental Agency for guidance on proper disposal of materials used in decontaminating the IFR.

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1666 of 2531

e. Upon completion of the decontamination activities, contact the Regional IH office for evaluation and collection of confirmatory lead dust samples.

5. If additional information is needed about the contractors report, please contact SGT

Non-Responsive

[redacted]

CC: Non-Responsive [redacted] CFMO, 3041 Sidco Drive, Nashville, Tennessee 37204-1504

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1667 of 2531

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Analytical Environmental Services, Inc.

Date: 11/20/2007

LEAD ON WIPES (N9100/7082)
N7082

CLIENT: National Guard Bureau Region-South IH
Project: Paris Tennessee Armory
Delivery Order:
PO No:

Lab Order: 0711803
Date Received: 11/14/2007 10:30 AM
Matrix: Wipe

Laboratory ID	Client Sample ID	Results	Units	Report Limit	DF	Date Collected	Date Analyzed	Analyst
0711803-001A	TNP-01	BRL	µg/ft²	20	1	11/13/2007	11/14/2007	JY
0711803-002A	TNP-02	BRL	µg/ft²	20	1	11/13/2007	11/14/2007	JY
0711803-003A	TNP-03	BRL	µg/ft²	20	1	11/13/2007	11/14/2007	JY
0711803-004A	TNP-04	BRL	µg/ft²	20	1	11/13/2007	11/14/2007	JY
0711803-005A	TNP-05	BRL	µg/ft²	20	1	11/13/2007	11/14/2007	JY
0711803-006A	TNP-06	BRL	µg/ft²	20	1	11/13/2007	11/14/2007	JY
0711803-007A	TNP-07	BRL	µg/ft²	20	1	11/13/2007	11/14/2007	JY
0711803-008A	TNP-08	BRL	µg/ft²	20	1	11/13/2007	11/14/2007	JY
0711803-009A	TNP-09	BRL	µg/ft²	20	1	11/13/2007	11/14/2007	JY
0711803-010A	TNP-10	BRL	µg/ft²	20	1	11/13/2007	11/14/2007	JY
0711803-011A	TNP-11	BRL	µg/ft²	20	1	11/13/2007	11/14/2007	JY
0711803-012A	TNP-12	BRL	µg/ft²	20	1	11/13/2007	11/14/2007	JY
0711803-013A	TNP-13	30	µg/ft²	20	1	11/13/2007	11/14/2007	JY
0711803-014A	TNP-14	BRL	µg/ft²	20	1	11/13/2007	11/14/2007	JY
0711803-015A	TNP-15	BRL	µg/ft²	20	1	11/13/2007	11/14/2007	JY
0711803-016A	TNP-16	439	µg/ft²	20	1	11/13/2007	11/14/2007	JY
0711803-017A	TNP-17	12500	µg/ft²	372	18.58	11/13/2007	11/14/2007	JY
0711803-018A	TNP-18	BRL	µg/ft²	20	1	11/13/2007	11/14/2007	JY
0711803-019A	TNP-BLANK	BRL	µg, Total	20	1	11/13/2007	11/15/2007	JY

Qualifiers: BRL - Not Detected at the Reporting Limit DF - Dilution Factor

Results are blank corrected where applicable

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Released by National Guard Bureau
Page 1668 of 2531

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NATIONAL GUARD REGION SOUTH
INDUSTRIAL HYGIENE OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

NGB-AVS-SEIH 11 October 2006

MEMORANDUM THRU Non-Responsive Deputy State Surgeon, Tennessee National Guard, HQS, TNARNG STARC, Attn: AGTN-DCSPER-DSS, P.O. Box 41502, Houston Barracks, Nashville, Tennessee 37204-1501

TO: ATTN: Non-Responsive 194th ENG BDE, 1510 Hwy 70 Bypass, Jackson, TN 38302

SUBJECT: Industrial Hygiene sampling for Lead at the Indoor Firing Range of the Paris National Guard Armory

1. References.

a. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1996 rev.

b. AR 40-5, Preventive Medicine, 22 July 2005.

c. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.

d. AR 385-10, 29 February 2000, Army Safety Program.

e. TB MED 503, The Army Industrial Hygiene Program, 30 October 2000.

f. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.

g. Industrial Ventilation, 25th, 2004, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

h. Title 29 Code of Federal Regulation (CFR), Part 1910.1025 Lead.

2. General.

a. At the request of Non-Responsive of the Tennessee National Safety and Occupational Health Office, a lead survey of the inactive Indoor Firing Range was conducted 15 September 2006.

b. Non-Responsive ustrial Hygiene Technician, of the Southeast Regional IH Office conducted the sampling with assistance from SSG. Erik Miller.

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3. Findings.

a. Samples were taken in the inactive Indoor Firing Range along the rear of the Armory. The Indoor Firing Range was deactivated many years ago. The range has a sign posted on the door stating it was cleaned on July. Currently the Indoor Firing Range is being used for storage. The plenum has not been removed. There is a sill on the plenum wall (pictures are attached) of 88 sq/in in the Plenum room. Cages are in place at the back of the range.

b. The backstop was removed and there is no visible evidence of a sand trap. A cage storage system has been installed in the range.

c. Twenty-one samples including two blank wipes were taken throughout the Indoor Firing Range. Results ranged from Below Reporting Limit (BRL) to 3910 μg/ft².

d. There were seven samples from the Indoor Firing Range that showed significant Lead levels above the limit of 200μg/ft².

e. Post cleaning levels of surface wipes must be less than 200μg/ft² (40μg/ft² in the case of child exposure during further use). Otherwise the range is not decontaminated and not able to be converted to other uses.

f. Lead Wipe Sample Results:

Sample Number	Micrograms (μg) Of Lead per Square Foot	Sample Area
PAR01	BRL	Top left wall
PAR02	BRL	Middle left wall
PAR03	56	Bottom left wall
PAR04	39	Top left bullet stop end of wall
PAR05	BRL	Middle bullet stop end of wall
PAR06	BRL	Bottom right bullet stop end of wall
PAR07	BRL	Top right wall
PAR08	BLR	Middle right wall
PAR09	BRL	Bottom right wall
PAR10	99	Bottom rear wall
PAR11	BRL	BLANK
PAR12	138	Middle rear wall
PAR13	537	Rear Wall Top
PAR14	3490	Floor Rt Bullet Stop
PAR15	830	Floor Center
PAR16	396	Floor Left Rear Wall
PAR17	101	Floor outside entrance to IFR
PAR18	1670	Floor in center of Plenum room
PAR19	1140	Sill inside Plenum Room
PAR 20	314	Ceiling Beam

PAR21	BRL	BLANK

g. Attached: Sample results, diagram of where samples were taken and pictures.

4. Recommendations.

a. Decontamination converted Indoor Firing Range (Supply/Storage room) of lead following NG PAM's 40-15. Keep in mind that EPA and your state may have lead reduction levels lower than the levels recommended.

b. Items stored in Indoor Firing Range must be decontaminated prior to removal.

c. To execute your responsibilities in correcting all deficiencies, coordinate with the Occupational Health Nurse, the FMO Environmental Office and the Occupational Safety and Health Office for technical guidance.

Non-Responsive

[redacted]

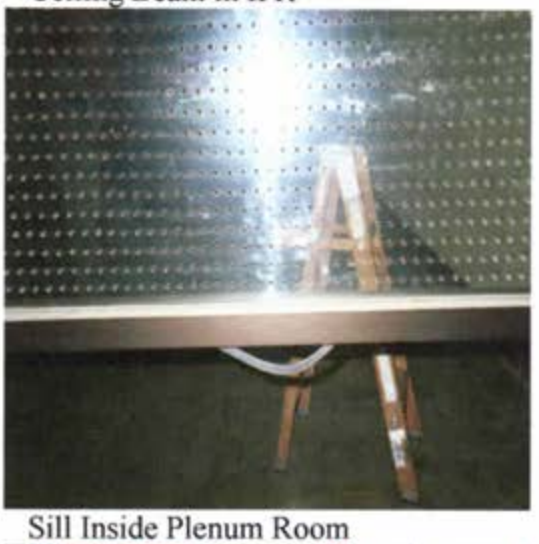
CF: NBG-AVN-SH

CF: Non-Responsive Occupational Health Nurse, Tennessee State Safety and Occupational Health Office, ATTN: AGTN-SAHO, Houston Barracks, 3041 Sidco Drive, Nashville, Tennessee 37204-1502

CF: Non-Responsive nnessee State Safety and Occupational Health Manager, 3041 Sidco Drive, Nashville, TN 37204-1504

Ceiling Beam in IFR

Floor Center



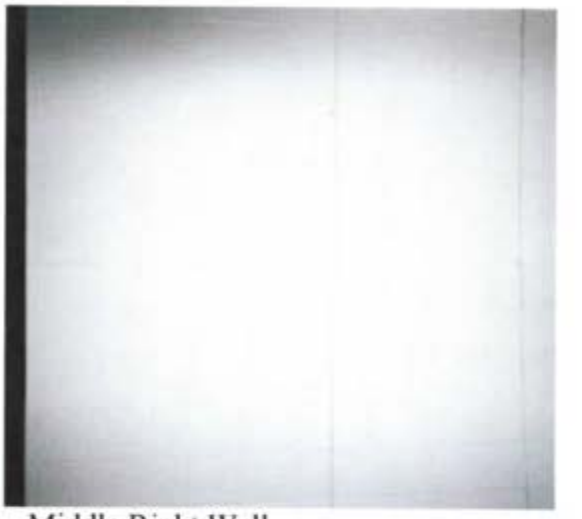
Sill Inside Plenum Room

Floor Rt Bullet Stop

Floor Left Rear Wall

Top Rear Wall Plenum Room

Middle Plenum wall

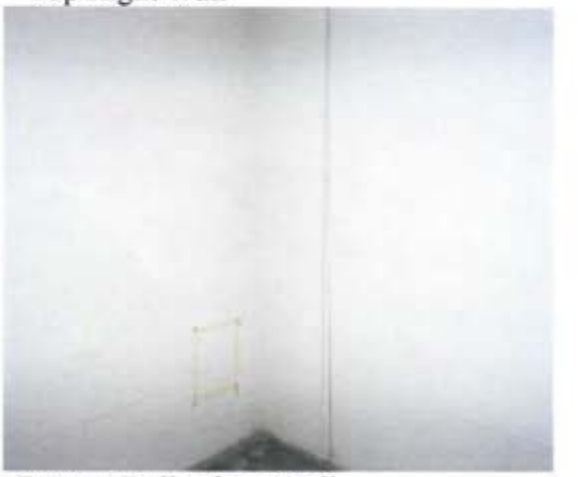


Middle Right Wall

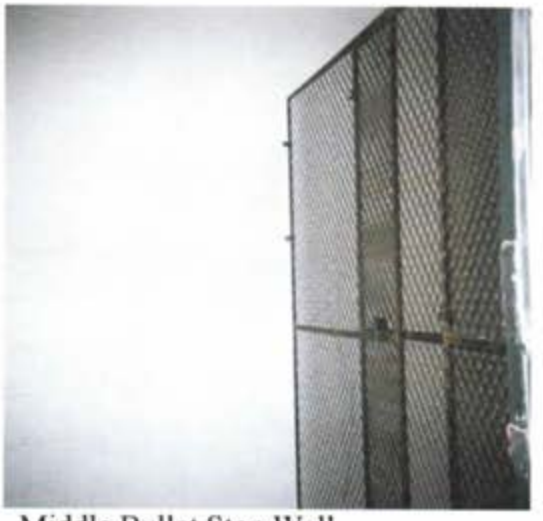
Bottom Plenum Wall

Top Right Wall

Bottom Right Wall



Bottom Bullet Stop Wall



Middle Bullet Stop Wall

Top Bullet Stop Wall

Middle Left Wall

Top Left Wall

Ceiling Beam

Plenum wall and Sill

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Department of the Army and the Air Force
National Guard Bureau
Arlington, Virginia 22202-3231
XX XXX XXXX

*NG Pamphlet 40-15

Preventive Medicine

GUIDELINES AND PROCEDURES FOR REHABILITATION AND CONVERSION OF INDOOR FIRING RANGES (IFRs)

By Order of the Secretaries of the Army and Air Force:

Non-Responsive

[redacted]

Official:

XXXX XXXX
XXX, XXXX
XXXX,XXX

History. This printing supersedes NG Pamphlet 385-16, 31 January 1994. Because the pamphlet has been extensively revised, the changed portions have not been highlighted.

Summary. This pamphlet prescribes policy for rehabilitation and conversion of National Guard IFRs.

Applicability. This guidance applies to all persons responsible for the operation of National Guard IFRs. As no regulation/guidance can foresee all situations that might arise, the following is written in a broad scope and is intended to be interpreted so as to ensure compliance with all applicable Federal and State laws and regulations.

Proponent. Office of the Joint Surgeon, National Guard Bureau.

Supplementation. Supplementation of this pamphlet requires the approval of the National Guard Bureau Office of the Joint Surgeon, NGB-SG-IH, 1411 Jefferson Davis Highway, Arlington, VA 22202-3231.

Interim Changes. Interim changes to this pamphlet are not official unless authenticated by, Chief Office of Policy and Liaison, National Guard Bureau. Interim changes will be destroyed on their expiration dates, unless sooner superseded or rescinded.

Suggested Improvements. Users of this pamphlet are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) to the National Guard Bureau, Office of the Joint Surgeon, ATTN: NGB-SG-IH, 1411 Jefferson Davis Highway, Arlington, VA 22202-3231.

Distribution. A.

*This regulation supersedes NG Pamphlet 385-16, dated 31 January 1994.

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Page 1676 of 2531

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Table of Contents

Chapter 1
Introduction
1-1. Purpose

1-2. References
1-3. Explanation of abbreviations and terms
1-4. Policy and Procedures
1-5. Goal
1-6. Deviation

Chapter 2
Health and Medical Aspects
2-1. Health Effects
2-2. Medical Surveillance
2-3. Air Monitoring
2-4. Wipe Sampling Protocol and Media
2-5. Personal Protection Equipment

Chapter 3
Education, Maintenance, Cleaning and Conversion
3-1. Worker Education
3-2. Range Cleaning Instructions
3-3. Cleaning Stored Contaminated Equipment
3-4. Contaminated Sand and Lead Waste
3-5. Range Rehabilitation
3-6. Conversion of Indoor Firing Ranges

Appendices
A. References
B. Protocol for Collecting Wipe Samples
C. Sampling Strategy for Collection of Wipe Samples

Glossary

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1677 of 2531

1-1. Purpose
This pamphlet establishes the policy and procedures for rehabilitation and conversion, of National Guard IFRs.

1-2. References
Required and related publications and referenced and prescribed forms are listed in appendix A.

1-3. Explanation of abbreviations and terms
Abbreviations and special terms used in this publication are listed in the glossary.

1-4. Policy and Procedures
Indoor firing ranges can be safely rehabilitated or converted for other uses, such as a storage area, classrooms or office space, provided the following –

a. Prior to conversion active ranges must be thoroughly decontaminated and cleaned to acceptable levels. *All ranges converted prior to the publication date of this pamphlet, must be inspected and evaluated to determine lead contamination.* This will be accomplished by a certified National Guard Industrial Hygienist or a person certified to perform inspections, evaluations, and determinations of IFRs IAW with OSHA standards, other nationally accepted standards, and accepted IH practices for maintenance, cleaning, conversion, ventilation, and air sampling of IFRs.

b. The level of cleanliness is to be determined by sampling. The Occupational Safety and Health Administration's (OSHA) Technical Manual, 5th Edition, provides guidance on the methods and techniques needed to collect wipe samples (appendix B).

(1) Wipe samples must be collected and analyzed prior to and after cleaning.

(2) Post-cleaning surface wipe sample results must be less than 200 micrograms per square foot (ug/ft^2) (40 micrograms in the case of child exposure). The sampling strategy, which is the amount and location of wipe samples to be collected, is provided in appendix C.

c. Equipment/items previously stored in the range must be decontaminated and cleaned to acceptable levels as determined by a person certified to perform inspections, evaluations, and determinations of IFRs IAW with OSHA standards, other nationally accepted standards, and accepted IH practices for maintenance, cleaning, conversion, ventilation, and air sampling of IFRs.

(1) Samples must be collected from equipment/items stored in the range. Sample selection is critical, because the number of items stored, length of storage, and level of contamination differs from range to range. The amount and location of the samples should be representative of the areas where lead dust is most likely to accumulate. The more samples collected, the better the statistical comparison of the results.

(2) Samples must be collected from the smooth surfaces of the equipment/items, as much as possible. Results of samples collected from a rough surface will be inaccurate due to the minimal surface contact of the media. Further, the likelihood of tearing the media filter is greater on rough surfaces.

(3) Samples should also be collected on items stored the longest period of time, and which have not been disturbed. Items stored closest to the bullet trap and firing line are likely to have higher concentrations of lead dust.

1-5. Goal
To ensure every IFR is free of lead dust which means to test less than 200 micrograms and to reduce the number of unsafe National Guard IFRs.

1-6. Deviation
Deviations from this guidance will require a written exception to policy from your Regional Industrial Hygiene Office. Questions and/or comments regarding this subject should be directed to your Regional Industrial Hygiene Office or Chief, National Guard Bureau, Office of the Joint Surgeon, ATTN: NGB-SG-IH, 1411 Jefferson Davis Highway, Arlington, VA 22202-3231.

Chapter 2
Health and Medical Aspects

2-1. Health Effects

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1678 of 2531

BEST AVAILABLE COPY

29 Code of Federal Regulations (CFR) 1910.1025, Appendix A, identifies lead as a highly toxic metal. Elemental lead is indestructible, and common in the environment. Lead can enter the body by inhalation (breathing) or ingestion (eating). In addition, lead is a cumulative poison. It accumulates in the blood, bones, and organs, including the kidneys, brain and liver. Effects include nervous and reproductive system disorders, delays in neurological and physical development, cognitive and behavioral changes, and hypertension. Symptoms include loss of appetite, difficulty sleeping, irritability, fatigue, headache, and inability to concentrate. It can stay in the bones for decades. Worker awareness and training are important to ensure that employees can recognize the symptoms of exposure and get prompt medical attention.

2-2. Medical Surveillance

All medical surveillance required by the standard must be performed by or under the supervision of a licensed physician. Medical surveillance is triggered by the results of individual air monitoring results. Medical surveillance must be made available to all employees who are exposed in excess of the action level for more than 30 days per year. IAW 29 CFR 1910.1025, appendix C.

2-3. Air Monitoring

Worker breathing zone air samples must be collected to ensure personnel are not overexposed to airborne lead during the cleanup phase. Daily air samples will be collected on all personnel involved in the cleanup operation. These exposure levels will be used to evaluate work practices and medical surveillance requirements.

2-4. Wipe Sampling Protocol and Media

A template measuring 10 centimeters by 10 centimeters square, approximately 4 inches square, should be used to accurately measure and mark the area before collecting wipe samples. Samples should be staggered to different areas of the range. A grid system should be utilized. Samples should not be collected all on one section of a wall, or end of the building. OSHA Technical Manual provides the necessary guidance on the technique needed to collect wipe samples (appendix B). Only distilled or deionized water will be used to saturate dry sample media. At least one field blank must be submitted with every 10 samples. The field blank must be from the same lot, and labeled as a blank.

2-5. Personal Protective Equipment

29 CFR 1910.1025 (f) (2), for housekeeping and rehabilitation the employer shall select respirators from among those approved for protection against dust, fume, and mist by the National Institute for Occupational Safety and Health (NIOSH), under the provision of 42 CFR part 84. The employer shall institute a respiratory protection program in accordance with 29 CFR 1910.134 (b), (d), (e) and (f). As a minimum, personnel conducting the decontamination of the range will be provided with the following personal protective equipment.

a. Under 29 CFR 1910.1025 (g). For employees engaged in range rehabilitation and/or range conversion, the employer shall provide at no cost to the employee, and assure that the employee uses appropriate protective work clothing and equipment such as, but not limited to:

(1) Protective coveralls with hood and shoe covers or disposable Tyvek ™ full body suit.
(2) Disposable rubber gloves; and disposable shoe coverlets (if necessary).
(3) Full-face air purifying respirator with P-100 cartridges.

b. The employer shall provide the clothing required in a clean and dry condition at least daily to employees engaged in the conversion of IFRs.

c. The employer shall provide for the cleaning, laundering, or disposal of used or contaminated protective clothing and equipment.

d. The employer shall assure that all protective clothing is removed at the completion of a work shift only in areas designated for that purpose (Change Areas or Change Rooms).

e. The employer will ensure that contaminated protective clothing that is to be cleaned, laundered, or disposed of, is placed in a closed container in the change area that seals sufficiently enough to prevent dispersion of lead dust.

f. The employer will further inform in writing any person who cleans or launders protective clothing or equipment of the potentially harmful effects of exposure to lead.

g. The employer will ensure that the containers of contaminated protective clothing and equipment are labeled as follows: CAUTION: *CLOTHING CONTAMINATED WITH LEAD. DO NOT REMOVE DUST BY BLOWING OR SHAKING. DISPOSE OF LEAD CONTAMINATED WASH WATER IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, OR FEDERAL REGULATIONS.*

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1679 of 2531

BEST AVAILABLE COPY

Chapter 3
Education, Maintenance, Cleaning and Conversion

3-1. Worker Education

a. 29 CFR 1910.1025, Appendix B, requires an information and training program for all employees exposed to lead above the action level or who may suffer skin or eye irritation from lead. The program must inform the employees of the specific hazards associated with their work environment, protective measures which can be taken, the danger of lead to their bodies (including their reproductive systems), and their rights under the standard. In addition you must make readily available to all employees, including those exposed below the action level, a copy of this standard and its appendices. This training program will be repeated annually for personnel in range cleanup operations.

b. The commander/supervisor will ensure that each soldier or Army National Guard (ARNG) employee is informed of the following:

(1) The content of the standard and its appendices.
(2) The specific nature of operations that could result in exposure to lead above the action level.
(3) The purpose, proper selection, fitting, use and limitations of respirators.
(4) The purpose and a description of medical surveillance program.
(5) Eating and drinking are prohibited in lead contaminated areas.
(6) Smoking and smoking materials will not be permitted in contaminated areas.
(7) Soldiers and ARNG employees must wash their hands and other exposed skin whenever they leave the work area.
(8) The engineering controls and work practices associated with the individual's job assignment.
(9) The contents of any compliance plan in effect.
(10) Instructions to soldiers and ARNG employees that chelating agents should not routinely be used to remove lead from their bodies and should not be used at all except under the direction of a licensed physician.

3-2. Range Cleaning Instructions

a. Written procedures, such as a scope of work, or Standing Operating Procedure that complies with all federal, state and local regulations must be established prior to decontamination operations.

b. The range ventilation system will be in operation during range cleaning to ensure that a negative pressure environment is maintained. In the absence of mechanical ventilation system, all doors and windows will be sealed to eliminate fugitive emissions.

c. A High Efficiency Particulate Air (HEPA) filtered vacuum system, which is designed to collect loose surface lead dust particles, is the preferred method of cleanup. If a HEPA filtered vacuum is not available, the range can be cleaned using a wet method.

d. Prohibited methods include:

(1) Wet cleaning using high-pressure systems, since this method may embed the lead into the substratum and generate large quantities of hazardous waste.
(2) Dry sweeping is not permitted.

e. All surface areas of the range must be cleaned. In addition, areas outside of the IFR where lead can be tracked must be cleaned.

f. The preferred progression of cleaning is from top to bottom and from behind the steel bullet trap to the firing line.

(1) Clean the steel bullet trap, areas in front of and behind the bullet trap, and the steel bullet trap plate(s), after removing the sand (if applicable).
(2) Clean the ceiling, floors, lights, baffles, retrieval system, heating system(s), and ventilation duct(s).
(3) Vacuum and remove acoustical material. *Painting over this material is not recommended.*
(4) Clean the floor the last, starting at the bullet trap and ending behind the firing line.

g. When using a HEPA filtered vacuum, vacuum all surface areas until no dust or residue is visible.

h. Any general purpose cleaning solutions can be used for the wet method. However, Spic and Span™ has been found to be an effective cleaning solution by other Army organizations. Mix new solutions of cleaning solution frequently. Wet wiping will require dual containers of water; one container for wetting the applicator

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1680 of 2531

(mops, rags, sponge, etc.) and the other container for rinsing the applicator after the dust has been wiped from the surfaces. After wet wiping all surfaces, permit the area to dry.

i. *Properly dispose of all hazardous waste. Do not place lead contaminated waste into the sewer system or onto the ground.*

(1) When placed in containers, wastewater should be left to evaporate.

(2) Mop-heads, sponges and rags will be discarded as hazardous waste following cleanup.

j. A thorough visual inspection to detect dust should be made following cleanup and prior to collecting post surface wipe samples.

k. Wood floors should receive a coat of deck enamel or urethane; concrete floors should be sealed with deck enamel.

l. As a variety of conditions exist in ranges, unique situation may arise and specific written guidance from your Regional Industrial Hygiene Office may be required.

m. Any cleaning activities must be under the supervision by a trained and competent personnel IAW with OSHA and other nationally accepted standards and the work shall be according to current industry engineering standards under the control of the State Construction and Facilities Management Officer. Cleaning must recognize that there likely will be "background" lead presence in the readiness center totally independent of the existence of an indoor range and that the method of cleaning is less important than achieving the goal of less than 200 micrograms (40 micrograms in the case of child exposure).

3-3. Cleaning Stored Contaminated Equipment

a. Equipment contaminated (sample result is higher than 200 ug/ft^2) with lead dust must be decontaminated before it is removed from the range.

b. Equipment located near the bullet trap and firing line should be cleaned first and then removed. The cleaning method depends on the size of the equipment and the material it is comprised of, i.e. metal, wood, concrete, porous, non-porous, smooth or rough finish etc. However, either HEPA vacuum or the wet wipe method will be used. Refer to paragraph 3-2 for additional guidance.

c. Every attempt should be made to clean and reclaim items since disposing of equipment, as hazardous waste is costly and wasteful. Only as a last resort will the item be discarded as hazardous waste. Porous items, such as office partitions and carpet that were present during firing should be considered grossly contaminated and be discarded unless analysis proves otherwise. Consult your State Environmental Office for the proper hazardous waste disposal methods.

3-4. Contaminated Sand and Lead Waste

Consult your State Environmental Office for specific disposal guidance to ensure compliance with local laws and regulations.

3-5. Range Rehabilitation

This chapter applies to all IFRs that have been identified as candidates for rehabilitation. It provides further guidance for cleaning and/or sampling that might be required prior to the start of rehabilitation.

a. The portion(s) of the range to under go rehabilitation must be sampled to determine the level of lead contamination. Wipe samples will be taken per the established sampling protocol. See appendix B.

b. All personnel involved in range rehabilitation will wear a NIOSH approved respirator (P-100) and proper personal protective equipment as prescribed in paragraph 2-5 above.

c. Prior to the start of rehabilitation, the environmental office must be notified to determine the disposition of any debris containing hazardous materials (lead).

d. Supervision shall be by a person who is certified to perform inspections, evaluations, and determinations of IFRs IAW with OSHA standards, other nationally accepted standards, and accepted IH practices for maintenance, cleaning, conversion, ventilation, and air sampling of IFRs. All work shall be according to current industry engineering standards under the control of the State Construction and Facilities Management Officer.

3-6. Conversion of Indoor Firing Ranges

Prior to the start of decontamination, employers must ensure that all procedures to be used comply with Federal, State, and local regulations. To ensure that all lead contamination is eradicated, the following procedure is established.

a. The State shall follow the project approval process as delineated in NGR 420-10 (or NGR 415-5 if the use of the military construction appropriation is required).

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1681 of 2531

b. All ranges slated for conversion will be inspected and evaluated NGB Regional Industrial Hygiene Office.

c. All equipment stored in the range, if applicable, prior to the start of decontamination must be sampled, decontaminated, re-sampled and removed or turned in as lead contaminated material.

d. All acoustical tiles and/or sound proofing material (if applicable) must be removed and turned in as lead contaminated material through the environmental office.

e. The bullet trap, target retrieval system and firing line stations must be removed and turned in as lead containing material through the environmental office.

f. Light fixtures and ventilation system grills must be removed and decontaminated.

g. Ventilation system ducts need to be decontaminated or removed and replaced.

h. The exhaust fans and/or the complete ventilation air-handling unit (if applicable) must be decontaminated or removed to include roof fans.

i. Cover all openings of any component previously decontaminated prior to start of interior decontamination of the firing range.

j. Prior to start of washing, the interior of the range should be vacuumed with a HEPA filtered vacuum. The range should be washed using a cleaning solution of hot water and Spic and Span in five gallons of hot water. A progression of cleaning from top to bottom, and from back to front should be used. All surface areas of the range must be cleaned. Mix new solutions of water frequently. Washing will require dual containers of water; one container for wetting the applicators (mops, rags, sponges, etc.), and the other container for rinsing the applicators. Waste water placed into containers can be left to evaporate. *Properly dispose of all hazardous waste and do not place any lead contaminated waste into the sewer system or onto the ground.* Mop heads, sponges and rags will be discarded as hazardous waste following decontamination of the range. After completion of decontamination, and prior to taking clearance samples, the ventilation system must be run for a period of 36 hours. Wipe clearance samples will be taken from ceiling, walls and floors. The range will be considered clean if no clearance sample is greater than 200 ug/ft^2, if any sample is above 200 ug/ft^2, the range is not considered clean, the range will need to be re-washed until clearance samples are below 200 ug/ft^2.

k. The regional industrial hygienist will do quality assurance sampling as needed.

l. After obtaining clearance, the walls of the range will be coated with a sealant (Not Paint), which is smooth, wood floors will receive a coat of deck enamel or urethane, concrete floors will be sealed with deck enamel. After sealing, floors will be tiled or covered with linoleum.

m. As a variety of conditions exist in ranges, unique situations may arise and specific written guidance from the Regional Industrial Hygiene Office may be required.

n. All personnel involved in the decontamination/conversion of IFRs as a minimum will be provided with the following personal protective equipment.

(1). Full Face air purifying respirator with HEPA cartridges. The requirements outline in 29 CFR 1910.134, must be met prior to placing workers in respiratory protection.

(2). Individuals will be provided personal protective equipment as required per paragraph 2-5, this pamphlet.

o. Any conversion must be supervised by a person certified to perform inspections, evaluations, and determinations of IFRs IAW with OSHA standards, other nationally accepted standards, and accepted IH practices for maintenance, cleaning, conversion, ventilation, and air sampling of IFRs. All work shall be according to current industry engineering standards under the control of the State Construction and Facilities Management Officer. Cleaning must recognize that there likely will be "background" lead presence in the readiness center totally independent of the existence of an indoor range and that the method of cleaning is less important than achieving the goal of less than 200 micrograms (40 micrograms in the case of child exposure).

p. After conversion, lead testing shall continue on an annual basis to verify that no lead migration from the substrate is occurring.

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1682 of 2531

BEST AVAILABLE COPY

Appendix A
References

Section I
Required Publications

There are no entries in this section

Section II
Related Publications

ASTM E1792-03
Standard Specification for Wipe Sampling Materials for Lead in Surface Dust

AR 11-34
The Respiratory Protection Program

AR 40-5
Preventive Medicine

DODI 6055.5
Industrial Hygiene and Occupational Health

29 CFR, Part 1910
Occupational Safety and Health Administration, Department of Labor

National Institute for Occupational Safety and Health (NIOSH) 76-130
Lead Exposure and Design Considerations for Indoor Firing Ranges, Department of Health, Education and Welfare

NGR 385-15
Policy and Responsibilities for Inspection, Evaluation and Operation Army National Guard National Guard Indoor Firing Ranges (IFRs).

NGR 415-5
Army National Guard Military Construction Program Development and Execution

NGR 420-10
Construction and Facilities Management Office Operations

Technical Manual, 5th Edition
Occupational Safety and Health Administration, Department of Labor

Section III
Prescribed Forms

There are no entries in this section

Section IV
Referenced Forms

There are no entries in this section

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1683 of 2531

Appendix B
Protocol for Collecting Wipe Samples

B-1. If multiple samples are to be collected at the work site, prepare a rough sketch of the area(s) or room(s), which are to be wipe sampled.

B-2. A new set of clean, impervious gloves should be used for each sample to avoid contamination of the media by previous samples and to prevent contact with the substance.

B-3. Wipe Samples

a. If using Ghost Wipes™, tear open the individually sealed package. Remove the moistened wipe. Unfold the wipe.

b. If using a dry media such as MCE or Whatman™ filter, moisten the filter with distilled or deionized water prior to sampling.

B-4. Place a 10 centimeter by 10 centimeter template on the area to be wiped.

B-5. Apply uniform firm pressure while wiping the area inside the template.

B-6. To insure that all portions of the partitioned area are wiped, start at the outside edge and progress toward the center making concentric squares decreasing in size.

B-7. After collecting a sample, fold the filter or wipe inward and place into a container and number it. Note the number at the sample location on the sketch.

B-8. At least one blank filter treated in the same fashion but without wiping, should be submitted to the laboratory.

Appendix C
Sampling Strategy for Collection of Wipe Samples

C-1. Prior to cleaning the ranges, three samples must be collected and analyzed for total lead dust on each surface, i.e., floor, ceiling, bullet trap, and wall to include the plenum wall, if applicable. In addition, a total of three samples should be collected from areas which have been least disturbed by airflow. Established walkways should be avoided.

C-2. Samples should be collected from different areas of the range. A grid system should be utilized. Each range surface areas should be divided evenly into 3 by 3 sections. Samples should not be collected from only one section of a wall or end of the building.

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GLOSSARY

Section I
Abbreviations

ARNG
Army National Guard

CFR
Code of Federal Regulations

HEPA
High Efficiency Particulate Air

IFR
Indoor Firing Range

NIOSH
National Institute for Occupational Safety and Health

OSHA
Occupational Safety and Health Administration

ug/ft^2
Micrograms per square foot

Section II
Terms

Air monitoring
The sampling for and measuring of pollutants in the atmosphere.

Breathing zone
The imaginary globe of two feet radius surrounding the head.

General area
Collection of and later analysis of airborne contaminants in a given work environment. As the sampling pump and collection media are not attached to a worker, the concentrations found represent average concentrations in that area but may not representative of the actual exposure of the worker.

HEPA
Refers to high efficiency particulate air filter systems capable of capturing up to 99.97 percent of particles 0.3 microns in size or larger.

Lead-Contaminated Range
It is assumed that all IFRs, which have been fired in, are lead-contaminated.

Respirator
A device designed to provide the wearer with respiratory protection against inhalation of airborne contaminants.

Wipe Sample
The terms wipe, swipe, or smear samples are used synonymously to describe the techniques utilized for assessing lead surface contamination.

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1685 of 2531

BEST AVAILABLE COPY

Section III
Special Abbreviations and Terms

This section contains no entries

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1686 of 2531

BEST AVAILABLE COPY

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau

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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-AVN-SI

April 18, 2003

MEMORANDUM FOR: The Adjutant General of Tennessee, ATTN: Non-Responsive State Occupational Health Office, P O Box 41502, Nashville, TN 37204-1502.

SUBJECT: Transmittal of Survey Reports for the Phillip Miller Armory, Ripley, TN, the Lexington Armory, Lexington, TN, the Frankland-Taylor Armory, Jackson, TN, the Dyersburg Armory, Dyersburg, TN, the Henderson Armory, Henderson, TN, and the Wyatt-Duke Armory, Brownsville, TN.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, 30 August 1986, Medical Service, Preventive Medicine.

c. National Guard Regulation (NGR) 385-10, 1988, Army National Guard Safety and Occupational Health Program.

d. AR 11-34, The Army Respiratory Protection Program, 15 February 1990.

e. TB MED 502, Occupational and Environmental Health Respiratory Protection Program, February 1982.

f. DA PAM 40-503, 30 October 2000, The Army Industrial Hygiene Program.

g. DA PAM 40-501, 10 December 1998, Hearing Conservation.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2001, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

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j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

k. Title 29, Code of Federal Regulations (CFR), 2000 rev., part 1910, Occupational Safety and Health Standards.

l. Reports dated 24-26 January 2003, Industrial Hygiene Survey, Environmental Mgmt. Solutions, Atlanta, GA.

2. General.

a. At the request of the TNARNG Safety and Occupational Health Office, an Industrial Hygiene Service was put together to conduct Health Hazard Information module (HHIM) Field surveys and industrial hygiene sampling of the Phillip Miller Armory, Ripley, TN, the Lexington Armory, Lexington, TN, the Frankland-Taylor Armory, Jackson, TN, the Dyersburg Armory, Dyersburg, TN, the Henderson Armory, Henderson, TN, and the Wyatt-Duke Armory, Brownsville, TN.

b. Environmental Mgmt. Solutions, 247 Mary Lane, Dallas, GA. 30132 conducted the surveys.

3. Findings. All HHIM field survey forms and survey findings of the reports. (See enclosure 1)

4. Recommendations.

a. Follow all recommendations made in reference 1.l., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Control water infiltration in the armory and/or replace or repair damaged surfaces or components (ceiling and floor tiles). Building conditions that present IAQ concerns or problems not only exacerbates normally minor health issues but also tend to promote or accelerate building deterioration.

c. The recommendations given in the comment section of the HHIM data sheets and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-03. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-04 IHIP.

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1689 of 2531

BEST AVAILABLE COPY

SUBJECT: Transmittal of Survey Reports for the Phillip Miller Armory, Ripley, TN, the Lexington Armory, Lexington, TN, the Frankland-Taylor Armory, Jackson, TN, the Dyersburg Armory, Dyersburg, TN, the Henderson Armory, Henderson, TN, and the Wyatt-Duke Armory, Brownsville, TN.

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present survey, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

f. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

5. If additional information is needed about the industrial hygiene [redacted]

Non-Responsive

CF:
NBG-AVN-SH

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ENVIRONMENTAL MANAGEMENT SOLUTIONS
INDUSTRIAL HYGIENE CONSULTING

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PHILLIP MILLER ARMORY
RIPLEY, TENNESSEE

247 MARY LANE, DALLAS, GEORGIA 30157
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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau

BEST AVAILABLE COPY

EXECUTIVE SUMMARY 1

SUBJECT 2

BACKGROUND 2

INTRODUCTION 2
SITE DESCRIPTION 2
SCOPE OF WORK 2
METHODOLOGY 2

FINDINGS AND DISCUSSION 3

LEAD WIPE SAMPLES 3
ASBESTOS SUSPECT BUILDING MATERIAL 4
NOISE SURVEY 4
ILLUMINATION SURVEY 4
BUILDING CONDITION 6
HAZARD COMMUNICATION 6
RADIATION PROTECTION PROGRAM 6
ERGONOMICS 6
PERSONAL PROTECTIVE EQUIPMENT 6

RECOMMENDATIONS 7

TECHNICAL ASSISTANCE 8

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1692 of 2531

BEST AVAILABLE COPY

EXECUTIVE SUMMARY

An initial baseline industrial hygiene survey was conducted at the Non-Responsive Armory on 24 February 2003 as part of the Tennessee Army National Guard Occupational Health Program to identify potential health hazards in the workplace. The survey consisted of collecting lead wipe samples and bulk asbestos samples as needed, conducting a noise and illumination survey and an evaluation of the condition of the building as it related to indoor air quality. A review of the Hazard communication program, ergonomics, and personal protective equipment was also performed.

The following table summarizes the survey findings and recommendations for each topic surveyed.

TOPIC	SUMMARY OF FINDINGS	RECOMMENDATIONS
Lead Wipe Samples	22.0 to 40700 micrograms	Clean surfaces in the Indoor Firing Range area, decontaminate all contaminated items, and follow good hygiene and housekeeping practices
Asbestos Bulk Samples	No findings	No action
Noise Survey	Under 85 dBA	No action
Illumination Survey	5 to 58 foot-candles	Upgrade lighting to appropriate levels.
Building Condition	Water damage to ceiling and floor tiles	Clean damaged surfaces, control sources of water infiltration, and create a maintenance schedule for HVAC units
Hazard Communication	MSDS are available for chemicals used	Personnel responsible for these items should receive annual training in HAZCOM requirements
Ergonomics	Poor workstations design in some offices	Complete ergonomics survey on all personnel and offer ergonomic training or awareness to employees who spend the majority of their time working on a computer terminal
Personal Protective Equipment	No findings	No action

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SUBJECT

Initial Baseline Industrial Hygiene Survey of the Phillip Miller Armory performed 24 February 2003 in Ripley, Tennessee.

BACKGROUND

INTRODUCTION

At the request of Non-Responsive of the National Guard Bureau Region South Industrial Hygiene Office, an initial baseline industrial hygiene survey was performed at the Phillip Miller Armory in Ripley, Tennessee. Environmental Management Solutions conducted the survey on 24 February 2003. The purpose of the survey was to perform an initial baseline industrial hygiene survey to evaluate potential health hazards present at the armory.

SITE DESCRIPTION

The facility houses the 268th MP Company, which includes three full time personnel. The one story building contains several administrative offices, one classroom, a drill hall, and a kitchen. A converted indoor firing range is present at this facility and is being used as storage space. The indoor firing range has been closed since 1989. Refer to Building layout in Appendix C.

SCOPE OF WORK

The work included collecting wipe samples for lead, bulk samples for suspect asbestos containing building material, noise readings, illumination levels, and an evaluation of the ventilation system as it pertains to indoor air quality. A list of occupational health programs and procedures were verbally covered with the armory personnel.

METHODOLOGY

Lead wipe samples were collected from surfaces that showed signs of lead contamination in armories that have a renovated, inactive, or closed indoor firing range (IFR), kitchen or mess hall storage areas, indoor drill halls, and storage rooms with weapons vaults. The samples were collected in accordance to instructions published by Region South National Guard Bureau, which required the use of unscented baby wipes to wipe one square foot of surface. Samples were then placed in a sealed plastic bag and sent to an American Industrial Hygiene Associations (AIHA) accredited laboratory for analysis. Asbestos bulk samples and lead paint chips were collected from suspect friable and damaged building material. Each bulk sample was placed in a sealed bag and sent to an AIHA laboratory for analysis. All instruments used for assessment were factory calibrated and calibrated prior to the survey as applicable. Illumination readings were taken on work surfaces and approximately four feet from the floor.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
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Page 1694 of 2531

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FINDINGS AND DISCUSSION

LEAD WIPE SAMPLES

Twelve wipe samples were collected from the areas of the indoor firing range, kitchen, supply, and other storage areas as listed in the table below.

SAMPLE NUMBER	SAMPLE LOCATION	MICROGRAMS OF LEAD (µg) PER SQUARE FOOT
RP-01	Shelving, Clothing/Supply storage area	22.0
RP-02	Kitchen, bottom shelf, mixing bowl	BRL
RP-03	Bullet Stop, IFR	**40700**
RP-04	Top shelf, Bullet Stop Area, IFR	**469**
RP-05	Floor, Bullet Stop, Left side, IFR	**7630**
RP-06	Shelving, Platoon Storage #4, IFR	**254**
RP-07	Shelving, Platoon Storage #1, IFR	61.0
RP-08	Aisle way Area, IFR	**934**
RP-09	Lawnmower, Maintenance Area	**82.0**
RP-10	Floor in front of locker, Maintenance Area	**201**
RP-11	Drill Hall, Between Kitchen and Roll Up Door	29.0
RP-12	Drill Hall Between Vending Machines	**47.0**

*Below Reporting Limit

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1695 of 2531

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The Army National Guard All States Log Number P01-0075, **Policies and Responsibilities for Inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges (IFR) and Guidelines for IFR Rehabilitation, Conversion, and Cleaning** requires a limit of 200 micrograms per square foot for surface contamination in and around indoor firing ranges. The Environmental Protection Agency standards (40 CFR 745) indicate lead in dust levels above 40 micrograms per square foot on bare and carpeted floors is considered dangerous for common areas. Several samples in and around the indoor firing range and in the drill hall were above required limits.

ASBESTOS SUSPECT BUILDING MATERIAL

Sampling for asbestos was limited to damaged material or material that could pose a higher exposure risk. No friable suspect material was found.

NOISE SURVEY

Area noise levels are well within the Army National Guard limit of 85 dBA and the Occupational Safety and Health Administration (OSHA) regulated limit of 90 dBA over an eight-hour period.

ILLUMINATION SURVEY

Lighting levels throughout the armory ranged between 5 foot-candles to 58 foot-candles. Specific readings are listed in the table below.

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1696 of 2531

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AREA	AVERAGE FOOT-CANDLES
Assembly Hall	5
Office #1	24.5
Office #2	50.5
Office #3	58
Office #4	21.5
Supply Office	23
Classroom A	25
Classroom B	43.3
Operation Office	42.5
Supply Room	11.8
Kitchen Sinks	54
Kitchen Supply	12
Kitchen	17
Kitchen Storage	5
War Room	21
Admin Room	13
Locker Room/Classroom	9
Maintenance Room	6.5

These readings are not within the Army Design Guide (DG 415-2) minimum illumination level of 50 foot-candles for office areas and 20 foot-candles for parts storage/supply. The American

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1697 of 2531

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National Standard Institute/Industrial Engineering Society (ANSI/IES) recommends a minimum illumination of 50 to 100 foot-candles for administrative and kitchen areas, and 20 to 50 foot-candles for storage areas. Luminance of 50 to 100 foot-candles is recommended for performance of visual tasks of medium contrast or small size such as reading, pencil handwriting, and poorly printed, or reproduced material. Depending of the type of display, background luminance of 30 to 60 foot-candles is recommended for VDT work. Some areas had lighting that was burned out.

BUILDING CONDITION

Several areas of the armory have damaged ceiling or floor tiles due to water damage. The armory is cooled with a central heating, ventilating, and air conditioning (HVAC) system. Personnel did not have any specific complaints about the indoor air quality.

HAZARD COMMUNICATION

Material Safety Data Sheets were available and easily accessible.

RADIATION PROTECTION PROGRAM

Several pieces of equipment stored at the facility contain radioactive materials. Radiac meters and alarms are among stored equipment. An inventory and designated safety officer are present.

ERGONOMICS

The full time employees in the supply or office areas did not express any ergonomic related injuries or concerns. Many workstations were not set up to provide neutral postures and appropriate ergonomically correct positions. Consideration should be given to providing all full time employees that spend the majority of their working time at a computer terminal ergonomic training or awareness. Such awareness should emphasize the importance of proper posture and set-up of the workstation to fit the user.

PERSONAL PROTECTIVE EQUIPMENT

Normal duties of full time employees at the armory do not require the use of personal protective equipment (PPE).

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1698 of 2531

RECOMMENDATIONS

1) All items that are contaminated with lead should be thoroughly decontaminated with a detergent and water solution. Care should be taken to wipe down tables where weapons are issued and cleaned. Kitchen areas should be thoroughly cleaned on a regular basis and especially before serving personnel.

2) Personnel should be prohibited from eating, drinking, smoking, chewing tobacco or gum, or applying cosmetics in supply areas and should be instructed to clean hands with soap and water before doing any of these. Remove all refrigerators, cups, and other eating utensils from supply areas.

3) Lead results indicate that some areas of the converted indoor firing range are not completely free from contamination. Consult the Army National Guard All States Log Number P01-0075, Policies and Responsibilities for inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges (IFR) and Guidelines for IFR Rehabilitation, Conversion, and Cleaning on guidelines for cleaning and converting Indoor Firing Range.

4) Upgrade lighting measurements as required. Lighting can be upgraded in the following ways:

   - Replace blown or broken lighting
   - Paint wall a light color
   - Clean existing light fixtures
   - Rearrange furniture to make better used of available light
   - Provide supplemental or task lighting

5) Develop a maintenance schedule for monitoring, inspecting and cleaning HVAC components such as outside air intakes, outside air dampers, air filters, drain pans, heating and cooling coils, the interiors of air handling units, fan motors ad belts, air humidification, controls and cooling towers. The schedule should also ensure that any leaks or standing water are identified, repaired, and prevented. Proper repairs and maintenance of the building infrastructure and interior surfaces can prevent water damage and moisture buildup which may lead to further indoor air quality issues.

6) Material Safety Data Sheets (MSDS) are required to be kept at the primary workplace facility and to be easily accessible in case of emergency. Personnel

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1699 of 2531

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responsible for these items should receive annual training in the requirements of the Hazardous Communication Program and the appropriate keeping and storage of all MSDS.

7) An ergonomics survey should be completed for all supply and administrative personnel as a preventative measure to document and address any and all ergonomic concerns or problems. Provide ergonomics training and awareness to all employees who spend the majority of their time working at a computer terminal.

TECHNICAL ASSISTANCE

Non-Responsive

[redacted]

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
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Page 1700 of 2531

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APPENDICES

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APPENDIX A

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1702 of 2531

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- American conference of Governmental Industrial Hygiest (ACGIH), Industrial Ventilation, A Manual of Recommended Practice, 23rd Edition, 1998.American National Standards Institute (ANSI), /Illuminating Engineering Society (IES), Industrial Lighting, 1991.
- Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 1990.
- Army Regulation (AR) 40-5, Preventative Medicine, 15 October 1990.
- Army Regulation (AR) 385-10, The Army Safety Program, 29 Feb 2000.
- NGR 385-10, Army National Guard Safety and Occupational Health Program, 7 October 1988.
- TB MED 503, The Army Industrial Hygiene Program, February 1985.
- Title 29, Code of Federal Regulations (CFR), 1999, revision, Part 1910, Occupational Safety and Health Standards.
- TG 022, US Army Environmental Hygiene Agency (YSAEHA), Industrial Hygiene Evaluation Guide, October 1975.
- TG 141, US Army for Health Promotion and Preventative Medicine (USACHPPM) Industrial Hygiene Air Sampling Guide, November 1997.

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FOIA Requested Record #J-15-0085 (TN)
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Page 1703 of 2531

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APPENDIX B

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1704 of 2531

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2/8/9 CHPMFRNT.XLS

HHIMS Industrial Hygiene Survey Form

Front page

ARLOC: 4 7 0 0 0

Installation: Phillip Miller Armory

Building:

Room Number:

Location: A A

Operation: A D O

Survey Date: 0 3 month 0 8 day 2 4

Evaluator: AZB

Mscom: N G

Submscom: X X

Unit / Organization (45): 269th MP Co.

Supervisor: Mr. Ms. Rank

RAC

Supervisor, or Point of Contact Telephone Number

DSN

Commercial

Frequency (hrs/day): 0 0 8

No. CIVs: 0 2

No. MIL: 0 0

Contractors: 0 0

No. LOCs: 0 0

Lab Hoods: 0 0

Vapor Degreasers: 0 0

Spray Booths: 0 0

Open Surface Tanks: 0 0

Ventilation Units: 0 0

Controls Present (if >6, continue in comments)(25): OTH

Evaluation (25 characters max): 13-51

Unit code: F T C

Controls Required (25 characters max): 50-100 FTC

Gloves	e*	R	U
acid			
cold surfaces			
hot surfaces			
NBC agents			
oil			
solvents			
surgical gloves			
leather / cotton			
other			

Respirator	e*	R	U
airline			
abrasive blasting hood			
disposable			
full face air purifying			
1/2 face air purifying			
powered air purifying			
1/4 face air purifying			
self-contained			
other			

Manufacturer's Description (10 characters max)

NIOSH TC # or Foreign equivalent (10 characters max)

Eyes and Face	e*	R	U
chemical splash			
full face shield			
chem/safety impact			
safety impact			
welding helmet			
sunglasses			
welding goggles/glasses			
laser eye protection			
other			

Hearing	e*	R	U
canal caps			
(>85-100 dBA steady) earplugs			
" helmets w/ muffs			
" muffs alone			
(100-118)muff/earplug comb			
muffs and earplugs			
(118 or >) with time limit			
other			
other			

Body	e*	R	U
apron			
cold weather clothing			
coveralls			
full body suit			
heat reflective			
vest/suit			
safety bulk/[illegible]			
special purp. clothing			
other			

Head and Foot	e*	R	U
cold weather boots/hat			
hard hats			
impermeable boots			
safety shoes (conductive)			
safety (nonconductive)			
other			
other			
other			
other			

e* = evaluator's recommendation or agreement

Reminders: argonomics - dermatitis - physical agents - [illegible] storage
EYE (assessment) ___ - EYE (portable) ___ - SHW - GMV - LEV

ACO ADM OSA DSN LAB LCK
RAD ECB EPL RHS SPR WEL

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1705 of 2531

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[illegible] Room

Back page

CAS code

PONDISECO	P	O	V	D	T	X	X	X	X	
POFOSEMAZ	P	O	S	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	X	
POFLYPROJ										
POEVEMAZA										
POFLAMHAZ										
POLIFTING										
POSHARPOB										
POHOTOBJE										
POELSHOCK										
COMBEDIL										

PAC | EPC

Hazard Description

[illegible]

Social Security Number or Salary Identifier

See Personnel List

First Name (20 characters max) | MI | Sex | Category

Personnel data provided by the facility is attached to this form

Insert Privacy Act Statement

Comments

Operation described in [illegible]

[illegible]

[illegible]

[illegible] operation was explained to [illegible] this not [illegible] disturbed.

(Comments continued on attached)

There is a noise data sheet attached to this form

There is a ventilation data sheet attached to this form

2/8/95 CHPMBACK.XLS

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May, 2018

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Released by National Guard Bureau
Page 1706 of 2531

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2/8/96 CHPMFRNT.XLS

HHIMS Industrial Hygiene Survey Form

Front page

ARLOC	Installation	Building	Room Number
47000	Phillip Miller Armory		

Location	Operation	Survey Date (month / day)	Evaluator	Macom	Submacom	Unit / Organization (45)
SA	421	03 08 24	[illegible]	NG	XX	268th MP Co.

Supervisor: Mr. / Ms. / Rank / RAC

Supervisor, or Point of Contact Telephone Number: DSN / Commercial

Frequency (hrs/day)	No. CIVs	No. MIL	Contractors	No. LOCs
008	01	00	00	00

Lab Hoods	Vapor Degreasers	Spray Booths	Open Surface Tanks	Ventilation Units
00	00	00	00	00

Controls Present (If >6, continue in comments)(25)	Evaluation (25 characters max)	Unit code	Controls Required (25 characters max)
OTH	23	FTC	50-100 FTC (Admin)
	11.8	FTC	20-50 FTC (Storage)

Gloves	e*	R	U
acid			
cold surfaces			
hot surfaces			
NBC agents			
oil			
solvents			
surgical gloves			
leather / cotton			
other			

Respirator	e*	R	U
airline			
abrasive blasting hood			
disposable			
full face air purifying			
1/2 face air purifying			
powered air purifying			
1/4 face air purifying			
self-contained			
other			

Manufacturer's Description (10 characters max)

NIOSH TC # or Foreign equivalent (10 characters max)

Eyes and Face	e*	R	U
chemical splash			
full face shield			
chem/safety impact			
safety impact			
welding helmet			
sunglasses			
welding goggles/glasses			
laser eye protection			
other			

Hearing	e*	R	U
canal caps			
(>88-108 dBA steady) earplugs			
" helmets w/ muffs			
" muffs alone			
(108-118) muff/earplug comb			
muffs and earplugs			
(118 or >) with time limit			
other			
other			

Body	e*	R	U
sprays			
cold weather clothing			
coveralls			
full body suit			
heat reflective			
ventilation			
safety [illegible]			
special purp. clothing			
other			

Head and Feet	e*	R	U
cold weather boots/hat			
hard hats			
impermeable boots			
safety shoes (conducting)			
safety (nonconductive)			
other			
other			
other			
other			

e* = evaluator's recommendation or agreement

Reminders: ergonomics - dermatitis - physical agents - flammable storage
EYE (permanent) ____ - EYE (portable) ____ - SHW - GMV - LEV

ACO ADM DSA DSN LAB LCK
RAD ECB EPL RHS SPR WEL

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1707 of 2531

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[illegible] Industrial Hygiene Survey Form

Back page

	CAS code	PAC	EPC
PONOISECO	P O V D T X X X X	[illegible]	[illegible]
POFOOTHAZ	P O S [illegible]	[illegible]	[illegible]
POFLYPREJ	P O L I E T I N [illegible]	[illegible]	[illegible]
POEMERATA	7 [illegible] 3 9 - 9 [illegible]	[illegible]	[illegible]
POFLAMMAZ		[illegible]	[illegible]
POLIFTING			
POSHARPOB			
POHOTSUME			
PBELSNEIX			
COLUMBOIL			

Hazard Description

[illegible] Video Display Terminal [illegible]

Social Security Number or Unique Identifier

Last Name (20 characters max)

See personnel list

First Name (20 characters max)

MI

Sex

Category

[illegible] Personnel data provided by the facility is attached to this form

Insert Privacy Act Statement

Comments

Operation described is receive, inventory, issue critical unit items to include weapons and ammunition.

[illegible] operation was explained to the [illegible], but was not [illegible] observed.

There is a noise data sheet attached to this form [illegible]

[illegible] (Instructions continued on attached)

There is a ventilation data sheet attached to this form [illegible]

2/8/96 CHPMBACK.XLS

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1708 of 2531

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Non-Responsive

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FIRE CABINET INVENTORY

LOCATION	QUANITY	DESCRIPTION	NSN/PART NUMBER
SHELF 1	18	Enamel Semi-Gloss Olive Drab	8010-00-598-5936
SHELF 1	02	Lacquer (Aerosol) Red	8101-00-141-2952
SHELF 1	03	Lacquer (Aerosol) Gray	16307a
SHELF 1	02	Enamel Int/Ext White	131-060
SHELF 1	01	Electric Sentry (Contact Cleaner)	N/A
SHELF 1	04	Water Displacing Compound	6850-00-142-9389
SHELF 1	25	Ink Marking Stencil (Black Spray)	7510-00-469-7910
SHELF 2	07	Cement Liquid Tent Patching	8040-00-264-3848
SHELF 2	03	3M General Trim Adhesive	051135-08088
SHELF 2	02	Growco Spray Adhesive	1058A
SHELF 2	02	Permatex Plastic Cleaner	403D
SHELF 2	01	XC Rapid Cleaner	2640-00-138-8324
SHELF 2	02	Dry Cleaning Solvent	6850-00-564-5685
SHELF 2	03	Penetrating Fluid	6850-00-973-9091
SHELF 2	07	Cleaning Compound (Rifle Bore)	6850-00-224-6663
SHELF 3	21	Insecticide	6840-01-067-2137
SHELF 3	03	Coating Polyurethane (Sand)	8010-01-234-2934
SHELF 4	15	Gallon Cans Paint Assort. Color	N/A
SHELF 4	01	Quart Can Yellow Enamel	N/A
SHELF 4	01	Pint Can Blue Enamel	N/A
Shelf 1	1	Coating compound	8010-00-582-4743
"	3	Ink marking	7510-00469-7910
Shelf 2	3	Starter Fluid	N/A
Shelf 3	1	Fix a Flat	N/A

268TH MILITARY POLICE COMPANY **YEAR 2002**

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APPENDIX C

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FOIA Requested Record #J-15-0085 (TN)
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Page 1711 of 2531

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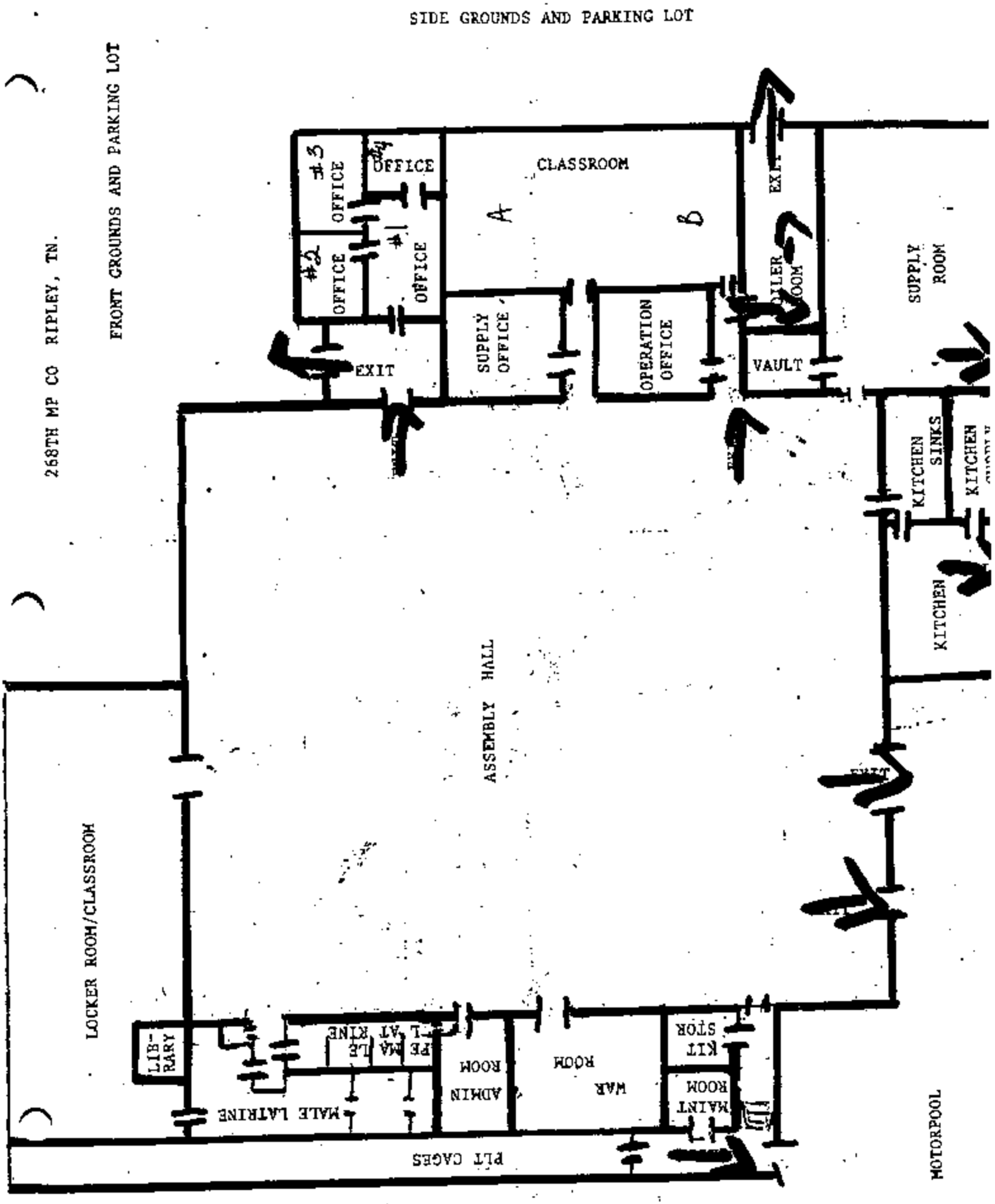

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APPENDIX D

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1713 of 2531

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Analytical Environmental Servs, Inc.

Date: 3/25/2003

TOTAL LEAD IN WIPE SAMPLES
N7082

CLIENT:	Environmental Management Solutions	**Lab Order:**	0303465
Project:	Phillip Miller Armory	**Date Received:**	3/17/2003 9:35:0
Project No:	Phillip Miller Ar	**Matrix:**	Wipe
PO No:		**Analyst:**	SSS

Laboratory ID	Client Sample ID	Results	Units	MDL	DF	Date Collected	Date Analyzed
0303465-001A	RP-01	22.0	µg, Total	2.83	1	2/24/2003	3/19/2003
0303465-002A	RP-02	BRL	µg, Total	2.83	1	2/24/2003	3/19/2003
0303465-003A	RP-03	40700	µg, Total	74.3	26.24	2/24/2003	3/19/2003
0303465-004A	RP-04	469	µg, Total	2.83	1	2/24/2003	3/19/2003
0303465-005A	RP-05	7630	µg, Total	13.0	4.59	2/24/2003	3/19/2003
0303465-006A	RP-06	254	µg, Total	2.83	1	2/24/2003	3/19/2003
0303465-007A	RP-07	61.0	µg, Total	2.83	1	2/24/2003	3/19/2003
0303465-008A	RP-08	934	µg, Total	2.83	1	2/24/2003	3/19/2003
0303465-009A	RP-09	82.0	µg, Total	2.83	1	2/24/2003	3/19/2003
0303465-010A	RP-10	201	µg, Total	2.83	1	2/24/2003	3/19/2003
0303465-011A	RP-11	29.0	µg, Total	2.83	1	2/24/2003	3/19/2003
0303465-012A	RP-12A	47.0	µg, Total	2.83	1	2/24/2003	3/19/2003
0303465-013A	RP-12A	BRL	µg, Total	2.83	1	2/24/2003	3/21/2003

Qualifiers: MDL - Method Detection Limit
ND - Not Detected at the Reporting Limit
DF - Dilution Factor

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May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1714 of 2531

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Industrial Hygiene Surface Wipe Sample Sheet

Return Address Environmental Mgmt. Stns

Point of Contact (name & phone

Non-Responsive

Sampled Facility Phillip Nutter Armory

City Ripley

State TN

Location (bldg/area)

Description of Operation TN ARNG

Date Collected 2/24/03

Date Shipped 2/26/03

Analysis Desired Lead

Sampling Data

Lab Use Only	Sample #	Results	Remarks
	RP-01		Shelving, clothing/supply storage area
	RP-02		Kitchen, bottom shelf, mixing bowl
	RP-03		Bullet stop, 1FR
	RP-04		Top shelf, bullet stop area, 1FR
	RP-05		Floor bullet stop, left side, 1FR
	RP-06		Shelving Platoon Storage, 1FR
	RP-07		Shelving Platoon Sto. #1, 1FR
	RP-08		Hallway area, 1FR
	RP-09		Lawnmower
	RP-10		Floor in front of locker
	RP-11		Drill Hall, btm kitchen roll up door
	RP-12		Drill Hall, floor btm vending machine

Comments to Lab.

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NATIONAL GUARD REGION SOUTH
INDUSTRIAL HYGIENE OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

NGB-ARS-IHSE (40-5f) 27 August 2010

MEMORANDUM FOR THE ADJUTANT GENERAL OF TENNESSEE, ATTN: [redacted] Non-Responsive Pulaski Army National Guard Armory, Battery B, 1-181 Field Activity (FA), Pulaski, Tennessee 38478.

THRU Non-Responsive eputy State Surgeon, Tennessee National Guard, HQS, AGTN-DCSPER-DSS, P.O. Box 41502, Houston Barracks, Nashville, Tennessee 37204-1501.

SUBJECT: Industrial Hygiene Survey the Pulaski Army National Guard Armory, Pulaski, Tennessee 38478.

1. References.

a. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1996 rev.

   a. Title 29, Code of Federal Regulations (CFR), 2009 rev., part 1910, Occupational Safety and Health Standards.

   b. Title 29 CFR, General Industry, revised 1996 rev. Part 1940

   c. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 25 May 2007

   d. AR 385-10, The Army Safety Program, 23 August 2007.

   e. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.

   f. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, 12 September 2008.

   g. TB MED 503, The Army Industrial Hygiene Program, 30 October 2000.

   h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2010 American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

   i. Industrial Ventilation, 26th rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

   j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

   k. NG PAM 420-15, 03 November 2006, Facilities Engineering, Rehabilitation and Conversion of Indoor Firing Ranges.

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1. Industrial Hygiene Survey Report, Non-Responsive [redacted] Environmental Associates, Inc.,1108 East Dolphin Drive, Oak Island, NC.

2. General.

a. At the request of Non-Responsive [redacted] of the Tennessee National Guard Occupational Health Office, an Industrial Hygiene Survey was put together to conduct a Health Hazard Information module (HHIM) Field survey of the s and industrial hygiene sampling of the Pulaski National Guard Armory.

b. The surveys were conducted by Non-Responsive [redacted] Environmental Associates, Inc., Oak Island, NC.

3. Findings. All Health Hazard information is on the survey findings of the report. (See enclosure 1). Operations of very short duration were not sampled due to the requirements of the sampling method. If the operation changes or if the length of the operation is increased, contact this office to schedule sampling if it is deemed needed then.

4. Recommendations. Understand that all findings found in the enclosed report have been reviewed by the Regional Industrial Hygienist and the following recommendations are the ones to be followed.

a. Use the guidance given in the enclosed report as good IH practices, requesting industrial hygiene (IH) services where needed. The recommendations that follow are based on the survey findings as reported:

i. Ensure to perform semi-annual inventories and updates of MSDS's on all chemicals in the facility. Establish an inventory roll up sheet to be kept and evaluate the chemical inventory and update MSDS when new materials arrive and when old ones are replaced. Ensure employees attend annual Hazard Communication training after they return from deployment. Ensure all hazardous materials are stored in appropriate locations **(RAC 3)**

ii. Upgrade lighting to appropriate recommended light levels (SEE REPORT). Painting the walls and floors a light color, cleaning existing light fixtures, rearranging furniture to make better use of available light, and supplemental or task lighting are considerations in increasing available light levels. [ANSI/IES-RP7-1991] **(RAC 3)**. **(RAC 2)**

b. The recommendations given in the comment section of the HHIM data sheets and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-10. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-11 IHIP.

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c. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present survey, especially if this will help eliminate health hazards and reduce medical surveillance cost.

d. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance, also provided a corrective action plan to the OHN within 30 days of receipt of this report.

e. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

5. If additional information is needed about the industrial hygiene survey or air sample

Non-Responsive

[redacted]

CF: NGB-ARS-IHSE
Safety and Occupational Health Manager, Tennessee State Safety and Occupational Health Manager, 3041 Sidco Drive, Nashville, TN 37204-1504

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NEA

[redacted]

August 6, 2010

[redacted]

RE: Contract between Region South Industrial Hygiene Office
and [redacted]nvironmental Associates, Inc.
Industrial Hygiene Survey

Dear [redacted]

In accordance with the requirements of the above reference, [redacted] Environmental Associates, Inc. (NEA) is pleased to submit this report.

This submittal incorporates the requirements of the Industrial Hygiene Contract and interview information collected. The survey and sampling were performed diligently and in accordance with industry regulations, guidelines, and good management standards. The information is complete and accurate to the best of our knowledge.

If you have any questions or comments regarding the report, please contact me.

[redacted]

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Table of Contents

PAGE	
1.0 EXECUTIVE SUMMARY	1
2.0 BACKGROUND	2
3.0 SITE DESCRIPTION	2
4.0 SCOPE OF WORK	2
5.0 IH SURVEY PERSONNEL & POINT OF CONTACTS	3
6.0 METHODOLOGY	3
7.0 FINDINGS	3
7.1 Illumination Survey	3
7.2 Maintenance Work-Bay (Inactive Firing Range)	4
7.3 Industrial Hygiene Lead Wipe Sampling	4
7.4 HAZCOM, Chemical Inventory, MSDS & General Observations	5
8.0 OCCUPANT HEALTH & COMFORT QUESTIONNAIRES & (OHCQ) FACILITY INFORMATION FORM (FIF)	5
9.0 HEALTH HAZARD INFORMATION MODULE FORMS (HHIM)	5
10.0 PHOTOGRAPHS	6
11.0 REFERENCES	6

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1720 of 2531

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Table of Contents
(CONTINUED

12.0 LIMITATIONS 6

13.0 RECOMMENDATIONS 6

APPENDICES:

APPENDIX A: Building Diagram, Summary of Illumination Measurements

APPENDIX B: Firing Range Sample Placement Diagram, Chain of Custody Forms, Lab Sample Results & Sample Photographs

APPENDIX C: Facility Information Form, Health Hazard Information Module, Photographs & References

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1721 of 2531

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1.0 EXECUTIVE SUMMARY

The kitchen, three offices, and two classrooms were the only areas that met or exceeded the illumination guidelines

Develop a Hazard Communication Plan. The plan should include (not limited to) the written designation of a person(s) responsible for MSDS, Labeling, and Training. The plan should also include procedures for implementing duties and keeping the program current. Ensure that the MSDS binders are kept in work areas, continually updated and that MSDSs are easily cross referenced in case of emergency. "Guidelines for Employer Compliance (Advisory) – 1910.1200 App E "can be found at www. osha.gov.

Laboratory lead wipe sample results indicated lead concentrations were below the National Guard Bureau (NGB) Pamphlet 420-15 guidelines of 200µg/ft² or lower for post cleaning indoor firing ranges (IFR).

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NEA
Non-Responsive [redacted] ENVIRONMENTAL ASSOCIATES, INC.

2.0 BACKGROUND

Non-Responsive [redacted] Environmental Associates, Inc. (NEA) was contracted by the National Guard Region South Industrial Hygiene Office to conduct an Industrial Hygiene Initial Baseline Survey of the Pulaski Army National Guard Armory, Battery B, 1-181 Field Activity (FA), Pulaski, Tennessee 38478. The survey was conducted on July 19th, 2010 by Non-Responsive [redacted] Non-Responsive [redacted] Certified Hazard Control (CHCM).

Pulaski Army National Guard Armory (PNGA) maintains rocket launchers and 5 ton vehicles. The Battery is also responsible for administration, readiness and personnel support. The armory is used for drills on weekends. On weekends LNGA personnel perform within their Military Occupational Specialty.

Due to deployment and other activities, the shop supervisor was the only person available during this survey.

The former indoor firing range is currently being used as a locker room and for storage.

Vehicle maintenance is the responsibility of the OMS #8 in Winchester, Tennessee. A two vehicle maintenance bay, which is located at the rear of the armory, is used periodically by the OMS #8 in Winchester to repair vehicles on-site. OMS #8 personnel were not available.

The baseline survey included conducting illumination studies, lead wipe samples, Health Hazard Information Modules (HHIMs), Hazard Communication Program, Petroleum Oil & Lubricant (POL) procedures and Facility Information Form (FIF).

3.0 SITE DESCRIPTION

Pulaski Army National Guard Armory, Battery B, 1-181 Field Activity (FA), is located in a commercial area at 2398 Industrial Loop Road, Pulaski, Tennessee 38478. The armory was built in 1989. The armory contains the usual and customary offices, classrooms, drill hall, kitchen, storage, supply, recreation room, and men/women latrines, etc. There are currently seven (7) employees assigned.

4.0 SCOPE of WORK

The industrial hygiene (IH) survey conducted at Pulaski Army National Guard Armory included an illumination survey of the entire facility and lead wipe samples of the vehicle maintenance bay (IFR). A review of the Hazard Communication Program (Haz Com) was made, to include Material Safety Data Sheets (MSDS's), personal protective equipment (PPE), and inspection of the flammable/non-flammable storage cabinets. A review of the Facility Information Form (FIF) was also completed.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1723 of 2531

NEA
Non-Responsive **ENVIRONMENTAL ASSOCIATES, INC.**

5.0 IH SURVEY PERSONNEL AND POINTS OF CONTACTS

Non-Responsive, MS, Certified Hazard Control Manager (CHCM), Non-Responsive Environmental Associates, Incorporated, was responsible for this survey. LNGA points of contacts (POCs) and coordinators were Non-Responsive Industrial Hygiene Technician, and Non-Responsive op Foreman.

6.0 SURVEY METHODOLOGY

A walk-thru survey was conducted of the Armory, vehicle maintenance bay (IFR), offices, and storage areas. Employees were interviewed, and the OHCQs/FIF were reviewed. Sampling and evaluation strategies were developed from information obtained from the POCs, FIF, and a walk-thru. Procedures and strategies were designed for the purpose of collecting lead wipe samples, and conducting a lighting survey. The POC was charged with providing NEA detailed information about the process and the flow of operations for each area. All tests and procedures were conducted in accordance with usual and customary, generally accepted, IH protocol.

7.0 FINDINGS

7.1 Illumination Survey

Illumination readings were obtained with an Extech Model 407026 Heavy Duty Light Meter, Serial # Z118558, with a National Institute of Standards and Technology (NIST) traceable calibration. Illumination readings were recorded in foot-candles (FCS) and the Extech light meter was programmed for the type of illumination present. Illumination readings were taken in offices, classrooms, locker-room storage (former IFR), drill hall, kitchen, storage, supply, recreation room, and men/women latrines

Illumination Parameters FCS

Office/ Admin = 70	Physical Fitness = 50	Vehicle Work/Bays = 50
Supply =20	Vault = 20	Drill Hall = 50
Latrines = 20	Library = 70	Kitchen= 50

The kitchen, two offices, and two classrooms were the only areas that met or exceeded the illumination guidelines. Lights were non-operational in the back and middle of the locker-room/ storage (IFR). A building diagram and summary of illumination measurements and Army National Guard DG 415 Design Guide Lighting Standards are included in Appendix A.

Posted to NGB FOIA Reading Room
May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1724 of 2531

7.2 Maintenance Work-Bay

Vehicle maintenance is the responsibility of the OMS #8 in Winchester, Tennessee. The two maintenance bays are used periodically by the OMS #8 to repair tires and change oil and fluids on 5 ton vehicles on-site. Major vehicle repair is performed in Winchester.

7.3 Industrial Hygiene Lead Wipe Sampling

Ten lead dust surface samples were collected from representative areas in the locker-room/storage area (former IFR) using Environmental Express Ghost Wipes™ and 12 inch by 12 inch templates. The entire area was wiped using an "S" configured motion. The Ghost™ Wipe was then folded in half, and the area was again wiped in a direction 90° to the first using an "S" motion. The wipe was folded again and the perimeter of the area was wiped. The wipe was then placed into a plastic bag and sealed. In addition, a clean wipe was placed in a resealable plastic bag and submitted as a blank sample for analysis. The samples were sent to Analytical Environmental Services, Inc., an American Industrial Hygiene Certified Laboratory, for chemical analysis. The samples were submitted using the Chain of Custody Procedure where they were individually processed and given a unique number.

No samples were above the recommended NGB guidelines of 200ug/ft² (Reference e). An indoor firing range sample placement diagram, Chain of Custody Forms, laboratory sample results, and photographs are included in Appendix B.

A table denoting sample locations, field numbers, and lead results is outlined below.

Lead Wipe Sample Locations, Field Numbers & Results

Sample Number	Sample Location	Results (µg/ft²)
PULA-P01	Left Rear Floor (FL)	BRL
POLA-P02	Right Rear (FL)	BRL
POLA-P03	Front (FL)	BRL
POLA-P04	Front (FL)	BRL
POLA-P05	Bullet Stop Area	BRL
POLA-P06	Bullet Stop Area	BRL
POLA-P07	Left Wall	100
POLA-P08	Right Wall	61
POLA-P10	Drill Hall (FL) west	BRL
Blank	Basement Bar Area FL	BRL

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1725 of 2531

7.4 HAZCOM, Chemical Inventory, MSDS Review, and General Observations

During the industrial hygiene survey, reviews of MSDSs and the Hazardous Material Inventory were conducted. An inspection of the flammable storage units was made.

An inspection of the flammable and non-flammable storage cabinets was made. The flammable storage cabinets are of the approved type and in good repair. All chemicals present in the flammable storage cabinets were relatively typical. The storage cabinets contained primarily aerosol spray paint cans. Spray painting with the aerosol spray paint cans is done for "touch-up" purposes or spraying ID numbers on the bumpers of vehicles. This is done infrequently, with a duration of no more than 5 -10 minutes. The most common "potentially hazardous" chemicals found in the substances were acetone, and toluene. The STEL and PEL set forth for these chemicals were not a concern. This is due to the amount of time, quantity and use of the chemicals, combined with their low percentage by volume.

MSDSs were not available for chemicals used and posted in the work environment. The MSDSs were not updated and appropriately cross referenced. A Chemical Inventory list was posted on flammable storage cabinets and was not updated. Employees had not received centralized training which included some Hazard Communication training. Elements of a Hazard Communication Program are not being implemented, to include establishing a written program.

8.0 FACILITY INFORMATION FORM (FIF)

The FIF form is included in Appendix C.

9.0 HEALTH HAZARD INFORMATION MODULE (HHIM)

The HHIM Field Survey Forms were completed for operations surveyed. A roster of employees, controls/protective measures, and potential health hazards for specific operations were identified. The HHIM Field Survey Forms are included in Appendix C.

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1726 of 2531

10.0 PHOTOGRAPHS

Site photographs are included in Appendix C.

11.0 REFERENCES

A list of references used during the course of this survey is included in Appendix C.

12.0 LIMITATIONS

Variation of the work environment is an inherent part of sampling and evaluations. This report reflects conditions, operations, and practices observed and reported at the time of the survey. Changes in operating conditions, materials used, and work practices can alter the quality of air and the outcome of this type of survey.

13.0 RECOMMENDATIONS

Lights were non-operational in the back and middle of the locker-room/ storage- indoor firing range (IFR). Submit a work order to upgrade the lighting in the locker-room/storage (IFR) and other areas identified.

Develop a Hazard Communication Plan. The plan should include (not limited to) the written designation of a person(s) responsible for MSDS, Labeling, and Training. The plan should also include procedures for implementing duties and keeping the program current. Ensure that the MSDS binders are kept in work areas, continually updated. Include an index in the binder so that MSDS are easily cross referenced in case of emergency. "Guidelines for Employer Compliance (Advisory) – 1910.1200 App E "can be found at www. osha.gov.

Evaluate OMS #8 shop activities when personnel are available.

Laboratory lead wipe sample results indicated lead concentrations were below the National Guard Bureau (NGB) Pamphlet 420-15 guidelines of 200µg/ft² or lower for post cleaning indoor firing ranges (IFR). Ensure that the State of Tennessee does not have lead reduction levels lower than recommended in Pamphlet 420-15.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1727 of 2531

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APPENDIX A

Building Diagram & Summary of Illumination Measurements & NG Design Guide Lighting Standards

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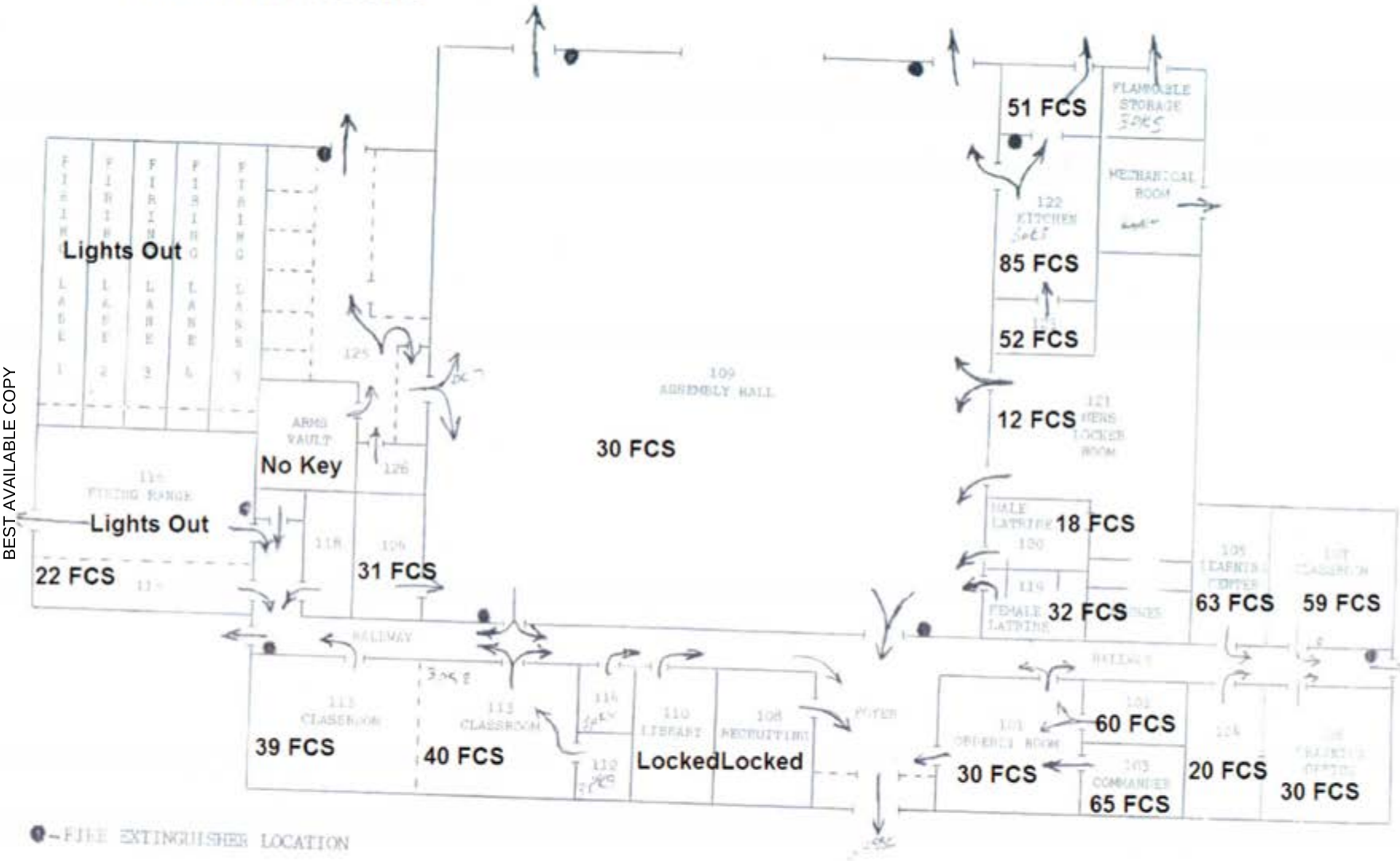
Building Diagram & Summary of Illumination Measurements



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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1729 of 2531

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May, 2018

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Table 8. Electrical Requirements

	FUNCTIONAL AREA	LIGHTING	OUTLETS	NOTES
Office Areas				
1	General Supervisor	70 FC, FL	1 duplex per wall	1
2	Supervisor	70 FC, FL	1 duplex per wall	1
3	Production Controller	70 FC, FL	1 duplex per wall	1
4	Inspection and Library	70 FC, FL	1 duplex per 10 LF of wall	1
5	Automation Clerk	70 FC, FL	1 duplex per 10 LF of wall	1
6	Common IT Space	70 FC, FL	1 duplex per 10 LF of wall	2
7	IT Support Activities	70 FC, FL	1 duplex per 10 LF of wall	2
8	Classroom	70 FC, FL	1 duplex per 10 LF of wall	
Personnel Areas				
1	Toilet/Shower	40 FC, FL	1 duplex GFCI per 2 sinks	
2	Locker Room	40 FC, FL	1 duplex GFCI	
3	Break Area	30 FC, FL	1 duplex per 10 LF of wall	
4	Physical Fitness Area	50 FC, FL	1 duplex per 12 LF of wall	2
Work Areas				
1	Tool Room	50 FC, FL	1 duplex per 20 LF of wall	
2	Supply Room	30 FC, FL	1 duplex per 20 LF of wall	
3	Battery Room	30 FC, FL	explosion proof	4
4	Comm. & Electronic Shop	70 FC, FL	1 duplex per 2 LF of workbench	2
5	Instrument Repair Shop	70 FC, FL	1 duplex per 2 LF of workbench	2
6	Small Arms Repair Shop	70 FC, FL	1 duplex per 2 LF of workbench	2
7	Small Arms Test Room	70 FC, FL	1 duplex per 2 LF of workbench	2
8	Vault (Small Arms)	20 FC, FL	1 duplex	
9	Vault (CBT Vehicle Arms)	20 FC, FL	1 duplex	
10	Injector Test Room	70 FC, FL	1 duplex per 2 LF of workbench	2
11	Fuel and Ignition Repair Shop	70 FC, FL	1 duplex per 2 LF of workbench	2
12	Kit Storage/Issue	20 FC, FL	1 duplex per 20 LF of wall	
13	Machine Shop	50 FC, FL	1 duplex per 10 LF of wall	2
14	Carpenter Shop	50 FC, FL	1 duplex per 10 LF of wall	2
15	Lumber Storage Shed	10 FC, FL	none	

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Table 6. Electrical Requirements (Continued)

	FUNCTIONAL AREA	LIGHTING	OUTLETS	NOTES
16	Canvas Shop	50 FC, FL	1 duplex per 10 LF of wall	2
17	Missile Repair Shop	70 FC, FL	1 duplex per 10 LF of wall	2
18	Vault (Missile)	20 FC, FL	1 duplex	
19	Calibration Room	70 FC, FL	1 duplex per 2 LF of workbench	
20	Calibration Storage	20 FC, FL	1 duplex per 20 LF of wall	
21	Glass Repair Room	50 FC, FL	1 duplex per 10 LF of wall	2
22	Radiator Test & Repair Room	50 FC, FL	1 duplex per 10 LF of wall	2
23	COMSEC Repair Room	50 FC, FL	1 duplex per 10 LF of wall	2
24	Radiation Calibration Room	70 FC, FL	1 duplex per 2 LF of workbench	
25	Bulk POL Storage for Lubricating Systems	20 FC, FL	1 duplex	
26	Bulk POL Storage	20 FC, FL	1 duplex per 20 LF of wall	
27	Controlled Waste Handling	30 FC, FL	1 duplex per 20 LF of wall	
28	Bulky Equipment Storage	20 FC, FL	1 duplex per 20 LF of wall	
29	Flammable Materials Storage	20 FC, FL	1 duplex explosion proof	
30	Enclosed Unheated Storage	20 FC, FL	1 duplex per 20 LF of wall	
Workbays				
1	General Purpose Workbay	50 FC, FL	1 duplex per 10 LF of wall	2
2	Warm-Up Bay	50 FC, FL	1 duplex per 10 LF of wall	2
3	Welding Shop	50 FC, FL	1 duplex per 10 LF of wall	2
4	Wash Bay	50 FC, FL	N/A	2
5	Paint Stripping Bay	50 FC, FL	1 duplex per 10 LF of wall	2
6	Paint Preparation Bay	50 FC, FL	1 duplex per 10 LF of wall	2
7	Paint Booth	50 FC, FL	1 duplex per 10 LF of wall	2
8	Lubrication Bay	50 FC, FL	1 duplex per 10 LF of wall	2
9	Engine/Transmission Test Cell	50 FC, FL	1 duplex per 10 LF of wall	2
10	Electronics Bay	50 FC, FL	1 duplex per 10 LF of wall	2
11	Body Shop	50 FC, FL	1 duplex per 10 LF of wall	2

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APPENDIX B

IFR Sample Placement Diagram, Chain of Custody Forms, Lab Sample Results & Sample Photographs

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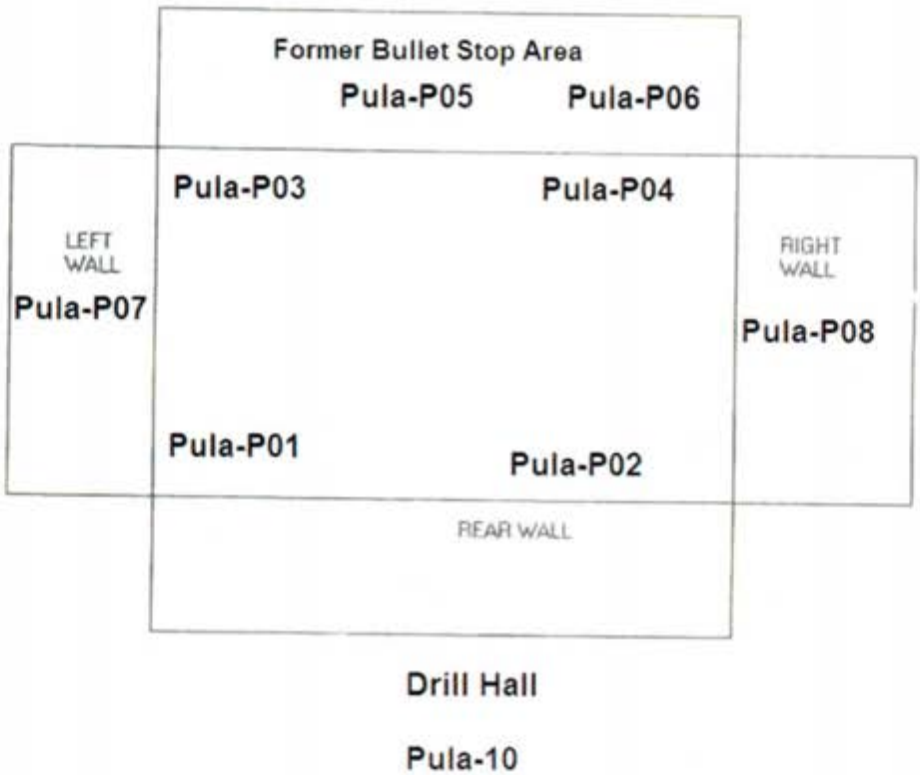
INDOOR FIRING RANGE SAMPLE PLACEMENT DIAGRAM



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AES

ANALYTICAL ENVIRONMENTAL SERVICES, INC.

July 29, 2010

Non-Responsive [redacted]

RE: Pulaski, TN

Dear Non-Responsive [redacted]

Order No: 1007J10

Analytical Environmental Services, Inc. received 10 samples on 7/23/2010 10:30:00 AM for the analyses presented in following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.

AES' certifications are as follows:

-NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/10-06/30/11.

-AIHA Certification ID #100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) effective until 09/01/11.

These results relate only to the items tested. This report may only be reproduced in full.

If you have any questions regarding these test results, please feel free to call.

Non-Responsive [redacted]

3485 NGB FOIA Reading Room ATLANTA, GEORGIA 30340 TEL: (770) 457-8177 FAX: (770) 457-8189

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Analytical Environmental Services, Inc **Date:** 29-Jul-10

Lab Order: 1007J10
Client: [redacted]Environmental Associates, Inc.
Project: Pulaski, TN
Matrix: Wipe
Date Received: 7/23/2010 10:30:00 AM

LEAD ON WIPES (N9100/7082)

N7082

Laboratory ID	Client Sample ID	Result	Units	Reporting Limit	DF	Qual	Date Collected	Date Analyzed	Analyst
1007J10-001A	PULA-P01, LEFT REAR FL.	BRL	ug, Total	20	1		07/19/2010	07/28/2010	MP
1007J10-002A	PULA-P02, RT REAR FL	BRL	ug, Total	20	1		07/19/2010	07/28/2010	MP
1007J10-003A	PULA-P03, FRONT FL	BRL	ug, Total	20	1		07/19/2010	07/28/2010	MP
1007J10-004A	PULA-P04, FRONT FL	BRL	ug, Total	20	1		07/19/2010	07/28/2010	MP
1007J10-005A	PULA-P05, BULLET STOP	BRL	ug, Total	20	1		07/19/2010	07/28/2010	MP
1007J10-006A	PULA-P06, BULLET STOP	BRL	ug, Total	20	1		07/19/2010	07/28/2010	MP
1007J10-007A	PULA-P07, LEFT WALL	100	ug, Total	20	1		07/19/2010	07/28/2010	MP
1007J10-008A	PULA-P08 RT WALL	61	ug, Total	20	1		07/19/2010	07/28/2010	MP
1007J10-010A	PULA-P10 DRILLHALLL W.	BRL	ug, Total	20	1		07/19/2010	07/28/2010	MP
1007J10-011A	BLANK	BRL	ug, Total	20	1		07/19/2010	07/28/2010	MP

Qualifiers BRL - Not Detected at the Reporting Limit
B - Analyte Found in Associated Method Blank
Results are blank corrected where applicable

DF - Dilution Factor

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Date: 29-Jul-10

Analytical Environmental Services, Inc

Client: [redacted] Environmental Associates, Inc.
Project: Pulaski, TN
Lab Order: 1007J10

Dates Report

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1007J10-001A	PULA-P01, LEFT REAR FL.	7/19/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007J10-002A	PULA-P02, RT REAR FL	7/19/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007J10-003A	PULA-P03, FRONT FL	7/19/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007J10-004A	PULA-P04, FRONT FL	7/19/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007J10-005A	PULA-P05, BULLET STOP	7/19/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007J10-006A	PULA-P06, BULLET STOP	7/19/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007J10-007A	PULA-P07, LEFT WALL	7/19/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007J10-008A	PULA-P08 RT WALL	7/19/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007J10-010A	PULA-P10 DRILLHALLL W.	7/19/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007J10-011A	BLANK	7/19/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1736 of 2531

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ANALYTICAL ENVIRONMENTAL SERVICES, INC
3785 Presidential Parkway, Atlanta GA 30340-3704
TEL (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

Work Order 1007J10

Date 7/19/10 Page 1 of 1

COMPANY: [redacted]

ADDRESS: 1108 East Dolphin Drive
Oak Island, NC 28465

[redacted]

ANALYSIS REQUESTED: Lead

Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.

	SAMPLE ID	SAMPLED DATE	SAMPLED TIME	Grab	Composite	Matrix (See codes)	PRESERVATION (See codes)	REMARKS	No # of Containers
1	PULA-P01, Left Rear Fl	7/19/10							
2	PULA-P02 Rt Rear Fl	"							
3	PULA-P03 Front Fl	"							
4	PULA-P04 Front Fl	"							
5	PULA-P05 Bullet Stop	"							
6	PULA-P06 Bullet Stop	"							
7	PULA-P07 Left Wall	"							
8	PULA-P08 Rt Wall	"							
9	PULA-P09 Drill Hall E.	"							
10	PULA-P10 Drill Hall W.	"							
11	[redacted]								
12									
13									
14									

RELINQUISHED BY: Paul N[redacted] DATE/TIME: 7/19/10

RECEIVED BY: [redacted] DATE/TIME: 7/23/10 10:30

PROJECT INFORMATION
PROJECT NAME: Pulaski, TN
PROJECT #:
SITE ADDRESS: 2398 [redacted]
SEND REPORT TO: [redacted]
INVOICE TO (IF DIFFERE[redacted]
bill to: [redacted] Dr.,
Suite 1[redacted]
QUOTE #: PO#:

RECEIPT
Total # of Containers

Turnaround Time Request
- (X) Standard 5 Business Days
- ( ) 2 Business Day Rush
- ( ) Next Business Day Rush
- ( ) Same Day Rush (auth req.)
- ( ) Other

STATE PROGRAM (if any)
E-mail? Y / N Fax? Y / N
DATA PACKAGE I II III IV

SPECIAL INSTRUCTIONS/COMMENTS
Please Fax or Email results ASAP

The bill for this project should be submited [redacted]
HGB, 510 Plaza Dr. Suite 1530, College Park, GA 30349.

SHIPMENT METHOD
OUT VIA
IN VIA
CLIENT FedEx UPS MAIL COURIER
GREYHOUND OTHER

SAMPLES RECEIVED AFTER 3PM OR SATURDAY ARE CONSIDERED AS RECEIVED ON THE NEXT BUSINESS DAY; IF NO TAT IS MARKED ON COC AES WILL PROCEED AS STANDARD TAT
SAMPLES ARE DISPOSED OF 30 DAYS AFTER COMPLETION OF REPORT UNLESS OTHER ARRANGEMENTS ARE MADE.

MATRIX CODES: A Air GW Groundwater SE Sediment SO Soil SW Surface Water W Water (Blanks) DW = Drinking Water (Blanks) OT = Other (specify) WW = Waste Water
PRESERVATIVE CODES: H+1 Hydrochloric acid + ice Ice only N = Nitric acid S+1 Sulfuric acid + ice S/M+1 Sodium Bisulfate/Methanol + ice Other (specify) NA None

White Copy - Original, Yellow Copy - Client

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1737 of 2531

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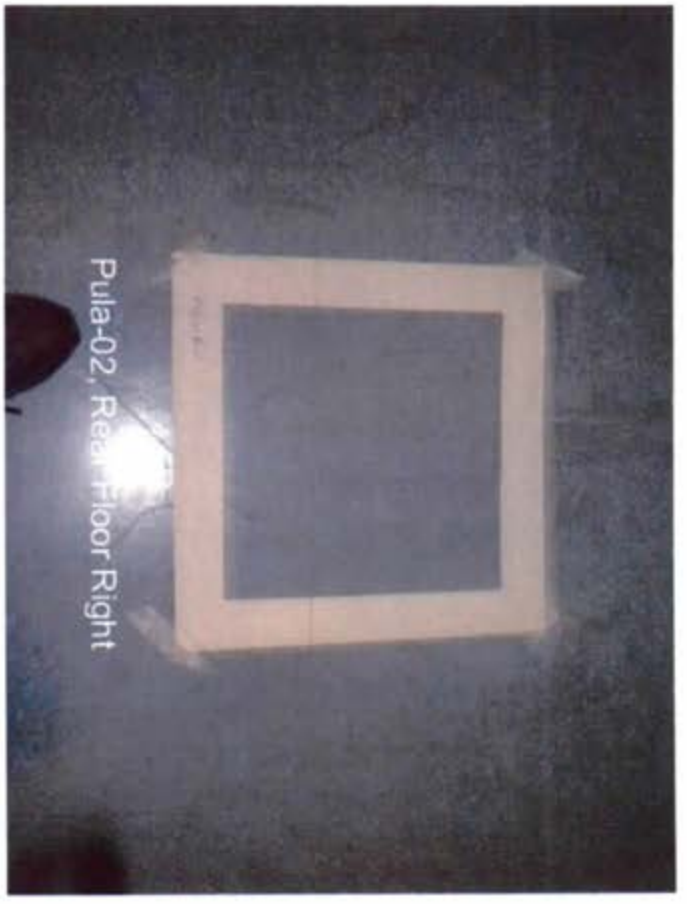

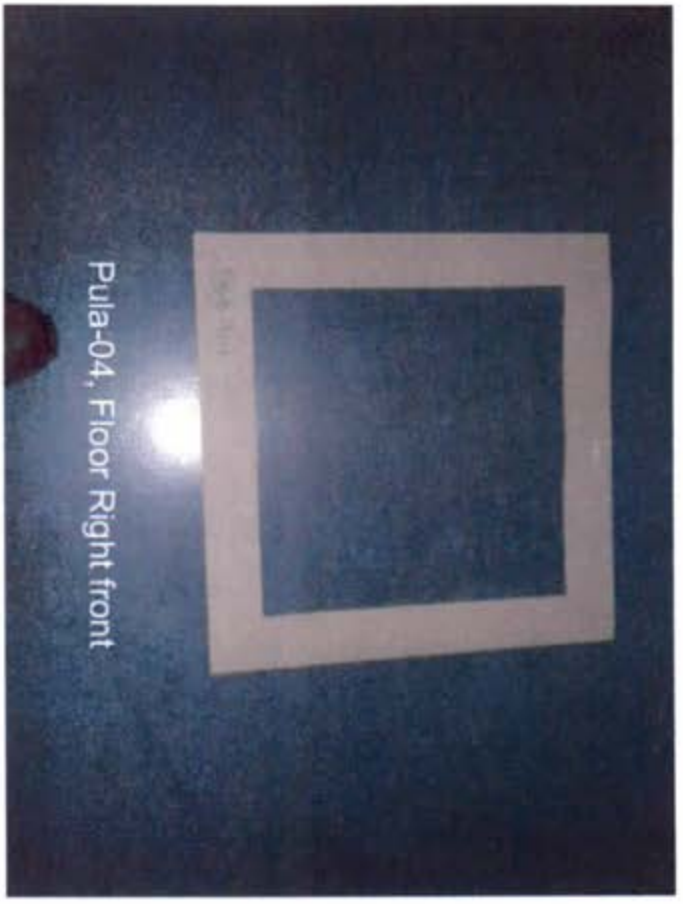

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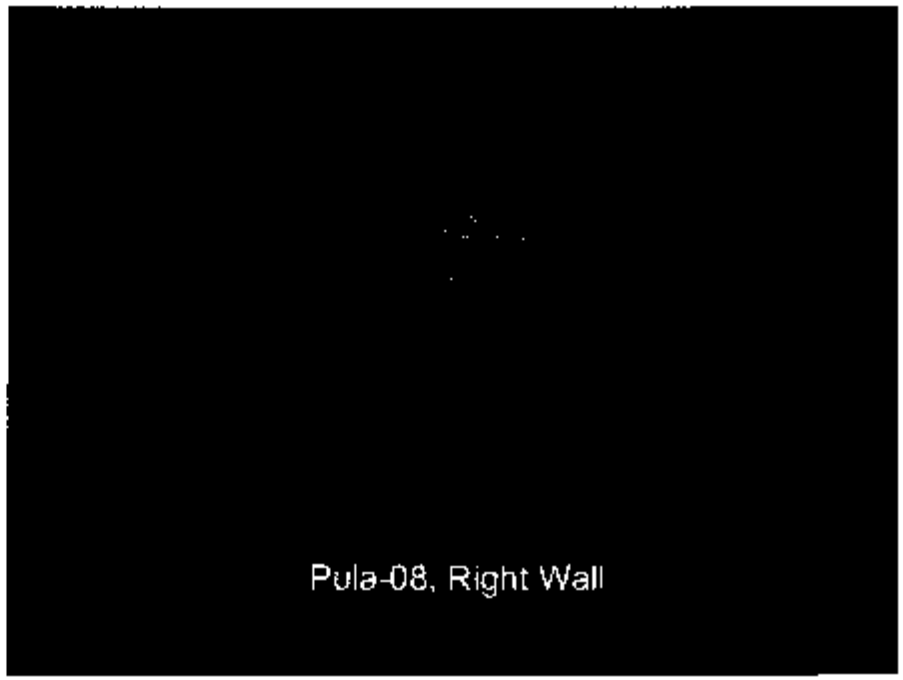
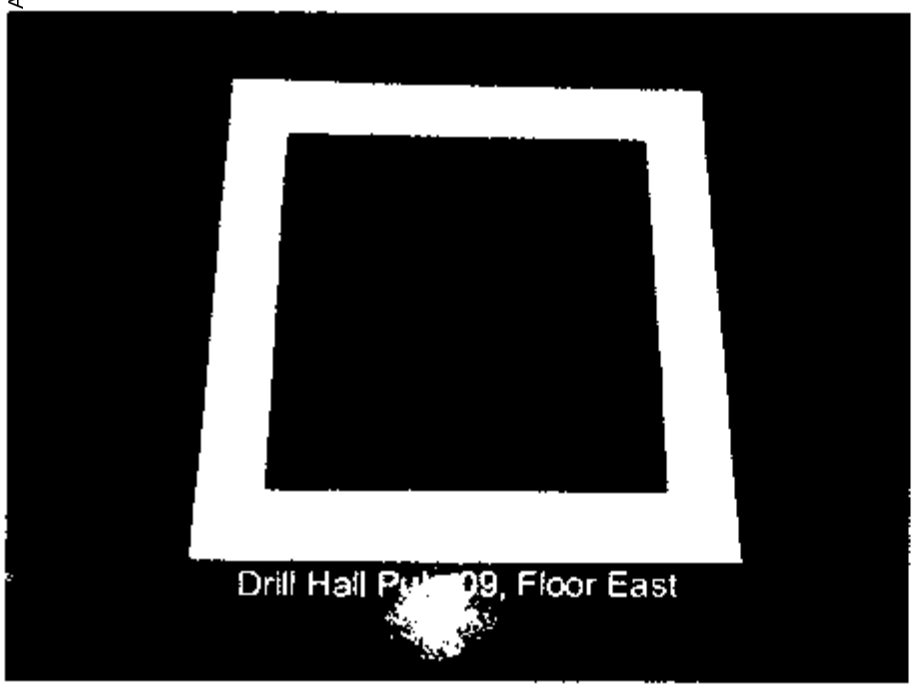
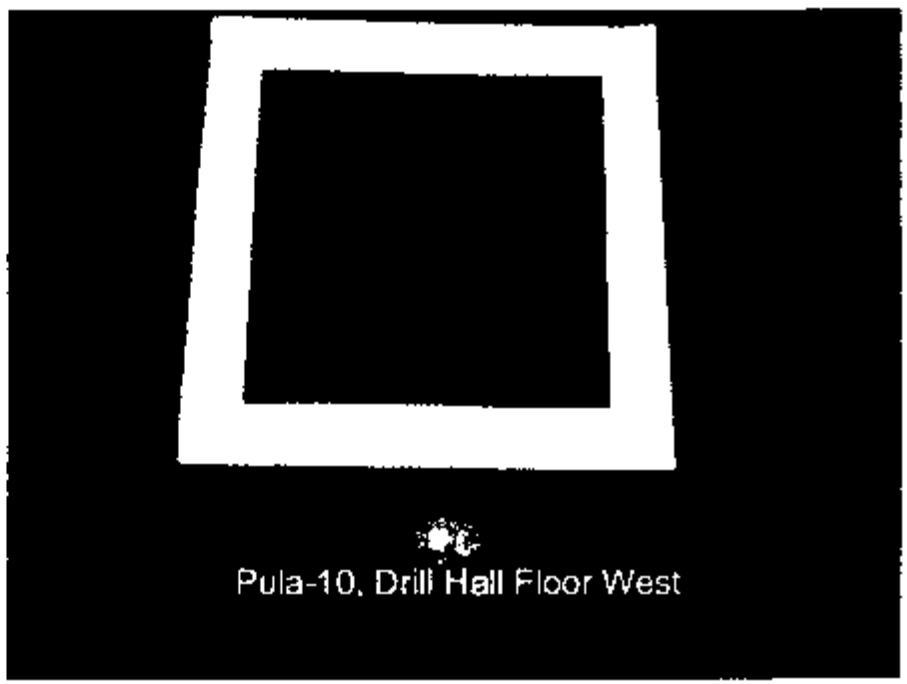
Pula-07, Left Wall



Pula-08, Right Wall



Drill Hall Pula-09, Floor East



Pula-10, Drill Hall Floor West

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1740 of 2531

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APPENDIX C

Facility Information Form, Health Hazard Information Module, Photographs & References

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Facility Information Form

State:Tennessee
Facility:TN ARNG
Facility Address: Pulaski Armory, 2398 Industrial Loop Road, Pulaski, TN 38478
Phone#: Non-Responsive [redacted]

Date Prepared: 7/22/10
Supervisor: Non-Responsive [redacted]

Fax #:_____

Work Schedule (M-F, 8-4:30)

General Information	
Number of Maintenance Bays: Number of Exhaust Extensions:	0
Total Number of Personnel:	50
Number of Maintenance Personnel:	5
Number of Administrative Personnel:	3
Approximate area of facility (ft²) ApproximateDate/ Construction	1989

Operations		
	Yes (if Yes, How Many Hours per Day on Average)	No
Abrasive Blasting (List Type)	none	
Aerosol Can Painting		
Air Compressors (How many?) Armament	none	
Aviation Life Support Equipment	none	
Avionics	none	
Battery Charging Room or Battery Storage Room	none	
Brake/Clutch Repair and/or Replacement	none	
Calibration of Equipment	none	
Canvas Repair	none	
Carpentry Shop	none	
Grinding, buffing, polishing, sanding	1	
Hazardous Materials/POL Handling	yes	
Electronics Repair	none	
Pneumatic Tool Operation	no	
Respirators (what kind?) Refueling	no	
Solvent Tank Use (How Many) 1	no	
Spray Paint Booth	none	
Sheet Metal Working	none	
Small Arms Repair	none	
Soldering	none	
Supply/Warehouse	none	
Testing and Tuning of Engines	no	
Welding (List Types)	no	
Other Noise sources		

Please write below any special concerns that you would like to have addressed during the survey:

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ARLOC	INSTALLATION	BLDG/ RMNO.
47000	Pulaski Armory, 2398 Industrial Loop Road, Pulaski, TN 38478	

LOCATION/CODE NGB	OPERATION/CODE/ ADO

SURVEY DATE: 0719/10, Evaluator: Paul Nichols, CHCM

WACOM/CODE	SUBMACOM/CODE	Non-Responsive
National Guard Bureau/NG	ARNG	

Non-Responsive	UNIT/ORGARNIZATION	RAC	FREQUENCY (hrs/day
	Pulaski Armory	3	HRS/DAY As needed

NO. CIV(S)	NO. MIL	NO. CONTRACTORS	NO. LOC(S)0	NO. OTHER
0	50	0		0

SECTION 2 : FACILITY DATA

LAB HOODS	VAPOR DEGREASERS	SPRAY BOOTHS
0	0	0
MAINTENANCE BAYS	**OPEN SURFACE TANKS**	**VENTILATION UNITS**
0	0	0

SECTION 3: SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS
Video display terminal	Admin & Techs use computers Adequate lights in admin offices		50-75 FCS	

PERSONAL PROTECTIVE EQUIPMENT (R= REQUIRED; U = UTILIZED)

GLOVES	R/U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R/U
ACID	/	AIR LINE			/
COLD SURFACES	/	ABRASIZE BLASTING HOOD			/
HOT SURFACES	/	DISPOSABLE			/
N8C AGENTS	/	FULL FACE AIR PURIFYING			/
OIL		1/2 FACE AIR PURIFYING			/no
SOLVENTS	/	1/4 FACE AIR PURIFYING			/
SURGICAL GLOVES	/	SELF CONTAINED			/

EYES/FACE	R/U	HEARING	R/U	BODY	R/U	HEAD/FIT	R/U
HEMICAL SPLASH		(CANAL CAPS	x	APRONS	/	(COLD WEATHER BOOTS/HATS	

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FULL FACE SHIELD	/	EARPLUGS	X/x	COLD WEATHER CLOTHING	/	HARD HATS	/
CHEMICAL/SAFETY	/	HELMETS	/	COVERALLS		IMPERMEABLE BOOTS	X/x
SAFETY/IMPACT	/	MUFFS	/	FULL BODY SUIT	/	SAFETY/CONDUCTIVE SHOES	/
WELDING HELMET	/	MUFF/EARPLUG COMBO	/	HEAT REFELECTIVE VEST/SUIT	/	SAFETY/NON-CONDUCTIVE SHOES	/
		MFF/EARPLUG W/TIME LIMIT	X/x	SAFETY BELT/HARNESS	/		/

1

SECTION 4 HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
POVDT	Video Display Terminal	2	F
PODTRESS	Physical Stress	2	F

SECTIONS: PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY
See attached list					

SECTIONS: COMMENTS

1. Computers are used in admin offices.

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ARLOC 47000	INSTALLATION Pulaski Armory, 2398 Industrial Loop Road, Pulaski, TN 38478	BLDG/	RMNO. POL Storage

LOCATION/CODE	OPERATION/CODE /STO
SURVEY DATE: July 19th 2010. Evaluator: Non-Responsive	

WACOM/CODE	SUBMACOM/CODE	
National Guard Bureau/NG	ARNG	Non-Responsive

Non-Responsive	UNIT/ORGARNIZATION	RAC	FREQUENCY (hrs/day HRS/DAY As needed
		3	

NO. CIV(S)	NO. MIL	NO. CONTRACTORS	NO. LOC(S)0	NO. OTHER
0	50	0		0

SECTION 2 : FACILITY DATA

LAB HOODS	VAPOR DEGREASERS	SPRAY BOOTHS
0	0	0
MAINTENANCE BAYS	**OPEN SURFACE TANKS**	**VENTILATION UNITS**
0	0	

SECTION 3: SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS
.None	No exhaust in the POL storage buildings.		One (1) cfm of outdoor air per square foot.	

PERSONAL PROTECTIVE EQUIPMENT (R= REQUIRED; U = UTILIZED)

GLOVES	R/U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R/U
ACID		AIR LINE			/
COLD SURFACES	/	ABRASIZE BLASTING HOOD			/
HOT SURFACES	/	DISPOSABLE			/
N&C AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	1/2 FACE AIR PURIFYING			/
SOLVENTS	/	1/4 FACE AIR PURIFYING			/
SURGICAL GLOVES	/	SELF CONTAINED			/

EYES/FACE	HEARING	R/U	BODY	R/U	HEAD/FIT	R/U
HEMICAL SPLASH	(CANAL CAPS	/	JAPRONS	X/	(COLD WEATHER BOOTS/HATS	

FULL FACE SHIELD	/	EARPLUGS	X/x	COLD WEATHER CLOTHING	/	HARD HATS	/
CHEMICAL/SAFETY	/	HELMETS	/	COVERALLS		IMPERMEABLE BOOTS	x
SAFETY/IMPACT	/	MUFFS	/	FULL BODY SUIT	/	SAFETY/CONDUCTIVE SHOES	/
WELDING HELMET	/	MUFF/EARPLUG COMBO	/	HEAT REFELECTIVE VEST/SUIT	/	SAFETY/NON-CONDUCTIVE SHOES	/
		MFF/EARPLUG W/TIME LIMIT	X/x	SAFETY BELT/HARNESS	/		/

1

SECTION 4 HAZARD INVENTORY DATA

PCSTRESSX	Physical Stress	3	A
PONOISECO	Noise Continuous	2	A
POLIFTING	Heavy Lifting	3	A
POEYEHAZARD	Eye Hazard	3	A
POFOOTHAZARD	Foot Hazard	2	0

SECTION 5 PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY
See Attached List.					

SECTION 6 COMMENTS

1. Storage and handling in POL buildings.

Non-Responsive

[redacted]

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Page 1 of 1
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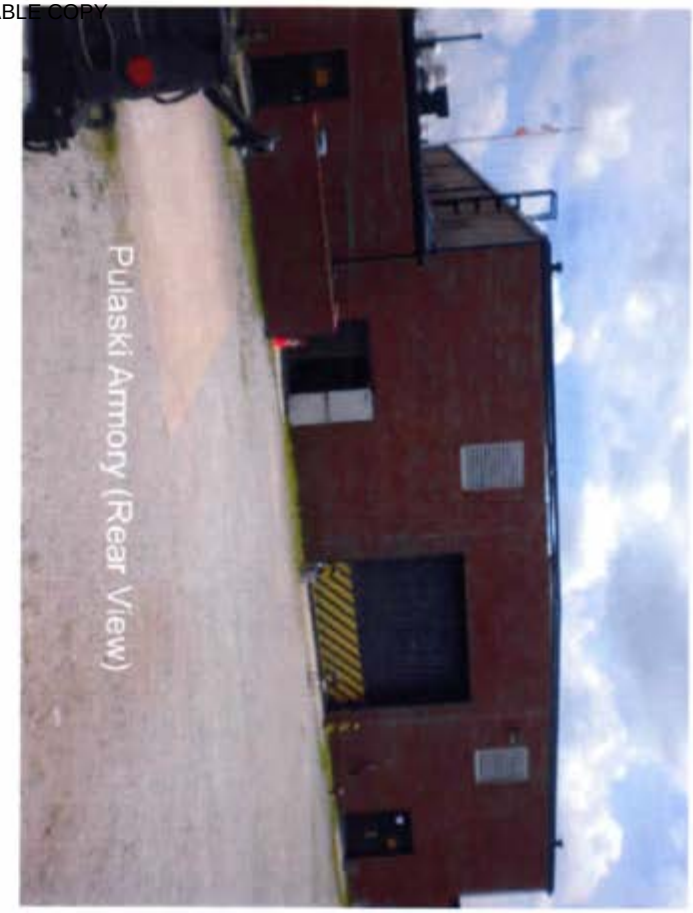
Pulaski Armory



Pulaski Armory (Rear View)

Pulaski Armory

Pulaski Armory

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OMS Shop

Flammable Storage Cabinets

POL Sto

Flammable Storage

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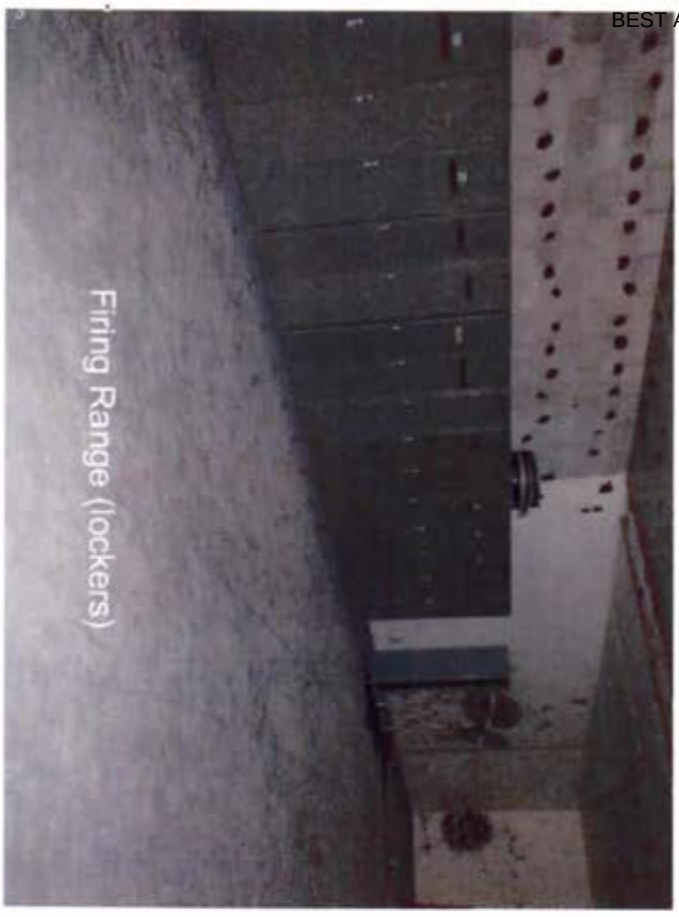

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REFERENCES

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 22 July 2005.

c. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, October 1988.

d. AR 385-10, The Army Safety Program, 29 February 2000.

e. National Guard Pam 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006.

f. NGR 385-15, Policy and Responsibilities, Evaluation and Operation of Army National Guard Indoor Firing Ranges, 3 November 2006.

g. DA PAM 40-503, The Army Industrial Hygiene Program, 30 October 2000.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2003, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. Title 29, Code of Federal Regulations (CFR), 2001 rev., part 1910, Occupational Safety and Health Standards.

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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-AVN-SI

May 18, 2001

MEMORANDUM FOR: Adjutant General TN ARNG, ATTN: State Safety Manager, P O Box 41502, Nashville, TN 37204-1502.

SUBJECT: Transmittal of Industrial Hygiene Indoor Firing Range Inspection/Evaluation Report Pulaski Armory Hygiene Indoor Firing Range, Pulaski, TN.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, 30 August 1986, Medical Service, Preventive Medicine.

c. National Guard Regulation (NGR) 385-10, 1988, Army National Guard Safety and Occupational Health Program.

d. AR 11-34, The Army Respiratory Protection Program, 15 February 1990.

e. TB MED 502, Occupational and Environmental Health Respiratory Protection Program, February 1982.

f. TB MED 503, 1 February 1985, The Army Industrial Hygiene Program.

g. DA PAM 40-501, 27 August 1991, Hearing Conservation (Updates TB MED 501, 15 March 1980, Hearing Conservation).

h. Guide to Occupational Exposure Values 2000, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, ACGIH, Cincinnati, Ohio.

j. USAEHA TG-141, 5 Mar. 1991, Guidelines for Air Sampling and Bulk sample Collection.

k. Title 29, Code of Federal Regulations (CFR), part 1910, Occupational Safety and Health Health Standards.

l. National Guard Regulation, NGR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and use of ARNG Indoor Firing Ranges, Draft March 2000.

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m. Army National Guard Guidelines for Housekeeping, Rehabilitation and Conversion of Indoor Firing Ranges, Draft NGB Pam 385-15.

n. OSHA Standards 29 CFR (Code of Federal Regulations), 1910.1025, Lead Standard

o. OSHA Standards 29 CFR (Code of Federal Regulations), 1926.62, Construction Standard

p. Report dated October March 23, 2001, Industrial Hygiene Survey, Tammer Sciences, Inc.

2. General.

a. At the request of Non-Responsive [redacted] TN ARNG Occupational Health Office, an Industrial Hygiene Service was put together to conduct IH evaluation of the Pulaski Armory Hygiene Indoor Firing Range, Pulaski, TN.

b. The survey was conducted by Tammer Sciences, Inc., 3744 Lawrence Drive, Napperville, IL 60564

3. Findings. All findings are listed in the enclosed report (See ATTACHEMENT 1).

4. Recommendations.

a. Follow all recommendations made in the enclosed report.

b. At the time when the range is safe for use contact this office to evaluate it again. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY2001 IHIP.

c. Have all HHIM data entered into the HHIM computer module.

d. Contact the State Occupational Health Nurse, Non-Responsive [redacted] for any medical Surveillance that may be needed.

e. To execute your responsibilities in correcting all deficiencies, coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

[redacted]
Non-Responsive

CF: NBG-AVN-SH
State Occupational Health Office, P O Box 41502, Nashville, TN 37204-1502.
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Indoor Firing Range Inspection/Evaluation Survey Report

For

Tennessee Army National Guard
(TNANG)

At

Pulaski Armory Indoor Firing Range
Pulaski, Tennessee

Prepared by:

Tammer Sciences, Inc.
3744 Lawrence Drive
Naperville, IL 60564

For
National Guard Bureau
Army National Guard
Region South Industrial Hygiene Office
Airport Plaza Suite 1530
510 Plaza Drive
College Park, GA 30349

March 23, 2001

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Table of Contents

I. Executive Summary ..... page 1

II. Findings and Recommendations Summary ..... page 2

III. Background ..... page 4

a. Introduction
b. Site Description
c. Scope of Work
d. Health effects and hazard determination
e. Methodology and Assessment Criteria

IV. Findings and Recommendations ..... page 6

a. Building envelope
b. Range lighting
c. Bullet traps
d. Targets and target carriers
e. Range use
f. Range maintenance
g. Personal protective equipment
h. Posting of signs
i. Range sop
j. Record keeping
k. Ventilation
l. Air sampling

Appendices

A. References

B. Risk Assessment Codes (RAC) Table

C. IFR Checklist and Photographs

D. Range Layout Drawing and Ventilation Measurements

E. Air Sampling Results and Laboratory Sample Analysis Report

F. Air Sampling Notification Letters

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I. EXECUTIVE SUMMARY

At the request of the Tennessee Army National Guard (TNARNG), field personnel representing the National Guard Bureau, Region South Industrial Hygiene Office, conducted an inspection/evaluation of the Pulaski Armory indoor firing range (IFR) located in Pulaski, Tennessee on 5 December 2000. This survey was conducted as part of the TNARNG occupational safety and health program to evaluate potential health hazards associated with air contaminants generated during firing. The survey consisted of conducting a physical inspection of the range, collecting air samples, evaluating the ventilation system, measuring the lighting levels, and reviewing the range operating procedures

Five personal samples and two area air samples were collected during a simulated 34 minute weapons firing qualification test. Personal sampling results exceeded the Army National Guard recommended limit of 0.03 mg/m^3. However, the equivalent eight-hour time weighted average were below the regulated Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (PEL) of 0.05 mg/m^3. Area air sampling results were well below the recommended limit of 0.03 mg/m^3, indicating that the exposure is limited to the firing line area. This finding was confirmed by the results of the air velocity measurements and smoke testing. The average air velocity at firing lane number 5 was below the recommended 50 feet per minute. Average velocities ranged from 44 feet per minute in lane 5 to 121 feet per minute in lane 4 indicating uneven air distributions in the range. Smoke testing showed little turbulence at the firing line. In addition to air sampling and ventilation measurements, illumination readings in critical areas were below the recommended levels. Detailed findings and recommendations regarding this range can be found in the following table and report.

In conclusion and based on the findings of this inspection/evaluation, the Pulaski firing range is classified as unsafe for use based on deficiencies in lighting and building envelope. The range may be upgraded to a limited use status once these deficiencies have been corrected based on air sampling results and ventilation measurements. Considerations should be given to implementing the recommendations listed herein.

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1757 of 2531

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II. FINDINGS and RECOMMENDATIONS SUMMARY

Findings	Recommendations	RAC
This range has been classified as unsafe due to building envelope and lighting deficiencies.	Further use of this range is restricted until deficiencies in the building envelope and lighting have been corrected. Once these items have been corrected, the range may be upgraded to a limited use status based on ventilation and air sampling results. Limited use status remains until deficiencies in the ventilation system have been corrected, re-inspected, and approved, and further air sampling is performed.	RAC 2
	Building envelope	
Firing lanes are less than four feet wide	Repaint firing lines so that each measures the required four feet	RAC 4
There is one open floor drain in the area	The floor drain should be immediately sealed to prevent toxic dusts from seeping into the sewer system.	RAC 2
Access doors are not weather-stripped.	Access doors should be weather-stripped and the locks should be fixed so that the door closes and locks properly.	RAC 2
	Range lighting	
Range lighting is below the recommended 100 FC at the firing line and 30 FC in all other areas.	Upgrade lighting to meet these requirements.	RAC 3
Emergency and exit lighting is not provided n working order	Provide appropriate emergency and exit lighting for use n emergencies	RAC 3
	Range use	
Firers are allowed to walk downrange to clean up debris	A regular maintenance program should be implemented so that individuals are walking in regularly cleaned areas.	RAC 2
	Range Maintenance	
The indoor firing range has not been cleaned.	The indoor firing range should be cleaned regularly	RAC 2
Dry sweeping is used to clean up spent shells	A High Efficiency Particulate Air filtered vacuum or wet method should be used to clean the range	RAC 2
A range custodian has not yet been appointed	A range custodian should be appointed to the range who will be responsible for cleaning the range and discarding debris	RAC 3
	Personal protective equipment	
Personnel were observed wearing only hearing protection	All personnel should wear ANSI approved hearing and eye protection	RAC 3
	Posting of signs	
All warning signs were not posted in the range.	Post appropriate signs in the vicinity of the range and on the entrance door.	RAC 2
	Range SOP	
Pulaski Armory does not have an approved standing operation procedure	Develop and implement a standing operation procedure	RAC 2
	Recordkeeping	
No records of range training, maintenance, or cleaning are maintained. All appropriate records regarding visitors is not logged.	Maintain appropriate records regarding range operations and procedures	RAC 2
A range custodian has not yet been appointed	A range custodian should be appointed to the range who will be responsible for cleaning the range and discarding debris	RAC 3

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May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1758 of 2531

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Findings	***Recommendations***	***RAC***
	Ventilation	
Supply and exhaust fans are not interlocked with range lighting.	Interlock supply and exhaust fans with range lighting.	RAC 3
Ventilation flow rates were found below 50 fpm in Lane 5 and above the recommended 50-75 fpm in Lanes 1,2, and 4.	Holes in the plenum wall should be one inch in diameter and extended over the entire surface of the plenum wall.	RAC 2
Flow rates at the plenum wall were less than the required 400 to 600 fpm	Holes in the plenum wall should be one inch in diameter and extended over the entire surface of the plenum wall.	RAC 2
More than 10 to 15% of the plenum wall is open.	Holes in the plenum wall should be one inch in diameter and extended over the entire surface of the plenum wall.	RAC 2
	Air sampling	
Air sampling results ranged from <0.0076 to 0.072 mg/m^3.	Range is classified as limited use based on results of air sampling results. Appropriate records must be kept for all persons using the range.	RAC 2

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May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1759 of 2531

BEST AVAILABLE COPY

III. BACKGROUND

a.) Introduction: At the request of Non-Responsive of the National Guard Bureau Region South Industrial Hygiene Office, an inspection/evaluation survey was performed at the Pulaski Indoor Firing Range in Pulaski in Tennessee. Non-Responsive contract industrial hygienist, conducted the survey on 5 December 2000. The purpose of the survey was to evaluate range characteristics, ventilation, and quantify employee exposure to lead dust.

b.) Site Description: The Pulaski Indoor Firing Range measures approximately 60 feet long, 23 feet wide, and 12 feet high and is used for weapons firing and qualification. The range has five firing lanes and an inclined steel plate bullet trap. An exhaust fan, which is rated at 16,600 cubic feet per minute draws air through the bullet trap and exhausts it to the rear of the building. 100 percent outside air is supplied through a plenum that extends across the back wall.

c.) Scope of Work: The work consisted of a physical inspection of the range and an evaluation of the building envelope, range lighting levels, bullet trap condition, targets and target carriers, the use of personal protective equipment, posting of signs, range standard operating procedures (SOP), record keeping, the ventilation system, range use and maintenance. In addition personal and area air samples were collected during firing to evaluate the airborne exposures to the range users. A range inspection checklist found in National Guard Regulation 385-15, which addresses Indoor Firing Range use and maintenance was completed for the range. Smoke candles were utilized to observe airflow patterns in the range. Air velocities were also measured at the firing line. Air sampling and ventilation measurements were performed to quantify performance of the range and its effectiveness in reducing employee exposure to lead dust.

d.) Health Effects and Hazard Determination: The most significant hazard present to employees and users of the indoor firing range is lead dust. Shooters using ammunition with lead primers or bullets manufactured with lead are potentially exposed to lead fumes and dust during the firing process. Furthermore, the lead found in the primer, the melting of the bullet base by hot powder gasses, the shaving and abrasion of the bullet during firing, and fragmentation of the bullet at the point of impact are all potential sources for lead. Exposure to lead may also occur during cleaning of the range, guns, or bullet trap where lead dust is deposited.

Lead affects the nervous, circulatory, digestive, excretory, and reproductive systems of both men and women. If the amount of lead absorbed and stored in the body exceeds the body's ability to expel it, lead can accumulate in the body affecting the blood, heart, and immune systems. Pregnant women overexposed to lead are more prone to spontaneous abortions or may give birth to babies with a low birth weight and slowed postnatal neurological development. Results of overexposure in children are slowed cognitive development and reduced growth.

e.) Methodology and Assessment Criteria: Personal air sampling was conducted during a simulated weapons firing qualification test, which lasted over a thirty-four minute period. Area air samples were collected during the firing and one and half hour to two hours after the firing ended. Gilian air sampling pumps, Model Number GilAir5, Serial Numbers 13248, 13249, 13250, 13251, 13252, 13521, 13522, 13523, 13524, 13525 were used to collect the personal and area air samples. Each pump was calibrated prior to sampling and at the end of each sampling

Posted to NGB FOIA Reading Room
May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1760 of 2531

BEST AVAILABLE COPY

period using a pre-calibrated rotameter, which was calibrated against a bubble meter. The sampling flow rate was set at approximately 2 liters per minute (lpm). Samples were sent to NATLSCO laboratory, which is accredited by the American Industrial Hygiene Association (AIHA), for analysis.

An Alnor CompuFlow Air Velocity Meter, Model Number 8570, Serial Number 99097037, was used to measure air velocities at the firing line. A total of nine velocity readings were taken at each firing lane. Three measurements were taken at each of three positions; standing, kneeling, and prone positions for a total of nine readings. Details of locations where ventilation measurements were made can be found in Appendix D.

Lighting measurements were taken at the firing line, target line, and intermediate areas to determine luminance levels in these areas. Approximately fifteen to twenty readings were taken throughout the range using a Minolta Light Meter Model Number TL-1, Serial Number 90480727.

Air sampling, ventilation and illumination readings were compared to the NGR 385-15 Policy Responsibilities, and Procedures for Inspection/Evaluation and use of ARNG Indoor Firing Ranges.

Risk Assessment Codes (RACs) are included in this report to quantify the risk of particular operations to employees and to establish funding priorities for corrective actions. RACs are assigned with regard to hazard severity and mishap probability. The type, length, and route of exposure are taken into consideration, as are the medical effects that would occur with such exposures. RAC criteria can be found in Appendix B.

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1761 of 2531

BEST AVAILABLE COPY

IV. FINDINGS, DISCUSSION, AND RECOMMENDATIONS

a. Building Envelope. This indoor firing range measures 48' from the firing line, 23' wide, and 11' high. Three of the five firing lanes measure less than four feet wide. All pipes, conduits, and projecting surfaces are adequately baffled. There is one open floor drain in the range. The two access doors to the range are not adequately weather-stripped.

Recommendation:

1. Each firing lane should measure at least four feet wide. Repaint lanes so that each is the required four feet. [NGR 385-15 1-17a(1)(a)] **(RAC 4)**

2. There should be no open floor drains in the area, which allows lead, and other toxic dusts to seep into the sewer system. Immediately close up all drains in the area. [NGR 385-15 1-17a(1)(b)] **(RAC 2)**

3. Weather-strip all access doors to the range to prevent leakage of lead dust and debris into outlying areas. [NGR 385-15 2-2a(2)(b)] **(RAC 2)**

b. Range Lighting. Range lighting is relatively uniform but causes some shadows throughout the range. Average lighting levels were 50.5 footcandles (FC) at the targets and 15.3 FC in all other areas. Baffles adequately protect all lighting fixtures. Emergency and exit lighting is not appropriately provided.

Recommendations:

1. Increase lighting to the recommended 100 FC at the targets and 30 FC in all other areas. [NGR 385-15, 1-17c(1)(d)] **(RAC 3)**

2. Emergency and exit lights should be provided behind the firing line to adequately protect personnel from shooting accidents and to guide them out of the range in the case of an emergency or power outage. [CEHND 110-1-18, 3-4c(c)] **(RAC 3)**

c. Bullet Traps. An inclined plate bullet trap is permanently installed and is designed for .22 caliber use, which is all that is permitted for firing on this range. The bullet trap measures ¼" thick and adequately prevents ricochets. The bullet trap is not bowed, punctured, or pitted, and all plates are flush.

Recommendations:

1. The bullet trap should be adequately maintained. Rust or paint chips may cause ricochets. A thin coating of oil should be applied every 3 months for moderate firing, sooner if heavy firing occurs (10W30 or 3 in 1). **DO NOT APPLY GREASE. (RAC 3)**
2. Bullet collection bins should not be allowed to get over ¾ full. Contact the TN ARNG State Environmental Office prior to emptying for disposal instructions. **(RAC 3)**

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1762 of 2531

BEST AVAILABLE COPY

d. Targets and Target Carriers. Target retrieval systems were provided for each lane and are in good working order. Paper targets are used for personnel during firing procedures.

Recommendation: None at this time.

e. Range Use. The range is used for firing purposes only. No equipment or furniture is stored or maintained in the range, plenum area, or behind the bullet trap. Firer's in the range are allowed to walk downrange to clean up debris. A fire extinguisher is provided in the range.

Recommendations: Individuals should only be allowed to walk downrange in regularly cleaned areas as needed to pick up brass. A regular maintenance program should be implemented if firers will be allowed to walk downrange to collect brass. [NGR 385-15 1-19f] **(RAC 3)**

f. Range Maintenance. This indoor firing range has not been cleaned. Brooms are used to clean up spent shells. A range custodian has not been appointed to the range.

Recommendations:

1. The indoor firing range should be cleaned with the ventilation system operating to prevent dust and debris from migrating into other work areas and to minimize exposure to the cleaners. Floor areas behind the firing line and 15 feet downrange should be cleaned after firing or at least every three months if the range is not used as often. [NIOSH 76-130, p.24, II, 1] **(RAC 2)**

2. Dry sweeping and cleaning bullet traps by pouring or shoveling bullet debris into waste buckets causes settled lead dust to become airborne and inhaled by the workers. **Dry sweeping of indoor firing ranges is prohibited.** A High Efficiency Particulate Air (HEPA) filtered vacuum system is recommended for lead dust and particles cleanup only (no bullet casings). If a HEPA vacuum cannot be acquired, a wet method should be used which includes a solution of detergent and hot water. Two containers should be used; one to wet the area, and the other to rinse the applicator after the dust has been wiped from the surface. Water should be changed often to prevent reapplication of contaminated water. Wastewater should be left to evaporate and the residue and any applicators should be disposed under guidance from the TN ARNG Environmental Office. [29 CFR 1910.1025(h)(ii), NIOSH 76-130, P.24, II, 2] **(RAC 2)**

3. One person, preferably the range custodian, should be responsible for cleaning the range and discarding debris. The range should be cleaned **ONLY** with a HEPA vacuum system or utilizing a wet method. [29 CFR 1910.1025(h)(ii)] **(RAC 2)**

g. Personal Protective Equipment (PPE). Personnel were observed wearing appropriate hearing protection only.

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1763 of 2531

BEST AVAILABLE COPY

Recommendation: All personnel should wear ANSI approved hearing and eye protection. Additional eye and hearing protection should be available for those users that do not have their own. [NGR 385-15, 2-5a, 2-5 b, 29 CFR 1910.133 (a-b), 29 CFR 1910.95 a]. **(RAC 2)**

h. Posting of Signs. Warning signs are posted and instruct users about the regulations and requirements of the range. Warnings include only those indicating the type of ammunition to be used and the need for hearing protection. The entrance door to the range only requires hearing protection. No illuminated warning sign is interlocked with the range ventilation switch to alert individuals that the range is use. Firing lanes are not numbered.

Recommendations.

1. The following signs should be posted in or in the vicinity of the range and of the access door to the bullet trap. [NGR 385-15 3-6a,b] **(RAC 2)**:

   a. Eating, drinking, and Smoking are Prohibited
   b. Dry Sweeping is Prohibited
   c. Wash Hands and Face Immediately Following Firing
   d. The Following Ammunition is Authorized for use on this Range
   e. Hearing Protection Must Be Properly Worn During Firing
   f. Proper Safety Glasses/Goggles Must Be Worn During Firing]
   g. No Furniture or Storage of Items Permitted in the Range

2. The Following Signs must be posted on the entrance door to the range and to the access door of the bullet trap:

   a. Noise Hazardous Area
   b. Danger Lead Hazard Area
   c. Pregnant Females are Not Permitted in this Area

3. An illuminated sign should be interlocked with the range ventilation switch and located outside of the firing range to alert individuals outside when the range is in use. [NGR 385-15 2-6c] **(RAC 4).**

4. Each firing line should be clearly numbered at the firing line and bullet trap. [NGR 385-15 1-21C] **(RAC 4)**

i. Range Standing Operation Procedure (SOP). A range SOP with all requirements as approved by the State Safety Office is not available for this facility.

Recommendations.

A Range Standing Operation Procedure should be written for this facility and should include the following **(RAC 2)**:

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1764 of 2531

BEST AVAILABLE COPY

1. Requirements for establishment and maintenance of a visitor's log indicating date, age, and ammunition fired
2. Requirements for safety briefing for all individuals before entrance to the range given by a designated range safety officer
3. Work practices
4. Instructive guidance
5. Personnel responsibilities for performing, supervising, reviewing, and updating the SOP
6. Authorized ammunition
7. Posting of signs
8. Cleaning and maintenance requirements
9. PPE requirements for maintenance, firing, and cleaning of the range.

j. Recordkeeping. Records kept by the range are a visitor's log with name and age of firer, organization and sign in and sign out times. The type of ammunition used is not documented. Copies of initial and previous inspections and any air-sampling data are not available. An OSHA compliance program is not in place. A range custodian has been appointed to this range.

Recommendations.

1. A visitor's log must be maintained that contains the name and age of firer, organization, sign in and out time, and type of ammunition, and number of rounds fired. [NGR 385-15 1-16c] **(RAC 2)**
2. A copy of this and any other inspections should be maintained. [NGR 385-15 3-6] **(RAC 2)**
3. An OSHA compliance program must be established and maintained to document how engineering (i.e. ventilation) and work practice controls will be put in place to reduce exposure to or below the permissible exposure limit. The written plan should include a description of the operation, ammunition and weapons used, existing controls, groups using the firing range, employee job responsibilities, operating procedures and maintenance practices. A record of previous inspections and air sampling data must also be retained. [29 CFR 1910.1025(e)(3)(i-ii)]. **(RAC 2)**
4. All individuals utilizing the range must be provided with a copy of the SOP or have been briefed on the unit's requirements and must sign an agreement to follow the rules. [NGR 385-15 1-15h] **(RAC 2)**
5. State maintenance officers and custodians must be fully trained on an annual basis on the health effects from exposure to lead dust and the appropriate precautions that must be taken. Records verifying this training must be kept by the range custodian. Each employee who works in a place in which there is a potential exposure to airborne lead at any level shall be informed of the Content of Appendix A Substance Data Sheet for Occupational Exposure to Lead, and Appendix B Employee Standard Summary of OSHA regulation 1910.1025. Initial training should be performed at least 180 days from date of initial job assignment and annually thereafter. [29 CFR 1910.1025(l)(1)(l-iv), 29 CFR 1910.1200(h)] **(RAC 2)**

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1765 of 2531

BEST AVAILABLE COPY

6. A range safety officer and custodian should be designated in writing. [NGR 385-15 1-17d] **(RAC 2)**

k. Ventilation. The range is equipped with an operational ventilation system, with 100% of the make-up air exhausted behind the bullet trap. Supply and exhaust fans are not interlocked with range lighting. Velocity readings averaged below 50 fpm in lane 5 and measured above the recommended 50-75 fpm in Lanes 1, 2, and 4. Average velocities at the standing and kneeling positions in lane five were below the required 50 fpm. Refer to Table D-1 in Appendix D. The exhaust fan is rated for 16600 CFM, which when divided by the cross sectional area of the range would result in a calculated average velocity of 60 fpm. The measured average velocity of all the readings was 87 fpm. The measured average velocity in lane 5 was 44 fpm while in lane 4 the average velocity was 121 fpm. This large difference between the two velocities in adjacent lanes is an indication of uneven distribution of airflow through the firing line. A properly designed plenum wall located at least 15 feet behind the firing line is meant to reduce turbulence and distribute the air evenly and uniformly downrange.

The plenum wall extends across the entire back wall and flow rates at the plenum wall exceed the recommended velocity of 600 fpm with an average of 700-900 fpm. More than 10-15% of the plenum wall is open. Smoke tests revealed laminar flow and little turbulence. The range air temperature was below 65 degrees Fahrenheit.

Results of ventilation and smoke tests indicated that sufficient air velocities are being provided by the fan but the air flow is not evenly and uniformly distributed to move lead dust downrange and away from the firer's breathing zone.

Recommendations:

1. Interlock supply and exhaust fans with range lighting so that the ventilation system operates at all times during occupancy of the range. [CEHND 110-1-18, 3-4a] **(RAC 3)**

2. The plenum wall should be retrofitted so that the holes are one inch in diameter, and evenly distributed across the surface of the plenum wall and centered in a four-inch square area. The plenum wall should also be approximately 15 feet behind the firing line to allow the air enough time to straighten out over the entire area. The airflow must measure at least 50 fpm at all positions in the firing lane. **(RAC 2)**

l. Air Sampling. Area and personal air sampling was conducted to simulate weapons qualifications. Five personal samples were collected from personnel firing for about 34 minutes. Two area samples were also collected simultaneously; one inside the range behind the firing line, and the other outside. The 34-minute qualification period is representative of the expected exposure for personnel using the range. Personal sampling results ranged from 0.034 to 0.072 mg/m^3 for the 34 minute sampling period. All personal sampling results exceeded the Army National Guard Occupational Exposure Limit of 0.03 mg/m^3. Assuming no exposure for the remainder of an eight-hour period, the equivalent 8-hour time weighted average for the five personal samples ranged from 0.0024 to 0.005 mg/m^3. These equivalent results are lower than

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1766 of 2531

BEST AVAILABLE COPY

the OSHA PEL, NIOSH REL, and ACGIH TLV, on an eight-hour time weighted average basis. However, if firing were to continue for the eight-hour period, airborne lead levels would exceed the regulated OSHA limit of 0.05 mg/m^3. Area air sampling results were less than 0.008 mg/m^3 for the one-hour sampling period. Area air sampling results indicate that the airborne lead exposure is limited to the firing line area and downstream from the firing line.

Air sampling results indicated that overexposure to lead is reasonably expected while using the range for an extended period of time. Stream lining the airflow at the firing line as recommended herein should reduce the exposure to less than the ANG recommended limit of 0.03 mg/m^3. According to National Guard regulations, Guardsmen exposed to hazards in the range less than thirty days per year are permitted to use the range up to five hours per day. Guardsmen utilizing the range for over thirty days per year and all non-military personnel are limited to three hours per day. Range users under 17 are limited to one hour use per day.

Recommendations:

1. This range is classified as limited use based on sampling results collected during the survey, and the results of the ventilation survey. **(RAC 2)**

2. A record must be maintained for time spent on the range for all personnel using limited use firing ranges as recorded by the range custodian. [NGR 385-15 1-15 b] **(RAC 2)**

3. Air sampling should again be conducted after changes required in the ventilation system have been made. [NGR 385-15 1-27 c] **(RAC 2)**

m. Range Status. This range has been classified as unsafe due to deficiencies in the building envelope, range lighting, limited use due to ventilation and air sampling results.

Recommendation: Further use of this range is restricted until building envelope and range lighting deficiencies are corrected. The range may then qualify for limited used until the ventilation system has been corrected; re-inspected, and approved and further air sampling has been accomplished to verify results. **(RAC 2)**

Non-Responsive

Posted to NGB FOIA Reading Room
May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1767 of 2531

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Indoor Firing Range Inspection/Evaluation Survey Report

For

Tennessee Army National Guard
(TNANG)

At

Pulaski Armory Indoor Firing Range
Pulaski, Tennessee

Prepared by:

Environmental Management Solutions

For
National Guard Bureau
Army National Guard
Region South Industrial Hygiene Office
Airport Plaza Suite 1530
510 Plaza Drive
College Park, GA 30349

March 23, 2001

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Released by National Guard Bureau
Page 1768 of 2531

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ENVIRONMENTAL MANAGEMENT SOLUTIONS
INDUSTRIAL HYGIENE CONSULTING

Pulaski Indoor Firing Range
Tennessee Army National Guard

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau

BEST AVAILABLE COPY

Table of Contents

I. Executive Summary ..... page 1

II. Findings and Recommendations Summary ..... page 2

III. Background ..... page 4

a. Introduction
b. Site Description
c. Scope of Work
d. Health effects and hazard determination
e. Methodology and Assessment Criteria

IV. Findings and Recommendations ..... page 6

a. Building envelope
b. Range lighting
c. Bullet traps
d. Targets and target carriers
e. Range use
f. Range maintenance
g. Personal protective equipment
h. Posting of signs
i. Range sop
j. Record keeping
k. Ventilation
l. Air sampling

Appendices

A. References

B. Risk Assessment Codes (RAC) Table

C. IFR Checklist and Photographs

D. Range Layout Drawing and Ventilation Measurements

E. Air Sampling Results and Laboratory Sample Analysis Report

F. Air Sampling Notification Letters

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1. EXECUTIVE SUMMARY

At the request of the Tennessee Army National Guard (TNARNG), field personnel representing the National Guard Bureau, Region South Industrial Hygiene Office, conducted an inspection/evaluation of the Pulaski Armory indoor firing range (IFR) located in Pulaski, Tennessee on 5 December 2000. This survey was conducted as part of the TNARNG occupational safety and health program to evaluate potential health hazards associated with air contaminants generated during firing. The survey consisted of conducting a physical inspection of the range, collecting air samples, evaluating the ventilation system, measuring the lighting levels, and reviewing the range operating procedures

Five personal samples and two area air samples were collected during a simulated 34 minute weapons firing qualification test. Personal sampling results exceeded the Army National Guard recommended limit of 0.03 mg/m^3. However, the equivalent eight-hour time weighted average were below the regulated Occupational Safety and Health Administration (OSHA) Permissible Expesure Limit (PEL) of 0.05 mg/m^3. Area air sampling results were well below the recommended limit of 0.03 mg/m^3, indicating that the exposure is limited to the firing line area. This finding was confirmed by the results of the air velocity measurements and smoke testing. The average air velocity at firing lane number 5 was below the recommended 50 feet per minute. Average velocities ranged from 44 feet per minute in lane 5 to 121 feet per minute in lane 4 indicating uneven air distributions in the range. Smoke testing showed little turbulence at the firing line. In addition to air sampling and ventilation measurements, illumination readings in critical areas were below the recommended levels. Detailed findings and recommendations regarding this range can be found in the following table and report.

In conclusion and based on the findings of this inspection/evaluation, the Pulaski firing range is classified as unsafe for use based on deficiencies in lighting and building envelope. The range may be upgraded to a limited use status once these deficiencies have been corrected based on air sampling results and ventilation measurements. Considerations should be given to implementing the recommendations listed herein.

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1771 of 2531

BEST AVAILABLE COPY

II. FINDINGS and RECOMMENDATIONS SUMMARY

FINDINGS	RECOMMENDATIONS	RAC
This range has been classified as unsafe due to building envelope and lighting deficiencies.	Further use of this range is restricted until deficiencies in the building envelope and lighting have been corrected. Once these items have been corrected, the range may be upgraded to a limited use status based on ventilation and air sampling results. Limited use status remains until deficiencies in the ventilation system have been corrected, re-inspected, and approved, and further air sampling is performed.	RAC 2
BUILDING ENVELOPE		
Firing lanes are less than four feet wide	Repaint firing lines so that each measures the required four feet	RAC 4
There is one open floor drain in the area	The floor drain should be immediately sealed to prevent toxic dusts from seeping into the sewer system.	RAC 2
Access doors are not weather-stripped.	Access doors should be weather-stripped and the locks should be fixed so that the door closes and locks properly.	RAC 2
RANGE LIGHTING		
Range lighting is below the recommended 100 FC at the firing line and 30 FC in all other areas.	Upgrade lighting to meet these requirements.	RAC 3
Emergency and exit lighting is not provided n working order	Provide appropriate emergency and exit lighting for use n emergencies	RAC 3
RANGE USE		
Firers are allowed to walk downrange to clean up debris	A regular maintenance program should be implemented so that individuals are walking in regularly cleaned areas.	RAC 2
RANGE MAINTENANCE		
The indoor firing range has not been cleaned.	The indoor firing range should be cleaned regularly	RAC 2
Dry sweeping is used to clean up spent shells	A High Efficiency Particulate Air filtered vacuum or wet method should be used to clean the range	RAC 2
A range custodian has not yet been appointed	A range custodian should be appointed to the range who will be responsible for cleaning the range and discarding debris	RAC 3
PERSONAL PROTECTIVE EQUIPMENT		
Personnel were observed wearing only hearing protection	All personnel should wear ANSI approved hearing and eye protection	RAC 3
POSTING OF SIGNS		
All warning signs were not posted in the range.	Post appropriate signs in the vicinity of the range and on the entrance door.	RAC 2
RANGE SOP		
Pulaski Armory does not have an approved standing operation procedure	Develop and implement a standing operation procedure	RAC 2

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1772 of 2531

BEST AVAILABLE COPY

FINDINGS	RECOMMENDATIONS	RAC
	RECORDKEEPING	
No records of range training, maintenance, or cleaning are maintained. All appropriate records regarding visitors is not logged.	Maintain appropriate records regarding range operations and procedures	RAC 2
A range custodian has not yet been appointed	A range custodian should be appointed to the range who will be responsible for cleaning the range and discarding debris	RAC 3
	VENTILATION	
Supply and exhaust fans are not interlocked with range lighting.	Interlock supply and exhaust fans with range lighting.	RAC 3
Ventilation flow rates were found below 50 fpm in Lane 5 and above the recommended 50-75 fpm in Lanes 1,2, and 4.	Holes in the plenum wall should be one inch in diameter and extended over the entire surface of the plenum wall.	RAC 2
Flow rates at the plenum wall were less than the required 400 to 600 fpm	Holes in the plenum wall should be one inch in diameter and extended over the entire surface of the plenum wall	RAC 2
More than 10 to 15% of the plenum wall is open.	Holes in the plenum wall should be one inch in diameter and extended over the entire surface of the plenum wall.	RAC 2
	AIR SAMPLING	
Air sampling results ranged from <0.0076 to 0.072 mg/m^3.	Range is classified as limited use based on results of air sampling results. Appropriate records must be kept for all persons using the range.	RAC 2

Posted to NGB FOIA Reading Room
May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1773 of 2531

BEST AVAILABLE COPY

III. BACKGROUND

a.) Introduction: At the request of Non-Responsive f the National Guard Bureau Region South Industrial Hygiene Office, an inspection/evaluation survey was performed at the Pulaski Indoor Firing Range in Pulaski in Tennessee. Non-Responsive contract industrial hygienist, conducted the survey on 5 December 2000. The purpose of the survey was to evaluate range characteristics, ventilation, and quantify employee exposure to lead dust.

b.) Site Description: The Pulaski Indoor Firing Range measures approximately 60 feet long, 23 feet wide, and 12 feet high and is used for weapons firing and qualification. The range has five firing lanes and an inclined steel plate bullet trap. An exhaust fan, which is rated at 16,600 cubic feet per minute draws air through the bullet trap and exhausts it to the rear of the building. 100 percent outside air is supplied through a plenum that extends across the back wall.

c.) Scope of Work: The work consisted of a physical inspection of the range and an evaluation of the building envelope, range lighting levels, bullet trap condition, targets and target carriers, the use of personal protective equipment, posting of signs, range standard operating procedures (SOP), record keeping, the ventilation system, range use and maintenance. In addition personal and area air samples were collected during firing to evaluate the airborne exposures to the range users. A range inspection checklist found in National Guard Regulation 385-15, which addresses Indoor Firing Range use and maintenance was completed for the range. Smoke candles were utilized to observe airflow patterns in the range. Air velocities were also measured at the firing line. Air sampling and ventilation measurements were performed to quantify performance of the range and its effectiveness in reducing employee exposure to lead dust.

d.) Health Effects and Hazard Determination: The most significant hazard present to employees and users of the indoor firing range is lead dust. Shooters using ammunition with lead primers or bullets manufactured with lead are potentially exposed to lead fumes and dust during the firing process. Furthermore, the lead found in the primer, the melting of the bullet base by hot powder gasses, the shaving and abrasion of the bullet during firing, and fragmentation of the bullet at the point of impact are all potential sources for lead. Exposure to lead may also occur during cleaning of the range, guns, or bullet trap where lead dust is deposited.

Lead affects the nervous, circulatory, digestive, excretory, and reproductive systems of both men and women. If the amount of lead absorbed and stored in the body exceeds the body's ability to expel it, lead can accumulate in the body affecting the blood, heart, and immune systems. Pregnant women overexposed to lead are more prone to spontaneous abortions or may give birth to babies with a low birth weight and slowed postnatal neurological development. Results of overexposure in children are slowed cognitive development and reduced growth.

e.) Methodology and Assessment Criteria: Personal air sampling was conducted during a simulated weapons firing qualification test, which lasted over a thirty-four minute period. Area air samples were collected during the firing and one and half hour to two hours after the firing ended. Gilian air sampling pumps, Model Number GilAir5, Serial Numbers 13248, 13249,

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1774 of 2531

BEST AVAILABLE COPY

13250, 13251, 13252, 13521, 13522, 13523, 13524, 13525 were used to collect the personal and area air samples. Each pump was calibrated prior to sampling and at the end of each sampling period using a pre-calibrated rotameter, which was calibrated against a bubble meter. The sampling flow rate was set at approximately 2 liters per minute (lpm). Samples were sent to NATLSCO laboratory, which is accredited by the American Industrial Hygiene Association (AIHA), for analysis.

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Risk Assessment Codes (RACs) are included in this report to quantify the risk of particular operations to employees and to establish funding priorities for corrective actions. RACs are assigned with regard to hazard severity and mishap probability. The type, length, and route of exposure are taken into consideration, as are the medical effects that would occur with such exposures. RAC criteria can be found in Appendix B.

Posted to NGB FOIA Reading Room
May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1775 of 2531

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IV. FINDINGS, DISCUSSION, AND RECOMMENDATIONS

a. Building Envelope. This indoor firing range measures 48' from the firing line, 23' wide, and 11' high. Three of the five firing lanes measure less than four feet wide. All pipes, conduits, and projecting surfaces are adequately baffled. There is one open floor drain in the range. The two access doors to the range are not adequately weather-stripped.

Recommendation:

1. Each firing lane should measure at least four feet wide. Repaint lanes so that each is the required four feet. [NGR 385-15 1-17a(1)(a)] **(RAC 4)**

2. There should be no open floor drains in the area, which allows lead, and other toxic dusts to seep into the sewer system. Immediately close up all drains in the area. [NGR 385-15 1-17a(1)(b)] **(RAC 2)**

3. Weather-strip all access doors to the range to prevent leakage of lead dust and debris into outlying areas. [NGR 385-15 2-2a(2)(b)] **(RAC 2)**

b. Range Lighting. Range lighting is relatively uniform but causes some shadows throughout the range. Average lighting levels were 50.5 footcandles (FC) at the targets and 15.3 FC in all other areas. Baffles adequately protect all lighting fixtures. Emergency and exit lighting is not appropriately provided.

Recommendations:

1. Increase lighting to the recommended 100 FC at the targets and 30 FC in all other areas. [NGR 385-15, 1-17c(1)(d)] **(RAC 3)**

2. Emergency and exit lights should be provided behind the firing line to adequately protect personnel from shooting accidents and to guide them out of the range in the case of an emergency or power outage. [CEHND 110-1-18, 3-4c(c)] **(RAC 3)**

c. Bullet Traps. An inclined plate bullet trap is permanently installed and is designed for .22 caliber use, which is all that is permitted for firing on this range. The bullet trap measures ¼" thick and adequately prevents ricochets. The bullet trap is not bowed, punctured, or pitted, and all plates are flush.

Recommendations:

1. The bullet trap should be adequately maintained. Rust or paint chips may cause ricochets. A thin coating of oil should be applied every 3 months for moderate firing, sooner if heavy firing occurs (10W30 or 3 in 1). **DO NOT APPLY GREASE. (RAC 3)**

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1776 of 2531

BEST AVAILABLE COPY

2. Bullet collection bins should not be allowed to get over ¾ full. Contact the TN ARNG State Environmental Office prior to emptying for disposal instructions. **(RAC 3)**

d. Targets and Target Carriers. Target retrieval systems were provided for each lane and are in good working order. Paper targets are used for personnel during firing procedures.

Recommendation: None at this time.

e. Range Use. The range is used for firing purposes only. No equipment or furniture is stored or maintained in the range, plenum area, or behind the bullet trap. Firer's in the range are allowed to walk downrange to clean up debris. A fire extinguisher is provided in the range.

Recommendations: Individuals should only be allowed to walk downrange in regularly cleaned areas as needed to pick up brass. A regular maintenance program should be implemented if firers will be allowed to walk downrange to collect brass. [NGR 385-15 1-19f] **(RAC 3)**

f. Range Maintenance. This indoor firing range has not been cleaned. Brooms are used to clean up spent shells. A range custodian has not been appointed to the range.

Recommendations:

1. The indoor firing range should be cleaned with the ventilation system operating to prevent dust and debris from migrating into other work areas and to minimize exposure to the cleaners. Floor areas behind the firing line and 15 feet downrange should be cleaned after firing or at least every three months if the range is not used as often. [NIOSH 76-130, p.24, II, 1] **(RAC 2)**

2. Dry sweeping and cleaning bullet traps by pouring or shoveling bullet debris into waste buckets causes settled lead dust to become airborne and inhaled by the workers. **Dry sweeping of indoor firing ranges is prohibited.** A High Efficiency Particulate Air (HEPA) filtered vacuum system is recommended for lead dust and particles cleanup only (no bullet casings). If a HEPA vacuum cannot be acquired, a wet method should be used which includes a solution of detergent and hot water. Two containers should be used; one to wet the area, and the other to rinse the applicator after the dust has been wiped from the surface. Water should be changed often to prevent reapplication of contaminated water. Wastewater should be left to evaporate and the residue and any applicators should be disposed under guidance from the TN ARNG Environmental Office. [29 CFR 1910.1025(h)(ii), NIOSH 76-130, P.24, II, 2] **(RAC 2)**

3. One person, preferably the range custodian, should be responsible for cleaning the range and discarding debris. The range should be cleaned **ONLY** with a HEPA vacuum system or utilizing a wet method. [29 CFR 1910.1025(h)(ii)] **(RAC 2)**

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1777 of 2531

BEST AVAILABLE COPY

g. Personal Protective Equipment (PPE). Personnel were observed wearing appropriate hearing protection only.

Recommendation: All personnel should wear ANSI approved hearing and eye protection. Additional eye and hearing protection should be available for those users that do not have their own. [NGR 385-15, 2-5a, 2-5 b, 29 CFR 1910.133 (a-b), 29 CFR 1910.95 a]. **(RAC 2)**

h. Posting of Signs. Warning signs are posted and instruct users about the regulations and requirements of the range. Warnings include only those indicating the type of ammunition to be used and the need for hearing protection. The entrance door to the range only requires hearing protection. No illuminated warning sign is interlocked with the range ventilation switch to alert individuals that the range is use. Firing lanes are not numbered.

Recommendations.

1. The following signs should be posted in or in the vicinity of the range and of the access door to the bullet trap. [NGR 385-15 3-6a,b] **(RAC 2)**:

   a. Eating, drinking, and Smoking are Prohibited
   b. Dry Sweeping is Prohibited
   c. Wash Hands and Face Immediately Following Firing
   d. The Following Ammunition is Authorized for use on this Range
   e. Hearing Protection Must Be Properly Worn During Firing
   f. Proper Safety Glasses/Goggles Must Be Worn During Firing]
   g. No Furniture or Storage of Items Permitted in the Range

2. The Following Signs must be posted on the entrance door to the range and to the access door of the bullet trap:

   a. Noise Hazardous Area
   b. Danger Lead Hazard Area
   c. Pregnant Females are Not Permitted in this Area

3. An illuminated sign should be interlocked with the range ventilation switch and located outside of the firing range to alert individuals outside when the range is in use. [NGR 385-15 2-6c] **(RAC 4)**.

4. Each firing line should be clearly numbered at the firing line and bullet trap. [NGR 385-15 1-21C] **(RAC 4)**

i. Range Standing Operation Procedure (SOP). A range SOP with all requirements as approved by the State Safety Office is not available for this facility.

Recommendations.

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1778 of 2531

BEST AVAILABLE COPY

A Range Standing Operation Procedure should be written for this facility and should include the following **(RAC 2)**:

1. Requirements for establishment and maintenance of a visitor's log indicating date, age, and ammunition fired
2. Requirements for safety briefing for all individuals before entrance to the range given by a designated range safety officer
3. Work practices
4. Instructive guidance
5. Personnel responsibilities for performing, supervising, reviewing, and updating the SOP
6. Authorized ammunition
7. Posting of signs
8. Cleaning and maintenance requirements
9. PPE requirements for maintenance, firing, and cleaning of the range.

j. Recordkeeping. Records kept by the range are a visitor's log with name and age of firer, organization and sign in and sign out times. The type of ammunition used is not documented. Copies of initial and previous inspections and any air-sampling data are not available. An OSHA compliance program is not in place. A range custodian has been appointed to this range.

Recommendations.

1. A visitor's log must be maintained that contains the name and age of firer, organization, sign in and out time, and type of ammunition, and number of rounds fired. [NGR 385-15 1-16c] **(RAC 2)**
2. A copy of this and any other inspections should be maintained. [NGR 385-15 3-6] **(RAC 2)**
3. An OSHA compliance program must be established and maintained to document how engineering (i.e. ventilation) and work practice controls will be put in place to reduce exposure to or below the permissible exposure limit. The written plan should include a description of the operation, ammunition and weapons used, existing controls, groups using the firing range, employee job responsibilities, operating procedures and maintenance practices. A record of previous inspections and air sampling data must also be retained. [29 CFR 1910.1025(e)(3)(i-ii)]. **(RAC 2)**
4. All individuals utilizing the range must be provided with a copy of the SOP or have been briefed on the unit's requirements and must sign an agreement to follow the rules. [NGR 385-15 1-15h] **(RAC 2)**
5. State maintenance officers and custodians must be fully trained on an annual basis on the health effects from exposure to lead dust and the appropriate precautions that must be taken. Records verifying this training must be kept by the range custodian. Each employee who works in a place in which there is a potential exposure to airborne lead at any level shall be informed of the Content of Appendix A Substance Data Sheet for Occupational Exposure to Lead, and Appendix B Employee Standard Summary of OSHA regulation

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1779 of 2531

BEST AVAILABLE COPY

1910.1025. Initial training should be performed at least 180 days from date of initial job assignment and annually thereafter. [29 CFR 1910.1025(l)(1)(I-iv), 29 CFR 1910.1200(h)] **(RAC 2)**

6. A range safety officer and custodian should be designated in writing. [NGR 385-15 1-17d] **(RAC 2)**

k. Ventilation. The range is equipped with an operational ventilation system, with 100% of the make-up air exhausted behind the bullet trap. Supply and exhaust fans are not interlocked with range lighting. Velocity readings averaged below 50 fpm in lane 5 and measured above the recommended 50-75 fpm in Lanes 1, 2, and 4. Average velocities at the standing and kneeling positions in lane five were below the required 50 fpm. Refer to Table D-1 in Appendix D. The exhaust fan is rated for 16600 CFM, which when divided by the cross sectional area of the range would result in a calculated average velocity of 60 fpm. The measured average velocity of all the readings was 87 fpm. The measured average velocity in lane 5 was 44 fpm while in lane 4 the average velocity was 121 fpm. This large difference between the two velocities in adjacent lanes is an indication of uneven distribution of airflow through the firing line. A properly designed plenum wall located at least 15 feet behind the firing line is meant to reduce turbulence and distribute the air evenly and uniformly downrange.

The plenum wall extends across the entire back wall and flow rates at the plenum wall exceed the recommended velocity of 600 fpm with an average of 700-900 fpm. More than 10-15% of the plenum wall is open. Smoke tests revealed laminar flow and little turbulence. The range air temperature was below 65 degrees Fahrenheit.

Results of ventilation and smoke tests indicated that sufficient air velocities are being provided by the fan but the air flow is not evenly and uniformly distributed to move lead dust downrange and away from the firer's breathing zone.

Recommendations:

1. Interlock supply and exhaust fans with range lighting so that the ventilation system operates at all times during occupancy of the range. [CEHND 110-1-18, 3-4a] **(RAC 3)**

2. The plenum wall should be retrofitted so that the holes are one inch in diameter, and evenly distributed across the surface of the plenum wall and centered in a four-inch square area. The plenum wall should also be approximately 15 feet behind the firing line to allow the air enough time to straighten out over the entire area. The airflow must measure at least 50 fpm at all positions in the firing lane. **(RAC 2)**

l. Air Sampling. Area and personal air sampling was conducted to simulate weapons qualifications. Five personal samples were collected from personnel firing for about 34 minutes. Two area samples were also collected simultaneously; one inside the range behind the firing line, and the other outside. The 34-minute qualification period is representative of the expected exposure for personnel using the range. Personal sampling results ranged from 0.034 to 0.072

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1780 of 2531

BEST AVAILABLE COPY

mg/m^3 for the 34 minute sampling period. All personal sampling results exceeded the Army National Guard Occupational Exposure Limit of 0.03 mg/m^3. Assuming no exposure for the remainder of an eight-hour period, the equivalent 8-hour time weighted average for the five personal samples ranged from 0.0024 to 0.005 mg/m^3. These equivalent results are lower than the OSHA PEL, NIOSH REL, and ACGIH TLV, on an eight-hour time weighted average basis. However, if firing were to continue for the eight-hour period, airborne lead levels would exceed the regulated OSHA limit of 0.05 mg/m^3. Area air sampling results were less than 0.008 mg/m^3 for the one-hour sampling period. Area air sampling results indicate that the airborne lead exposure is limited to the firing line area and downstream from the firing line.

Air sampling results indicated that overexposure to lead is reasonably expected while using the range for an extended period of time. Stream lining the airflow at the firing line as recommended herein should reduce the exposure to less than the ANG recommended limit of 0.03 mg/m^3. According to National Guard regulations, Guardsmen exposed to hazards in the range less than thirty days per year are permitted to use the range up to five hours per day. Guardsmen utilizing the range for over thirty days per year and all non-military personnel are limited to three hours per day. Range users under 17 are limited to one hour use per day.

Recommendations:

1. This range is classified as limited use based on sampling results collected during the survey, and the results of the ventilation survey. **(RAC 2)**

2. A record must be maintained for time spent on the range for all personnel using limited use firing ranges as recorded by the range custodian. [NGR 385-15 1-15 b] **(RAC 2)**

3. Air sampling should again be conducted after changes required in the ventilation system have been made. [NGR 385-15 1-27 c] **(RAC 2)**

m. Range Status. This range has been classified as unsafe due to deficiencies in the building envelope, range lighting, limited use due to ventilation and air sampling results.

Recommendation: Further use of this range is restricted until building envelope and range lighting deficiencies are corrected. The range may then qualify for limited used until the ventilation system has been corrected; re-inspected, and approved and further air sampling has been accomplished to verify results. **(RAC 2)**

Non-Responsive

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1781 of 2531

BEST AVAILABLE COPY

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1782 of 2531

BEST AVAILABLE COPY

APPENDIX A

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REFERENCES

1. American Conference of Governmental Industrial Hygienists (ACGIH), Industrial Ventilation, A Manual of Recommended Practice, 23rd Edition, 1998.

2. American Conference of Governmental Industrial Hygienists (ACGIH), Threshold Limit Values for Chemical Substances and Physical Agents and Biological Indices for 2000.

3. Army Regulations - AR 40-5, Preventative Medicine, 15 October 1990.

4. Army Regulations - AR 385-10, The Army Safety Program, 23 May 1988.

5. National Safety Council, Fundamentals of Industrial Hygiene, 4th edition, 1996.

6. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, 29 December 1989.

7. National Guard Regulation (NGR) 385-15 Policy Responsibilities, and Procedures for Inspection/Evaluation and use of ARNG Indoor Firing Ranges, 18 September 2000..

8. National Guard Pamphlet (NG PAM) 385-16, Guidelines for Converting Firing Ranges to Other Uses, 31 January 1994.

9. National Institute for Occupational Safety and Health, Pocket Guide to Chemical Exposures, 2000.

10. TB MED 503, The Army Industrial Hygiene Program, February 1985.

11. TB MED 502, Occupational Safety and Health Respiratory Protection Program..

12. Title 29 Code of Federal Regulations (CFR) 1910.1025, Lead.

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APPENDIX B

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DERIVING RISK ASSESSMENT CODES (RACs)
FOR HEALTH HAZARDS
(Ref: DOD Instruction 6055.1)

STEP 1. Using the following procedures to assess points, determine the health hazard severity category (HHSC). The HHSC reflects the magnitude of exposure to a physical, chemical, or biological agent and the medical effects of exposure.

A. Exposure Points Assessed

		Exposure Conditions			
		<CT	Occasionally - >CT Always - <STD	>CT =STD	>STD
AER	NO	0	3	5	7
POSSIBLE?	YES	1-2	4	6	8

AER = Alternate exposure route, such as skin absorption, ingestion
CT = DoD component threshold that triggers surveillance actions, such as microWatts/cm^2, dB, parts per million
STD = DoD exposure limit, such as Threshold Limit Value and Permissible Exposure Limit

B. Medical Effects Points Assessed

Condition	Points
No medical effect, such as nuisance noise and nuisance odor	0
Temporary reversible illness requiring supportive treatment, such as eye irritation and sore throat	1-2
Temporary reversible illness with a variable but limited period of disability such as metal fume fever	3-4
Permanent, nonsevere illness or loss of capacity, such as permanent hearing loss	5-6
Permanent, severe, disabling, irreversible illness or death, such as asbestosis and lung cancer	7-8

C. Determine the HHSC by totaling the points assessed and using the following guide:

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Total Points (sum of A and B, above)	HHSC
13-16	I
9-12	II
5-8	III
0-4	IV

STEP 2. Using the following guides to assess points, determine the mishap probability category (MPC) for health hazards. The probability of mishap reflects the duration of exposure and the number of exposed personnel.

A. Duration of Exposure Points Assessed

		Length of Exposure		
		1-8 hr/wk	>8 hr/wk not continuous	continuous
Type of Exposure	Irregular, intermittent	1-2	4-6	-
	Regular, periodic	2-3	5-7	8

B. Number of Exposed Personnel Points Assessed

Number of Exposed Personnel	Points
<5	1-2
5 to 9	3-4
to 49	5-6
>49	7-8

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C. Determine the MPC for health hazards by totaling the points assessed and using the following guide:

Total Points (sum of A and B, above)	MPC
14-16	A
10-13	B
5-9	C
<5	D

STEP 3. Determine the RAC for health hazards by using the following matrix to measure health hazard severity and mishap probability factors.

		MISHAP PROBABILITY			
		A	B	C	D
HAZARD SEVERITY	I	1	1	2	3
	II	1	2	3	4
	III	2	3	4	5
	IV	3	4	5	5

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APPENDIX C

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FIGURE 1-2

INDOOR FIRING RANGE INSPECTION CHECKLIST

See paragraphs 1-23 through 1-25 of this regulation for inspection requirements. For the range to be considered safe each of the following statements shall be true and air-sampling results shall be below the standard for Lead. The information in parentheses after each statement denotes the location of the requirement in this or other regulations.

Location of the Range Pulaski, TN Date 4-5 Dec 2000 (Air Samp.)

Range Custodian [redacted]

Part 1, Physical Safety Inspection

A. Building Envelope

No 1. Each firing lane is at least 4 feet wide. [1-17a(1)(a)]
5' 2-3'8" 3'10" 3'11" 5' 3"

✓ 2. Pipes, conduits, and other projecting surfaces are baffled or covered by a material that shall protect these items and prevent ricochets. [1-17a(1)(b)]

✓ 3. No windows or doors are located in front of the firing line. (Except access door to the back of the bullet trap) [1-17a(1)(d)]

✓ 4. There are no open floor drains in the range. [1-17a(2)(c)]

✓ 5. There is no carpet, drapes or other fiber-like material in the range. [1-17a(2)(d)]

✓ 6. Pipes, conduits and walls are sealed to prevent leakage of Lead dust from the range into other areas. [1-17a(2)(b)]

✓ 7. The interior surfaces or the range floor, walls, and ceiling have no protruding edges or devices. [DG 415-1, App.A, 3-1d]

✓ 8. The roof provides ballistic security. [DG 415-1, App. A, 3-1e(1)]

✓ 9. The walls provide ballistic security. (DG 415-1, App. A, 3-1f(1))

No 10. Interior mortar joints are flush with the interior surface. (DG 415-1, App. A, 3-1f(2))
Acoustic panels not all the walls in

✓ 11. The plenum wall is adequately supported and thick enough to avoid flexing. (DG 415-1, App. A, 3-1f(4))

No 12. The entrance door to the range is weather-stripped unless the door acts as passive make-up air intake. (DG 415-1, App. A, 3-1h)
Two - neither

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1790 of 2531

Pulaski of 6

B. Range Lighting

_____ 1. Lighting is uniform, non-glaring and does not cause shadows. [1-17c(1)(a)] some shadows

_____ 2. Illumination is at least 100 foot candles on the targets and 30 foot candles in all other areas. [1-17c(1)(b)]

✓ 3. All lighting is protected by baffles and placed so that the shooter has an unobstructed view down range. [1-17c(1)(c)]

No 4. Downrange lighting begins approximately 18 feet from the firing line and ends approximately 8 feet from the target line. [1-17c(1)(d)] 27

No 5. Emergency lights are provided behind the firing line and are in working condition. [1-17c(1)(e)]

No 6. Exit lights are provided and working as required. [1-17c(1)(f)]

_____ 7. Lighting of at least 30 foot-candles is provided behind the bullet trap for maintenance (if applicable). [1-17c(1)(g)]

✓ 8. No known electrical hazards exist in the range. [1-17c(2)(c)]

C. Bullet traps

✓ 1. A bullet trap is permanently installed in the range. [1-17d(1)(a)]

✓ 2. Bullet traps are of a commercial design, which is in compliance with the requirements of CEHND 1110-1-18, NGB-ARI, NG PAM 385-16, Chapter 4 and this regulation. [1-17d(1)(b)]

_____ 3. The thickness of inclined plate/sand trap type bullet trap shall be adequate to attenuate the maximum caliber of ammunition authorized to be fired on the range. [1-17d(1)(c)] 1/4"

✓ 4. All plate/sand trap type bullet traps are designed to prevent ricochets by directing the projectiles in the same direction they are traveling. [1-17d(1)(d)]

NA 5. Sandpits in plate/sand trap type backstops extend to a point directly below the leading edge of the sloped plate. [1-17d(1)(e)]

NA 6. Forward edges in a louver or venetian blind type bullet trap are maintained in a knife edge condition to prevent ricochets. [1-17d(1)(f)]

✓ 7. Steel bullet traps are not bowed, punctured or severely pitted. [1-17d(2)(a)]

✓ 8. Plates in the bullet trap are flush with the other plates. Mold seams are ground smooth. [1-17d(2)(b)]

D. Targets and target carriers

✓ 1. A target retrieval system is operable in all lanes. [1-17e(1)(a)]
(Any one firing lane without a retrieval system shall not be used for firing)

✓ 2. The target retrieval system is constructed in such a manner as to minimize flat surfaces exposed to the firing line. [1-17e(1)(a)]

✓ 3. Only paper targets are used in the range. [1-17e(1)(b)]

Pulaski 2 of 6

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1791 of 2531

E. Range use

✓ 1. The range is not used for any purpose other than firing. [1-18a]

✓ 2. No equipment or furniture is stored or maintained in the range, plenum area or behind the bullet trap. [1-17d]

____ 3. No additional clothing or equipment is brought into the range. [1-19h]

____ 4. Personnel are *not* permitted in the plenum area during firing even if designed for observation. [1-19a]

____ 5. Individuals other than maintenance and inspection personnel are not allowed to walk downrange. (Except in regularly cleaned area as needed to pick up brass) [1-19f]

____ 6. All areas directly in front of the plenum walls are kept clear at all times. [1-19c]

____ 7. Pellets, BBs, magnum and armor piercing rounds are not used in the range. [1-19g]

____ 8. The ventilation system is in operation at all times during firing or cleaning. [1-18c]

✓ 9. A hand-held ABC-type fire extinguisher is located in a recessed cabinet near the entrance door. inside of the firing range. [DG 415-1, App. A, 4-5] Not in cabinet

F. Range maintenance

____ 1. Dry sweeping does not occur in the range. [1-19e]

____ 2. No brooms are located in the range. [1-19e]

____ 3. A range custodian is appointed for the range who is fully trained and aware of his/her responsibilities. [1-13c]

G. Personnel protective equipment

No 1. All personnel in the range during firing wear ANSI approved eye protection. [1-20a]

✓ 2. All personnel in the range during firing wear ANSI approved hearing protection. [1-20b]

H. Posting of signs

____ 1. The following signs are posted in or in the vicinity of the range: [1-21a]
- ____ a. Eating, Drinking and Smoking are *Prohibited*
- ____ b. Dry Sweeping is *Prohibited*
- ____ c. Wash Hands and Face Immediately Following Firing
- ✓ d. The Following Ammunition is authorized for use on this Range: ____
- ✓ e. Hearing Protection *shall be* Properly worn during firing
- ✓ f. Proper Safety Glasses/Goggles *shall be* worn during firing
- ____ g. No Furniture or Storage of Items Permitted in the Range

____ 2. The following signs are posted on the entrance door to the range: [1-21b]
- ____ a. Noise Hazardous Area Hearing Protection Req.
- ____ b. Danger Lead Hazard Area
- ____ c. Pregnant women are *not* permitted in this Area

No 3. An illuminated warning sign, which is interlocked with the range ventilation switch, is located outside of the firing range to alert individuals that the range is in use. [1-21c]

No 4. Each firing lane is numbered at the firing line and at the bullet trap visible to all shooters. [1-21c] Lanes are not marked downrange or overhead

No 5. A warning sign is posted outside of the access door to the bullet trap, which warns personnel not to enter. [1-21e]

Pulaski 5 of 6

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1792 of 2531

I. Range SOP NO

_____ 1. The indoor firing range has a written SOP, which is approved by the State Safety and Occupational Health Office. [1-10e]

_____ 2. The range SOP includes as a minimum the following: [1-22b]

_____ a. The requirement for establishment and maintenance of a log of visitors for the indoor firing range.

_____ b. The requirement for and contents of a mandatory safety briefing for all individuals prior to entering the range to be given by a designated competent range safety officer.

_____ c. Work practices including required, recommended, permissible and banned practices as specified by this regulation.

_____ d. Instructive guidance for all range procedures.

_____ e. Personnel responsibilities for performing the procedures, for supervising them, and reviewing and updating the SOP.

_____ f. Authorized ammunition for the range.

_____ g. The requirement for posting of signs IAW section 1-21 of this regulation.

_____ h. Cleaning and maintenance requirements.

_____ i. Personal protective equipment requirements for maintenance, firing and cleaning.

J. Recordkeeping NO

_____ 1. A visitors log is maintained which includes the following information for all visitors/shooters: [1-14c]

_____ a. Name and age of shooter.

_____ b. Organization (if civilian, include address and phone number).

_____ c. Sign in and sign out times.

_____ d. Type of ammunition used and number of rounds fired.

_____ 2. Copies of initial and other previous inspections are available. [1-24a]

_____ 3. The initial inspection report includes air-sampling data. [1-24b]

_____ 4. An OSHA compliance program is in place, which covers the required aspects. [1-30a]

_____ 5. All individuals using the indoor firing range have been provided with a copy of the range SOP or been briefed on the requirements of the SOP, and have signed an agreement to follow the rules stated therein. [1-13h]

_____ 6. State maintenance officers/custodians have documentation to show that they have been educated to the health effects from exposure to Lead dust. [29 CFR 1910.1200 and 29 CFR 1910.1025]

_____ 7. Range safety officer(s) is/are designated. [1-13c]

K. New and Renovated Ranges

_____ 1. No doors are installed in the plenum wall.

_____ 2. Plenum area is at least 4 feet deep.

_____ 3. An access door is installed behind the bullet trap.

_____ 4. Only escalator or rubber bullet traps are installed.

Pulaski 1 of 6

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Page 1793 of 2531

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INDOOR FIRING RANGE INSPECTION CHECKLIST

Part 2, Ventilation Inspection

A. Existing Ranges

✓ 1. The range has an operational mechanical ventilation system. [1-17b(1)(a)]

____ 2. The minimum ventilation rate at the firing line in each firing lane is 50 fpm at all levels. [1-17b(1)(b)]

✓ 3. 100% of air is exhausted at or behind the bullet trap. [1-17b(1)(c)]

✓ 4. Make-up air is introduced into the range behind the shooters. [1-17b(1)(d)]

NO 5. Air that is introduced through vents into the plenum does not exceed a velocity of 600 fpm. [1-17b(1)(e)] 700-900

NO 6. Air exiting through holes in the plenum wall has a velocity between 400 and 600 fpm. [1-17b(1)(f)] 500fpm

✓ 7. The ventilation system is so constructed that air exhausted from the indoor firing range does not enter into another part of the building or any other air supply system. [1-17b(1)(g)]

✓ 8. The exhaust exceeds the make-up air by approximately 10% to form a negative air pressure in the range in relation to adjoining areas. [1-17b(1)(h)]

NA 9. If air is recirculated in the range, it is installed with a HEPA filter with a reliable back-up filter. [29 CFR 1910.1025(e)(4)(ii)]

NA 10. If air is recirculated in the range, controls to monitor the concentration of Lead and Carbon Monoxide levels are installed and programmed to bypass the recirculation system automatically if the filter system fails.
[29 CFR 1910.1025(e)(4)(ii)]

✓ 11. The fan(s) in the ventilation system is a single speed fan only. [DG 415-1, App. A, 3-2a]

✓ 12. A smoke test of the range shows laminar air flow and no turbulence in the range. (See NG PAM 385-16, Appendix E for troubleshooting guidance) [1-18b(1)(k)]

✓ 13. In non-powered systems, the supply air louvers and exhaust fan are electrically interlocked. [1-17b(1)(l)]

NA 14. In power systems, the supply and exhaust fans are electrically interlocked. The make-up air fan should start slightly after the exhaust fan. [1-17b(1)(m)]

No 15. Range air temperature is between 65 degrees and 80 degrees Fahrenheit. [1-17b(1)(n)] Heaters being installed

B. New and Renovated Ranges

____ 1. A manometer is installed leading into the exhaust fan, which is capable of measuring at least 20 inches of static pressure.

____ 2. Supply and exhaust fans are electrically interlocked with the downrange lighting.

____ 3. The face velocity on supplied make-up and exhaust ducts does not exceed 2000 cfm per square foot of duct space.

____ 4. Passive supply systems have opposing blade louvers.

____ 5. Turning vanes are installed in all duct elbows, which have between 60° and 90° angles.

Pulaski 5 of 6

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Page 1794 of 2531

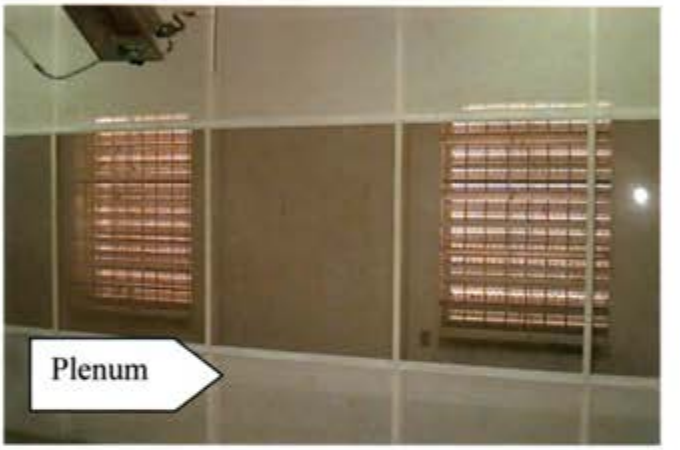
84.3 V
45.1

108.6 ✓
25.0 F

53.1 ✓
24.2 F

Pulaski Indoor Firing Range

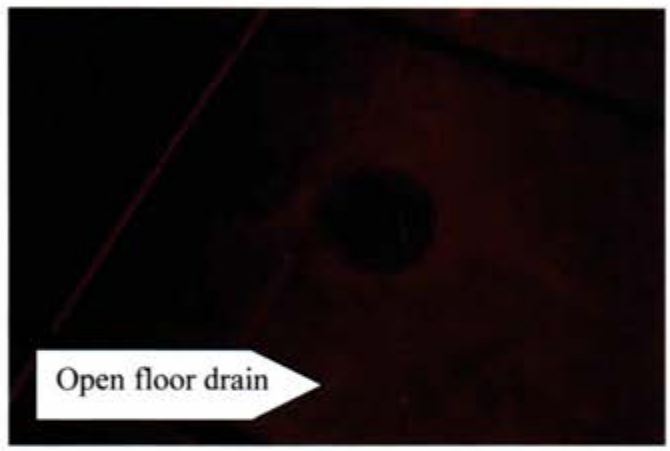
Signs posted in the range



Plenum

Downrange/ Firing Lanes

Up range toward
plenum


Open floor drain

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APPENDIX D

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Page 1798 of 2531

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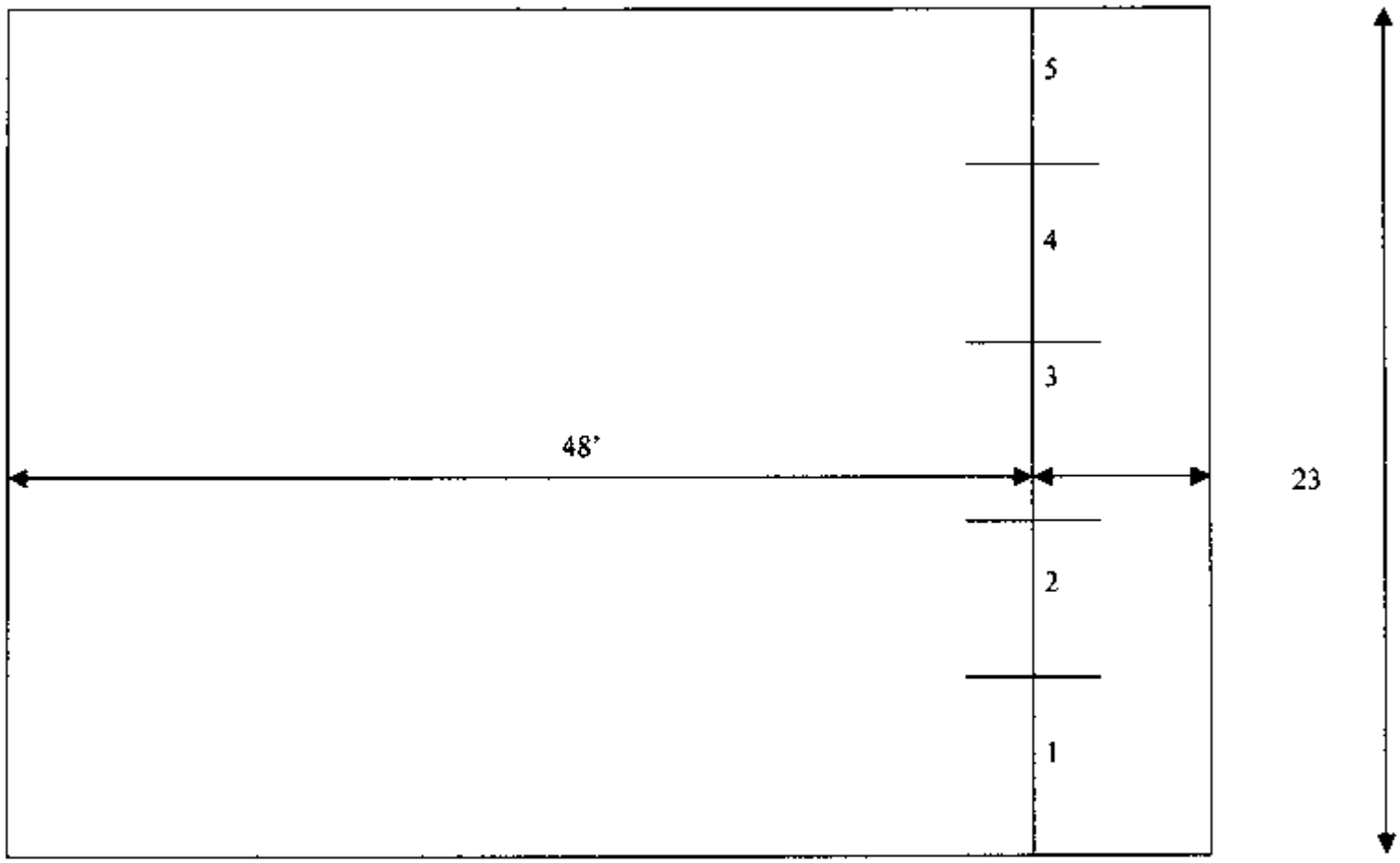

Figure D-1: Firing Range Dimensions and Lane Configuration

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FOIA Requested Record #J-15-0085 (TN)
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Page 1799 of 2531

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1800 of 2531

Table D-1
Ventilation Measurements
Indoor Firing Range Lanes

Lane 1			Average FPM	Lane 2			Average FPM	Lane 3			Average FPM	Lane 4			Average FPM	Lane 5			Average FPM
82	144	193	140	120	58	45	74	60	79	58	66	93	134	128	118	78	26	21	42
93	182	150	142	149	75	55	93	47	45	62	51	106	172	129	136	57	40	14	37
61	95	73	76	102	76	107	95	83	65	70	73	108	121	102	110	51	92	15	53
119 FPM				87 FPM				63 FPM				121 FPM				44 FPM			

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APPENDIX E

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Page 1802 of 2531

Table E-1
Personal and Area Air Sampling Results for Lead and Total Dust
Pulaski Indoor Firing Range
Pulaski, TN
05 DEC 2000

Sample # Type	Contaminant	Sampling Time in Minutes	Result mg/m^3	OSHA PEL-TWA	NIOSH REL-TWA	ACGIH TLV-TWA	ANG OEL
PL1 Area	Lead in Air	61	0.0076	0.05	0.09	0.05	0.03
	Total Dust		<0.76	15	15	15	15
PL2 Area	Lead in Air	61	<0.0076	0.05	0.09	0.05	0.03
	Total Dust		<0.76	15	15	15	15
PL3 Personal	Lead in Air	34	0.034	0.05	0.09	0.05	0.03
	Total Dust		<1.5	15	15	15	15
PL4 Personal	Lead in Air	34	0.038	0.05	0.09	0.05	0.03
	Total Dust		<1.5	15	15	15	15
PL5 Personal	Lead in Air	34	0.034	0.05	0.09	0.05	0.03
	Total Dust		<1.5	15	15	15	15
PL6 Personal	Lead in Air	34	0.059	0.05	0.09	0.05	0.03
	Total Dust		<1.5	15	15	15	15
PL7 Personal	Lead in Air	34	0.072	0.05	0.09	0.05	0.03
	Total Dust		<1.5	15	15	15	15
PLB Field Blank	Lead in Air	N/A	<1.0 microgram				
	Total Dust		<100 microgram				

Notes:
mg/m^3 = Milligrams per cubic meter
OSHA PEL = Occupational Safety and Health Administration Permissible Exposure Limit (1989 PEL Values)
NIOSH REL = National Institute of Occupational Safety and Health Recommended Exposure Level
ACGIH TLV = American Conference of Governmental Industrial Hygienists Threshold Limit Value
ANG-OEL =National Guard Bureau Occupational Exposure Limit
TWA = Time Weighted Average, [C] means a Ceiling Value
STEL = Short Term Exposure Limit
LFC Lowest Feasible Concentration
All Limits are in milligram per meter cube

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ong Grove, IL 60049-0075
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ax ( ) 320-4331
oll Free (888) 576-7522

Pulaski

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REPORT DATE DEC 27, 2000
SAMPLES REC'D DEC 19, 2000
REQUEST NUMBER 358463
PAGE NUMBER 15 OF 21

TO: Non-Responsive [redacted]

PL1-PLB1

SAMPLE	AIR VOLUME / ANALYSIS REQUESTED	MEDIA TYPE / RESULTS	
L1	**132 Liters**	**37mm 0.8 Micron Matched Mixed Cellulose Ester Filter**	
		micrograms	mg/m3
	LEAD IN AIR	1.0	0.0076
	TOTAL DUST	< 100	< 0.76
L2	**132 Liters**	**37mm 0.8 Micron Matched Mixed Cellulose Ester Filter**	
		micrograms	mg/m3
	LEAD IN AIR	< 1.0	< 0.0076
	TOTAL DUST	< 100	< 0.76
.3	**68 Liters**	**37mm 0.8 Micron Matched Mixed Cellulose Ester Filter**	
		micrograms	mg/m3
	LEAD IN AIR	2.3	0.034
	TOTAL DUST	< 100	< 1.5
.4	**68 Liters**	**37mm 0.8 Micron Matched Mixed Cellulose Ester Filter**	
		micrograms	mg/m3
	LEAD IN AIR	2.6	0.038
	TOTAL DUST	< 100	< 1.5

MMENTS:

PRESENT, DE MEANS DESORPTION EFFICIENCY

spectfully submitted,

Non-Responsive [redacted]

CREDITED BY THE AMERICAN INDUSTRIAL HYGIENE ASSOCIATION

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REPORT DATE DEC 27, 2000
SAMPLES REC'D DEC 19, 2000
REQUEST NUMBER 358463
PAGE NUMBER 16 OF 21

TO: Non-Responsive [redacted]

SAMPLE	AIR VOLUME / ANALYSIS REQUESTED	MEDIA TYPE / RESULTS	
5	68 Liters	37mm 0.8 Micron Matched Mixed Cellulose Ester Filter	
		micrograms	mg/m3
	LEAD IN AIR	2.3	0.034
	TOTAL DUST	< 100	< 1.5
6	68 Liters	37mm 0.8 Micron Matched Mixed Cellulose Ester Filter	
		micrograms	mg/m3
	LEAD IN AIR	4.0	0.059
	TOTAL DUST	< 100	< 1.5
7	68 Liters	37mm 0.8 Micron Matched Mixed Cellulose Ester Filter	
		micrograms	mg/m3
	LEAD IN AIR	4.9	0.072
	TOTAL DUST	< 100	< 1.5

MENTS:

PRESENT, DE MEANS DESORPTION EFFICIENCY

ectfully submitted,

Non-Responsive [redacted]

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REPORT DATE DEC 27, 2000
SAMPLES REC'D DEC 19, 2000
REQUEST NUMBER 358463

TO: Non-Responsive [redacted]

SAMPLE	AIR VOLUME / ANALYSIS REQUESTED	MEDIA TYPE / RESULTS
3		**37mm 0.8 Micron Matched Mixed Cellulose Ester Filter**
		micrograms
	LEAD IN AIR (BLANK)	< 1.0
		SUBTRACTED
	TOTAL DUST (BLANK)	< 100
		NOT SUBTRACTED, -170 UG IS OUTSIDE OF QC RANGE.

MENTS:

PRESENT, DE MEANS DESORPTION EFFICIENCY

ectfully submitted,

Non-Responsive [redacted]

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APPENDIX F

Posted to NGB FOIA Reading Room
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FOIA Requested Record #J-15-0085 (TN)
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INDUSTRIAL HYGIENE
SAMPLING RESULT NOTIFICATION SHEET

DATA REQUIRED BY THE PRIVACY ACT

AUTHORITY: Sections 133, 1071 87, 3012, 5031, and 8012, title 10, United States Code, Executive Order 9397 and AR 40 5.

PRINCIPAL PURPOSE: The Social Security Number of the individual is required to identify, record, and retrieve occupational medical surveillance records.

ROUTINE USE: The primary use of this information is to provide, plan, and coordinate occupational health medical surveillance and care.

DISCLOSURE: In the case of military personnel and Federal employees, the requested information is mandatory because of the need to document all occupational injuries and illnesses in view of future rights and benefits. If the requested information is not furnished comprehensive medical surveillance may not be possible, but AUTHORIZED CARE WILL NOT BE DENIED.

NAME:	SOCIAL SECURITY NO.:	OPERATION:	BLDG:	DIRECTORATE/COLLOCATED ACTV:
Non-Responsive [redacted]		Weapons Firing	Pulaski	ndoor Firing Range

Air sampling took place on December 5, 2000 to determine workplace exposure to:

SUBSTANCE	PERMISSIBLE EXPOSURE LIMIT	YOUR RESULTS	EXP CATEGORY (See Below)
1. Lead	0.050 mg/m3 (OSHA)	0.003 mg/m3	1
2.			
3.			
4.			
5.			
6.			

EXPOSURE CATEGORY

1. Airborne levels are below permissible limits; no work changes necessary.
2. Airborne levels are close to permissible limits; additional sampling necessary; temporary use of respiratory protection during this operation.
3. Airborne levels are above permissible limits and the following actions are indicated (where feasible) to prevent overexposure:
   a. Ventilation system improvements required (general and/or local exhaust).
   b. Engineering controls required.
   c. Employee work practices need improvement.
   d. Improve housekeeping.
   e. Personal protective equipment mandatory until exposure is below permissible limits.

COMMENTS:

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INDUSTRIAL HYGIENE
SAMPLING RESULT NOTIFICATION SHEET

DATA REQUIRED BY THE PRIVACY ACT

AUTHORITY: Sections 133, 1071 87, 3012, 5031, and 8012, title 10, United States Code, Executive Order 9397 and AR 40 5.

PRINCIPAL PURPOSE: The Social Security Number of the individual is required to identify, record, and retrieve occupational medical surveillance records.

ROUTINE USE: The primary use of this information is to provide, plan, and coordinate occupational health medical surveillance and care.

DISCLOSURE: In the case of military personnel and Federal employees, the requested information is mandatory because of the need to document all occupational injuries and illnesses in view of future rights and benefits. If the requested information is not furnished comprehensive medical surveillance may not be possible, but AUTHORIZED CARE WILL NOT BE DENIED.

NAME:	SOCIAL SECURITY NO.	OPERATION:	BLDG:	DIRECTORATE/COLLOCATED ACTV
Non-Responsive		Weapons Firing	Pulaski	Indoor Firing Range

Air sampling took place on December 5, 2000 to determine workplace exposure to:

SUBSTANCE	PERMISSIBLE EXPOSURE LIMIT	YOUR RESULTS	EXP CATEGORY (See Below)
1. Lead	0.050 mg/m3 (OSHA)	0.005 mg/m3	1
2.			
3.			
4.			
5.			
6.			

EXPOSURE CATEGORY

1. Airborne levels are below permissible limits; no work changes necessary.
2. Airborne levels are close to permissible limits; additional sampling necessary; temporary use of respiratory protection during this operation.
3. Airborne levels are above permissible limits and the following actions are indicated (where feasible) to prevent overexposure:
   a. Ventilation system improvements required (general and/or local exhaust).
   b. Engineering controls required.
   c. Employee work practices need improvement.
   d. Improve housekeeping.
   e. Personal protective equipment mandatory until exposure is below permissible limits.

COMMENTS:

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INDUSTRIAL HYGIENE
SAMPLING RESULT NOTIFICATION SHEET

DATA REQUIRED BY THE PRIVACY ACT

AUTHORITY: Sections 133, 1071 87, 3012, 5031, and 8012, title 10, United States Code, Executive Order 9397 and AR 40 5.

PRINCIPAL PURPOSE: The Social Security Number of the individual is required to identify, record, and retrieve occupational medical surveillance records.

ROUTINE USE: The primary use of this information is to provide, plan, and coordinate occupational health medical surveillance and care.

DISCLOSURE: In the case of military personnel and Federal employees, the requested information is mandatory because of the need to document all occupational injuries and illnesses in view of future rights and benefits. If the requested information is not furnished comprehensive medical surveillance may not be possible, but AUTHORIZED CARE WILL NOT BE DENIED.

NAME:	SOCIAL SECURITY NO.	OPERATION:	BLDG:	DIRECTORATE/COLLOCATED ACTV
Non-Responsive		Weapons Firing	Pulaski	Indoor Firing Range

Air sampling took place on December 3, 2008 to determine workplace exposure to:

SUBSTANCE	PERMISSIBLE EXPOSURE LIMIT	YOUR RESULTS	EXP CATEGORY (See Below)
1. Lead	0.050 mg/m3 (OSHA)	0.004 mg/m3	1
2.			
3.			
4.			
5.			
6.			

EXPOSURE CATEGORY

1. Airborne levels are below permissible limits; no work changes necessary.
2. Airborne levels are close to permissible limits: additional sampling necessary; temporary use of respiratory protection during this operation.
3. Airborne levels are above permissible limits and the following actions are indicated (where feasible) to prevent overexposure:
   a. Ventilation system improvements required (general and/or local exhaust).
   b. Engineering controls required.
   c. Employee work practices need improvement.
   d. Improve housekeeping.
   e. Personal protective equipment mandatory until exposure is below permissible limits.

COMMENTS:

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INDUSTRIAL HYGIENE
SAMPLING RESULT NOTIFICATION SHEET

DATA REQUIRED BY THE PRIVACY ACT

AUTHORITY: Sections 133, 1071 87, 3012, 5031, and 8012, title 10, United States Code, Executive Order 9397 and AR 40 5.

PRINCIPAL PURPOSE: The Social Security Number of the individual is required to identify, record, and retrieve occupational medical surveillance records.

ROUTINE USE: The primary use of this information is to provide, plan, and coordinate occupational health medical surveillance and care.

DISCLOSURE: In the case of military personnel and Federal employees, the requested information is mandatory because of the need to document all occupational injuries and illnesses in view of future rights and benefits. If the requested information is not furnished comprehensive medical surveillance may not be possible, but AUTHORIZED CARE WILL NOT BE DENIED.

NAME:	SOCIAL SECURITY NO.:	OPERATION:	BLDG:	DIRECTORATE/COLLOCATED ACTV:
Non-Responsive		Weapons Firing	Pulaski	ndoor Firing Range

Air sampling took place on December 5, 2000 to determine workplace exposure to:

SUBSTANCE	PERMISSIBLE EXPOSURE LIMIT	YOUR RESULTS	EXP CATEGORY (See Below)
1. Lead	0.050 mg/m3 (OSHA)	0.002 mg/m3	1
2.			
3.			
4.			
5.			
6.			

EXPOSURE CATEGORY

1. Airborne levels are below permissible limits; no work changes necessary.
2. Airborne levels are close to permissible limits; additional sampling necessary; temporary use of respiratory protection during this operation.
3. Airborne levels are above permissible limits and the following actions are indicated (where feasible) to prevent overexposure:
   a. Ventilation system improvements required (general and/or local exhaust).
   b. Engineering controls required.
   c. Employee work practices need improvement.
   d. Improve housekeeping.
   e. Personal protective equipment mandatory until exposure is below permissible limits.

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INDUSTRIAL HYGIENE
SAMPLING RESULT NOTIFICATION SHEET

DATA REQUIRED BY THE PRIVACY ACT

AUTHORITY: Sections 133, 1071-87, 3012, 5031, and 8012, title 10, United States Code, Executive Order 9397 and AR 40-5.

PRINCIPAL PURPOSE: The Social Security Number of the individual is required to identify, record, and retrieve occupational medical surveillance records.

ROUTINE USE: The primary use of this information is to provide, plan, and coordinate occupational health medical surveillance and care.

DISCLOSURE: In the case of military personnel and Federal employees, the requested information is mandatory because of the need to document all occupational injuries and illnesses in view of future rights and benefits. If the requested information is not furnished comprehensive medical surveillance may not be possible, but AUTHORIZED CARE WILL NOT BE DENIED.

NAME:	SOCIAL SECURITY NO.:	OPERATION:	BLDG	DIRECTORATE/COLLOCATED ACTV
Hal G. Sensing	411-82-3887	Weapons Firing	Pulaski	Indoor Firing Range

Air sampling took place on December 5, 2000 to determine workplace exposure to:

SUBSTANCE	PERMISSIBLE EXPOSURE LIMIT	YOUR RESULTS	EXP CATEGORY (See Below)
1. Lead	0.050 mg/m3 (OSHA)	0.002 mg/m3	1
2.			
3.			
4.			
5.			
6.			

EXPOSURE CATEGORY

1. Airborne levels are below permissible limits; no work changes necessary.
2. Airborne levels are close to permissible limits; additional sampling necessary; temporary use of respiratory protection during this operation.
3. Airborne levels are above permissible limits and the following actions are indicated (where feasible) to prevent overexposure:
   a. Ventilation system improvements required (general and/or local exhaust).
   b. Engineering controls required.
   c. Employee work practices need improvement.
   d. Improve housekeeping.
   e. Personal protective equipment mandatory until exposure is below permissible limits.

COMMENTS:

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NATIONAL GUARD REGION SOUTH
INDUSTRIAL HYGIENE OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

NGB-ARS-IHSE (40-5f)

January 12, 20[illegible]

MEMORANDUM FOR The Adjutant General of Tennessee, ATTN: Non-Responsive TN Army National Ripley Armory, 2425 Highway 51 South, Ripley, Tennessee

THRU Non-Responsive Deputy State Surgeon, Tennessee National Guard, HQS, AGTN-DCSPER-DSS, P.O. Box 41502, Houston Barracks, Nashville, Tennessee 37204-1501.

SUBJECT: Transmittal of IH Survey of TN ARNG Ripley Armory, Ripley, TN.

1. References.

   a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 19 August 1998.

   b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1996 rev.

   c. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 25 May 2007

   d. AR 385-10, The Army Safety Program, 23 August 2007.

   e. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.

   f. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, 23 May 2008.

   g. TB MED 503, The Army Industrial Hygiene Program, 30 October 2000.

   h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2008, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

   i. Industrial Ventilation, 26th rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

   j. Title 29, Code of Federal Regulations (CFR), 2001 rev., part 1910, Occupational Safety and Health Standards.

   k. Industrial Hygiene Survey Report by Non-Responsive Douglasville, GA 30134.

2. General.

   a. At the request of Non-Responsive, of the Tennessee National Occupational Health Office, an Industrial Hygiene Survey was put together to conduct Health Hazard Information module (HHIM) Field survey of the s and industrial hygiene sampling of the TN ARNG Ripley Armory, Ripley, TN.

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b. The surveys were conducted by Non-Responsive creek Drive, Douglasville, GA 30134.

3. Findings: The information that follows is based on the findings of the survey performed. All HHIM field survey forms, industrial hygiene sampling and survey findings of the report are enclosed (See ENCL 1). Operations of very short duration were not sampled due to the requirements of the sampling method. If the operation changes or if the length of the operation is increased, contact this office to schedule sampling if it is deemed needed then.

4. Recommendations. Understand that all findings documented in the enclosed report have been reviewed by the Regional Industrial Hygienist and the following recommendations are the ones to be followed.

a. Use the guidance given in the enclosed report as good IH practices, requesting industrial hygiene (IH) services where needed. The recommendations that follow are based on the survey findings as reported for the areas surveyed:

i. Ensure that an index is present to easily find items in the MSDS binder. Material Safety Data Sheets (MSDS) are required to be kept at the primary workplace facility and to be easily accessible in case of emergency. Personnel responsible for these items should receive annual training in the requirements of the Hazardous Communication Program and the appropriate keeping and storage of all MSDS. Ensure that MSDS Binder is updated annually to reflect current stock of items. [29 CFR 1910.1200 (g)(8-9)] (RAC 2)

ii. Upgrade the lighting throughout the facility to meet ANSI standards for each operation. Use supplemental lighting for work areas difficult to reach. Replace light bulbs where necessary. Replacing burnt bulbs, painting the walls a light color, cleaning existing light fixtures, rearranging furniture to make better use of available light, and supplemental or task lighting are considerations in increasing available light levels. [IES/ANSI-RP7-1991] (RAC 3)

iii. Procure the covers for the outlets that are uncovered leaving wires exposed. This Safety concern is forwarded to the TN ARNG Ground Safety Office. (RAC 3)

iv. Ensure that engineering inspect and evaluate possible pipe or roof leaks throughout the armory. Discard all damaged materials and replace ceiling tiles after leaks are fixed. (RAC 2)

b. The recommendations given in the comments section of the HHIM data sheets and data collected will serve as an update of the baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY2009. A follow up

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operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY2010 IHIP.

c. Have all HHIM data entered into the HHIM computer module.

d. Use the report to help in correcting all deficiencies noted.

e. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present visits, especially if this will help eliminate health hazards and reduce medical surveillance cost.

f. Contact the State Occupational Health Office for any medical Surveillance that may be needed.

g. To execute your responsibilities in correcting all deficiencies, coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed about the industrial hygiene survey or air sample

Non-Responsive

[redacted]

CF:
Non-Responsive Tennessee State Safety and Occupational Health Manager, 3041 Sidco Drive, Nashville, TN 37204-1504
Non-Responsive Occupational Health Nurse, Tennessee State Safety and Occupational Health Office, Smyrna, TN 37167

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INDUSTRIAL HYGIENE INITIAL BASELINE SURVEY

TENNESSEE NATIONAL GUARD

RIPLEY ARMY NATIONAL GUARD ARMORY
(PHILLIP R. MILLER/MAJOR GEN'L GUS L. HARGETT, JR. ARMORY)
2425 HIGHWAY 51 SOUTH
RIPLEY, TN

DATE: OCTOBER 28, 2009

PREPARED BY

Non-Responsive

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
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TABLE OF CONTENTS

BACKGROUND	Pg 1
Introduction	Pg 1
Scope of Work	Pg 1
INSTRUMENTATION	Pg 1
OBSERVATION	Pg 2
ADMINISTRATIVE OFFICES	Pgs 2 & 3
AIRFLOW/VENTILATION	Pg 3
MESS HALL/ KITCHEN	Pgs 3 & 4
RESTROOM	Pg 4
DRILL HALL	Pg 4
SUPPLY	Pg 5
MOTOR POOL	Pgs 5 & 6
HAZMAT STORAGE FACILITY	Pg 6
MATERIAL SAFETY DATA SHEETS	Pg 6
FINDINGS	Pgs 7 & 8
TABLE 1A GENERAL ILLUMINATION LEVEL	Pg 9
TABLE 1B TASK TROUBLED AREAS A WORK STATIONS	Pg 9
TABLE 2A (LEAD WIPE SAMPLES RESSULTS)	Pg 10
TABLE 2B (PAINT CHIP SAMPLE FOR LEAD RESULTS)	Pg 10
TABLE 3 (MOLD SPORES RESULTS)	Pg 10
TABLE 4 (ASBESTOS SAMPLE RESULTS)	Pg 11
TECHNICAL ASSISTANCE	Pg 11
APPENDIX A, PROBLEM AREAS	Pgs 11 & 12
APPENDIX B1, (LEAD WIPE SAMPLE LOCATION IFR)	Pgs 12 thru 15
APPENDIX B2 (PAINT CHIP LEAD SAMPLE LOCATION)	Pg 16
APPENDIX C (MOLD SAMPLE LOCATION)	Pg 17
APPENDIX D (ASBESTOS SAMPLE LOCATION)	Pg 17
APPENDIX E (PICTURES OF RIPLEY ARMORY)	Pg 17

ATTACHMENTS:

Facility Diagram
List of MSDS on Hand
HHIM Sheet
Analytical Environmental Services, Inc. Chain of Custody
Analytical Environmental Service, Inc. Analytical Results

MEMORANDUM FOR: Tennessee National Guard, Attn: SFC Michael Mann, Readiness NCO, 2425 Highway 51 South, Ripley, Tennessee

Subject: Industrial Hygiene Initial Baseline Survey of Ripley Army National Guard Armory, Ripley, Tennessee

BACKGROUND:

Introduction:

At the request of Non-Responsive [redacted] National Guard Bureau Regional Industrial Hygiene South Office, Atlanta, GA., an initial baseline industrial hygiene survey was conducted at Ripley Army National Armory, Ripley, Tennessee on October 28, 2009 as part of the Tennessee Army National Guard Occupational Health in the workplace. The point of contact for this facility was Non-Responsive [redacted] at Non-Responsive [redacted]

Scope of Work:

The survey consisted of a general illumination survey, task lighting survey, lead wipe sampling and evaluating the condition of the building, including the airflow of the heating Ventilation and Air Conditioning (HVAC) System as it relates to indoor air quality. A review of several industrial programs, such as hazard communication, hearing conservation and personal protective equipment was also performed. A field survey form is complete on all industrial operations at the facility, and the data is contained in this report.

INSTRUMENTATION:

The following survey instrumentation was provided by or for the contractor, and was used to obtain illumination measurements, task lighting measurements. All instruments were pre-calibrated according to the manufacturer's instructions.

Instrument	Serial Number	Calibration
Sper Scientific Light Meter	025434	10 Dec 2008
Alnor Velometer	54120023	February 2010

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Page 1817 of 2531

OBSERVATION

Ripley Army National Guard Armory is also known as the Phillip R. Miller/Major General Gus L. Hargett, Jr. Armory. The armory is home to the 268th M.P Company and the building number is 00001. Usually there are three individuals on duty at the armory, [redacted] Readiness NCO, [redacted] Training NCO and a supply individual. However, the supply individual was deployed to Iraq just before Thanksgiving 2008. [redacted] was in school leaving [redacted] the only one on duty at the armory. [redacted] opened all the doors to the armory and had to report back to the front office to answer the telephone. Duty hours are from 08:00 to 17:00 hours, Monday thru Friday. The armory is a one level structure with a metal roof and was built around 1983. The building in my opinion is fair condition inside and out.

ADMINISTRATIVE OFFICES

There are eight offices, where personnel use computer systems, files, read, write and perform administrative tasks as necessary. Computer use occurs throughout the day. Operations and the supply office have water stained ceiling tiles indicating a possible leak above the ceiling. General illumination levels in the recruiters office, admin office and, communication office did not meet IES, Illuminating Engineering Society Handbook, 8th Edition requirement of 50 FC - 100 FC (foot candles).

Task lighting taken at computer work station in the admin office did not meet IES requirement of 50 FC – 100FC.

Communications Room

Admin Office

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Released by National Guard Bureau
Page 1818 of 2531

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Non-Responsive

Recruiting Office

AIRFLOW/VENTILATION

The administrative areas are provided with central air and heat, everywhere else has no air conditioning and heat is provided by hot water heating.

MESS HALL/KITCHEN

The kitchen has three separate areas (1) food preparation (2) dishwashing (3) office storage. The kitchen is not used during drill weekend to prepare food for troops, it is normally used for day to day storage of full time personnel food and when the hall is rented. Food for drill weekend is catered. An uncovered electrical outlet with exposed wires was noticed in the kitchen/preparation room. The general illumination levels in the kitchen/preparation did not meet IES requirement of 50 FC – 100 FC. The office/storage area did not meet IES requirement of 50 FC – 100 FC for administration or 20 FC – 50 FC for active storage. The dishwashing area did not meet IES requirement of 20 FC - 50 FC. The two incandescent light bulbs in the office/storage did not emit enough light.

Kitchen Dish Wash Area

Kitchen Preparation Area

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Page 1820 of 2531

Office/Storage

RESTROOMS

There are two restrooms, one for men and one for women. The men restroom has five stalls with one out of order, five urinals, shower and five sinks. The female rest room has a shower, two stalls and two sinks. The general illumination in both restrooms did not meet IES requirements of 10 FC – 20 FC.

DRILL HALL

The floor was clean and looked very good. The hall is heated by four hot water heaters during the colder months. The hall is moped after each drill weekend. An uncovered electrical outlet with exposed electrical wires is near the mess hall serving window. A crack was noticed on the back wall by the roll-up door and the paint around it had bubbles caused from water damage. The hall lighting is provided by eighteen light fixtures however, general illumination levels measured did not meet IES requirement of 50 FC – 100 FC.

Drill Hall

Drill Hall

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Page 1821 of 2531

SUPPLY

Supply is responsible for (1) supply room (2) office (3) NBC storage room (4) outside storage tent. The supply room general illumination levels did not meet IES requirement of 20 FC – 50 FC. The office had water stained ceiling tiles that indicates a potential water leak above the ceiling. The office general illumination levels met IES requirement of 50 FC - 100 FC. The NBC storage room general illumination levels did not meet IES requirement of 10 FC – 20 FC. Nineteen lead wipe samples were collected in the old indoor firing range (IFR). The lead wipe samples collected were sent to Analytical Environmental Services, Inc. for analyses. The results received were all the samples were negative except for one floor sample.

Supply Room

Supply Office

Supply Storage Tent

Supply Room

MOTOR POOL

Motor Pool has a security fence around it and is kept closed during duty hours Monday through Friday and gate opened during drill weekend.

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Released by National Guard Bureau
Page 1822 of 2531

Motor Pool

Motor Pool

HAZMAT STORAGE FACILITY

Stored in the hazmat storage facility are the following, new oil (15W40), anti-freeze, gear oil, lube oil and hydraulic fluid. The luminescent bulb that provides light to the room was blown. There's no oil water separator.

HazMat/POL Storage Facility

HazMat/POL Storage Facility

MATERIAL SAFETY DATA SHEETS

The material safety data sheets are kept in a binder in the Drill Hall. The Binder was in fair condition, however, there were no table of content and some of the MSDSs were at least twenty years old. According to the dated inventory sheets the last time they were updated was August 2005.

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Released by National Guard Bureau
Page 1823 of 2531

FINDINGS

A. Administrative Offices

1. General illumination levels measured in the admin office, recruiter's office, war room, communications office and kitchen/storage office did not meet IES requirement of 50 FC – 100 FC.
2. Operations office and supply office both have water stained ceiling tiles indicating a possible water leak above the ceiling.
3. Task lighting taken at computer work station in the admin office did not meet IES requirement of 50 FC – 100 FC.

B. Mess Hall/Kitchen

1. Uncovered electrical outlet with exposed wires was noticed in the kitchen/preparation room.
2. General illumination levels in the kitchen/preparation room, kitchen office/storage did not meet IES requirement of 50 FC – 100 FC. The general illumination levels in the kitchen/dishwashing did not meet IEs requirement of 20 FC – 50 FC.

C. The men and women restroom general illumination levels did not meet IES requirement of 10 FC – 20 FC.

D. Drill Hall

1. Uncovered electrical outlet with exposed wires was noticed below the serving window close to roll-up door.
2. A crack was noticed on the back wall above the bulletin board near the roll-up door. Water damage from the crack has caused the paint to bubble.
3. General illumination levels did not meet IES requirement of 50 FC – 100 FC.

E. Supply

1. General illumination levels in the supply room did not meet IES requirement of 20 FC – 50 FC.
2. NBC storage did not meet IES requirement of 10 FC – 20 FC.
3. The water stained ceiling tile in the supply office indicates a possible water leak above the ceiling.
4. One analytical sample came back positive for lead out of the nineteen lead wipe samples collected in tha old indoor firing range.

F. The hazmat storage facility only light bulb was blown leaving only natural light to come in after door is open.

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Released by National Guard Bureau
Page 1824 of 2531

G. The MSDS Binder is located in the drill near entrance to old indoor firing range. The MSDS binder was inspected and found not have a table of contents and the inventory listing date showed last update was August 2005.

H. A total of six portable fire extinguishers (PFE's) certified March 2009 were noted throughout the facility and inspected by the unit monthly.

I. Fulltime employees have only administrative duties and they are not exposed to hazardous chemicals. No ambient or breathing zone air sampling accomplished during this survey.

J. Fulltime employees have only administrative duties and they are not exposed to any hazardous noise. No noise dosimeter or sound level survey accomplished during this survey.

TABLE 1A (General Illumination Levels)

Location	Range in Foot Candles (FC)	Average FC	IES Standard in FC
Operations Office	82 – 99	89	50 – 100
Class Room	58 – 89	72	50 - 100
Drill Hall	16 – 39	29	50 - 100
Kitchen	18 – 53	40	50 – 100
Kitchen Office/Storage	6 – 12	9	50 – 100
Kitchen/Dishwashing	36 – 53	48	20 - 50
War Room	8 – 13	11	50 – 100
Women Restroom	1 – 6	5	10 – 20
Men Restroom	5 - 11	8	10 – 20
Exercise Room	29 – 55	44	50 - 100
Locker Room	4 – 33	22	10 - 20
Supply Room	9 – 41	25	20 - 50
Communication Room	8 – 11	9	50 – 100
NBC	6 -11	8	10 - 20
Supply SGT's Office	49 – 100	72	50 – 100
Readiness Office	38 – 77	65	50 - 100
Recruiter Office	36 – 63	49	50 – 100
Admin Office	36 – 60	45	50 – 100
Old Indoor Firing Range	18 - 29	26	
Maintenance Office	9 – 10	9	50 - 100

TABLE 1B (Task Troubled Areas at Work Stations)

Location	Average FC	IES Standard
Admin Office	38	50 – 100

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1826 of 2531

TABLE 2A (Lead Wipe Samples Results)

Location	Sample Number	Analytical Results
IFR Floor	091028-01	BRL
IFR Floor	091087-02	BRL
IFR Floor	091028-03	BRL
IFR Floor	091028-04	BRL
IFR Floor	091028-05	BRL
IFR Floor	091028-06	BRL
IFR Floor	091028-07	BRL
IFR Floor	091028-08	BRL
IFR Floor	091028-09	BRL
IFR Floor	091028-10	BRL
IFR Floor	091028-11	37 µg/ft²
IFR Wall	091028-12	BRL
IFR Wall	091028-13	BRL
IFR Wall	091028-14	BRL
IFR Wall	091028-15	BRL
IFR Wall	091028-16	BRL
IFR Wall	091028-17	BRL
IFR Wall	091028-18	BRL
IFR Wall	091028-19	BRL

Remarks: BRL – Not Detected at the Reporting Limit
IFR – Indoor Firing Range

TABLE 2B (Paint Chip Sample for Lead Analyses Results)

Location	Sample Number	Analytical Results
Drill Hall Roll-up Door	PC091028-1	BRL
War Room	PC091087-2	0.0263 %
Men Restroom Ceiling	PC091028-3	BRL
Exercise Room	PC091028-4	0.0112 %
Class Room Wall	PC091028-5	BRL
Class Room Wall	PC091028-6	BRL

TABLE 3 (Mold Spores Result)

Location	Sample Number	Analytical Results
Class Room Wall	M091028-1	None
Class Room Wall	M091028-2	None

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Released by National Guard Bureau
Page 1827 of 2531

TABLE 4 (Asbestos Sample Result)

Location	Sample Number	Analytical Results
War Room Water Pipe	AB091028-1	ND

Remarks: ND – None Detected

TECHNICAL ASSISTANCE

Non-Responsive

[redacted]

APPENDIX A, Problem Area of Ripley Armory

Water Stained Ceiling

Uncovered Outlet in Drill Hall

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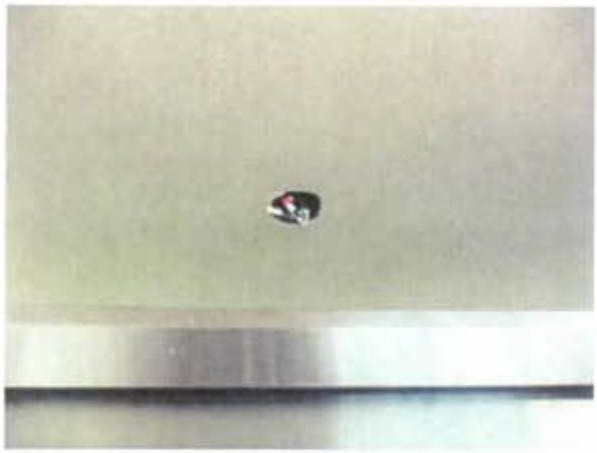
Released by National Guard Bureau
Page 1828 of 2531

APPENDIX A continued, Problem Area of Ripley Armory



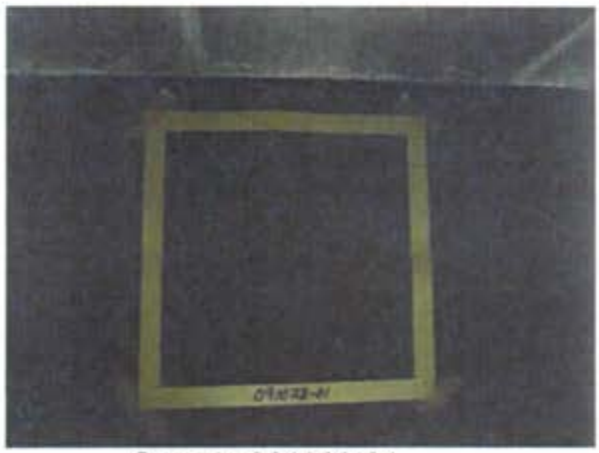
Uncovered Exposed Wiring in Kitchen

Water Stained Ceiling Operations Office

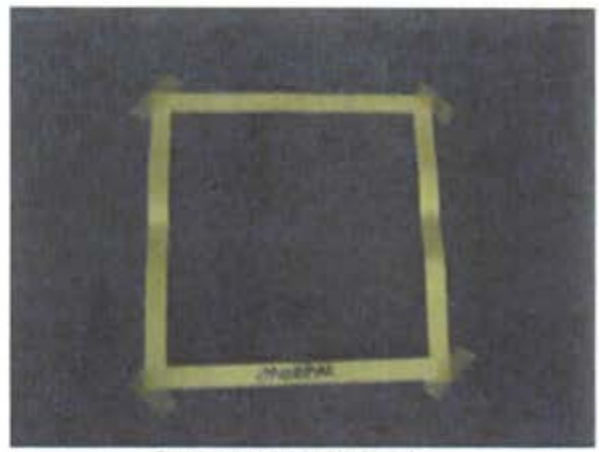
Water Stained Ceiling in Supply Office

Crack in Wall with Water Damage

APPENDIX B1, LEAD WIPE SAMPLE LOCATIONS (IFR)

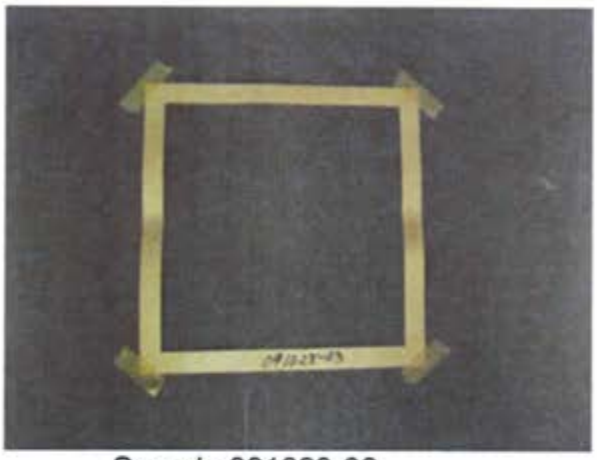


Sample 091028-01

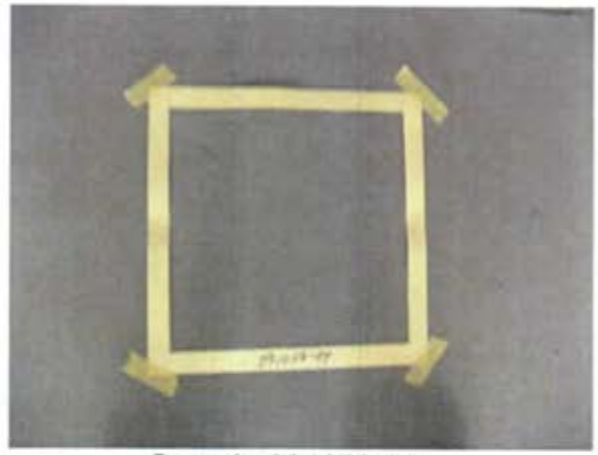


Sample 091028-02

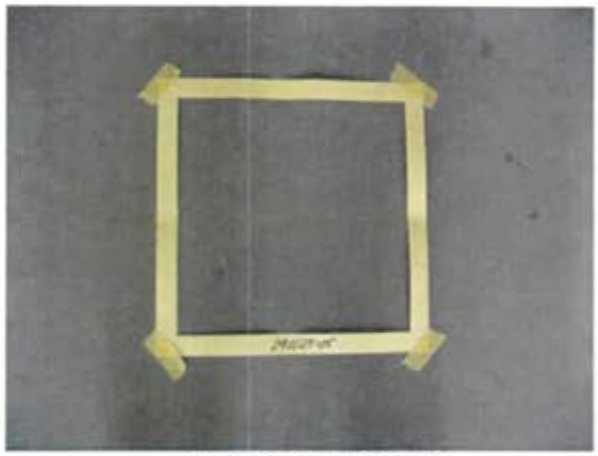
APPENDIX B1 continued, LEAD WIPE SAMPLE LOCATIONS (IFR)



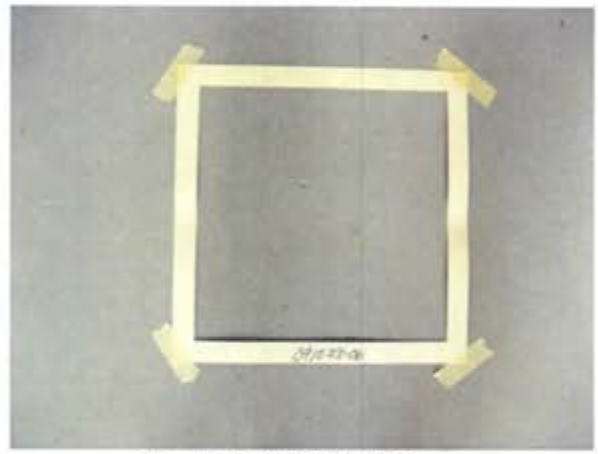
Sample 091028-03



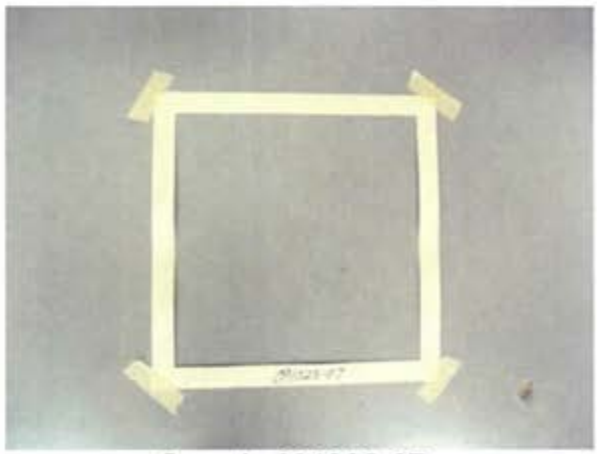
Sample 091028-04



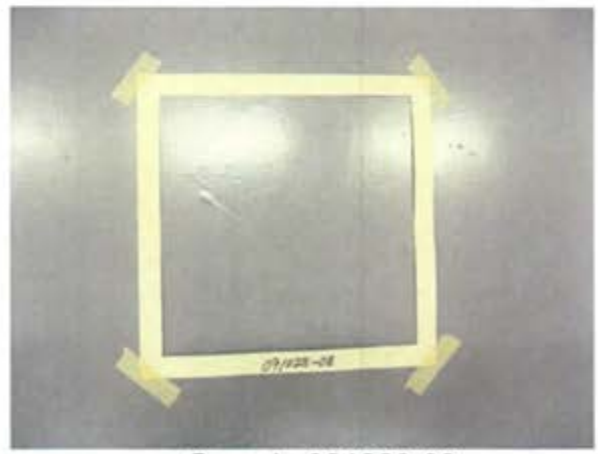
Sample 091028-05



Sample 091028-06

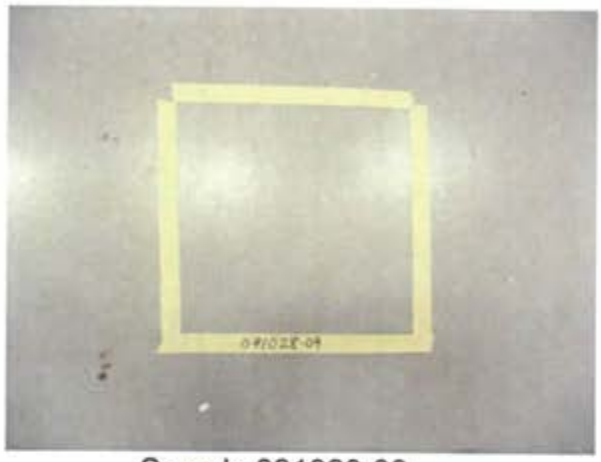


Sample 091028-07

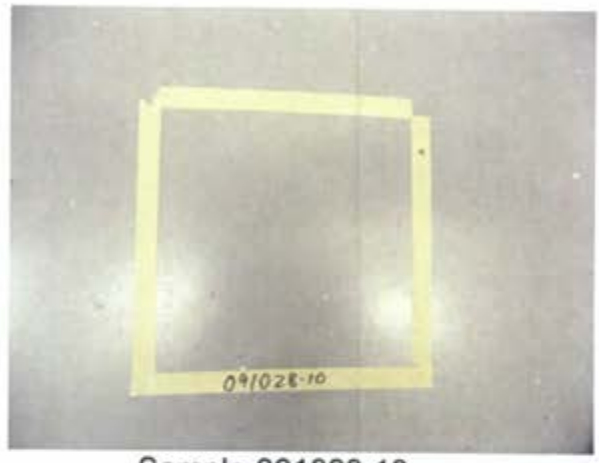


Sample 091028-08

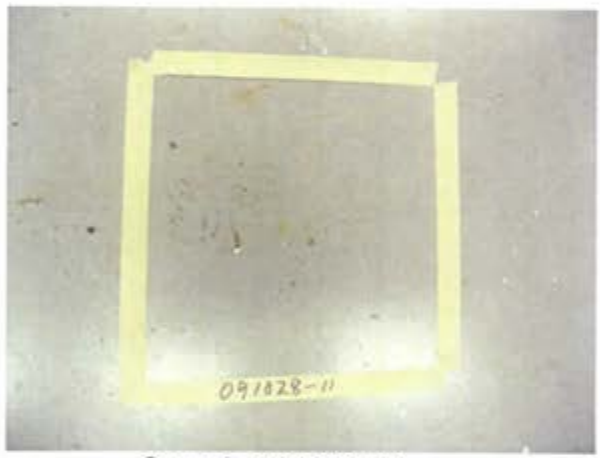
APPENDIX B1 continued, LEAD WIPE SAMPLE LOCATIONS (IFR)



Sample 091028-09



Sample 091028-10



Sample 091028-11

Sample 091028-12

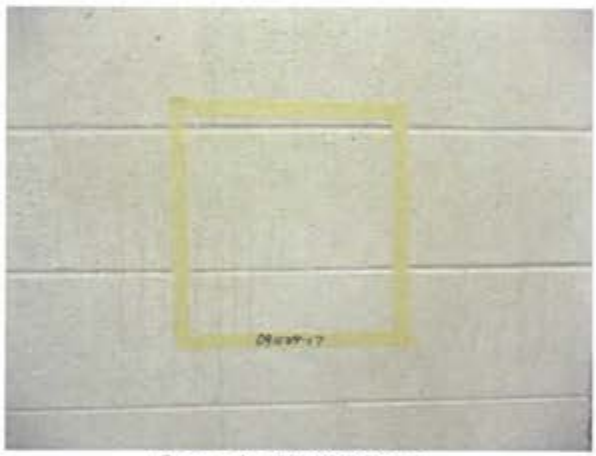
Sample 091028-13

Sample 091028-14

APPENDIX B1 continued, LEAD WIPE SAMPLE LOCATIONS (IFR)

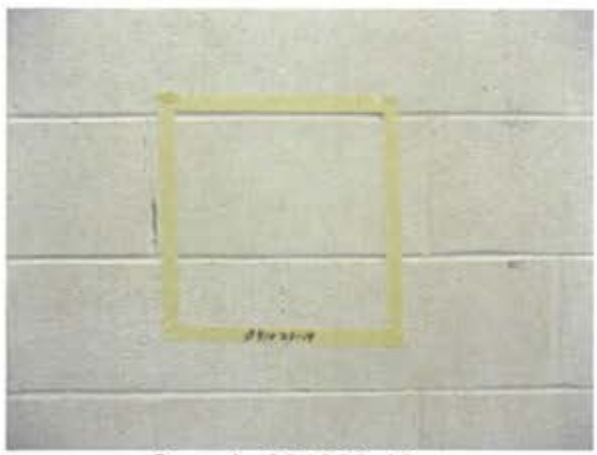
Sample 091028-15

Sample 091028-16



Sample 091028-17

Sample 091028-18



Sample 091028-19

APPENDIX B2, PAINT CHIP LEAD SAMPLE LOCATIONS

Sample PC091028-1 Roll-up Door

Sample PC091028-2 War Room Duct Work

Sample 091028-3 Men Restroom Ceiling

Sample 091028-4 Exercise Room Duct Work

Sample 091028-5 Class Room Wall

Sample 091028-6 Class Room Wall

APPENDIX C, MOLD SAMPLE LOCATIONS

Sample M091028-1 Class Room Wall

Sample M091028-2 Class Room Wall

APPENDIX D, ASBESTOS SAMPLE LOCATION

Sample AB091028-1 War Room Water Pipe

APPENDIX E, PICTURES F RIPLEY ARMORY

Exercise Room

Class Room

War Room

Supply Storage Tent

POV Overflow Parking

Operations Office

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Page 1835 of 2531

APPENDIX E continued, PICTURES OF RIPLEY ARMORY

Old Indoor Firing Range

Old Indoor Firing Range

Armory Sign Post

Soviet Anti Aircraft Gun

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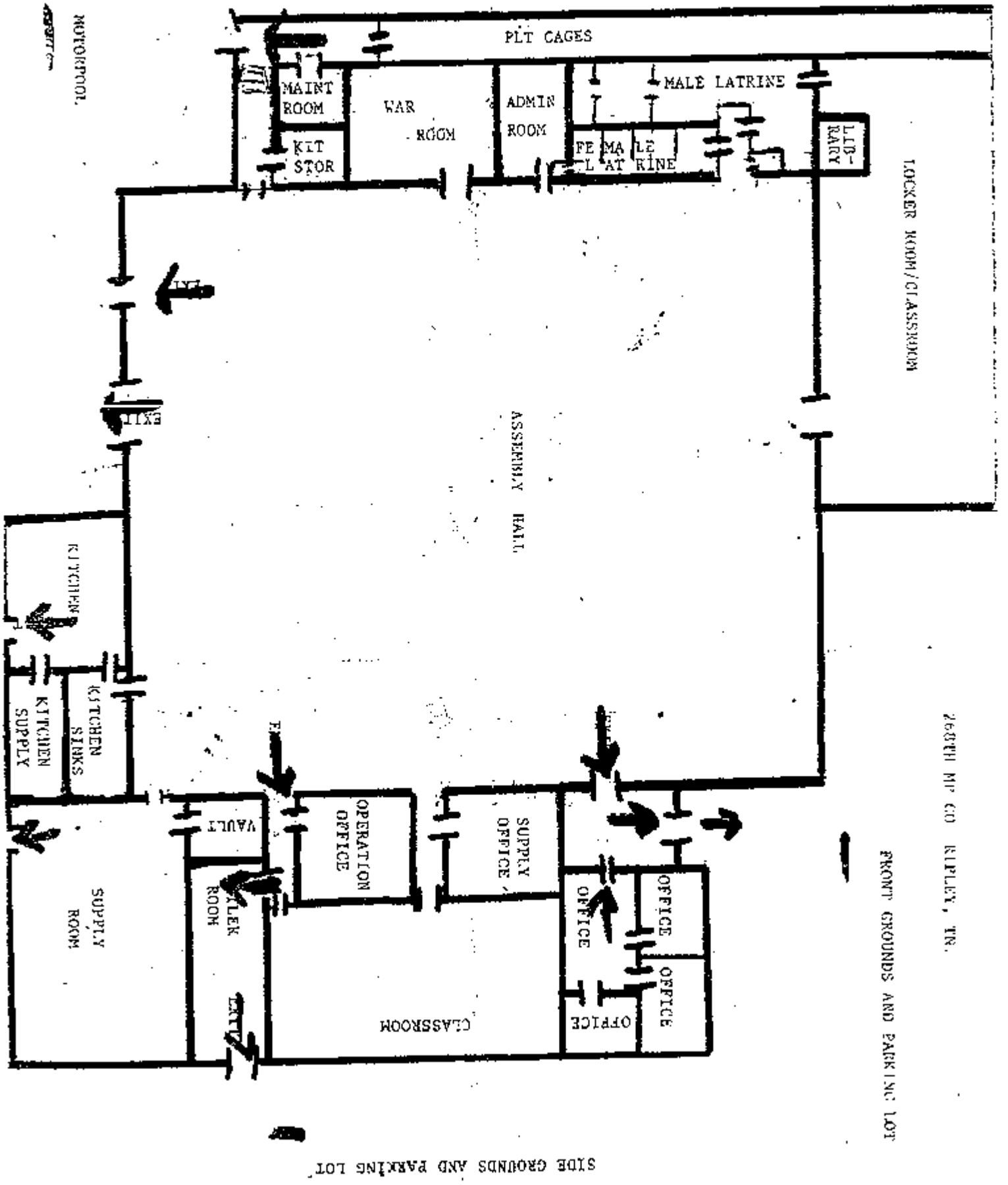

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Ripley Army National Guard Armory
2425 Highway 51 South
Ripley, TN

MSDS LISTING

1.Aeroshell Grease, 9150-00-180-6382
2. Aerosol Lacquer, Light Gray, 8010-00-721-9750
3. Aerosol Spray Paint, Flat, 8010-00-848-9272
4. Anti bacterial Hand Soap
5. ASTMD 235-TYI, 6850-00-664-5685
6. ATF Dexron II Hydraulic Fluid, 9150-00-657-4959
7. Brake Fluid, Automotive, 9150-01-102-9455
8. Bounce Back Buffing, Polishing Compound
9. Brenk Free CLP Liquid Cleaner Lubricant, 9150-01-102-1473
10. Carpet Stain Remover (Aerosol)
11. 75W-90 Citgo Synthetic Gear Lubricant, 9150-01-035-5391
12. Cleaner Fluid, 6850-00-000-0416
13. Cleaning and Lubricating Compound Electrical Contact, 6850-00-000-5295
14. Color 192 A 1 gallon Paint Latex Semi-gloss, 8010CSLAA295G
15. Consume Colyzer, Cleaning Compound
16. Corrosion Preventive Compound, 8030-00-546-8637
17. DAMP Mop, Cleaning Compound
18. MAG 1Dexron III/Mercon automatic transmission fluid, 9150-01-353-4799
19. DMQ DAMP Mop Neutral Disinfectant
20. Detergent, General Purpose, 7930-00-926-5280
21. Diesel Fuel #1, 9140-00-000-0185
22. Dow Corning ® 33 Extreme Low Temp Bearing Grease, Medium, 9150-01-228-3389
23. Dry Cleaning Solvent, 6850-00-664-5685
24. Dust Mop Dust Cloth Treatment (Aerosol)
25. Dust Mop Dust Cloth Treatment (Bulk)
26. Enamel Paint, 8010-00-297-0560
27. Enamel Yellow 13538, 8010-00-286-7758
28. Exterior Spackling Paste (1 QT), 5610-00-926-4562
29. Fleet Charge Antifreeze and Coolant, 6850-00N093568
30. 3M ™ Foam Fast 74 Spray Adhesive and Foam Fast 74 Cylinder Spray Adhesive
31. Glass Cleaner with Ammonia (Spray Pump)
32. Gray 16307 (Aerosol) Lacquer
33. Aerosol Enamel, 8010-00-848-9272
34. Hercules Plastic Pipe Cleaner
35. Service Pro Heavy Duty Starting Fluid SP5315
36. Hexane (0-0.48%) in Air 6830P262
37. Hydraulic Fluid, Automatic Transmission, 9150-01-353-4799
38. Ink Marking Stencil, 7510-00-469-7910
39. Insecticide, D Trans Allethrin and Resmethrin, 6840-01-067-21237
40. Insect Repellant, Clothing Application, 6840-01-278-1336
41. 1 Shine Buffing, Polishing Compound
42. Isopropyl Alcohol 70%, 6810-00-753-4993

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Ripley Army National Guard Armory
2425 Highway 51 South
Ripley, TN

43. Lacquer, Red #11136, 8010-00-935-7062
44. Liqui-Zyme Plus Enzyme Producing Non-Pathogenic Aerobic & Anaerobic Bacteria
45.NABC Non-Acid Disinfectant Bathroom
46. Oatey Regular Clear PVC Solvent Cement
47. 15W-40 Oil, 9150-01-178-4725
48. Old English Oil
49. Penetrating Fluid, 6840-00-973-9091
50. Permanone Arthropod Repellant, 6840-01-278-1336
51. Polyurethane Coating, Sand 33303, 8010-01-899-8825
52. Permatex Plastic Cleaner
53. Rifle Bore Cleaner, 6850-00-224-6663
54. Rinse Free Strip, Cleaning Compound
55. Primer Coating, Green Aerosol, 8010-00-899-8825
56.Rotella T Multigrade SAE 15W-40 (CJ-4)
57. Rug Doctor Stain Remover
58. Scouring Powder with Chlorine Beach Type 1
59. Shineline Seal Buffing, Polishing Compound
60. Simple Green Hand Cleaner Gel Pro Series
61. Simple Green Cleaner/Deoderizer/Degreaser
62. Sodium Hypochlorite, 6810L400704F
63. Solution, Buffing, 26240-00-138-8324
64. So-Sure Enamel, Flat Black 37038, 8010-01-331-6108
65. Spray Buff, Buffing, Polishing Compound
66. Spray Paint Aerosol, 8010-00-515-2487
67. Spray Starting Fluid, 2910-00-470-6768
68. Spray Stencil Black, 7510-00-469-7910
69. Teresstic 681 Hydraulic Fluid, 9150P46711-55
70. Tough Duty Cleaning Compound
71. Rapid Clean Code 40 PT, 2640-00-102-0978
72. Water Displacing Compound Seal, 6850-00-142-9389
73. Woolite Oxy Deep Spot & Stain Carpet Cleaner

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ANALYTICAL ENVIRONMENTAL SERVICES INC
3785 Presidential Parkway, Atlanta GA 30340-3704
TEL: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

Work Order: _____

Date: 11-2-09 Page 1 of 2

[redacted] Non-Responsive

ADDRESS: 7043 Stonecreek Drive Douglasville, GA 30134

FAX: [redacted] Non-Responsive

ANALYSIS REQUESTED: Lead Dust

Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.

#	SAMPLE ID	DATE	TIME	Grab	Composite	Matrix (See codes)	PRESERVATION (See codes)	REMARKS	No # of Containers
1	091028-01	10-28-09	—				✓	1 FOOT Square Template	
2	091028-02		—				✓		
3	091028-03		—				✓		
4	091028-04		—				✓		
5	091028-05		—				✓		
6	091028-06		—				✓		
7	091028-07		—				✓		
8	091028-08		—				✓		
9	091028-09		—				✓		
10	091028-10		—				✓		
11	091028-11		—				✓		
12	091028-12		—				✓		
13	091028-13		—				✓		
14	091028-14		—				✓		

[redacted] Non-Responsive

DATE/TIME: 11/3/09 12:00

SPECIAL INSTRUCTIONS/COMMENTS

SHIPMENT METHOD: OUT / / VIA: IN / / VIA: CLIENT Fedex UPS MAIL COURIER GREYHOUND OTHER

PROJECT INFORMATION

PROJECT NAME: Ripley Armory

PROJECT #:

SITE ADDRESS: 2425 Highway 51 South Ripley, TN

SEND REPORT TO:

INVOICE TO: (IF DIFFERENT FROM ABOVE) Army National Guard 510 Plaza Drive Suite 1530 College Park, GA 30340

QUOTE # PO#

RECEIPT

Total # of Containers

Turnaround Time Request
- X Standard 5 Business Days
- O 2 Business Day Rush
- O Next Business Day Rush
- O Same Day Rush (auth req.)
- O Other

STATE PROGRAM (if any)

E-mail? Y / N Fax? Y / N

DATA PACKAGE I II III IV

SAMPLES RECEIVED AFTER 3PM OR SATURDAY ARE CONSIDERED AS RECEIVED ON THE NEXT BUSINESS DAY; IF NO TAT IS MARKED ON COC AES WILL PROCEED AS STANDARD TAT.
SAMPLES ARE DISPOSED OF 30 DAYS AFTER COMPLETION OF REPORT UNLESS OTHER ARRANGEMENTS ARE MADE.

MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify)

PRESERVATIVE CODES: HH = Hydrochloric acid + ice I = Ice only N = Nitric acid SH = Sulfuric acid + ice SSH = Sodium Bisulfate/Methanol + ice O = Other (specify) NA = None

White Copy - Original, Yellow Copy - Client

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0911273

CHAIN OF CUSTODY

Work Order: _____

ANALYTICAL ENVIRONMENTAL SERVICES, INC
3785 Presidential Parkway, Atlanta GA 30340-3704
TEL: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

Date: 11-2-09 Page 2 of 2

[redacted] Non-Responsive

ADDRESS: 7043 STONECREEK DRIVE DOUGLASVILLE, GA 30134

[redacted] Non-Responsive

Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.

ANALYSIS REQUESTED

PRESERVATION (See codes)

#	SAMPLE ID	SAMPLED DATE	SAMPLED TIME	Grab	Composite	Matrix (See codes)	Lead Dust	Lead	Asbestos	Mold	REMARKS	No. # of Containers
							NA					
1	091028-15	10-28-09	—				✓				1 Foot Square Template	
2	091028-16	↓	—				✓				↓	
3	091028-17	↓	—				✓				↓	
4	091028-18	↓	—				✓				↓	
5	091028-19	↓	—				✓				↓	
6	PC091028-1	10-28-09	—					✓			Paint Chip Sample	
7	PC 091028-2	↓	—					✓			↓	
8	PC 091028-3	↓	—					✓			↓	
9	PC 091028-4	↓	—					✓			↓	
10	PC 091028-5	↓	—					✓			↓	
11	PC 091028-6	↓	—					✓			↓	
12	AB091028-1	10-28-09	—						✓			
13	M091028-1	10-28-09	—							✓		
14	M091028-2	10-28-09	—							✓		

RELINQUISHED BY: [redacted] DATE/TIME

RECEIVED BY: [redacted] DATE/TIME: 11/3/09 12:00

SPECIAL INSTRUCTIONS/COMMENTS

SHIPMENT METHOD
OUT / / VIA:
IN / / VIA:
CLIENT FedEx UPS MAIL COURIER
GREYHOUND OTHER

PROJECT INFORMATION
PROJECT NAME: Ripley Armory
PROJECT #:
SITE ADDRESS: 2425 Highway 51 South Ripley, TN
SEND REPORT TO:
INVOICE TO: (IF DIFFERENT FROM ABOVE) Army National Guard 510 Plaza Drive Suite 1530 College Park, GA 30349
QUOTE #: PO#:

RECEIPT
Total # of Containers

Turnaround Time Request
- [x] Standard 5 Business Days
- [ ] 2 Business Day Rush
- [ ] Next Business Day Rush
- [ ] Same Day Rush (auth req.)
- [ ] Other

STATE PROGRAM (if any): _____
E-mail? Y / N: Fax? Y / N
DATA PACKAGE: I II III IV

SAMPLES RECEIVED AFTER 3PM OR SATURDAY ARE CONSIDERED AS RECEIVED ON THE NEXT BUSINESS DAY; IF NO TAT IS MARKED ON COC AES WILL PROCEED AS STANDARD TAT.
SAMPLES ARE DISPOSED OF 30 DAYS AFTER COMPLETION OF REPORT UNLESS OTHER ARRANGEMENTS ARE MADE.

MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify)
PRESERVATIVE CODES: H+I = Hydrochloric acid + ice I = Ice only N = Nitric acid S+I = Sulfuric acid + ice S/M+I = Sodium Bisulfate/Methanol + ice O = Other (specify) NA = None

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau

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AES

ANALYTICAL ENVIRONMENTAL SERVICES, INC.

November 12, 2009

Non-Responsive

RE: Ripley Armory

Dear Non-Responsive

Order No.: 0911230

Analytical Environmental Services, Inc. received 27 samples on 11/3/2009 12:00:00 PM for the analyses presented in the following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.
AES' certifications are as follows:
-NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/09-06/30/10.
-AIHA Certification ID #100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) effective until 09/01/11.

These results relate only to the items tested. This report may only be reproduced in full and contains 7 total pages (including cover letter).

If you have any questions regarding these test results, please feel free to call.

Sincerely,

Non-Responsive

3785 PRESIDENTIAL PARKWAY • ATLANTA, GEORGIA 30340 • TEL: (770) 457-8177 • FAX: (770)457-8188

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FOIA Requested Record #J-15-0085 (TN)
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Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client GA Army Work Order Number 0911230

Checklist completed by [redacted] 11/4/09
Sig Date

Carrier name: FedEx __ UPS __ Courier __ Client __ US Mail ✓ Other _____

Shipping container/cooler in good condition? Yes ✓ No __ Not Present __

Custody seals intact on shipping container/cooler? Yes __ No __ Not Present ✓

Custody seals intact on sample bottles? pT 11/4/09 Yes __ No __ Not Present ✓

Container/Temp Blank temperature in compliance? (4°C±2)* Yes ✓ No __

Cooler #1 amb Cooler #2 _____ Cooler #3 _____ Cooler #4 _____ Cooler#5 _____ Cooler #6 _____

Chain of custody present? Yes ✓ No __

Chain of custody signed when relinquished and received? Yes ✓ No __

Chain of custody agrees with sample labels? Yes ✓ No __

Samples in proper container/bottle? Yes ✓ No __

Sample containers intact? Yes ✓ No __

Sufficient sample volume for indicated test? Yes ✓ No __

All samples received within holding time? Yes ✓ No __

Was TAT marked on the COC? Yes ✓ No __

Proceed with Standard TAT as per project history? Yes __ No __ Not Applicable ✓

Water - VOA vials have zero headspace? No VOA vials submitted ✓ Yes __ No __

Water - pH acceptable upon receipt? Yes __ No __ Not Applicable ✓

Adjusted? _____ Checked by _____

Sample Condition: Good ✓ Other(Explain) _____

(For diffusive samples or AIHA lead) Is a known blank included? Yes __ No ✓

See Case Narrative for resolution of the Non-Conformance.

* Samples do not have to comply with the given range for certain parameters.

\\L\Quality Assurance\Checklists Procedures Sign-Off Templates\Checklists\Sample Receipt Checklists\Sample_Cooler_Receipt_Checklist

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ANALYTICAL ENVIRONMENTAL SERVICES, INC.

Bulk Sample Summary Report

Client Name: National Guard Bureau Region-South IH
Project Name: Ripley Armory
Project Number:

Lab ID# 102082-0
AES Job Number: 0911273

Client ID	AES ID	Location	Asbestos Mineral Percentage						Comments
			CH	AM	CR	AN	TR	AC	
AB 091028-1 Layer: 1	0911273-001A		ND	ND	ND	ND	ND	ND	

Note: CH=chrysotile, AM=amosite, CR=crocidolite, AC=actinolite, TR=tremolite, AN=anthophylite
For comments on the samples, see the individual analysis sheets.
ND = None Detected
PLM is not consistently reliable in detecting small concentrations of asbestos in floor tiles and similar nonfriable materials. Quantitative TEM is currently the only method that can be used to determine the conclusive asbestos content.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory ID 102082-0. All percentages given are by visually estimated volume. All analyses are performed in accordance with the EPA "Method for the Determination of Asbestos in Bulk Building Materials, EPA/600/R-93/116, July 1993." This report must not be reproduced except in full without the approval of Analytical Environmental Service, Inc. These test results apply only to the samples actually tested.

Microanalyst: Non-Responsive

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Analytical Environmental Services, Inc.

Date: 11/12/2009

LEAD ON WIPES (N9100/7082)
N7082

CLIENT:	National Guard Bureau Region-South IH	Lab Order:	0911230
Project:	Ripley Armory	Date Received:	11/3/2009 12:00 PM
Delivery Order:		Matrix:	Wipe
PO No:			

Laboratory ID	Client Sample ID	Results	Units	Report Limit.	DF	Date Collected	Date Analyzed	Analyst
0911230-001A	091028-01	BRL	µg/ft²	20	1	10/28/2009	11/5/2009	MAW
0911230-002A	091028-02	BRL	µg/ft²	20	1	10/28/2009	11/5/2009	MAW
0911230-003A	091028-03	BRL	µg/ft²	20	1	10/28/2009	11/5/2009	MAW
0911230-004A	091028-04	BRL	µg/ft²	20	1	10/28/2009	11/5/2009	MAW
0911230-005A	091028-05	BRL	µg/ft²	20	1	10/28/2009	11/5/2009	MAW
0911230-006A	091028-06	BRL	µg/ft²	20	1	10/28/2009	11/5/2009	MAW
0911230-007A	091028-07	BRL	µg/ft²	20	1	10/28/2009	11/5/2009	MAW
0911230-008A	091028-08	BRL	µg/ft²	20	1	10/28/2009	11/5/2009	MAW
0911230-009A	091028-09	BRL	µg/ft²	20	1	10/28/2009	11/5/2009	MAW
0911230-010A	091028-10	BRL	µg/ft²	20	1	10/28/2009	11/5/2009	MAW
0911230-011A	091028-11	37	µg/ft²	20	1	10/28/2009	11/5/2009	MAW
0911230-012A	091028-12	BRL	µg/ft²	20	1	10/28/2009	11/5/2009	MAW
0911230-013A	091028-13	BRL	µg/ft²	20	1	10/28/2009	11/5/2009	MAW
0911230-014A	091028-14	BRL	µg/ft²	20	1	10/28/2009	11/5/2009	MAW
0911230-015A	091028-15	BRL	µg/ft²	20	1	10/28/2009	11/5/2009	MAW
0911230-016A	091028-16	BRL	µg/ft²	20	1	10/28/2009	11/5/2009	MAW
0911230-017A	091028-17	BRL	µg/ft²	20	1	10/28/2009	11/5/2009	MAW
0911230-018A	091028-18	BRL	µg/ft²	20	1	10/28/2009	11/5/2009	MAW
0911230-019A	091028-19	BRL	µg/ft²	20	1	10/28/2009	11/5/2009	MAW

Qualifiers: BRL - Not Detected at the Reporting Limit DF - Dilution Factor

Results are blank corrected where applicable

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Page 1845 of 2531

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Analytical Environmental Services, Inc.

Date: 11/12/2009

TOTAL LEAD IN PAINT (N7082)
PAINT

CLIENT: National Guard Bureau Region-South III
Project: Ripley Armory
Delivery Order:
PO No:

Lab Order: 0911230
Date Received: 11/3/2009 12:00 PM
Matrix: Paint

Laboratory ID	Client Sample ID	Results	Units	Report Limit.	DF	Date Collected	Date Analyzed	Analyst
0911230-020A	PC091028-1	BRL	wt%	0.0121	1	10/28/2009	11/6/2009	MAW
0911230-021A	PC091028-2	0.0263	wt%	0.0108	1	10/28/2009	11/6/2009	MAW
0911230-022A	PC091028-3	BRL	wt%	0.00868	1	10/28/2009	11/6/2009	MAW
0911230-023A	PC091028-4	0.0112	wt%	0.00973	1	10/28/2009	11/6/2009	MAW
0911230-024A	PC091028-5	BRL	wt%	0.00801	1	10/28/2009	11/6/2009	MAW
0911230-025A	PC091028-6	BRL	wt%	0.00835	1	10/28/2009	11/6/2009	MAW

Qualifiers: BRL - Not Detected at the Reporting Limit DF - Dilution Factor

Results are blank corrected where applicable

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FOIA Requested Record #J-15-0085 (TN)
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FOIA Requested Record #J-15-0085 (TN)
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Page 1847 of 2531

[redacted] Non-Responsive

Analytical Environmental Services, Inc.

3785 Presidential Pkwy, Atlanta GA 30340-3704 TEL:(770) 4578177 /TOLL FREE: (800) 972-4889 /FAX: (770-) 457-8188

Client: National Guard Bureau Region-South IH
7043 Stonecrest Drive
[redacted] Non-Responsive
A 30134

Client Project: Ripley Armory
Date Collected: 10/28/2009
Date Received: 11/3/2009
Date Analyzed: 11/9/2009

Work Order: 0911230
Analyst: JW
Date Reported: 11/9/2009
Date Modified:

Direct Examination for Mold spores: Tape, Swab, or Bulk

Sample ID	M091028-1	M091028-2	-	-	-	-
Laboratory ID	0911230-026A	0911230-027A	-	-	-	-
Sample Location	-	-	-	-	-	-
Fungal Species	Result	Result	-	-	-	-
Agrocybe/Coprinus	-	-	-	-	-	-
Alternaria	-	-	-	-	-	-
Ascomycetes	-	-	-	-	-	-
Aspergillus/Penicillium	-	-	-	-	-	-
Arthrinium	-	-	-	-	-	-
Basidiomycetes	-	-	-	-	-	-
Bipolaris	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-
Cladosporium	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-
Myxomycete/Smut	-	-	-	-	-	-
Pithomyces	-	-	-	-	-	-
Paecilomyces	-	-	-	-	-	-
Rusts	-	-	-	-	-	-
Stachybotrys	-	-	-	-	-	-
Stemphilium	-	-	-	-	-	-
Torula	-	-	-	-	-	-
Ulocladium	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-
Aureobasidium	-	-	-	-	-	-
	-	-	-	-	-	-
Unidentifiable	-	-	-	-	-	-

Semi-Quantitative Concentrations

Rare:	1-25 spores seen on Prep
Few:	26-50 spores seen on Prep
Moderate:	51-75 spores seen on Prep
Many:	76-100 spores seen on Prep
Loaded:	Greater than 100 spores seen on Prep

* Hyphae and Fruiting Structures Present

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NATIONAL GUARD REGION SOUTH
INDUSTRIAL HYGIENE OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

NGB-ARS-IHSE (40-5f) 21 June 2010

MEMORANDUM FOR THE ADJUTANT GENERAL OF TENNESSEE, ATTN: [redacted] Non-Responsive DET 2 251st Military Police Company, 400 Armory Street, Savannah, Tennessee 38372.

THRU Non-Responsive, Deputy State Surgeon, Tennessee National Guard, HQS, AGTN-DCSPER-DSS, P.O. Box 41502, Houston Barracks, Nashville, Tennessee 37204-1501.

SUBJECT: Industrial Hygiene Survey Savannah National Guard Armory, Savannah, TN.

1. References.

a. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1996 rev.

a. Title 29, Code of Federal Regulations (CFR), 2009 rev., part 1910, Occupational Safety and Health Standards.

b. Title 29 CFR, General Industry, revised 1996 rev. Part 1940

c. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 25 May 2007

d. AR 385-10, The Army Safety Program, 23 August 2007.

e. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.

f. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, 12 September 2008.

g. TB MED 503, The Army Industrial Hygiene Program, 30 October 2000.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2010 American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 26th rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

k. NG PAM 420-15, 03 November 2006, Facilities Engineering, Rehabilitation and Conversion of Indoor Firing Ranges.

SUBJECT: Industrial Hygiene Survey Savannah National Guard Armory, Savannah, TN.

1. Report Industrial Hygiene Survey, Safety Solutions, 2607 Treburne Lane, Hampton Cove, AL.

2. General.

a. At the request of Non-Responsive RN, of the Tennessee National Guard Occupational Health Office, an Industrial Hygiene Survey was put together to conduct a Health Hazard Information module (HHIM) Field survey of the s and industrial hygiene sampling of the Savannah National Guard Armory.

b. Non-Responsive of SE Safety Solutions, 2607 Treburne Lane, Hampton Cove, AL conducted the survey.

3. Findings. All Health Hazard information is on the survey findings of the report. (See enclosure 1). Operations of very short duration were not sampled due to the requirements of the sampling method. If the operation changes or if the length of the operation is increased, contact this office to schedule sampling if it is deemed needed then.

4. Recommendations. Understand that all findings found in the enclosed report have been reviewed by the Regional Industrial Hygienist and the following recommendations are the ones to be followed.

a. Use the guidance given in the enclosed report as good IH practices, requesting industrial hygiene (IH) services where needed. The recommendations that follow are based on the survey findings as reported:

i. Ensure to perform semi-annual inventories and updates of MSDS's on all chemicals in the facility. Establish an inventory roll up sheet to be kept in the binder. **(RAC 3)**

ii. Decontaminate the areas were the lead dust wipe results were high IAW NGB (AR) 385-15 Appendix C. **(RAC 2)**

iii. Repair all water leaks and replace water damaged ceiling tiles where needed. **(RAC 3)**

b. The recommendations given in the comment section of the HHIM data sheets and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-10. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-11 IHIP.

c. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present survey, especially if this will help eliminate health hazards and reduce medical surveillance cost.

d. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational

SUBJECT: Industrial Hygiene Survey Savannah National Guard Armory, Savannah, TN.

Safety and Health Office for technical guidance, also provided a corrective action plan to the OHN within 30 days of receipt of this report.

e. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

5. If additional information is needed about the industrial hygiene survey or air sample

Non-Responsive

CF: NGB-ARS-IHSE
Safety and Occupational Health Manager, Tennessee State Safety and Occupational Health Manager, 3041 Sidco Drive, Nashville, TN 37204-1504

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Industrial Hygiene Report
For
Tennessee Army National Guard
(TN ARNG)
At
Savannah Armory
400 Armory Street
Savannah, Tennessee 38372

Prepared for:
National Guard Bureau
Regional Industrial Hygiene Office
Region South
510 Plaza Drive, Suite 1530
College Park, Georgia 30349
By
Non-Responsive

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Table of Contents

Subject ..... Page 1

Background ..... Page 1
- Introduction
- Site Description
- Scope of Work
- POC

Instrumentation ..... Page 1

Findings
- DET 2 251st MP CO ..... Page 1
- Lead Wipe Results ..... Page 2
- Area Deficiencies ..... Page 2
- Illumination Readings ..... Page 3

Recommendations: ..... Page 5

Enclosures:

1. Health Hazard Information Module (HHIM) Survey Form
2. Listing of hazardous chemicals/materials at the facility
3. Analytical Lead Wipe Results
4. Personnel Roster
5. Design Floor Plan
6. Lead Clean Up Procedures
7. References
8. Pictures: 1-24

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SESS

May 17, 2010

MEMORANDUM FOR: Tennessee Army National Guard, ATTN: SSG Brett Rinehart, DET 2 251st Military Police Company, 400 Armory Street, Savannah, Tennessee 38372

SUBJECT: Industrial Hygiene Consultation and Health Hazard Information Module (HHIM) Survey, DET 2 251st MP CO

1. REFERENCES: See Enclosure 7.

2. BACKGROUND: At the request of Non-Responsive National Guard Bureau Regional Industrial Hygienist, Atlanta, Georgia, an Industrial Hygiene Consultation and Health Hazard Information Module Field Survey were performed at the Tennessee National Guard Armory, 400 Armory Street, Savannah, Tennessee 38372 on May 17, 2010. The POC was Non-Responsive The primary mission of DET 2 251st MP CO is to Keep Law and Order in the Military Community. The purpose of the survey was to perform lead wipe samples; a ventilation survey, an Illuminations survey, and complete HHIM field survey forms on all industrial operations at the facility (see Encl 1 for completed HHIM Survey Form).

3. INSTRUMENTATION: The following survey instrumentation was provided by the contractor and was used to obtain lead wipe dust samples and illumination measurements. All other instrumentation was operated according to manufacturer recommendations.

   a) Reed LM-81LX, Light Meter, S/N: Q303521, calibrated: 12/15/2009
   b) Ghost Lead Dust Wipes, Manufactured: December 28, 2006, Expiration: 06/2010

4. FINDINGS:

   a) DET 2 251st MP Company and Supply:

      i) Administrative duties included pay, promotions, schools, family support, assignments, and supplies. The supply area was broken down into Class 2 items of clothing and equipment. The supply area was also responsible for maintaining some TA 50.

      ii) Fifty three M-Day soldiers trained at the facility.

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SESS
SUBJECT: Industrial Hygiene Consultation and Health Hazard Information Module

b) General Area Armory Information:

i) Material Safety Data Sheets (MSDS) were located in the facility. All employees must be initially trained in the Federal Hazardous Communication Program IAW 1910.1200 (see Encl 2 for a listing of hazardous chemicals/materials at the facility).

ii) Twelve lead dust wipe samples were taken, using a 12 inch by 12 inch template. One sample was above the federal standard of 40μg/ft². Pictures of the lead sample wipes were taken (see Encl. 8, photos M117 to M128). The analytical lead result sheet included the sampled locations and corrected results. Also, the sample submission sheets were enclosed in the report (see Enclosure 3). The following table notes where the samples were taken, the surveyor's field number, and the lead results:

Location:	Surveyor's Field No:	Results:
Drill Hall Floor N.E. Side	M117	BRL
Drill Hall Floor N.W. Side	M118	BRL
Drill Hall Floor Center	M119	BRL
Drill Hall Floor S.E. Side	M120	BRL
Drill Hall Floor S.W. Side	M121	BRL
Coke Machine in the Drill Hall	M122	BRL
Kitchen Countertop	M123	BRL
Old LR wall were Bullet Stop was	M124	BRL
Floor in front of Bullet stop was	M125	BRL
Locker Chest in Range	M126	BRL
Rear Wall of Range	M127	BRL
Vault Floor	M128	151
Blank		

Note 1: μg/ft² refers to micrograms or one millionth of a gram per sq ft.
Note 2: BRL means Not Detected at the Reporting Limit.

iii) Drill Hall: Conducting classes and drill formations is the main purpose in the hall. (See Encl. 8, photo 14). Illumination levels ranged from 19 to 24 FC's.

iv) Furnace/General Mechanical Ventilation: Good.

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1854 of 2531

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v) The following table identifies area deficiencies:

AREA	DEFICIENCIES
Cdr's Office	Water stain in ceiling tiles
Hallway	Water stain in ceiling tiles

vi) Due to the low noise levels (administrative areas) there was no requirement for a Hearing Conservation Program. The only requirement would be when the M-Day troops were firing their weapons. All M-Day and full-time soldiers had earplugs.

vii) A listing of DET 2 251st MP personnel is attached as Encl. 4.

viii) A design floor plan of the armory is attached as Encl. 5. Illumination levels are listed below in Paragraph 5.

5. ILLUMINATION SURVEY RESULTS:

a) Illumination Levels: The following additional illumination level readings were taken during the survey and are reported below in foot candles (FC's).

AREA/LOCATION	FOOT CANDLES (FC)
Front Entrance Hallway	26-85
Commander's Office	67-102
Admin Office	87-185
Kitchen	32-41
Operation Room	23-50
Female Latrine	30-52
Drill Hall	19-24
Vault	21-27
Locker Room	18-47
Recruiting Office	43-65
Male Latrine	31-64
Library	47-58
Class Rooms	69-82
Old Inactive Indoor Range Area	20-36
Supply Room	12-33

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1855 of 2531

SESS
SUBJECT: Industrial Hygiene Consultation and Health Hazard Information Module

As indicated in the IES Lighting Handbook, Application Volume 1987, Offices: 20-50 FC's, Supply and Publication Areas: 20-50 FC's, Assembly 20-50 FC's, Restrooms: 5-10 FC's, Classrooms: 50-100 FC's, Kitchen: 20-50 FC's, FC's, Library: 50-100 FC's, Storage Rooms: 10-20 FC's, Mail Room: 20-50 FC's.

6. TECHNICAL ASSISTANCE:

Non-Responsive

[redacted]

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1856 of 2531

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2/8/95 CHPMFRNT.XLS

HHIMS Industrial Hygiene Survey Form

Front page

ARLOC

Installation: [redacted] Survey

Building

Room Number

Location: AA

Operation: ADO

Survey Date: 10 05 17 (month / day)

Evaluator: [redacted]

Macom: NG

Submacom: XX

Unit / Organization (45)

Supervisor: Mr. [redacted] Ms. [redacted] Rank [redacted]

RAC

Supervisor, or Point of Contact Telephone Number

DSN [redacted] Commercial [redacted]

Frequency (weekly): 008

No. CIVs

No. MIL: 00

Contractors: 00

No. LOCs: 00

Lab Hoods: 00

Vapor Degreasers: 00

Spray Booths: 00

Open Surface Tanks: 00

Ventilation Units: 00

Controls Present (if >8, continue in comments)(25)	Evaluation (25 characters max)	Unit code	Controls Required (25 characters max)
OTH	12-33	FTC	20-50 FTC
OTH	19-24	FTC	20-50 FTC

Gloves	e*	R	U
cold			
cold surfaces			
hot surfaces			
NBC agents			
oil			
solvents			
surgical gloves			
leather / cotton			
other			

Respirator	e*	R	U
airline			
abrasive blasting hood			
disposable			
full face air purifying			
1/2 face air purifying			
powered air purifying			
1/4 face air purifying			
self-contained			
other			

Manufacturer's Description (10 characters max)

NIOSH TO # of Foreign equivalent (10 characters max)

Eyes and Face	e*	R	U
chemical splash			
full face shield			
chem/safety impact			
safety impact			
welding helmet			
sunglasses			
welding goggles/glasses			
laser eye protection			
other			

Hearing	e*	R	U
canal caps			
(>85-109 dBA steady) earplugs			
" helmets w/ muffs			
" muffs alone			
(106-118) muff/earplug comb			
muffs and earplugs			
(119 or >) with time limit			
other			
other			

Body	e*	R	U
aprons			
cold weather clothing			
coveralls			
full body suit			
heat reflective			
vest/suit			
safety belt/harness			
special purp. clothing			
other			

Head and Feet	e*	R	U
cold weather boots/hats			
hard hats			
impermeable boots			
safety shoes (conductive)			
safety (nonconductive)			
other			
other			
other			
other			

e* = evaluator's recommendation or agreement

Reminders: ergonomics - dermatitis - physical agents - flammable storage
EYE (permanent) ____ - EYE (portable) ____ - SHW - GMV - LEV

ACO ADM DSA DSN LAB LCK
RAD ECB EPL RHS SPR WEL

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1857 of 2531

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HHMS Industrial Hygiene Survey Form

Back page

CAS code

											PAC	EPC
PORQISECO												
POFODTHAZ												
POFLYPROJ												
POEYEHA2A												
POFLAMMAZ												
POMFTING												
POSHARPCB												
PONOTOBJE												
POELSHOCK												
COLUSEOBL												

Hazard Description

Social Security Number or Unique Identifier

Last Name (20 characters max)

First Name (20 characters max)

MI

Sex

Category

Personnel data provided by the facility is attached to this form

Insert Privacy Act Statement

Comments

Operation described is PERSONNEL AND ADMINISTRATION · ENLISTMENT, EXTENSIONS, PROMOTION, TRANSFERS. SOME MILITARY TRAINING & RECRUITING OPERATIONS

This operation was explained to the [illegible], but was not actually observed.

There is a noise data sheet attached to this form

There is a ventilation data sheet attached to this form

(comments continued on attached)

2/8/96 CHPMBACK.XLS

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1858 of 2531

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BERRYMAN PRODUCTS INC -- 0155 BERRYMAN B-12 CARBURETOR-CHOKE CLEANER -- 6850-00F041744

========== Product Identification ==========

Product ID:0155 BERRYMAN B-12 CARBURETOR-CHOKE CLEANER
MSDS Date:08/05/1994
FSC:6850
NIIN:00F041744
MSDS Number: CDCXN
=== Responsible Party ===
Company Name:BERRYMAN PRODUCTS INC
Address:3800 E RANDOL MILL RD
City:ARLINGTON
State:TX
ZIP:76011-5000
Country:US
Info Phone Num:817-640-2376/800-433-1704
Emergency Phone Num:817-640-2376/800-433-1704
CAGE:0TAY6
=== Contractor Identification ===
Company Name:BERRYMAN PRODUCTS
Address:3800 E RANDALL MILL
Box:City:ARLINGTON
State:TX
ZIP:76011
Country:US
Phone:817-640-2376
CAGE:0TAY6

========== Composition/Information on Ingredients ==========

Ingred Name:ACETONE; DIMETHYL KETONE; 2-PROPANONE *96-4*
CAS:67-64-1
RTECS #:AL3150000
Fraction by Wt: 23%
OSHA PEL:2400 MG/CUM
ACGIH TLV:750 PPM
EPA Rpt Qty:5000 LBS
DOT Rpt Qty:5000 LBS

Ingred Name:TOLUENE (IARC CARC- GROUP 3) *96-4*
CAS:108-88-3
RTECS #:XS5250000
Fraction by Wt: 17%
Other REC Limits:375 MG/CUM
OSHA PEL:100 PPM
ACGIH TLV:100 PPM
EPA Rpt Qty:1000 LBS
DOT Rpt Qty:1000 LBS

Ingred Name:2-BUTOXYETHANOL (ETHYLENE GLYCOL MONOBUTYL ETHER), BUTYL CELLOSOLVE, BUTYL GLYCOL, GLYCOL ETHER EB *96-4*
CAS:111-76-2
RTECS #:KJ8575000
Fraction by Wt: 7%
Other REC Limits:25 PPM (SKIN)
OSHA PEL:50 PPM (SKIN)
ACGIH TLV:25 PPM (SKIN)

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May, 2018
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Ingred Name:METHYL ETHYL KETONE, 2-BUTANONE *96-4*
CAS:78-93-3
RTECS #:EL6475000
Fraction by Wt: 5%
Other REC Limits:590 MG/CUM
OSHA PEL:200 PPM
ACGIH TLV:590 MG/CUM
EPA Rpt Qty:5000 LBS
DOT Rpt Qty:5000 LBS

Ingred Name:METHANOL (METHYL ALCOHOL), COLUMBIAN SPIRITS *96-4*
CAS:67-56-1
RTECS #:PC1400000
Fraction by Wt: 20%
Other REC Limits:200 PPM
OSHA PEL:200 PPM
ACGIH TLV:200 PPM
EPA Rpt Qty:5000 LBS
DOT Rpt Qty:5000 LBS

Ingred Name:LIGHT ALIPHATIC NAPHTHA, VM & P NAPHTHA, LACOLENE * 96-4 *
CAS:64742-89-8
OSHA PEL:300 PPM
ACGIH TLV:300 PPM

Ingred Name:VOLATILE ORGANIC CONTENT: 6.15 LBS/GAL
RTECS #:9999999VO

Ingred Name:ISOPROPANOL (ISOPROPYL ALCOHOL), 2-PROPANOL, DIMETHYL
CARBINOL (IARC CANCER REVIEW GROUP 3) *96-4*
CAS:67-63-0
RTECS #:NT8050000
Other REC Limits:400 PPM
OSHA PEL:400 PPM
ACGIH TLV:400 PPM

Hazards Identification

Routes of Entry: Inhalation:YES Skin:YES Ingestion:YES
Reports of Carcinogenicity:NTP:NO IARC:NO OSHA:NO
Health Hazards Acute and Chronic:SKIN: IRRITATION, DERMATITIS, ABSORPTION INCREASES EXPOSURE. EYES: IRRITATION. INHALATION: IRRITATION TO RESPIRATORY TRACT. OVEREXPOSURE CAN CAUSE SERIOUS NERVOUS SYSTEM DEPRESSION. VAPOR HARMFUL. IRR ITATION. INGESTION: POISON. HARMFUL/FATAL IF SWALLOWED. ABDOMINAL IRRITATION.
Explanation of Carcinogenicity:NONE
Effects of Overexposure:IRRITATION, DEFATTING, REDNESS, TEARING, BLURRED VISION, BLINDNESS, NAUSEA, VOMITING, DIARRHEA.
Medical Cond Aggravated by Exposure:SEVERE SKIN, LIVER, HEART, LUNG/KIDNEY PROBLEMS.

First Aid Measures

First Aid:EYES: FLUSH W/WATER FOR 15 MINS. SKIN: WASH THOROUGHLY W/SOAP & WATER. INHALATION: REMOVE TO FRESH AIR. INGESTION: GIVE 1-2 GLASSES OF WATER. DON'T INDUCE VOMITING UNLESS INSTRUCTED. OBTAIN MEDICAL ATTENTION IN ALL CASES.

Fire Fighting Measures

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Flash Point Method:TCC
Flash Point:2F
Lower Limits:2
Extinguishing Media:FOAM, DRY CHEMICAL, CO2.
Fire Fighting Procedures:COOL EXPOSED CONTAINERS W/WATER SPRAY. WEAR SCBA.
Unusual Fire/Explosion Hazard:EXTREMELY FLAMMABLE. AVOID SKIN CONTACT.

========== Accidental Release Measures ==========

Spill Release Procedures:CONTAIN W/INERT ABSORBANT MATERIAL. DON'T FLUSH LIQUID DOWN DRAIN. PLACE IN APPROVED CONTAINER FOR DISPOSAL.

========== Handling and Storage ==========

Handling and Storage Precautions:STORE CONTAINERS IN A COOL WELL VENTILATED AREA <120F. DON'T STORE IN DIRECT SUNLIGHT. DON'T INCINERATE CONTAINERS.
Other Precautions:KEEP LID TIGHTLY CLOSED ON CONTAINERS WHEN NOT IN USE.

========== Exposure Controls/Personal Protection ==========

Ventilation:LOCAL EXHAUST: NECESSARY. MECHANICAL (GENERAL): ACCEPTABLE.
Protective Gloves:SOLVENT RESISTANT
Other Protective Equipment:SOLVENT RESISTANT APRON, FOOTWEAR.
Work Hygienic Practices:REMOVE/LAUNDER CONTAMINATED CLOTHING BEFORE REUSE.
Supplemental Safety and Health

========== Physical/Chemical Properties ==========

Boiling Pt:B.P. Text:134-342F
Vapor Pres:68.5
Vapor Density:2.6
Spec Gravity:0.811
Appearance and Odor:WATER-WHITE LIQUID W/KETONE ODOR.
Percent Volatiles by Volume:100

========== Stability and Reactivity Data ==========

Stability Indicator/Materials to Avoid:YES
STRONG OXIDIZERS, PAINTED SURFACES.
Stability Condition to Avoid:OPEN FLAMES, HEATED SURFACES.
Hazardous Decomposition Products:CO, CO2

========== Disposal Considerations ==========

Waste Disposal Methods:DISPOSE OF EMPTY CONTAINERS IN TRASH IAW/FEDERAL, STATE & LOCAL REGULATIONS. FLAMMABLE LIQUIDS, UN1993.

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Analytical Environmental Services, Inc

Date: 27-May-10

Lab Order:	1005H75
Client:	SES
Project:	Savannah, TN Armory
Matrix:	Wipe
Date Received:	5/21/2010 2:10:00 PM

LEAD ON WIPES (N9100/7082)

N7082

Laboratory ID	Client Sample ID	Result	Units	Reporting Limit	DF	Qual	Date Collected	Date Analyzed	Analyst
1005H75-001A	M117	BRL	ug, Total	20	1		05/17/2010	05/26/2010	MW
1005H75-002A	M118	BRL	ug, Total	20	1		05/17/2010	05/26/2010	MW
1005H75-003A	M119	BRL	ug, Total	20	1		05/17/2010	05/26/2010	MW
1005H75-004A	M120	BRL	ug, Total	20	1		05/17/2010	05/26/2010	MW
1005H75-005A	M121	BRL	ug, Total	20	1		05/17/2010	05/26/2010	MW
1005H75-006A	M122	BRL	ug, Total	20	1		05/17/2010	05/26/2010	MW
1005H75-007A	M123	BRL	ug, Total	20	1		05/17/2010	05/26/2010	MW
1005H75-008A	M124	BRL	ug, Total	20	1		05/17/2010	05/26/2010	MW
1005H75-009A	M125	BRL	ug, Total	20	1		05/17/2010	05/26/2010	MW
1005H75-010A	M126	BRL	ug, Total	20	1		05/17/2010	05/26/2010	MW
1005H75-011A	M127	BRL	ug, Total	20	1		05/17/2010	05/26/2010	MW
1005H75-012A	M128	151	ug, Total	20	1		05/17/2010	05/26/2010	MW
1005H75-013A	BLANK	BRL	ug, Total	20	1		05/17/2010	05/26/2010	MW

Qualifiers: BRL - Not Detected at the Reporting Limit

B - Analyte detected in the associated Method Blank

DF - Dilution Factor

Results are blank corrected where applicable

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May, 2018

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Savannah, TN Armory

SUBJECT: Personnel Roster

NAME	RANK	POSITION
Non-Responsive		

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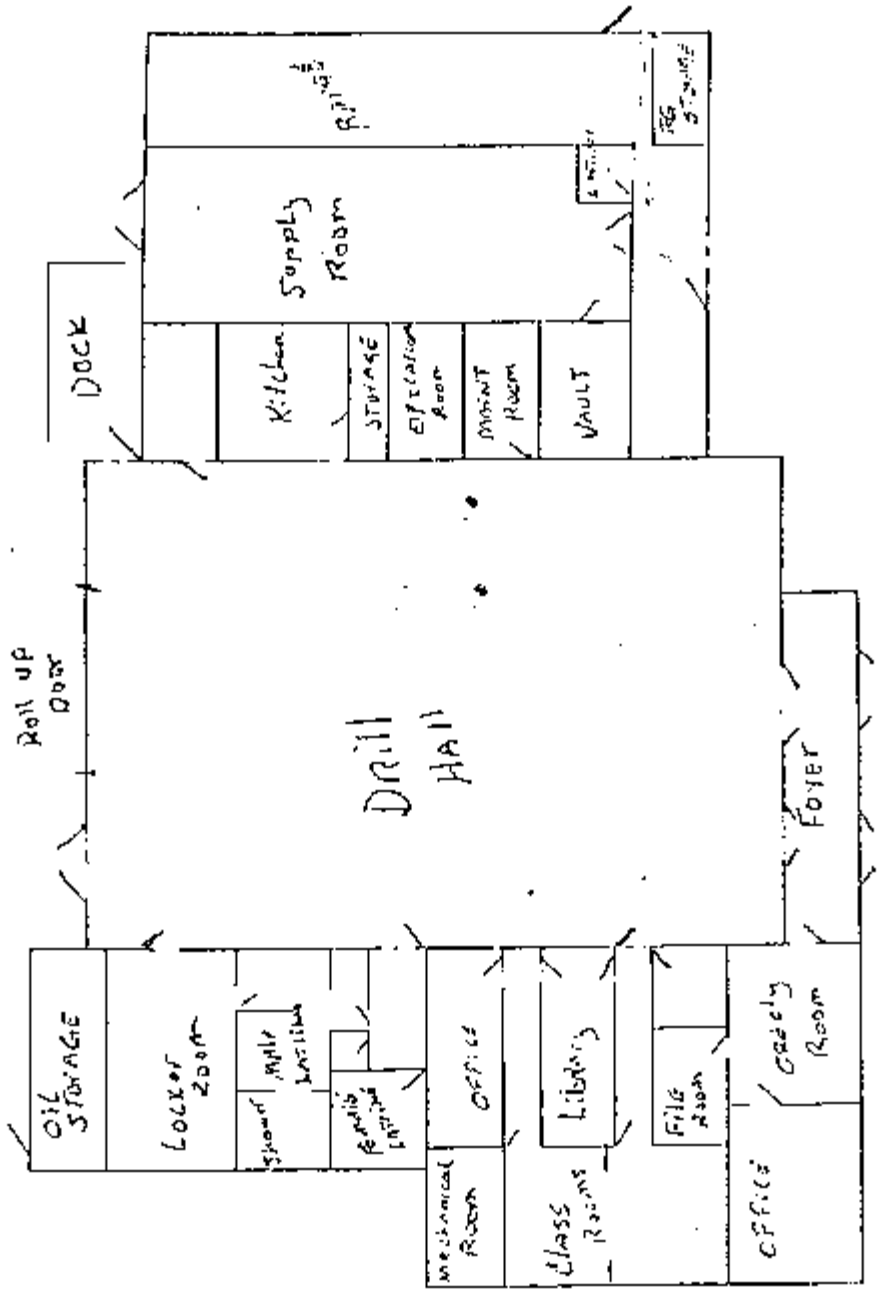
Supply Room
Kitchen
Storage
Vault
Dock
Roll up Door
Drill Hall
Foyer
Oil Storage
Locker Room
Office
Library
File Room
Office
Mechanical Room
Class Rooms

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ENCLOSURE 6

ARMORY CLEANUP REQUIREMENTS

High Test Results

If the public utilizes your facility and the test results for lead came back above 40 $\mu g/ft^2$ you are responsible for cleaning this area and adjoining areas to meet the 40 $\mu g/ft^2$ or less, unless:

1. You can guarantee that no children under the age of 7 will come into your facility.

2. Your state public health has other guidance, for example, signage is required to warn personnel who are pregnant or of child bearing age, or under the age of 7 years old.

3. Signs stating "No smoking, drinking, eating, or applications of cosmetics without washing of hands prior to activity" are properly installed in your facility.

1. Cleaning of Building.

Before proceeding into the cleanup mode, first discuss with your Environmental Office what procedures are recommended and then coordinate your cleanup efforts with local agencies, if warranted.

a. The building, as well as the dusty materials and equipment in it, should be cleaned one time to reach the lead dust levels that are appropriate for the function of the facility, for example, facilities used by full-time personnel only, utilized by adults or children 7 years old or older children only, or not utilized by pregnant individuals and/or children under the age of 7. **NOTE:** This type of cleaning implies that this is not at a facility that has an active Indoor Firing Range. For facilities with active ranges, these facilities should be monitored with wipe samples taken over the drill floor area by the Range Custodian quarterly, to ascertain that the level of lead is at the required level for your particular facility and situation.

   1. This cleanup can be accomplished using a HEPA vacuum (a very tedious and time-consuming operation) and then by utilizing a wet method with "Spic n Span" or something equivalent to this detergent – using wet rags to wipe down surfaces and mops soaked in this solution to do the entire floor area. **NOTE: Personal protective gloves, rubber boots, or protective disposable shoe/boot covers should be used during this procedure and personnel who have performed the cleanup should wash their clothing separately from their family's clothing.**

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1865 of 2531

BEST AVAILABLE COPY

ENCLOSURE 6

especially if they have young children at home. Personnel should wash their hands after performing this operation to assure that lead contaminates are not ingested.

2. Frequent changing out of the water used for cleaning is vital. Disposal of this hazardous waste water and rags/mop heads, Personal Protective Equipment (PPE), etc., should be coordinated with your Environmental Office.

b. Clean all ductwork where lead was found. EPA has a protocol specifically for replacing or cleaning lead in dust form in HVAC systems. EPA Office of Pollution Prevention and Toxics, "*Renovate Right – Important Lead Hazard Information for Families, Child Care Providers and Schools*". http://www.epa.gov/lead/pubs/rrpamph.pdf .

c. Continue to enforce good housekeeping and hygiene practices. These measures make good sense to minimize exposures to any toxic chemicals in the workplace.

d. Provide lead awareness training to the general workforce and any occupants of your facility.

***NOTE:* Before you start any new procedures or practices be aware of the local city and state regulations in your area.**

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1866 of 2531

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ENCLOSURE 6

ARMORY

CLEANUP & FOLLOW-UP HOUSEKEEPING RECOMMENDATIONS

Materials Needed:

1. Cloth Mop head(s) & Mop head holder(s) with handle.
2. Mop bucket(s) with wringer.
3. Clean cotton rags and sponges.
4. Disposable gloves.
5. Large barrel (55 gallon) to store wastewater in after changing out of dirty scrub water.
6. Disposable overshoes or rubber boots. Personnel conducting cleaning operations should not take clothes, boots, etc. home for laundering.
7. HEPA vacuum
8. Six (6) mill plastic bags to dispose of waste.
9. Wastewater containers.

Disposal of Waste Water and Cleaning Materials:

1. ***NOTE:*** Consult with the Local Army National Guard Environmental Office prior to taking any collection, disposal, or commencement of wiping activities. Each state and territory may have additional regulatory guidance regarding the collection, storage, and disposal of wastewater.

2. Mop heads should be disposed of after initial cleaning, unless otherwise advised by Environmental Office personnel. ***NOTE:*** **Thorough cleaning of mop heads may be sufficient enough to permit subsequent reuse on future Armory cleanups, but check with the local Environmental Office before reuse.**

3. Disposable gloves should be treated as hazardous waste material.

4. Soiled cotton rags should be treated as hazardous waste material.

5. Wash water contaminated with lead may be collected and allowed to slowly evaporate leaving lead deposits/sludge that may be collected in plastic containers, placed in metal drums, and stored for future delivery to an authorized hazardous waste disposal site.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1867 of 2531

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ENCLOSURE 6

a. Drums shall be properly labeled to identify contents in accordance with (IAW) Federal, state, and local regulatory guidance.

b. Disposal of containerized waste shall be coordinated IAW state hazardous waste program requirements.

c. The Environmental Office shall coordinate removal and disposal of all containerized hazardous waste through established waste streams.

Post-Cleanup Precautionary Measures:

1. Thoroughly wash hands with soap and water.

2. Rinse off rubber boots with soap and water, capturing wastewater for collection into the established waste stream. If personnel have chosen to use overshoes for protection, dispose of the used overshoes into the established waste stream. ***NOTE***: **This recommendation is for initial cleanup activities; PPE requirements may be reduced after it has been determined that non-hazardous levels of lead have been achieved.**

3. Wash BDU's or personal clothing separately from children's clothes.

IMPORTANT NOTES:

1. **No eating, drinking or application of cosmetics is allowed during cleanup procedures (these may be allowed after washing of hands/face and done outside of cleanup area).**

2. **Avoid blowing, shaking or like actions which could potentially disperse lead dust. Dry sweeping, dusting, wiping, or blowing with compressed air shall not be permitted.**

Initial Armory Cleanup:

1. Use a vacuum cleaner equipped with a HEPA exhaust filter. HEPA vacuum all surfaces in room (ceiling, wall trim, and floors). Start with the ceiling and work down, moving toward the entry door. **Completely clean each room before moving on.**

2. Prepare water and detergent for the wipe down phase, according to manufacturer's recommendations.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1868 of 2531

ENCLOSURE 6

3. Wet wipe, with cotton rags or sponge, any horizontal, diagonal or vertical surfaces up six (6) feet from floor surfaces using hot water and "Spic-n-Span" or an equivalent product.

***NOTE*: If walls to be cleaned show signs of deterioration, for example, chipping or crumbling paint in which wiping, scrubbing, or disrupting might potentially increase or spread contamination, then this portion of the cleanup should be avoided.**

4. Now prepare water and detergent (for example, Spic n Span, Mr. Clean, Pine Sol) for the mopping phase, according to manufacturer's recommendations, which should be found on the product's label for general clean up.

    a. Change out water and detergent frequently (when water appears dirty)

    b. Rinse out mop heads frequently to prevent contamination of dirty water.

5. Cover entire drill floor surface with above prescribed water and detergent.

6. Final rinse should be with clean water only – after mop heads have been cleaned.

Recommended Follow-up Housekeeping Practices ***after Clearance sampling of cleaned area is performed by certified personnel:***

1. Floor cleaning and dusting should be accomplished using the wet cleaning described in Initial Armory Cleanup SOP.

NOTE: The only exception to these wet cleaning procedures is the use of an approved chemically treated dust floor mop. This can be used for follow-up armory cleaning by sweeping of large particles of dirt and paper.

    a. Use of a pre-treated (chemically treated) dust floor mop will prevent lead dust particles from being disbursed into the surrounding atmosphere.

    b. If a pre-treated dust mop is used – Do Not Shake Mop Head – have mop head laundered after use. **Always keep used dust mop heads in sealed double plastic bags when stored at an armory or facility.** Shaking of a pre-treated mop head may release unwanted contaminants into surrounding atmosphere.

2. Frequency of Cleanup – Armories will vary, according to usage and how often they should be cleaned. The following cleaning schedule is provided:

    a. Only full-time technicians and traditional soldiers using facility during the month. (Cleaned Monthly.)

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1869 of 2531

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ENCLOSURE 6

b. Occasional activities taking place during the month, for example, 1-2 classes or volleyball games, etc. (Cleaned Twice Monthly.)

c. Used regularly by soldiers or outside agencies/personnel. (Cleaned Regularly – at least Weekly)

IMPORTANT NOTES:

1. **Armories with adjoining Indoor Firing Ranges (IFR) should be cleaned more than weekly, again depending on the use of the Armory and IFR.**

2. **Clearance sampling/testing is to be accomplished by certified IH personnel after these cleanup procedures are followed. If the area is an average Armory, occupied by adults only, for whom you are cleaning and is not a converted IFR space, you may continue to utilize the Armory space before officials re-test this space. Please notify your Safety and/or Occupational Health personnel of the completion of this cleaning regime and they will notify the proper officials of the sampling/testing requirements needed.**

3. **If lead cleanup work was contracted out, a third party should do the clearance sampling.**

4. **If young children and pregnant females are, or may be present, signs shall be posted on all facilities, warning of the potential danger of exposure to lead dust.**

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1870 of 2531

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References

Army Regulation (AR) 11-34, The Army Respiratory Protection Program.

Army Regulation (AR) 40-5, Preventative Medicine.

Army Regulation (AR) 385-10, The Army Safety Program.

NGR 385-10, Army National Guard Safety and Occupational Health Program.

TB MED 503, The Army Industrial Hygiene Program.

Title 29, Code of Federal Regulations (CFR), 1999, revision, Part 1910, Occupational Safety and Health Standards.

TG 022, US Army Environmental Hygiene Agency (YSAEHA), Industrial Hygiene Evaluation Guide.

TG 141, US Army for Health Promotion and Preventative Medicine (USACHPPM) Industrial Hygiene Air Sampling Guide.

IES Lighting Handbook

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Photo No. 1

Photo No. 2

Photo No.3

Photo No.4

Photo No.5

Photo No.6

ENCLOSURE 8
Page 1 of 5

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1872 of 2531

Photo No.7

Photo No.8

Photo No.9

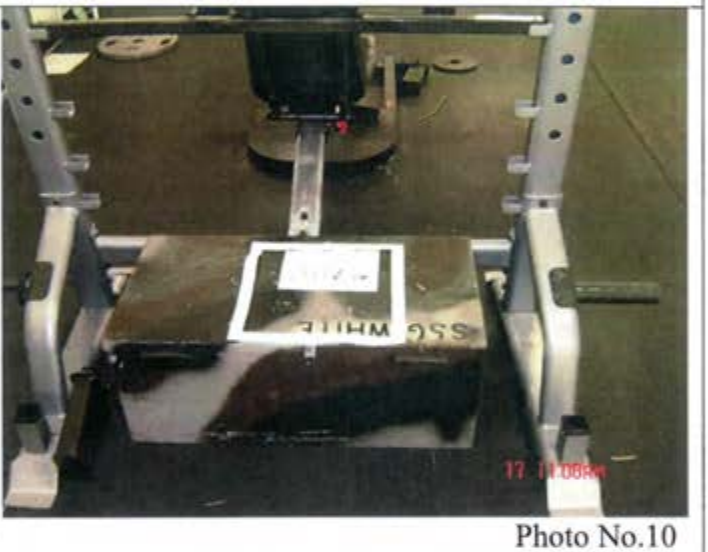

Photo No.10

Photo No.11

Photo No.12

ENCLOSURE 8
Page 2 of 5

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Photo No.13

Photo No.14

Photo No.15

Photo No.16

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1874 of 2531

Photo No.17

Photo No.18

Photo No.19

Photo No. 20

ENCLOSURE 8
Page 4 of 5

BEST AVAILABLE COPY

Photo No.21

Photo No.22

Photo No.23

Photo No. 24

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1876 of 2531

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NATIONAL GUARD REGION SOUTH
INDUSTRIAL HYGIENE OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

ARNG-CSG-P (40-5f) 27 October 2010

MEMORANDUM FOR THE ADJUTANT GENERAL OF TENNESSEE, ATTN: [redacted] Non-Responsive DET 2 251st Military Police Company, 400 Armory Street, Savannah, Tennessee 38372.

THRU Non-Responsive Deputy State Surgeon, Tennessee National Guard, HQS, AGTN-DCSPER-DSS, P.O. Box 41502, Houston Barracks, Nashville, Tennessee 37204-1501.

SUBJECT: Industrial Hygiene Survey the Savannah Army National Guard Armory, Savannah, Tennessee 38372.

1. References.

a. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1996 rev.

a. Title 29, Code of Federal Regulations (CFR), 2009 rev., part 1910, Occupational Safety and Health Standards.

b. Title 29 CFR, General Industry, revised 1996 rev. Part 1940

c. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 25 May 2007

d. AR 385-10, The Army Safety Program, 23 August 2007.

e. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.

f. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, 12 September 2008.

g. TB MED 503, The Army Industrial Hygiene Program, 30 October 2000.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2010 American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 26th rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

k. NG PAM 420-15, 03 November 2006, Facilities Engineering, Rehabilitation and Conversion of Indoor Firing Ranges.

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1. Report Industrial Hygiene Survey, SE Safety Solutions, Hampton Cove, AL.

2. General.

a. At the request of Non-Responsive, of the Tennessee National Guard Occupational Health Office, an Industrial Hygiene Survey was put together to conduct a Health Hazard Information module (HHIM) Field survey of the s and industrial hygiene sampling of the Savannah National Guard Armory.

b. The surveys were conducted by Non-Responsive of SE Safety Solutions, Hampton Cove, AL.

3. Findings. All Health Hazard information is on the survey findings of the report. (See enclosure 1). Operations of very short duration were not sampled due to the requirements of the sampling method. If the operation changes or if the length of the operation is increased, contact this office to schedule sampling if it is deemed needed then.

4. Recommendations. Understand that all findings found in the enclosed report have been reviewed by the Regional Industrial Hygienist and the following recommendations are the ones to be followed.

a. Use the guidance given in the enclosed report as good IH practices, requesting industrial hygiene (IH) services where needed. The recommendations that follow are based on the survey findings as reported:

i. Ensure to perform semi-annual inventories and updates of MSDS's on all chemicals in the facility. Ensure all hazardous materials are stored in appropriate locations **(RAC 3)**

ii. Due to the lead dust wipe results, it is recommended that the vault floor is decontaminated. The floors should be thoroughly wiped down and or wet mopped with an industrial cleaner using tri-phosphates, Mr. Clean or Spic-n-Span. **(RAC 2)**.

iii. Repair water leaks and remove damaged materials these may in time be source of indoor air quality issues. **(RAC 2)**

b. The recommendations given in the comment section of the HHIM data sheets and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-10. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-11 IHIP.

c. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present survey, especially if this will help eliminate health hazards and reduce medical surveillance cost.

d. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance, also provided a corrective action plan to the OHN within 30 days of receipt of this report.

e. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

5. If additional information is needed about the industrial hygiene survey or air sample

Non-Responsive

[redacted]

CF: ARNG-CSG-P
Safety and Occupational Health Manager, Tennessee State Safety and Occupational Health Manager, 3041 Sidco Drive, Nashville, TN 37204-1504

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Industrial Hygiene Report
For
Tennessee Army National Guard
(TN ARNG)
At
Savannah Armory
400 Armory Street
Savannah, Tennessee 38372

Prepared for:
National Guard Bureau
Regional Industrial Hygiene Office
Region South
510 Plaza Drive, Suite 1530
College Park, Georgia 30349
By
Non-Responsive
[redacted]

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Table of Contents

Subject ..... Page 1

Background ..... Page 1
- Introduction
- Site Description
- Scope of Work
- POC

Instrumentation ..... Page 1

Findings
- DET 2 251st MP CO ..... Page 1
- Lead Wipe Results ..... Page 2
- Area Deficiencies ..... Page 2
- Illumination Readings ..... Page 3

Recommendations: ..... Page 5

Enclosures:

1. Health Hazard Information Module (HHIM) Survey Form
2. Listing of hazardous chemicals/materials at the facility
3. Analytical Lead Wipe Results
4. Personnel Roster
5. Design Floor Plan
6. Lead Clean Up Procedures
7. References
8. Pictures: 1-24

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SESS

September 13, 2010

MEMORANDUM FOR: Tennessee Army National Guard, ATTN: Non-Responsive DET 2 251st Military Police Company, 400 Armory Street, Savannah, Tennessee 38372

SUBJECT: Industrial Hygiene Consultation and Health Hazard Information Module (HHIM) Survey, DET 2 251st MP CO

1. REFERENCES: See Enclosure 7.

2. BACKGROUND: At the request of Non-Responsive National Guard Bureau Regional Industrial Hygienist, Atlanta, Georgia, an Industrial Hygiene Consultation and Health Hazard Information Module Field Survey were performed at the Tennessee National Guard Armory, 400 Armory Street, Savannah, Tennessee 38372 on September 13, 2010. The POC was Non-Responsive The primary mission of DET 2 251st MP CO is to Keep Law and Order in the Military Community. The purpose of the survey was to perform lead wipe samples; a ventilation survey, an Illuminations survey, and complete HHIM field survey forms on all industrial operations at the facility (see Encl 1 for completed HHIM Survey Form).

3. INSTRUMENTATION: The following survey instrumentation was provided by the contractor and was used to obtain lead wipe dust samples and illumination measurements. All other instrumentation was operated according to manufacturer recommendations.

   a) Reed LM-81LX, Light Meter, S/N: Q303521, calibrated: 12/15/2009
   b) Ghost Lead Dust Wipes, Manufactured: February 10, 2010, Expiration: 08/2013

4. FINDINGS:

   a) DET 2 251st MP Company and Supply:

      i) Administrative duties included pay, promotions, schools, family support, assignments, and supplies. The supply area was broken down into Class 2 items of clothing and equipment. The supply area was also responsible for maintaining some TA 50.

      ii) Fifty three M-Day soldiers trained at the facility.

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b) General Area Armory Information:

i) Material Safety Data Sheets (MSDS) were located in the facility. All employees must be initially trained in the Federal Hazardous Communication Program IAW 1910.1200 (see Encl 2 for a listing of hazardous chemicals/materials at the facility).

ii) Twelve lead dust wipe samples were taken, using a 12 inch by 12 inch template. One sample was above the Federal Standard of 40µg/ft². No sample was above the National Guard Standard of 200µg/ft².
Pictures of the lead sample wipes were taken (see Encl. 8, photos M300 to M311). The analytical lead result sheet included the sampled locations and corrected results. The following table notes where the samples were taken, the surveyor's field number, and the lead results:

Location:	Surveyor's Field No:	Results:
Vault Floor	M300	102
Supply Room Weapons Issue top	M301	BRL
Drill Hall Floor N.W. Side	M302	BRL
Drill Hall Floor S.W. Side	M303	BRL
Drill Hall Floor N.E. Side	M304	BRL
Drill Hall Floor S.E. Side	M305	BRL
Water Fountain In the Drill Hall	M306	BRL
Front Entrance Hallway	M307	BRL
Metal Table in the Kitchen	M308	BRL
Rear Wall in Old ID Range	M309	BRL
Tile Floor where Bullet Stop was	M310	BRL
Desk in the Old ID Range	M311	BRL
Blank		

Note 1:µg/ft² refers to micrograms or one millionth of a gram per sq ft.
Note 2: BRL means Not Detected at the Reporting Limit.

iii) Drill Hall: Conducting classes and drill formations is the main purpose in the hall. (See Encl. 8, photo 13). Illumination levels ranged from 19 to 24 FC's.

iv) Furnace/General Mechanical Ventilation: Good.

Posted to NGB FOIA Reading Room
May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1883 of 2531

SESS
SUBJECT: Industrial Hygiene Consultation and Health Hazard Information Module

v) The following table identifies area deficiencies:

AREA	DEFICIENCIES
Cdr's Office	Water stain in ceiling tiles
Hallway	Water stain in ceiling tiles
Orderly Room	Water stain in ceiling tiles

vi) Due to the low noise levels (administrative areas) there was no requirement for a Hearing Conservation Program. The only requirement would be when the M-Day troops were firing their weapons. All M-Day and full-time soldiers had earplugs.

vii) A listing of DET 2 251st MP personnel is attached as Encl. 4.

viii) A design floor plan of the armory is attached as Encl. 5. Illumination levels are listed below in Paragraph 5.

5. ILLUMINATION SURVEY RESULTS:

a) Illumination Levels: The following additional illumination level readings were taken during the survey and are reported below in foot candles (FC's).

AREA/LOCATION	FOOT CANDLES (FC)
Front Entrance Hallway	26-85
Commander's Office	67-102
Admin Office	87-185
Kitchen	32-41
Operation Room	23-50
Female Latrine	30-52
Drill Hall	19-24
Vault	21-27
Locker Room	18-47
Recruiting Office	43-65
Male Latrine	31-64
Library	47-58
Class Rooms	69-82
Old Inactive Indoor Range Area	20-36
Supply Room	12-33

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Posted to NGB FOIA Reading Room
May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1884 of 2531

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SUBJECT: Industrial Hygiene Consultation and Health Hazard Information Module

As indicated in the IES Lighting Handbook, Application Volume 1987, Offices: 20-50 FC's, Supply and Publication Areas: 20-50 FC's, Assembly 20-50 FC's, Restrooms: 5-10 FC's, Classrooms: 50-100 FC's, Kitchen: 20-50 FC's, FC's, Library: 50-100 FC's, Storage Rooms: 10-20 FC's, Mail Room: 20-50 FC's.

6. TECHNICAL ASSISTANCE:

Non-Responsive

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1885 of 2531

BEST AVAILABLE COPY

7. RECOMMENDATIONS:

a) Conduct semi-annual inventories and update MSDS's on all chemicals in the facility and establish an inventory roll up sheet. **(RAC 3)**

b) Due to the lead dust wipe results, it is recommended that the vault floor is cleaned IAW NGB (AR) 385-15 Appendix C. The floor should be thoroughly wiped down and or wet mopped with an industrial cleaner using tri-phosphates, Mr. Clean or Spic-n-Span. For additional lead cleaning measures, see Enclosure 6. **(RAC 2)**

c) Submit a work order to the facilities maintenance office (FMO) to repair the ceiling water leaks and replace the water stained ceiling tiles in the Commander's Office, Classroom, Hallway and Orderly Room (See encl 8, photos 15 - 18) **(RAC 3)**

d) Perform monthly checks on fire extinguishers (Not being checked). Each month, ensure that the devices are checked, recorded, turn upside down and tapped with a rubber mallet to loosen any material at the bottom. Have the local fire department conduct annual inspections of fire extinguishers. **(RAC 3)**

e) If work practices change, a new assessment should be made on the controls in Place.

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1886 of 2531

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HHIMS Industrial Hygiene Survey Form

Front page

ARLOC	Installation	Building	Room Number
	Savannah Armory		

Location	Operation	Survey Date (month / day)	Evaluator	Mecom	Submecom	Unit / Organization (45)
AA	ADO	10 09 13		NG	XX	

Supervisor	Mr.	Ms.	Rank	RAC

Supervisor, or Point of Contact Telephone Number	DSN	Commercial	Frequency (hrs/day)	No. CIVs	No. MIL	Contractors	No. LOCs
			008		00	00	00

Lab Hoods	Vapor Degreasers	Spray Booths	Open Surface Tanks	Ventilation Units
00	00	00	00	00

Controls Present (If >6, continue in comments)(25)	Evaluation (25 characters max)	Unit code	Controls Required (25 characters max)
OTH	19-24	FTC	20-50 FTC
OTH	12-33	FTC	20-50 FTC

Gloves	e*	R	U
acid			
cold surfaces			
hot surfaces			
NBC agents			
oil			
solvents			
surgical gloves			
leather / cotton			
other			

Respirator	e*	R	U	Manufacturer's Description (10 characters max)	NIOSH TC # or Foreign equivalent (10 characters max)
airline					
abrasive blasting hood					
disposable					
full face air purifying					
1/2 face air purifying					
powered air purifying					
1/4 face air purifying					
self-contained					
other					

Eyes and Face	e*	R	U
chemical splash			
full face shield			
chem/safety impact			
safety impact			
welding helmet			
sunglasses			
welding goggles/glasses			
laser eye protection			
other			

Hearing	e*	R	U
canal caps			
(>85-108 dBA steady) earplugs			
" helmets w/ muffs			
" muffs alone			
(108-118) muff/earplug comb			
muffs and earplugs			
(118 or >) with time limit			
other			
other			

Body	e*	R	U
aprons			
cold weather clothing			
coveralls			
full body suit			
heat reflective			
vest/suit			
safety belt/harness			
special purp. clothing			
other			

Head and Feet	e*	R	U
cold weather boots/hat			
hard hats			
impermeable boots			
safety shoes (conductive)			
safety (nonconductive)			
other			
other			
other			
other			

e* = evaluator's recommendation or agreement

Reminders: ergonomics - dermatitis - physical agents - flammable storage
EYE (permanent) ____ - EYE (portable) ____ - SHW - GMV - LEV

ACO ADM DSA DSN LAB LCK
RAD ECB EPL RHS SPR WEL

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1887 of 2531

Posted on FOIA Reading Room
May 20, 2015

HHMS Industrial Hygiene Survey Form

Back page

	CAS code	PAC	EPC	Hazard Description
POHOISECO				
POFOOTHAZ				
POFLYPROJ				
POEYEHAZA				
POFLAMHAZ				
POLIFTING				
POSHARPOB				
POHOTOBJE				
POELSHOCK				
COLUBEOIL				

Social Security Number or Unique Identifier

Last Name (20 characters max)

First Name (20 characters max)

MI

Sex

Category

Personnel data provided by the facility is attached to this form

Insert Privacy Act Statement

Comments

Operation described is PERSONNEL AND ADMINISTRATIVE DUTIES, Typing, Record Keeping, PROMOTION & EXTENSIONS

This operation was explained to the evaluators, but was not actually observed.

(comments continued on attached)

There is a noise data sheet attached to this form

There is a ventilation data sheet attached to this form

2/8/95 CHPMBACK.XLS

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FOIA Requested Record #0-15-0085 (TN)
Released by National Guard Bureau
Page 1888 of 2531

Posted to NGB FOIA Reading Room
May 2018

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MSDS 85580

85580: One Coat 25 Floor Wax-Gallon [4]
MSDS Last updated: 03/02/2010

IMPERIAL SUPPLIES LLC MSDS SHEET FOR 85580

Section 1 - Manufacturer / Distributor Information

Product Name:	ONE COAT 25 Super High Gloss Floor Finish
Supplier's Name:	National Chemical Laboratories of PA, Inc.
Supplier's Address:	401 N 10th Street, Philadelphia PA 19123
NMIS Hazard Code:	Health: 1, Flammability: 0, Reactivity: 0, Other: 0
Chemical Family:	Floor Finish
D.O.T. Shipping Name:	N/A
Product #:	0510
Emergency phone #:	CHEM-TEL (800) 255-3924
Chemical Name:	Acrylic Latex Blend
Formula:	N/A Blended Product
Hazard Class:	N/A
D.O.T. ID #?	N/A

Section 2 - Hazardous Ingredients

Chemical Name	CAS Number	% Concentration Range	Hazard Ratings (TLV/PEL)
Diethylene Glycol Monomethyl Ether	111-77-3	PROP.	Not Est.

Section 3 - Physical Data

Boiling Point (F):	212
Vapour Pressure:	= to Water
Vapour Density:	= to Water
Solubility in Water:	Disperses
Appearance:	Opaque, White, Liquid
Odor:	Characteristically Acrylic
Specific Gravity:	1.051
Evaporation Rate:	= To water

Section 4 - Fire and Explosion Data

Flash Point (f):	None to boiling (TCC)
Flammable Limits:	N/A
Unusual Fire and Explosion Hazards:	Heated material may liberate toxic fumes. Wear self contained breathing apparatus.

Section 5 - Health Hazard Data

Routes of Entry:	Inhalation: no, Skin: Yes, Ingestion: Yes, Threshold Limit value: Not Est.
Effects of Overexposure:	May cause skin and eye irritation. May be harmful if swallowed. If ingested may cause severe gastric distress and blockage.
Emergency & First Aid Procedure	For eyes: Flush thoroughly with water for at least fifteen minutes. If irritation persists seek medical attention. For Skin: Wash thoroughly with soap and water. If irritation persists seek medical attention. If Ingested: DO not induce vomiting. Give large quantities of water. Seek medical attention. Never give anything by mouth to an unconscious person.
Conditions aggravated by exposure:	None
Listed Carcinogen , mutagen, teratogen (ingredient, source, amount):	None

Section 6 - Reactivity Data

Stability:	Stable
Conditions To Avoid:	None
Incompatibility:	Avoid contact with strong acids or oxidizers.
Hazardous decomposition Products:	Carbon Oxides and Acrylates
Hazardous Polymerization:	Will not occur.

Section 7 - Spill or Leak Procedures

Steps to be taken if material is Recontainerize by mopping, wet

Posted to NGB FOIA Reading Room
May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1889 of 2531

BEST AVAILABLE COPY

Released or Spilled:	Vacuum, or using suitable equipment.
Waste Disposal Method:	Follow Local, State and Federal Regulations.

Section 8 - Special Protection Information

Respiratory Protection:	Not Required
Ventilation:	Local
Protection Gloves:	Not Required
Eye Protection:	Goggles or Safety Glasses with Side Shields.
Other Protective Equipment:	None

Section 9 - Special Precautions

Precautions to be taken in handling and storage:	Store between 40 F and 120 F. Keep from Freezing.
Other precautions:	Keep out of the reach of children. For professional use only.

The information contained in the MSDS was obtained from current and reliable sources; however the data is provided without any warranty, expressed or implied, regarding its correctness or accuracy. Since the conditions or handling, storage and disposal of this product are beyond the control of this company, it is not responsible for loss, injury and expense arising out of the product's improper use. No warranty, expressed or inferred regarding the product described in the MSDS shall be created or inferred by any statement in the MSDS. Various government agencies may have specific regulations regarding the transportation, handling, storage, use or disposal of the product which may be covered by this MSDS. The user is responsible for full compliance.

4/5/2010

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1890 of 2531

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Analytical Environmental Services, Inc

Date: 24-Sep-10

Lab Order: 1009E24
Client: SES
Project: Savannah, TN Armory
Matrix: Wipe
Date Received: 9/17/2010 11:45:00 AM

LEAD ON WIPES (N9100/7082)

N7082

Laboratory ID	Client Sample ID	Result	Units	Reporting Limit	DF	Qual	Date Collected	Date Analyzed	Analyst
1009E24-001A	M300	102	ug, Total	20	1		09/13/2010	09/22/2010	TA
1009E24-002A	M301	BRL	ug, Total	20	1		09/13/2010	09/22/2010	TA
1009E24-003A	M302	BRL	ug, Total	20	1		09/13/2010	09/22/2010	TA
1009E24-004A	M303	BRL	ug, Total	20	1		09/13/2010	09/22/2010	TA
1009E24-005A	M304	BRL	ug, Total	20	1		09/13/2010	09/22/2010	TA
1009E24-006A	M305	BRL	ug, Total	20	1		09/13/2010	09/22/2010	TA
1009E24-007A	M306	BRL	ug, Total	20	1		09/13/2010	09/22/2010	TA
1009E24-008A	M307	BRL	ug, Total	20	1		09/13/2010	09/22/2010	TA
1009E24-009A	M308	BRL	ug, Total	20	1		09/13/2010	09/22/2010	TA
1009E24-010A	M309	BRL	ug, Total	20	1		09/13/2010	09/22/2010	TA
1009E24-011A	M310	BRL	ug, Total	20	1		09/13/2010	09/22/2010	TA
1009E24-012A	M311	BRL	ug, Total	20	1		09/13/2010	09/22/2010	TA
1009E24-013A	BLANK	BRL	ug, Total	20	1		09/13/2010	09/22/2010	TA

Qualifiers: BRL - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
DF - Dilution Factor

Results are blank corrected where applicable

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May, 2018

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FOIA Requested Record #J-1590085 (TN)
Released by National Guard Bureau
Page 1891 of 2531

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Savannah, TN Armory

SUBJECT: Personnel Roster

NAME	RANK	POSITION
Non-Responsive		

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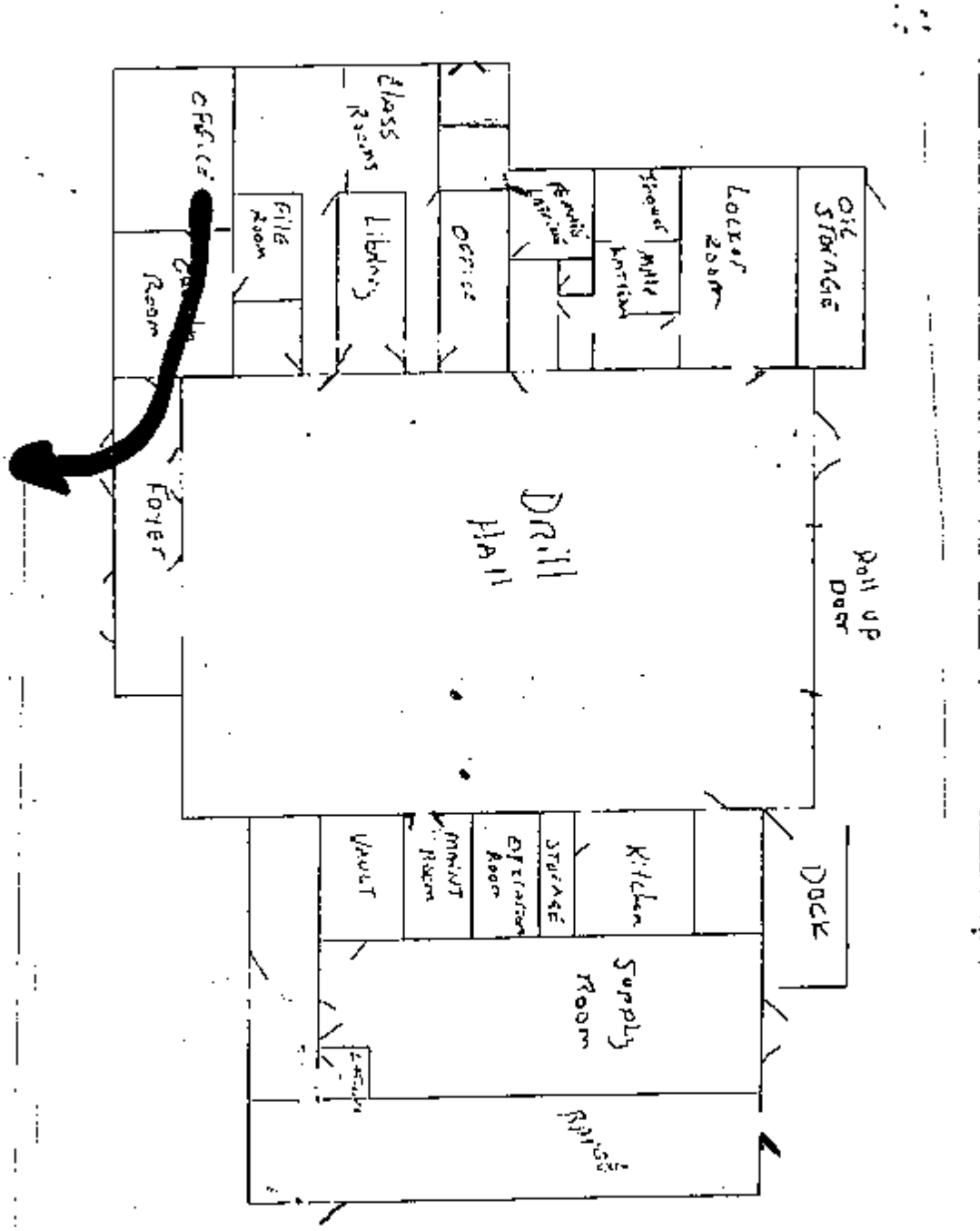

Assembly Area

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ENCLOSURE 6

ARMORY CLEANUP REQUIREMENTS

High Test Results

If the public utilizes your facility and the test results for lead came back above 40 $\mu g/ft^2$ you are responsible for cleaning this area and adjoining areas to meet the 40 $\mu g/ft^2$ or less, unless:

1. You can guarantee that no children under the age of 7 will come into your facility.

2. Your state public health has other guidance, for example, signage is required to warn personnel who are pregnant or of child bearing age, or under the age of 7 years old.

3. Signs stating "No smoking, drinking, eating, or applications of cosmetics without washing of hands prior to activity" are properly installed in your facility.

1. Cleaning of Building.

Before proceeding into the cleanup mode, first discuss with your Environmental Office what procedures are recommended and then coordinate your cleanup efforts with local agencies, if warranted.

a. The building, as well as the dusty materials and equipment in it, should be cleaned one time to reach the lead dust levels that are appropriate for the function of the facility, for example, facilities used by full-time personnel only, utilized by adults or children 7 years old or older children only, or not utilized by pregnant individuals and/or children under the age of 7. **NOTE:** This type of cleaning implies that this is not at a facility that has an active Indoor Firing Range. For facilities with active ranges, these facilities should be monitored with wipe samples taken over the drill floor area by the Range Custodian quarterly, to ascertain that the level of lead is at the required level for your particular facility and situation.

   1. This cleanup can be accomplished using a HEPA vacuum (a very tedious and time-consuming operation) and then by utilizing a wet method with "Spic n Span" or something equivalent to this detergent using wet rags to wipe down surfaces and mops soaked in this solution to do the entire floor area. **NOTE: Personal protective gloves, rubber boots, or protective disposable shoe/boot covers should be used during this procedure and personnel who have performed the cleanup should wash their clothing separately from their family's clothing.**

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1894 of 2531

BEST AVAILABLE COPY

ENCLOSURE 6

especially if they have young children at home. Personnel should wash their hands after performing this operation to assure that lead contaminates are not ingested.

2. Frequent changing out of the water used for cleaning is vital. Disposal of this hazardous waste water and rags/mop heads, Personal Protective Equipment (PPE), etc., should be coordinated with your Environmental office.

b. Clean all ductwork where lead was found. EPA has a protocol specifically for replacing or cleaning lead in dust form in HVAC systems. EPA Office of Pollution Prevention and Toxics, "*Renovate Right – Important Lead Hazard Information for Families, Child Care Providers and Schools*". http://www.epa.gov/lead/pubs/rrpamph.pdf .

c. Continue to enforce good housekeeping and hygiene practices. These measures make good sense to minimize exposures to any toxic chemicals in the workplace.

d. Provide lead awareness training to the general workforce and any occupants of your facility.

***NOTE:* Before you start any new procedures or practices be aware of the local city and state regulations in your area.**

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1895 of 2531

BEST AVAILABLE COPY

ENCLOSURE 6

ARMORY

CLEANUP & FOLLOW-UP HOUSEKEEPING RECOMMENDATIONS

Materials Needed:

1. Cloth Mop head(s) & Mop head holder(s) with handle.
2. Mop bucket(s) with wringer.
3. Clean cotton rags and sponges.
4. Disposable gloves.
5. Large barrel (55 gallon) to store wastewater in after changing out of dirty scrub water.
6. Disposable overshoes or rubber boots. Personnel conducting cleaning operations should not take clothes, boots, etc. home for laundering.
7. HEPA vacuum
8. Six (6) mill plastic bags to dispose of waste.
9. Wastewater containers.

Disposal of Waste Water and Cleaning Materials:

1. ***NOTE:*** Consult with the Local Army National Guard Environmental Office prior to taking any collection, disposal, or commencement of wiping activities. Each state and territory may have additional regulatory guidance regarding the collection, storage, and disposal of wastewater.

2. Mop heads should be disposed of after initial cleaning, unless otherwise advised by Environmental Office personnel. ***NOTE:*** **Thorough cleaning of mop heads may be sufficient enough to permit subsequent reuse on future Armory cleanups, but check with the local Environmental Office before reuse.**

3. Disposable gloves should be treated as hazardous waste material.

4. Soiled cotton rags should be treated as hazardous waste material.

5. Wash water contaminated with lead may be collected and allowed to slowly evaporate leaving lead deposits/sludge that may be collected in plastic containers, placed in metal drums, and stored for future delivery to an authorized hazardous waste disposal site.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1896 of 2531

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ENCLOSURE 6

a. Drums shall be properly labeled to identify contents in accordance with (IAW) Federal, state, and local regulatory guidance.

b. Disposal of containerized waste shall be coordinated IAW state hazardous waste program requirements.

c. The Environmental Office shall coordinate removal and disposal of all containerized hazardous waste through established waste streams.

Post-Cleanup Precautionary Measures:

1. Thoroughly wash hands with soap and water.

2. Rinse off rubber boots with soap and water, capturing wastewater for collection into the established waste stream. If personnel have chosen to use overshoes for protection, dispose of the used overshoes into the established waste stream. ***NOTE***: **This recommendation is for initial cleanup activities; PPE requirements may be reduced after it has been determined that non-hazardous levels of lead have been achieved.**

3. Wash BDU's or personal clothing separately from children's clothes.

IMPORTANT NOTES:

1. **No eating, drinking or application of cosmetics is allowed during cleanup procedures (these may be allowed after washing of hands/face and done outside of cleanup area).**

2. **Avoid blowing, shaking or like actions which could potentially disperse lead dust. Dry sweeping, dusting, wiping, or blowing with compressed air shall not be permitted.**

Initial Armory Cleanup:

1. Use a vacuum cleaner equipped with a HEPA exhaust filter. HEPA vacuum all surfaces in room (ceiling, wall trim, and floors). Start with the ceiling and work down, moving toward the entry door. **Completely clean each room before moving on.**

2. Prepare water and detergent for the wipe down phase, according to manufacturer's recommendations.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1897 of 2531

ENCLOSURE 6

3. Wet wipe, with cotton rags or sponge, any horizontal, diagonal or vertical surfaces up six (6) feet from floor surfaces using hot water and "Spic-n-Span" or an equivalent product.

***NOTE*: If walls to be cleaned show signs of deterioration, for example, chipping or crumbling paint in which wiping, scrubbing, or disrupting might potentially increase or spread contamination, then this portion of the cleanup should be avoided.**

4. Now prepare water and detergent (for example, Spic n Span, Mr. Clean, Pine Sol) for the mopping phase, according to manufacturer's recommendations, which should be found on the product's label for general clean up.

    a. Change out water and detergent frequently (when water appears dirty)

    b. Rinse out mop heads frequently to prevent contamination of dirty water.

5. Cover entire drill floor surface with above prescribed water and detergent.

6. Final rinse should be with clean water only after mop heads have been cleaned.

Recommended Follow-up Housekeeping Practices ***after Clearance sampling of cleaned area is performed by certified personnel:***

1. Floor cleaning and dusting should be accomplished using the wet cleaning described in Initial Armory Cleanup SOP.

NOTE: The only exception to these wet cleaning procedures is the use of an approved chemically treated dust floor mop. This can be used for follow-up armory cleaning by sweeping of large particles of dirt and paper.

    a. Use of a pre-treated (chemically treated) dust floor mop will prevent lead dust particles from being disbursed into the surrounding atmosphere.

    b. If a pre-treated dust mop is used – Do Not Shake Mop Head – have mop head laundered after use. **Always keep used dust mop heads in sealed double plastic bags when stored at an armory or facility.** Shaking of a pre-treated mop head may release unwanted contaminants into surrounding atmosphere.

2. Frequency of Cleanup – Armories will vary, according to usage and how often they should be cleaned. The following cleaning schedule is provided:

    a. Only full-time technicians and traditional soldiers using facility during the month. (Cleaned Monthly.)

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1898 of 2531

BEST AVAILABLE COPY

ENCLOSURE 6

b. Occasional activities taking place during the month, for example, 1-2 classes or volleyball games, etc. (Cleaned Twice Monthly.)

c. Used regularly by soldiers or outside agencies/personnel. (Cleaned Regularly – at least Weekly)

IMPORTANT NOTES:

1. **Armories with adjoining Indoor Firing Ranges (IFR) should be cleaned more than weekly, again depending on the use of the Armory and IFR.**

2. **Clearance sampling/testing is to be accomplished by certified IH personnel after these cleanup procedures are followed. If the area is an average Armory, occupied by adults only, for whom you are cleaning and is not a converted IFR space, you may continue to utilize the Armory space before officials re-test this space. Please notify your Safety and/or Occupational Health personnel of the completion of this cleaning regime and they will notify the proper officials of the sampling/testing requirements needed.**

3. **If lead cleanup work was contracted out, a third party should do the clearance sampling.**

4. **If young children and pregnant females are, or may be present, signs shall be posted on all facilities, warning of the potential danger of exposure to lead dust.**

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1899 of 2531

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References

Army Regulation (AR) 11-34, The Army Respiratory Protection Program.

Army Regulation (AR) 40-5, Preventative Medicine.

Army Regulation (AR) 385-10, The Army Safety Program.

NGR 385-10, Army National Guard Safety and Occupational Health Program.

TB MED 503, The Army Industrial Hygiene Program.

Title 29, Code of Federal Regulations (CFR), 1999, revision, Part 1910, Occupational Safety and Health Standards.

TG 022, US Army Environmental Hygiene Agency (YSAEHA), Industrial Hygiene Evaluation Guide.

TG 141, US Army for Health Promotion and Preventative Medicine (USACHPPM) Industrial Hygiene Air Sampling Guide.

IES Lighting Handbook

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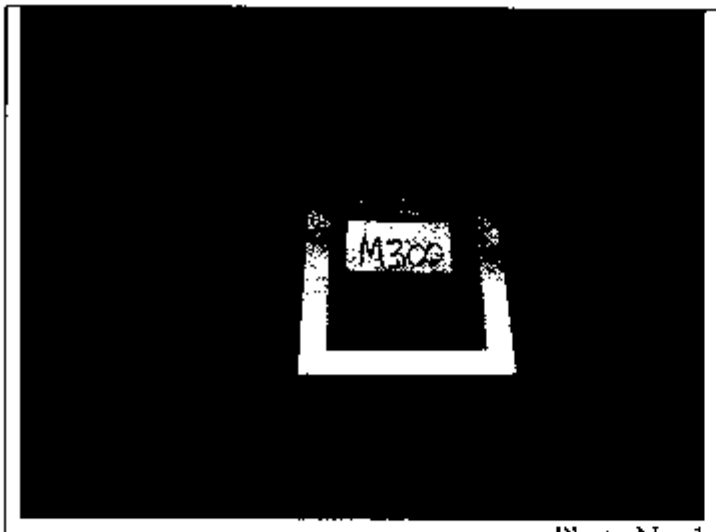

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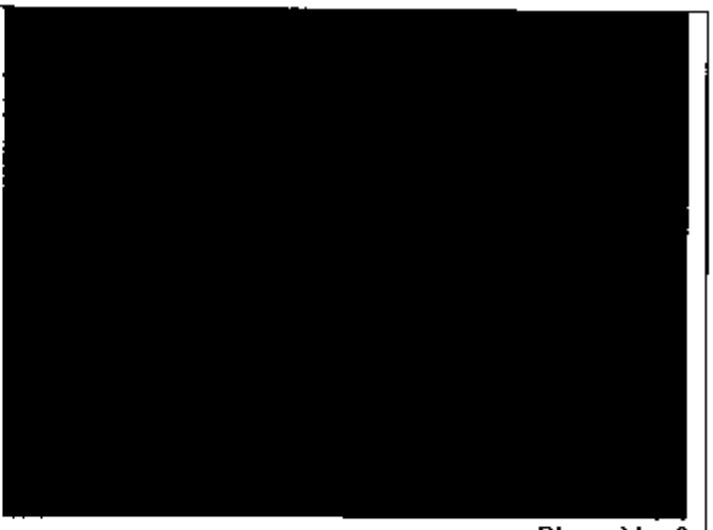

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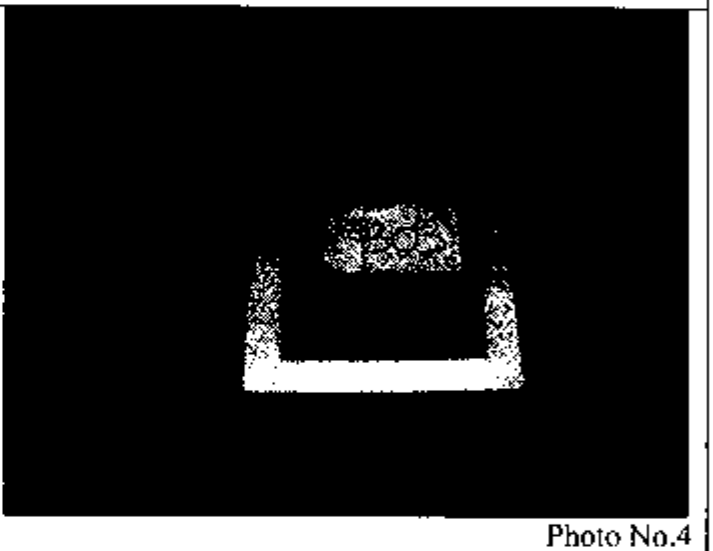
Photo No.3



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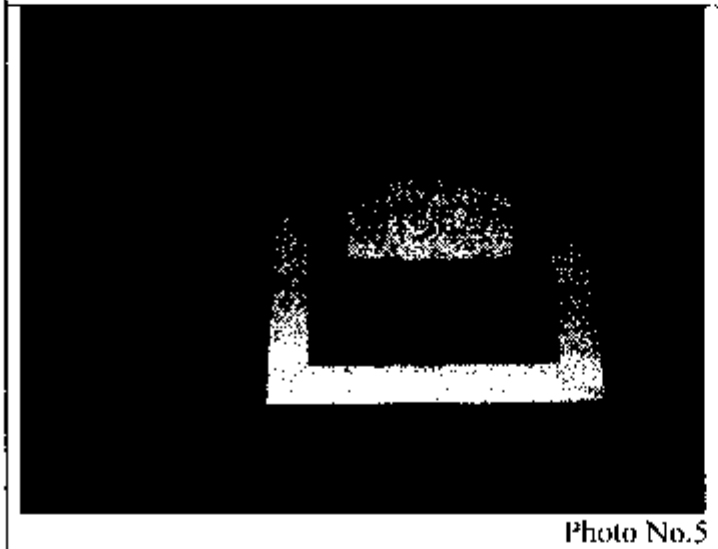

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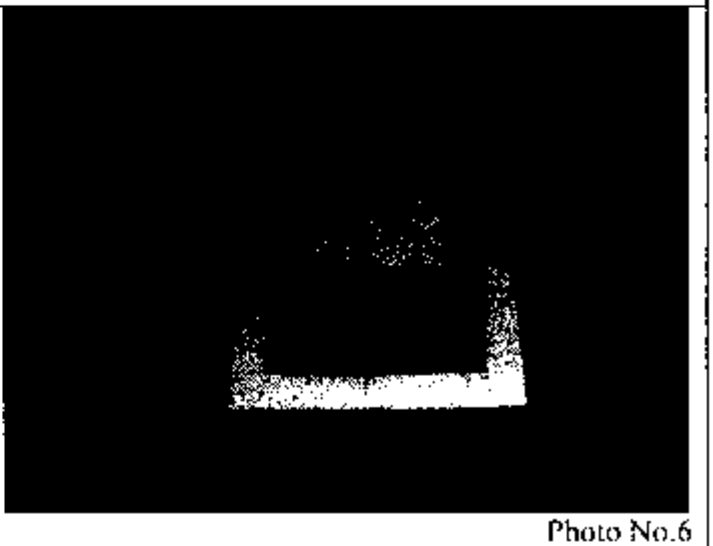

Photo No.6

ENCLOSURE 8
Page 1 of 5

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Photo No.7

Photo No.8

Photo No.9

Photo No.10

Photo No.11

Photo No.12

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1902 of 2531

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Photo No.13

Photo No.14

Photo No.15

Photo No.16

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1903 of 2531

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Photo No.17

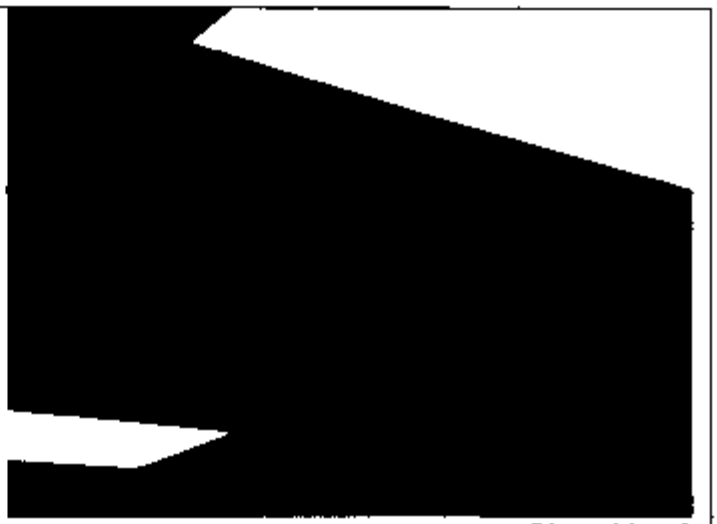

Photo No.18

Photo No.19

Photo No. 20

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1904 of 2531

BEST AVAILABLE COPY

Photo No.21

Photo No.22

Photo No.23

Photo No. 24

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1905 of 2531

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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-AVN-SI February 7, 2005

MEMORANDUM FOR: The Adjutant General of Tennessee, ATTN: [redacted] Non-Responsive State Occupational Health Office, 3041 Sidco Dr, P O Box 41502, Nashville, TN 37204-1502.

SUBJECT: Transmittal of Survey Reports for the ARNG Lawrenceburg Armory, the Hohenwald Armory, the Waynesboro Armory, the Savannah Armory, and the Selmer Armory in TN.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, 30 August 1986, Medical Service, Preventive Medicine.

c. National Guard Regulation (NGR) 385-10, 1988, Army National Guard Safety and Occupational Health Program.

d. AR 11-34, The Army Respiratory Protection Program, 15 February 1990.

e. TB MED 502, Occupational and Environmental Health Respiratory Protection Program, February 1982.

f. DA PAM 40-503, 30 October 2000, The Army Industrial Hygiene Program.

g. DA PAM 40-501, 10 December 1998, Hearing Conservation.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2001, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

NGB-AVN-SI
SUBJECT: Transmittal of Survey Reports for the ARNG Lawrenceburg Armory, the Hohenwald Armory, the Waynesboro Armory, the Savannah Armory, and the Selmer Armory in TN.

j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

k. Title 29, Code of Federal Regulations (CFR), 2000 rev., part 1910, Occupational Safety and Health Standards.

l. Reports dated 27-30 November, and 7 December-26 January 2004, Industrial Hygiene Technician, 1503 Zaiger Drive,Colorado Springs, CO 80915

2. General.

a. At the request of the TNARNG Safety and Occupational Health Office, an Industrial Hygiene Service was put together to conduct Health Hazard Information module (HHIM) Field surveys and industrial hygiene sampling of the ARNG Lawrenceburg Armory, the Hohenwald Armory, the Waynesboro Armory, the Savannah Armory, and the Selmer Armory in TN.

b. Non-Responsive Industrial Hygiene Technician, 1503 Zaiger Drive,Colorado Springs, CO 80915 conducted the surveys.

3. Findings. All HHIM field survey forms and survey findings of the reports. (See enclosure 1)

4. Recommendations.

a. Follow all recommendations made in reference 1.l., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Control water infiltration in the armory and/or replace or repair damaged surfaces or components (ceiling and floor tiles). Building conditions that present IAQ concerns or problems not only exacerbates normally minor health issues but also tend to promote or accelerate building deterioration.

c. The recommendations given in the comment section of the HHIM data sheets and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-05. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-06 IHIP.

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d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present survey, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

f. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

5. If additional information is needed about the industrial hygiene survey or air sample

Non-Responsive

[redacted]

CF:
NBG-AVN-SH

Encl
as

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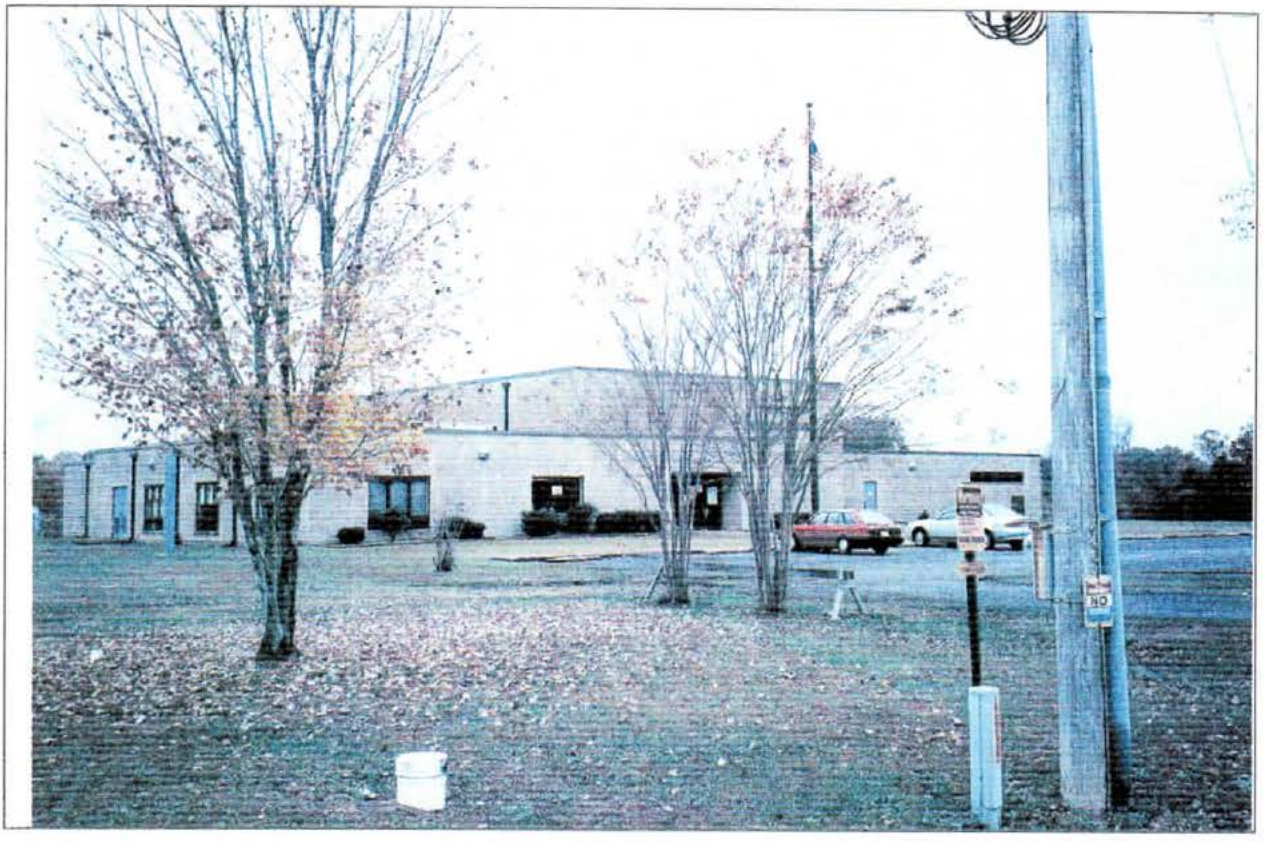
Industrial Hygiene Report
For
Tennessee Army National Guard
Battery B (-), 2-115th FA BN
400 Armory Lane
Savannah, TN 38372



Prepared for:
Department of the Army and Air Force
National Guard Bureau Regional
Industrial Hygiene Office
510 Plaza Drive
Suite 1530
College Park, GA 30349

Non-Responsive

DBA [redacted]

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1909 of 2531

BEST AVAILABLE COPY

Table of Contents

Subject ..... Page 1

Background ..... Page 1
- Introduction
- Site Description
- Scope of Work
- POC

Instrumentation ..... Page 1

Findings
- MSDS ..... Page 1
- Lead Wipe Results ..... Page 2
- Drill Hall ..... Page 2
- Indoor Firing Range ..... Page 2
- Supply Room ..... Page 3
- Area Deficiencies ..... Page 3 & 4

ILLUMINATION SURVEY RESULTS
- Illumination ..... Page 5

Recommendations
- MSDS's ..... See Enclosure 10
- Lead Cleanup Procedures ..... See Enclosure 10
- Ceiling Leaks and Missing Tiles ..... See Enclosure 10
- Area Lighting ..... See Enclosure 10
- Fire Extinguishers ..... See Enclosure 10
- Restrooms ..... See Enclosure 10
- Miscellaneous ..... See Enclosure 10

Enclosures
1. Health Hazard Information Module (HHIM) Survey Form
2. Analytical Lead/Mold Results/Submission Forms
3. Personnel Roster
4. Armory Building Floor Plan
5. Hazard Communication Sample Written Program
6. Hazardous Material Inventory List
7. Lead Cleanup Procedures
8. Mold Cleanup Procedures
9. References
10. Recommendations
11. Pictures: 1-16
12. Pictures: Lead Wipe Samples: M04676-M04694; Mold Sample: M04696

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December 7, 2004

MEMORANDUM FOR: Tennessee Army National Guard, Attn: Non-Responsive Administration Officer, 759 East Main Street, Henderson, Tennessee 38340

SUBJECT: Industrial Hygiene Consultation and Health Hazard Information Module (HHIM) Survey, Savannah Army National Guard, Savannah, Tennessee

1. BACKGROUND: At the request of Non-Responsive National Guard Bureau Regional Industrial Hygienist, an Industrial Hygiene Consultation and Health Hazard Information Module Field Survey were performed at the Savannah Army National Guard Armory, Savannah, Tennessee on November 19, 2004. The POC was Non-Responsive His address was 2-115 FA BN, 759 East Main Street, Henderson, Tennessee 38340. The armory was built in 1984. The purpose of the survey was to perform lead wipe samples; a noise survey, a ventilation survey, an Illuminations survey, and complete HHIM field survey forms on all industrial operations at the facility (see encl 1 for completed HHIM Survey Form).

2. INSTRUMENTATION: The following survey instrumentation was provided by the contractor and was used to obtain lead wipe dust samples and illumination measurements. All other instrumentation was operated according to manufacture recommendations.

a) Sper Scientific 840021, Light Meter, S/N: 02997, calibrated: 1-15-04
b) Ghost Lead Dust Wipes, Manufactured: December 1, 2003, Expiration: 06/06
c) TSI Velocicalc 8346, S/N: 00040107, calibrated: 01-12-04
d) Quest Model 2700, Sound Level Meter, S/N: HUC030020, calibrated: 4/28/04
e) Quest QC-10/QC-20, Acoustic Calibrator, S/N: Q10080144, calibrated: 6/16/04
f) Circuit Tester

3. Findings:

a) Battery B(-), 2nd Battalion, 115th Field Artillery:

i) Forty-five M-Day soldiers were deployed. The unit's main job was maintaining towed 155mm howitzers. Vehicles were located behind the armory (see encl 11, photo 1). Presently, many soldiers were utilized in military police and security positions.

ii) The administration at the facility was responsible to the battery in the area of readiness and personnel support such as pay, assignments, training, promotions, family support, equipment, and schools.

iii) Material Safety Data Sheets (MSDS) were readily available on all chemicals and hazardous materials at the armory. There was no chemical list at the front of the MSDS binder. An update HAZCOM SOP was included in the report. All employees must be initially trained in the Federal Hazardous Communication Program IAW 1910.1200.

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iv) Nineteen lead dust wipe samples were taken, using a 10 inch by 10 inch template. Twelve samples were above the federal standard of 40µg/ft². Five samples were above the Army National Guard standard of 200µg/ft². Pictures of the lead sample wipes were taken (see encl 12, photo's M04676 to M04694). The analytical lead result sheet included the sampled locations and the results. Also, the sample submission sheets were enclosed in the report (See enclosure 2). The following table notes where the samples were taken, the surveyor's field number, and the lead results:

Location:	Surveyor's Field No:	Results:
West End Floor, Old IFR	M04676	3600 µg/ft²
North End Floor, Old IFR	M04677	<14 µg/ft²
Backstop Surface, Old IFR	M04678	3300 µg/ft²
South End of Middle Floor, Old IFR	M04679	2600 µg/ft²
North End Floor, Old IFR	M04680	<14 µg/ft²
Actuator Surface, Plenum Room	M04681	49 µg/ft²
Support System Surface Bag, Old IFR	M04682	66 µg/ft²
Vault Floor, Supply Room	M04683	40 µg/ft²
Counter Shelf, Supply Room	M04684	160 µg/ft²
Hallway Floor, Next to Old IFR	M04685	20 µg/ft²
Metal Shelf, Supply Room	M04686	230 µg/ft²
North Side Floor, Drill Hall	M04687	69 µg/ft²
Base Fan Surface	M04688	50 µg/ft²
Furnace Surface, Operations Room	M04689	130 µg/ft²
Metal Shelf, Kitchen Storage Room	M04690	<14 µg/ft²
Wooden Shelf, Classroom	M04691	16 µg/ft²
Locker Shelf, Locker Room	M04692	620 µg/ft²
Mop Room Floor	M04693	<14 µg/ft²
Window Ledge, Foyer	M04694	ND

Note 1: IFR refers to Indoor Firing Range
Note 2: µg/ft² refers to micrograms or one millionth of a gram per square foot
BDL: Below Detection Level
ND: Not Detected

v) Drill Hall: Conducting drill and ceremonies in the large hall was its main purpose (see encl 11, photo 2). One halogen ceiling lamp was buzzing. Illumination levels ranged from 32 to 48 FC's.

vi) Supervisor's Office: Two fluorescent tubes were burned out. Illumination levels ranged from 40 to 76 FC's.

vii) Office across from Library: Ten fluorescent tubes were burned out. Two ceiling tile were stained (see encl 11, photo 3). Illumination levels ranged from 9 to 49 FC's.

viii) Old Indoor Firing Range: Twenty-nine fluorescent tubes and 8 lamps were burned out (see encl 11, photo 4). Illumination levels ranged from 2 to 22 FC's.

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ix) Supply Room: The supply area or equipment storage room could hold TA-50, tents, support systems; M16A2's, M40 masks and basic class 7 and 8 items (see encl 11, photo 5). Seven fluorescent ceiling tubes were burned out. A flammable storage cabinet did not have a handle (see encl 11, photo 6). Illumination levels ranged from 2 to 26 FC's.

x) Vault Room: Two light covers were missing. Illumination levels ranged from 31 to 53 FC's

xi) Maintenance Room: One fluorescent ceiling tube was burned out. Illumination levels ranged from 1-6 FC's.

xii) Men's Restroom: Three fluorescent tubes were burned out. Two ceiling tiles were missing. The vent screen was badly rusted (see encl 11, photo 7). Illumination levels ranged from 10 to 47 FC's.

xiii) Locker Room: Eight fluorescent tubes were burned out. Illumination levels ranged from 3 to 13 FC's

xiv) Women's Restroom: Two fluorescent tubes were burned out. Ceiling tile was missing from the shower. One ceiling tile had been moved and another was warped (see encl 11, photo 8). Illumination levels ranged from 10 to 27 FC's.

xv) Orderly Room: Four fluorescent tubes were burned out. Some ceiling tiles were stained. Illumination levels ranged from 16 to 55 FC's.

xvi) File Room: Bad ceiling leak (see encl 11, photo 9). A work order was submitted. Six fluorescent tubes were burned out. Illumination levels ranged from 6 to 32 FC's.

xvii) Kitchen: The outside grease trap was filled in with dirt (see encl 11, photo 10). Six fluorescent tubes were out in the main area. Illumination levels ranged from 18 to 36 FC's.

xviii) Hallways: Illumination levels ranged from 5 to 68 FC's. A mold sample was taken from one of the hallway ceiling tiles (see encl 11, photo 11). The analytical mold result sheet included the sampled location and the result. Also, the sample submission sheet was enclosed in the report (See enclosure 2). The following table notes where the sample was taken, the surveyor's field number, and the mold result:

Area	Material Sampled	Field Number	Results
Hallway Ceiling	Tile	M04696	Cladosporium 25-75 %

xix) Hallway next to Supply Room: One fluorescent tube was burned out. Illumination levels ranged from 6 to 52 FC's.

xx) Lobby/Foyer: Four fluorescent tubes were burned out. The ceiling leaked near the door to the drill hall. Illumination levels ranged from 23 to 48 FC's.

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xxi) Classroom: Ceiling tiles were stained from leak and some tiles were broken (see encl 11, photos 12 & 13). Eight fluorescent tubes were burned out. Illumination levels ranged from 21 to 65 FC's.

xxii) Library: Ten fluorescent tubes were burned out. There were two cracked and six stained, ceiling tiles. One ceiling tile was missing (encl 11, photo 14). Illumination levels ranged from 6 to 33 FC's.

xxiii) The Wash Rack: The oil/water separator alarm attached to the oil storage room outside wall did not work (see encl 11, photo 15). The oil/water separator sumps were underground and cleaned out by a local contractor.

xxiv) Oil Storage Room: The explosion proof lighting bulb was burned out. Weed eaters and gas cans were in the area. The door hinge was broken (see encl 11, photo 16). Illumination levels ranged from 4 to 5 FC's.

xxv) Due to the low noise levels (administrative areas) there was no requirement for a Hearing Conservation Program.

xxvi) Physical exams were performed in Lavinia.

xxvii) A listing of Savannah Armory personnel was shown in encl. 3.

xxviii) A building floor plan was attached as encl. 4.

xxix) A sample HAZCOM SOP was attached as encl. 5.

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4. ILLUMINATION SURVEY RESULTS:

a) Illumination Levels: The following additional illumination level readings were taken during the survey and are reported below in foot candles (FC's).

AREA/LOCATION	FOOT CANDLES (FC)
Orderly Room	16-55
NCOIC's Office	40-70
File Room	6-32
Utility Closet	5-7
Drill Hall, Door Closed	32-48
Office Next to Library	9-49
Kitchen Area	18-36
Kitchen Scullery	43-82
Kitchen Mess Storage	16-41
Oil Storage Room	4-5
Supply Area/Equipment Storage	2-21
Vault Room	31-53
Maintenance Room	1-6
Men's Restroom	10-47
Men's Locker Room	3-13
Women's Restroom	19-38
Mop Room	2-3
Classroom	21-65
Old Indoor Firing Range	2-22
Operation Rooms	7-18
Library	6-33
Hallways Next to Library	5-42
Foyer-Lobby	23-48

As indicated in the IES Lighting Handbook, Application Volume 1987, Offices: 20-50 FC's, Supply and Publication Areas: 20-50 FC's, Assembly 20-50 FC's, Restrooms: 5-10 FC's, Classrooms: 50-100 FC's, Kitchen: 20-50 FC's, FC's, Library: 50-100 FC's, Storage Rooms: 10-20 FC's, Mail Room: 20-50 FC's.

5. Recommendations: See enclosure 10

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6. TECHNICAL ASSISTANCE:

Non-Responsive

CF:

Occupational Health Office
ATTN: Non-Responsive TNANG,NC
Tennessee Army National Guard
AGTN-SAHO
Houston Barracks
3041 Sidco Drive
Nashville, TN 37204-1501

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Enclosure 1

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HEALTH HAZARD INFORMATION MODULE FIELD SURVEY

*SEE PRIVACY ACT STATEMENT ON REVERSE.
(For use of this form, see HHIM User's Instructions.)

SECTION 1. DEMOGRAPHIC DATA

a. ARLOC 47000 b. INSTALLATION TN NAT GUARD c. BLDG/RM NUMBER ARMORY SAVANNAH, TN

d. LOCATION/CODE AD / e. OPERATION/CODE AOD / f. DESCRIPTION BATTERY B (-) 2ND BN-115TH FA WAS RESPONSIBLE FOR SCHOOLS, PROMOTIONS, ASSIGNMENTS, FAMILY SPT AND EQUIPMENT FOR 45 M-DAY SOLDIERS.

g. MACOM/CODE NG / h. MACOM/CODE XX /

i. TELEPHONE/AUTOVON NUMBER Non-Responsive [redacted] RAC 3 l. SUPERVISOR Non-Responsive [redacted]

m. NO CIV(S) ____ n. NO M[redacted] o. NO CONTRACTOR(S) ____ p. NO LOC(S) ____ q. NO OTHER ____

SECTION 2. IH STAFFING DATA

a. LAB HOODS 0 b. VAPOR DEGREASERS 0 c. MAINTENANCE BAYS 0 d. SPRAY BOOTHS 0

e. OPEN SURFACE TANKS 0 f. VENTILATION UNITS 0

SECTION 3. SURVEY DATA

a. SURVEY DATE 11-19-04 b. EVALUATOR (INITIALS) Non-Responsive [redacted]

c. CONTROLS PRESENT	d. EVALUATION	e. UNIT CODE	f. CONTROLS REQUIRED	g. STATUS
OTH (DRILL HALL)	31-48 FTC ADEQUATE	FTC	30 FTC	ACCOM
OTH (OLD INDOOR RANGE)	2-19 FTC INSUFFICIENT	FTC	30 FTC	RECMD
OTH (SUPPLY ROOM)	11-26 FTC INSUFFICIENT	FTC	30 FTC	RECMD
OTH (CLASSROOM)	21-65 FC INSUFFICIENT	FTC	70 FTC	RECMD

h. PERSONAL PROTECTIVE EQUIPMENT (R-REQUIRED; A-AVAILABLE)

1. RESPIRATOR

	MANUFACTURER	NIOSH TC NO	R/A
DISPOSABLE			/
½ FACE AIR PURIFYING			/
½ FACE AIR PURIFYING			/
FULL FACE AIR PURIFYING			/
POWERED AIR PURIFYING			/
AIRLINE			/
SELF-CONTAINED			/
ABRASIVE BLASTING HOOD			/

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	R/A
ACID	/	CHEMICAL/SPLASH	/	MUFFS	X/X	APRONS	/	HARD HATS	/
OIL	/	SAFETY/IMPACT	X/X	EARPLUGS	X/X	COVERALLS	/	IMPERMEABLE BOOTS	/
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	/
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/HARNESS	/	SAFETY/NONCONDUCTIVE SHOES	/
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/					BDU'S	X/X		

SECTION 4. HAZARD INVENTORY DATA

a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC or EPC	d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO)
7439-92-1	LEAD, INORGANIC DUSTS & FUMES, AS PB	2B	YES

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SECTION 5 PERSONNEL

a. LAST NAME					d. CATEGORY
Non-Responsive					AGR

SECTION 6 COMMENTS (add blank sheet of paper if necessary)

- THE UNIT TOWED 155mm HOWITZERS; ARMORY WAS BUILT IN 1984.
- PHYSICALS PERFORMED EVERY 5 YEARS UNDER 40 YEARS AND EVERY 2 YEARS WHEN OVER 40 YEARS; DONE AT LAVINIA (MILAN) TRAINING SITE.
- MSDS'S ON HAND.
- ARMORY ROOF WAS SCHEDULED TO BE REPAIRED IN JULY.
- HEARING PROTECTION AND SAFETY GOGGLES WERE IN MAINTENANCE ROOM
- OIL/WATER SEPARATOR ALARM DIDN'T WORK.
- OLD INDOOR FIRING RANGE WAS CLOSED SINCE 1988.
- FAMILY SUPPORT OUT OF LEXINGTON.
- CEILING LEAKS IN THE FILE ROOM, THE HALLWAY, THE FOYER, & THE CLASSROOM,
-

PRIVACY ACT STATEMENT

Title 5 U.S. Code, Section 301; Executive Order 9397 authorizes the use of your Social Security Number as a identification number. The purpose of this information is to identify and monitor data relating each DA civilian employee exposed to a hazardous [illegible] or operation. The use of this information is to provide histories of exposure for any [illegible]

Disclosure of your Social Security Number is not mandatory; however, nondisclosure may [illegible]

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Enclosure 2

DATA CHEM LABORATORIES, INC.

Submitted To: Non-Responsive [redacted]

Reference Data:	**Lead**
Client Sample No.:	M04676 through M04695
P.O. No.:	BPA: W912JM-04-A-0007
Sample Location:	Savannah, TN Armory
Project No.:	4
Sample Type:	Ghost Wipe
Method Reference:	3050B/6010B
DCL Set ID No.:	04-S-6047
DCL Sample ID No.:	04-33956 through 04-33975
Sample Receipt Date:	11/22/2004
Preparation Date:	12/02/04
Analysis Date:	12/06/04

The samples were prepared in accordance with EPA method 3050B. Sample condition was acceptable upon receipt except where noted. The samples were then analyzed in accordance with EPA method 6010B using a Perkin Elmer 3000XL (ICP) purged spectrometer.

The results are provided in the enclosed data table. Results relate only to the items tested and are not blank corrected unless indicated in the data table.

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Non-Responsive [redacted]

CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3706
513 733-5336, FAX 513 733-5347

WEST COAST OFFICE
11 SANTA YORMA COURT
NOVATO, CALIFORNIA 94945
800 280-8071, FAX 415 893-9489

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Results
Lead

Client #	DCL #	Total Area (ft^2)	µg/Wipe	µg/ft^2
M04676	04-33956	0.694	2500.	3600.
M04677	04-33957	0.694	ND	<14.
M04678	04-33958	0.694	2300.	3300.
M04679	04-33959	0.694	1800.	2600.
M04680	04-33960	0.694	ND	<14.
M04681	04-33961	0.694	34.	49.
M04682	04-33962	0.694	46.	66.
M04683	04-33963	0.694	28.	40.
M04684	04-33964	0.694	110.	160.
M04685	04-33965	0.694	14.	20.
M04686	04-33966	0.694	160.	230.
M04687	04-33967	0.694	48.	69.
M04688	04-33968	0.694	35.	50.
M04689	04-33969	0.694	92.	130.
M04690	04-33970	0.694	ND	<14.
M04691	04-33971	0.694	11.	16.
M04692	04-33972	0.694	430.	620.
M04693	04-33973	0.694	ND	<14.
M04694	04-33974	0	ND	-
	Prep Blank		ND	
% Recovery	LCS 1		99.	
% Recovery	LCS 2		98.	
RPL			10.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

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DATA CHEM LABORATORIES, INC.

ANALYTICAL REQUEST FORM

☑ REGULAR Status (5 working days from receipt)

☐ RUSH Status Required - ADDITIONAL CHARGE

RESULTS REQUIRED BY _____ DATE

CONTACT DATACHEM LABS PRIOR TO SENDING SAMPLES

Date [redacted]

Comp[redacted]

Addre[redacted]

Col[redacted]

Person[redacted]

Telep[redacted]

Fax T[redacted]

Billing [redacted]

MR. [redacted]

NAT[redacted] GEORGIA

Quote No. _____

Sample Collection

Sampling Site SAVANNAH, TN ARMORY, PROJ. No.4

Industrial Process N/A

Date of Collection 11-19-04

Time Collected 8:30 a.m.

Date of Shipment 11-19-04

QC Requirements ☑ Standard ☐ Other

Collector's No[redacted]

Signature [redacted]

Non-Responsive

REQUEST FOR ANALYSES

Laboratory Use Only	Client Sample Number	Media Type	Sample Volume (Liters)	ANALYSES REQUESTED - Use Method Number If Known
33956	M04676	GHOST WIPE	10in X 10in	LEAD- WEST END FLOOR, OLD INDOOR RANGE
33957	M04677	"	"	LEAD- NORTH END FLOOR, OLD INDOOR RANGE
33958	M04678	"	"	LEAD- BACKSTOP SURFACE, OLD INDOOR RANGE
33959	M04679	"	"	LEAD- SOUTH-MIDDLE END FLOOR, OLD IFR
33960	M04680	"	"	LEAD- NORTH END FLOOR, NX TO FIRING LINE, OLD IFR
33961	M04681	"	"	LEAD- ACCUATOR SURFACE, PLENUM RM, OLD IFR
33962	M04682	"	"	LEAD- SPT SYSTEM BAG, OLD INDOOR RANGE
33963	M04683	"	"	LEAD- VAULT FLOOR, SUPPLY RM
33964	M04684	"	"	LEAD- COUNTER, INSIDE SHELF, SUPPLY RM
33965	M04685	"	"	LEAD- HALLWAY FLOOR, NX TO OLD IFR
33966	M04686	"	"	LEAD- METAL SHELF, SUPPLY RM
33967	M04687	"	"	LEAD- NORTH SIDE FLOOR, DRILL HALL
33968	M04688	"	"	LEAD- FAN BASE SURFACE, MAINTENANCE RM

CHAIN [redacted]

Relinquished (Signature) [redacted] 12:55

Relinquished (Signature) [redacted]

Non-Responsive

4388 Glendale Milford Road / Cincinnati, OH 45242 • 800-456-1493 or 513-733-5336 / Fax: 513-733-5347

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DATA CHEM LABORATORIES, INC.

ANALYTICAL REQUEST FORM

☒ **REGULAR** Status (5 working days from receipt)

☐ **RUSH** Status Required - ADDITIONAL CHARGE

RESULTS REQUIRED BY _____ DATE

CONTACT DATACHEM LABS PRIOR TO SENDING SAMPLES

Date 11-19-04 Purchase Order No. _____

Company Name MINCKLER & ASSOC.

Address 1503 ZAIGER DRIVE

COLORADO SPRINGS CO 80915

City

Non-Responsive

Person

Telep

Fax T

Billing

M

NAT

Quote No. _____

Sample Collection

Sampling Site SAVANNAH, TN ARMORY, PROJ. No. 4

Industrial Process N/A

Date of Collection 11-19-04

Time Collected 8:30 a.m.

Date of Shipment 11-19-04

QC Requi

Non-Responsive

Collector's

Signature

04-SW-6047

REQUEST FOR ANALYSES

Laboratory Use Only	Client Sample Number	Media Type*	Sample Volume (Liters)	ANALYSES REQUESTED - Use Method Number if Known
33969	M04689	GHOST WIPE	10in x 10in	LEAD - FURNACE SURFACE, OPERATIONS RM
33970	M04690	"	"	LEAD - METAL SHELF, KITCHEN STORAGE RM
33971	M04691	"	"	LEAD - WOODEN SHELF, CLASSROOM
33972	M04692	"	"	LEAD - LOCKER SHELF, LOCKER ROOM
33973	M04693	"	"	LEAD - MOP ROOM FLOOR
33974	M04694	"	"	LEAD - WINDOW LEDGE, ENTRANCE AREA
33975	M04695	"		LEAD - BLANK
35976	M04696	PLASTIC BAG		MOLD - HALLWAY CEILING TILE

CHAIN OF CUSTODY

Relinquished (Signature)

Relinquished (Signature)

Non-Responsive

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Page 1922 of 2531

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DATA CHEM LABORATORIES, INC.

TEST REPORT
Page 1 of 2
12/2/04

Submitted To: Non-Responsive [redacted]

Reference Data:	**Mold**
Sample Location:	Savannah, TN Armory Project No. 4
Sample Type:	Bulk
Client Sample No.:	M04696
PO #:	Not Available
Method Reference:	DCL SOP Method MC-AN-005
Sample Set ID#:	04-W-6047
DATACHEM Lab No.:	04-33976
DATACHEM Sample Receipt Date:	11/22/04
Analysis Date:	12/1/04

Sample condition was acceptable upon receipt except where noted.

The sample is mounted on a supportive glass slide, which is then prepared for viewing by the use of appropriate microbiological stains.

DCL SOP Method MC-AN-005 is used to identify fungal spore types at the genus level and to quantify spore concentrations. This procedure does not provide an exact spore count. It does provide a visual estimation of identifiable contamination and individual spore concentrations within a visual field using plain light microscopy under 630x magnification. Individual spherical spores lacking any distinguishing characteristics may be grouped and classified under the category "Amerospores." Total fungal spore particulate concentrations include both viable and non-viable estimates.

The results are provided in the enclosed data table.

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These analyses were conducted at DataChem Laboratories, Salt Lake City, UT.

Non-Responsive [redacted]

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4388 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3706
513 733-5336, FAX 513 733-5347

WEST COAST OFFICE
11 SANTA YORMA COURT
NOVATO, CALIFORNIA 94945
800 280-6071, FAX 415 892-9469

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Data Table

Client #	**M04696**				
DCL #	**04-33976**				

Summary Results	**Percentage**				
Mycelial Fragments	**5-25%**				

	Spore Percentage				
Alternaria	ND				
Amerospores	ND				
Arthrinium	ND				
Ascospores	ND				
Aspergillium/Penicillium	ND				
Basidiospores	ND				
Bipolaris/Dreschlera	ND				
Chaetomium	ND				
Cladosporium	**25-75%**				
Curvularia	ND				
Hormonema spp.	ND				
Oidium/Peronospora	ND				
Paecilomyces	ND				
Pithomyces/Ulocladium	ND				
Rusts	ND				
Smuts/Myxomycetes	ND				
Stachybotrys	ND				
Stemphylium	ND				
Torula	ND				
Unidentified Conidia	ND				
Total Spore Percentage	**25-75%**				

Sample Calculation: Visual estimation of spore concentrations are based on background interference contamination and individual spore concentrations within a visual field. A total spore percentage versus the background interference concentration is presented in the data table. Individual percentages of various spore types are also provided, representing as a whole the total conidia percentage.

Non-Responsive

[redacted]

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Enclosure 3

Savannah Armory
Savannah, TN

SUBJECT: Personnel Roster

NAME	RANK/TITLE	POSITION	UNIT ASSIGNED
Non-Responsive			5 FA
			5 FA

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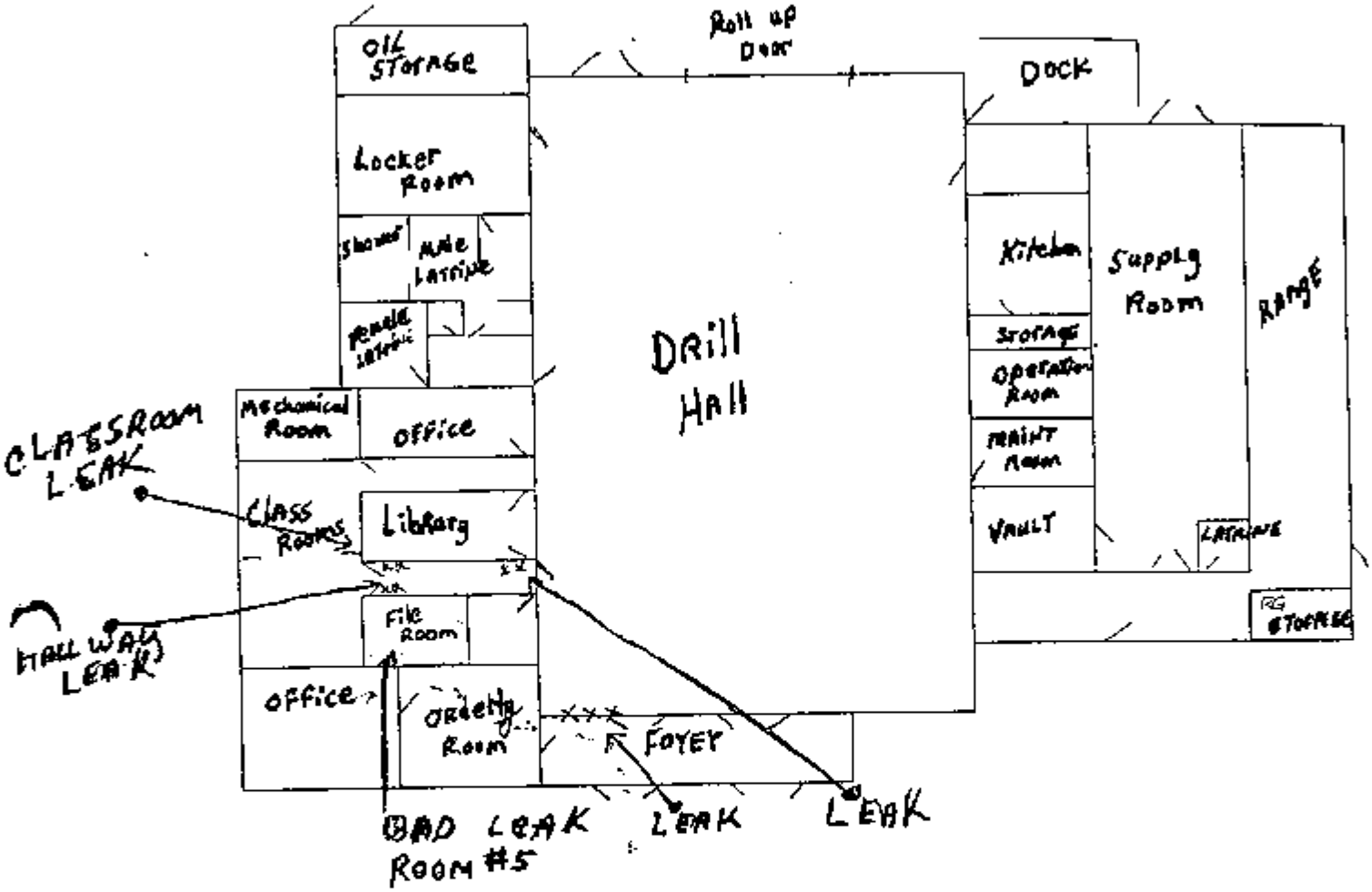
COMMANDER
BATTERY B (-) 2-115TH FA BN
400 ARMORY LANE
SAVANNAH, TENNESSEE 38372-5000



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HAZARD COMMUNICATION SAMPLE WRITTEN PROGRAM

NOTE: The written program must include the specific methods that are used to achieve compliance with the requirements of the Hazard Communication Standard (29 CFR 1910.1200). The specific methods described in this sample written program are for illustrative purposes, and other effective methods may be substituted to satisfy local needs or practices.

I. General

The purpose of this instruction is to ensure that (facility name) is in compliance with the OSHA Hazard Communication Standard (HCS) 29 CFR 1910.1200.

The [occupational safety and health manage (OS&H) manager) or other technically qualified designee] is the overall coordinator of the facility program acting as the representative of {senior facility official], who has overall responsibility.

In general, each employee in the facility will be appraised of the substance of the HCS, the hazardous properties of chemicals they work with, and measures to take to protect themselves from these chemicals.

II. List of Hazardous Chemicals

The [OS&H manager or designee] will maintain list of all hazardous chemicals used in the facility, and update the list as necessary. The hazardous chemical list will be updated upon receipt of hazardous chemicals at the facility. The list of hazardous chemicals is maintained at [location].

III. Material Safety Data Sheets (MSDS's)

The [OS&H manager or designee] will maintain an MSDS library on every substance on the list of hazardous chemicals in the [location]. The MSDS will consist of a fully completed OSHA Form 174 or equivalent. The [location manager or supervisor] will ensure that each [work area or shop] maintains an MSDS for hazardous materials used in that area. MSDS's will be readily available to all employees.

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The [local OS&H manager or designee] is responsible for acquiring and updated MSDS's. The [local OS&H manager or designee] will review each MSDS for accuracy and completeness and will consult with the [Area/Region/Headquarters OS&H manager] if additional research is necessary. The [local OS&H manager or designee] must clear all new procurements for the facility. Whenever possible, the least hazardous substance will be procured.

IV. Contractor Employers

The [local OS&H manager or designee], upon notification from the [responsible supervisor], will advise outside contractors of any chemical hazards which may be encountered in the normal course of their work on the premises.

V. Non-Routine Tasks

[Maintenance or other supervisors] contemplating a non-routine task, e.g. boiler repair, will consult with the [local OS&H manager or designee] and will ensure that employees are informed of chemical hazards associated with the performance of these tasks and appropriate protective measures. This will be accomplished by a meeting of supervisors and the OS&H manager with affected employees before such work is begun.

VI. Additional Information

Further information on this written program, the hazard communication standard, and applicable MSDS's is available at [location/telephone number].

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HAZARDOUS MATERIAL INVENTORY

FACILITY NAME: _____ STORAGE AREA: _____ PAGE ____ OF ____ PAGES

LOCATION: _____

CML NAME (FROM MSDS)	NSN	CAS NUMBER	HAZARD CATEGORY	SIZE CON	# DAYS ONSITE	*EST AVG DAILY AMT	*EST MAX AMT STORED	*ANL AMT REC'D	*ANL AMT SHIPPED (WASTE OR RECY)	EHS TPQ	EHS RQ	CERCLA RQ	TAB
			FIRE / EXPLOSIVE RELEASE OF PRESSURE / REACTIVITY / IMMEDIATE HEALTH HAZARD (ACUTE) / DELAYED HEALTH HAZARD (CHRONIC)										
			☐☐☐☐☐										
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ALL AMOUNTS MUST BE EXPRESSED IN LBS

CONVERSIONS:(# LBS PER GL) SOLVENTS-6.7 MOGAS-6.2 DIESEL-7.1 JP8-6.2 ALL OTHERS-8.3
2 LBS = 1 QT 1 LB = 1 PT

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Page 1929 of 2531

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Enclosure 7

Step-by-Step Summary

Cleaning: How To Do It

1. Include step-by-step procedures for precleaning, cleaning during the job, and daily and final cleaning in project design or specifications.

2. Assign responsibilities to specific workers for cleaning and for maintaining cleaning equipment.

3. Have sufficient cleaning equipment and supplies before beginning work.

4. If contamination is extensive, conduct precleaning of the dwelling unit. Move or cover all furniture and other objects.

5. Conduct ongoing cleaning during the job, including regular removal of large and small debris and dust. Decontamination of all tools, equipment, and worker protection gear is required before it leaves containment areas. Electrical equipment should be wiped and high-efficiency particulate air (HEPA) vacuumed, not wetted down, to minimize electrocution hazards.

6. Schedule sufficient time (usually 30 minutes to an hour) for a complete daily cleaning, starting at the same time near the end of each workday after lead hazard control activity has ceased.

7. For final cleaning, wait at least 1 hour after active lead hazard control activity has ceased to let dust particles settle.

8. Use a vacuum cleaner equipped with a HEPA exhaust filter. HEPA vacuum all surfaces in the room (ceilings, walls, trim, and floors). Start with the ceiling and work down, moving toward the entry door. Completely clean each room before moving on.

9. Wash all surfaces with a lead specific detergent, high-phosphate detergent, or other suitable cleaning agent such as Mr. Clean or Spic-n- Span to dislodge any ground-in contamination, then rinse. Change the cleaning solution after every room is cleaned.

10. Repeat step 8. To meet clearance standards consistently, a HEPA vacuum, wet wash, and HEPA vacuum cycle is recommended. For interim control projects involving dust removal only, the final HEPA vacuuming step is usually not needed. Other cleaning methods are acceptable, as long as clearance criteria are met and workers are not overexposed.

11. After final cleaning, perform a visual examination to ensure that all surfaces requiring lead hazard control have been addressed and all visible dust and debris have been removed. Record finding s and correct any incomplete work. This visual examination should be performed by the owner of an owner's representative who is independent of the lead hazard control contractor.

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12. If other construction work will disturb the lead-based paint surfaces, it should be completed at this point. If those surfaces are disturbed, repeat the final cleaning step after the other construction work has been completed.

13. Paint or otherwise seal treated surfaces and interior floors.

14. Conduct a clearance examination.

15. If clearance is not achieved, repeat the final cleaning.

16. Continue clearance testing and repeated cleaning until the dwelling achieves compliance with all clearance standards. As an incentive to conduct ongoing cleaning and a thorough final cleaning, the cost of repeated cleaning after failing to achieve clearance should be borne by the contractor as a matter of the job specifications, not the owner.

17. Do not allow residents to enter the work area until cleaning is completed and clearance is established.

18. Cleaning equipment list:

* HEPA vacuums.

* Detergent.

* Waterproof gloves.

* Rags.

* Sponges.

* Mops.

* Buckets.

* HEPA vacuum attachments (crevice tools, beater bar for cleaning rugs).

* 6-mil plastic bags.

* Debris containers.

* Waste water containers.

* Shovels.

* Rakes.

* Water-misting sprayers.

* 6-mil polyethylene sheeting (or equivalent).

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Removing Mold

Correcting problems that allow mold and other microbes to grow is still the most important way to prevent mold from reoccuring. But what do you do about growths that have already started and need to be removed? Removing a microbial growth from building surfaces requires the use of a sanitizing or disinfecting agent.

Mold can be dangerous to your health, even if you aren't allergic, It should be eradicated as soon as it is found.

If you do not see mold growth, but notice a musty odor, mold may be growing behind water-damaged materials, such as walls, carpeting or wallpaper. Persons removing mold should wear gloves, eye protection and a dust mask or respirator to protect against breathing airborne spores (an N95 dust mask or respirator may be purchased in hardware stores). If you have health concerns, you should consult your doctor before doing any mold cleanup.

Non-Porous Surfaces

Removal of microbial growth from *non-porous* surfaces can generally be accomplished by:

1. Thoroughly cleaning the surfaces with a detergent
2. Rapidly drying the cleaned surfaces

Biocides, such as chlorine bleach are generally not needed or recommended for non-porous surfaces because:

1. Biocides possess a number of limitations and hazards
2. Studies have shown that cleaning with detergents may be as effective as cleaning and treatment with a biocide [American Conference of Governmental Industrial Hygienists]

Porous Materials

When only a small portion of porous materials contain mold, disinfection is often used rather than replacing the materials. Selecting the right disinfecting compound is important. The best treatment you can use is one that is fast-acting, works on a broad range of pathogens, is cost effective, and does not leave active residual chemicals. Sounds fairly simple doesn't it? Actually it is, and again it isn't. That's because the most important issue in your selection process is to ensure that the chemical used does not leave residuals, resulting in more problems for the building occupants' health.

In the past, property managers have asked if the use of a chlorine solution was sufficient to remove and kill the growths. While the answer is yes, the downstream problems that can occur from the use of chlorine may increase your risk of liability.

During recent years, the use of chlorine dioxide has become more popular with water intrusion experts, duct cleaners, and indoor air quality consultants. That's because chlorine dioxide works exceptionally well on a wide range of microorganisms in a very short time. In addition, chlorine dioxide breaks down to a simple salt, eliminating any chance for toxic residue to exist.

Don't be confused into thinking that chlorine and chlorine dioxide are the same. They are separate chemicals that react differently. In addition, their chemical by-products have little in common.

Chlorine reacts by "adding" chlorine atoms. This can create trichloromethanes and dioxins, both known to be

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powerful carcinogens. In addition, the concentration of chlorine that is needed to be effective is too high to use safely.

Chlorine dioxide typically reacts with organics through the addition of oxygen. When chlorine dioxide reacts, it is reduced to the chlorine ion, which is part of the salt found in seawater and table salt.

If you are faced with the presence of biological growths in porous materials, you should consider the use of chlorine dioxide over chlorine for its sterilizing abilities and the reduced potential for exposure to long-term liabilities.

Remember to always study the Material Safety Data Sheet for chlorine dioxide first, to ensure that you can apply the product in the safest possible manner, using the proper equipment for the job.

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Enclosure 9

REFERENCES:

a) Title 29, Code of Federal Regulations (CFR) Part 1910, Occupational Safety and Health Administration (OSHA).

b) ARNG PAM 385-16, Guidelines for Converting Indoor Firing Ranges to Other Uses.

c) NGR 385-15, Policy and Responsibilities for Inspection/Evaluation and Use of National Guard Indoor Firing Ranges.

d) Army Regulation (AR) 40-5, 15 October 1990, Medical Service, Preventive.

e) AR 11-34, 15 February 1990, The Army Respiratory Program.

f) AR 385-10, 23 May 1988, Army Safety Program.

g) FC-Reg. 385-2, 1 July 1999, Ionizing and Nonionizing Radiation Protection Program

h) Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.

i) Technical Bulletin Medical (TB MED) 503, 1 February 1985, The Army Industrial Hygiene Program.

j) Technical Bulletin Medical (TB MED) 530, 1 January 1991, Food Service Sanitation

k) National Guard Regulation (NGR) 385-10, 20 December 1989, Army National Guard Safety and Occupational Health Program.

l) Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist (ACGIH), Cincinnati, Ohio.

m) IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.

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Enclosure 10

Recommendations:

a) An updated HAZCOM SOP was included in the report (see encl 5). Conduct semi-annual inventories and update MSDS's on all chemicals in the facility. A hazardous material inventory sheet was included in the report (see encl 6). Tab the MSDS's on side with numbers corresponding to the hazardous material inventory sheet tab numbers for easy access in case of a spill. Include a chemical list in the janitor's MSDS book and the unit's MSDS book. A risk assessment code (RAC) of 3 was assigned to this operation.

b) Due to the lead dust wipe results, it is recommended that the old indoor firing range be thoroughly cleaned from top to bottom to include the floor, the equipment lying on the floor, the backstop, the actuators in the plenum room, the collapsible shelves, and the light fixtures/covers. Also, the supply room wooden counter and metal shelves, the vault, the drill hall floor, the fan base surface, the operations room furnace surface, and the lockers in the locker room must be thoroughly wiped down and or wet mopped with an industrial cleaner using tri-phosphates, Mr. Kleen or Spic-n-Span. For additional lead cleaning measures, see enclosure 7. A risk assessment code (RAC) of 1 was assigned to this operation.

c) Replace the lamps, fluorescent tubes, and or bulbs in the NCOIC's office, the orderly room, the file room, the office next to the library, the library, the old indoor firing range, the supply room, the maintenance room, men and women's restroom, the locker room, the kitchen, the hallway, the lobby, the oil storage room, and the classroom. Repair or replace the noisy halogen lamp in the drill hall and install the lighting covers in the vault. Also, ensure that all exit signs and back up emergency fire lights are working. A risk assessment code (RAC) of 2 was assigned to this operation.

d) Follow up on the submitted work order to repair the roof leaks in the file room, the lobby, the classroom, and the hallway. Replace any missing and broken ceiling tiles. Openings in a ceiling present a path for smoke and heat to travel that could delay the response of smoke detectors or automatic sprinklers. A risk assessment code (RAC) of 2 was assigned to this operation.

e) Submit a work order to restore the kitchen grease trap to its proper working condition. A risk assessment code (RAC) of 3 was assigned to this operation.

f) Submit a work order to have a certified contractor clean the black mold in the hallway. For mold cleanup procedures see enclosure 8. A risk assessment code (RAC) of 3 was assigned to this operation.

g) Repair or replace the outside oil/water separator alarm. A risk assessment code (RAC) of 3 was assigned to this operation.

h) Install a locking handle to the flammable storage cabinet. Repair the broken door hinge on the flammable storage room. A risk assessment code (RAC) of 3 was assigned to this operation.

i) Replace the rusted screen in the men's restroom. A risk assessment code (RAC) of 3 was assigned to this operation.

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j) Perform monthly checks on fire extinguishers. Each month, ensure that the devices are turn upside down and tapped with a rubber mallet to loosen any material at the bottom. A risk assessment code (RAC) of 1 was assigned to this operation.

k) If work practices change, a new assessment should be made on the controls in place

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Enclosure 11

Photo No.1

Photo No.2

Photo No.3

Photo No.4

Photo No.5

Photo No.6

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Photo No.7

Photo No.8

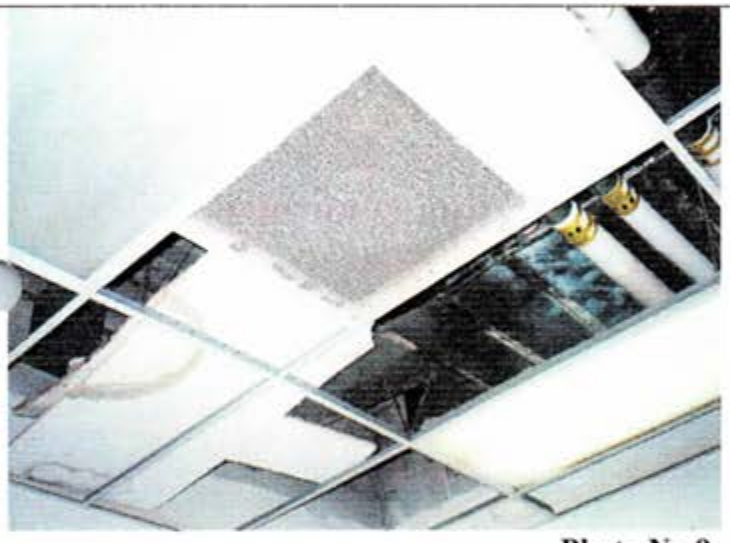

Photo No.9

Photo No.10

Photo No.11

Photo No.12

Photo No.13

Photo No.14

Photo No.15

Photo No.16

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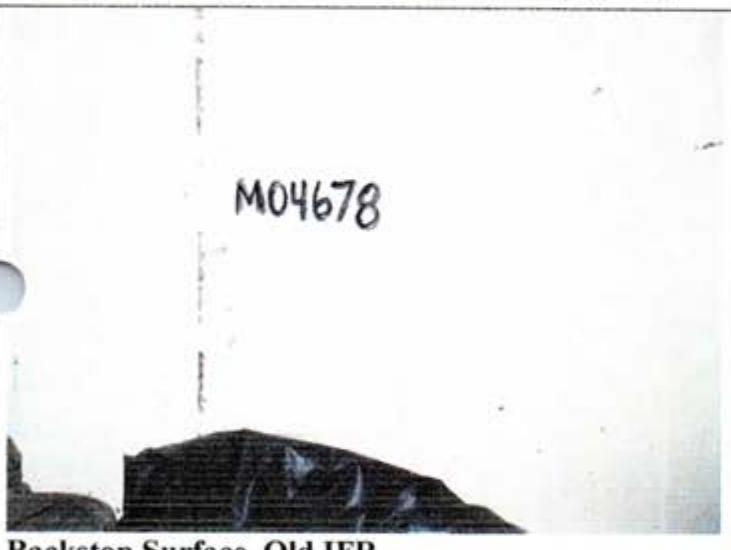
Enclosure 12

West End Floor, Old Indoor Firing Range (IFR)

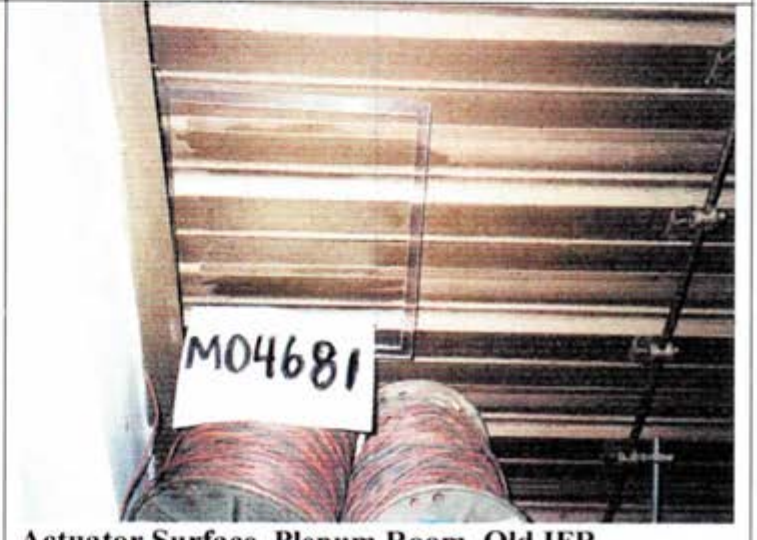
North End Floor, Old IFR



Backstop Surface, Old IFR

South End Middle Floor, Old IFR

North End Floor, Old IFR



Actuator Surface, Plenum Room, Old IFR

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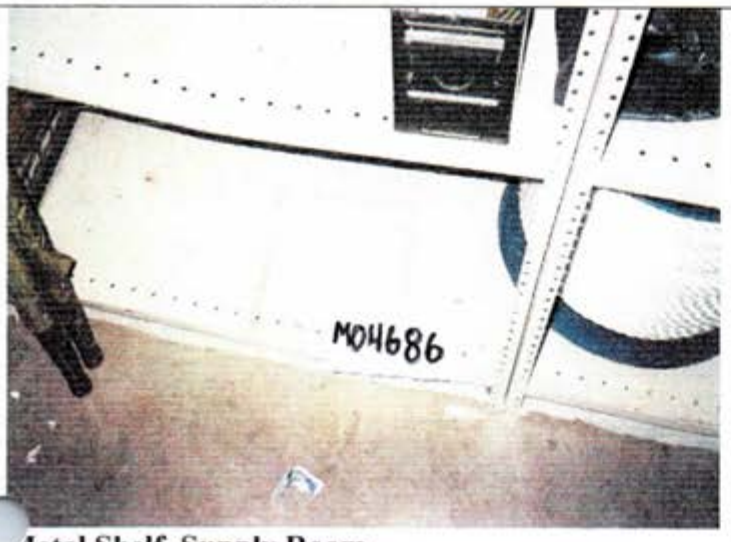
Support System Bag, Old IFR

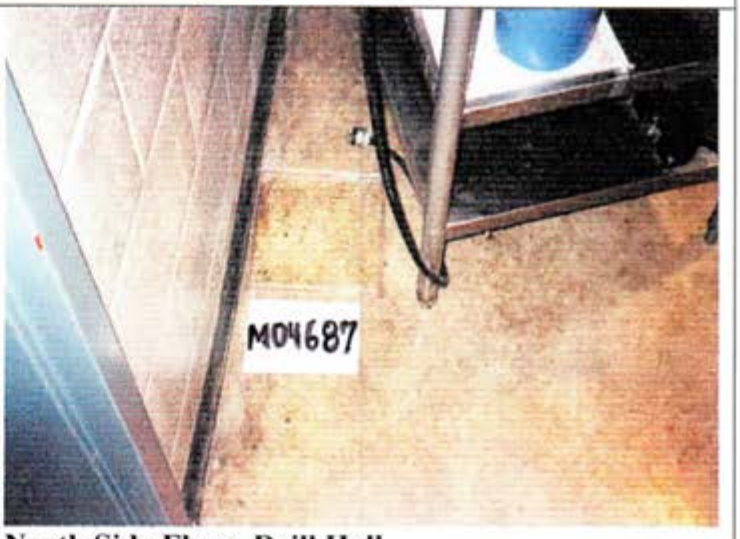
Vault Floor, Supply Room

Counter Shelf, Supply Room

Hallway Floor, Next to Old IFR



Metal Shelf, Supply Room



North Side Floor, Drill Hall

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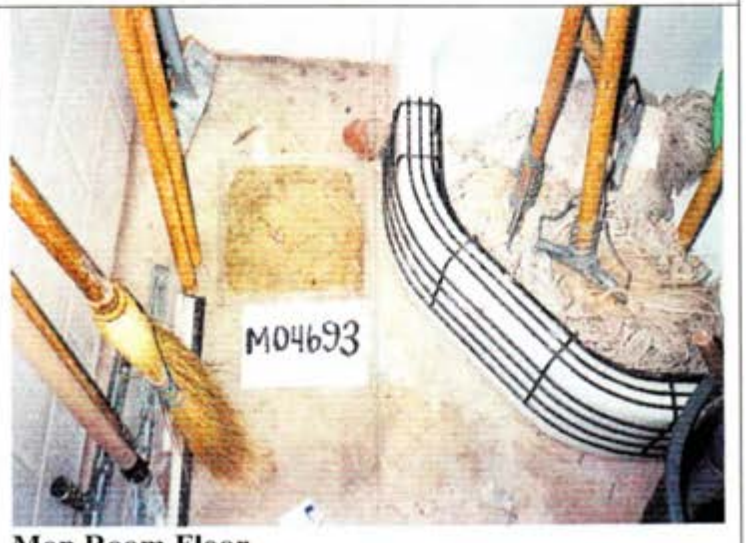
Fan Base Surface, Maintenance Room

Furnace Surface, Operations Room

Metal Shelf, Kitchen Storage Room

Wooden Shelf, Classroom

Locker Shelf, Locker Room



Mop Room Floor

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NATIONAL GUARD REGION SOUTH
INDUSTRIAL HYGIENE OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

NGB-ARS-IHSE (40-5f) 21 June 2010

MEMORANDUM FOR THE ADJUTANT GENERAL OF TENNESSEE, ATTN: [redacted] Non-Responsive DET HHT 1st 278th Armored Calvary Regiment (ACR), 1232 Peach Street, Selmer, Tennessee 38375.

THRU Non-Responsive Deputy State Surgeon, Tennessee National Guard, HQS, AGTN-DCSPER-DSS, P.O. Box 41502, Houston Barracks, Nashville, Tennessee 37204-1501.

SUBJECT: Industrial Hygiene Survey Selmer National Guard Armory, Selmer, TN.

1. References.

a. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1996 rev.

a. Title 29, Code of Federal Regulations (CFR), 2009 rev., part 1910, Occupational Safety and Health Standards.

b. Title 29 CFR, General Industry, revised 1996 rev. Part 1940

c. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 25 May 2007

d. AR 385-10, The Army Safety Program, 23 August 2007.

e. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.

f. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, 12 September 2008.

g. TB MED 503, The Army Industrial Hygiene Program, 30 October 2000.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2010 American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 26th rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

k. NG PAM 420-15, 03 November 2006, Facilities Engineering, Rehabilitation and Conversion of Indoor Firing Ranges.

SUBJECT: Industrial Hygiene Survey Selmer National Guard Armory, Selmer, TN.

1. Report Industrial Hygiene Survey, Safety Solutions, 2607 Treburne Lane, Hampton Cove, AL.

2. General.

a. At the request of Non-Responsive, of the Tennessee National Guard Occupational Health Office, an Industrial Hygiene Survey was put together to conduct a Health Hazard Information module (HHIM) Field survey of the s and industrial hygiene sampling of the Selmer National Guard Armory.

b. Non-Responsive f SE Safety Solutions, 2607 Treburne Lane, Hampton Cove, AL conducted the survey.

3. Findings. All Health Hazard information is on the survey findings of the report. (See enclosure 1). Operations of very short duration were not sampled due to the requirements of the sampling method. If the operation changes or if the length of the operation is increased, contact this office to schedule sampling if it is deemed needed then.

4. Recommendations. Understand that all findings found in the enclosed report have been reviewed by the Regional Industrial Hygienist and the following recommendations are the ones to be followed.

a. Use the guidance given in the enclosed report as good IH practices, requesting industrial hygiene (IH) services where needed. The recommendations that follow are based on the survey findings as reported:

i. Ensure to perform semi-annual inventories and updates of MSDS's on all chemicals in the facility. Establish an inventory roll up sheet to be kept in the binder. **(RAC 3)**

ii. Decontaminate the areas were the lead dust wipe results were high IAW NGB (AR) 385-15 Appendix C. **(RAC 2)**

iii. Continue the Decontamination of the IFR IAW NG PAM 420-15 prior to the remodeling of the Indoor Range. **(RAC 2)**

iv. Repair all water leaks and replace water damaged ceiling tiles where needed. **(RAC 3)**

b. The recommendations given in the comment section of the HHIM data sheets and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-10. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-11 IHIP.

c. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present survey, especially if this will help eliminate health hazards and reduce medical surveillance cost.

SUBJECT: Industrial Hygiene Survey Selmer National Guard Armory, Selmer, TN.

d. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance, also provided a corrective action plan to the OHN within 30 days of receipt of this report.

e. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

5. If additional information is needed about the industrial hygiene survey or air sample

Non-Responsive

[redacted]

CF: NGB-ARS-IHSE
Safety and Occupational Health Manager, Tennessee State Safety and Occupational Health Manager, 3041 Sidco Drive, Nashville, TN 37204-1504

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Industrial Hygiene Report
For
Tennessee Army National Guard
(TN ARNG)
At
Selmer Armory
1232 Peach Street
Selmer, Tennessee 38375

Prepared for:
National Guard Bureau
Regional Industrial Hygiene Office
Region South
510 Plaza Drive, Suite 1530
College Park, Georgia 30349
By:

Non-Responsive

[redacted]

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Table of Contents

Subject ..... Page 1

Background ..... Page 1
- Introduction
- Site Description
- Scope of Work
- POC

Instrumentation ..... Page 1

Findings
- DET HHT 1st 278 ACR ..... Page 1
- Lead Wipe Results ..... Page 2
- Area Deficiencies ..... Page 2
- Illumination Readings ..... Page 3

Recommendations: ..... Page 5

Enclosures:

1. Health Hazard Information Module (HHIM) Survey Form
2. Listing of hazardous chemicals/materials at the facility
3. Analytical Lead Wipe Results
4. Personnel Roster
5. Design Floor Plan
6. Lead Clean Up Procedures
7. References
8. Pictures: 1-24

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May 17, 2010

MEMORANDUM FOR: Tennessee Army National Guard, ATTN: Non-Responsive ET HHT 1st 278th Armored Calvary Regiment (ACR), 1232 Peach Street, Se[redacted]

SUBJECT: Industrial Hygiene Consultation and Health Hazard Information Module (HHIM) Survey, DET HHT 1st 278th ACR

1. REFERENCES: See Enclosure 7.

2. BACKGROUND: At the request of Non-Responsive National Guard Bureau Regional Industrial Hygienist, Atlanta, Georgia, an Industrial Hygiene Consultation and Health Hazard Information Module Field Survey were performed at the Tennessee National Guard Armory, 1232 Peach Street, Selmer, Tennessee 38375 on May 17, 2010. The POC was Non-Responsive [redacted] Unit is currently deployed. The primary mission of DET HHT 1st 278th ACR is Support the Squadron with Mortar Fire and Scouts. The purpose of the survey was to perform lead wipe samples; a ventilation survey, an Illuminations survey, and complete HHIM field survey forms on all industrial operations at the facility (see Encl 1 for completed HHIM Survey Form).

3. INSTRUMENTATION: The following survey instrumentation was provided by the contractor and was used to obtain lead wipe dust samples and illumination measurements. All other instrumentation was operated according to manufacturer recommendations.

   a) Reed LM-81LX, Light Meter, S/N: Q303521, calibrated: 12/15/2009
   b) Ghost Lead Dust Wipes, Manufactured: December 28, 2006, Expiration: 06/2010

4. FINDINGS:

   a) DET HHT 278th ACR Company and Supply:

      i) Administrative duties included pay, promotions, schools, family support, assignments, and supplies. The supply area was broken down into Class 2 items of clothing and equipment. The supply area was also responsible for maintaining some TA 50.

      ii) Eighty seven M-Day soldiers trained at the facility.

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SUBJECT: Industrial Hygiene Consultation and Health Hazard Information Module

b) General Area Armory Information:

i) Material Safety Data Sheets (MSDS) were located in the facility. All employees must be initially trained in the Federal Hazardous Communication Program IAW 1910.1200 (see Encl 2 for a listing of hazardous chemicals/materials at the facility).

ii) Fifteen lead dust wipe samples were taken, using a 12 inch by 12 inch template. One sample was above the federal standard of 40µg/ft². One bulk paint sample was taken and was below reporting limit. Pictures of the lead sample wipes were taken (see Encl. 8, photos M129 to M143). The analytical lead result sheet included the sampled locations and corrected results. The following table notes where the samples were taken, the surveyor's field number, and the lead results:

Location:	Surveyor's Field No:	Results:
Drill Hall Floor N.W. Side	M129	BRL
Drill Hall Floor N.E. Side	M130	BRL
Drill Hall Floor Center	M131	BRL
Drill Hall Floor S.W. Side	M132	BRL
Drill Hall Floor S.E. Side	M133	BRL
Kitchen Floor	M134	BRL
Coke Machine in the Drill Hall	M135	BRL
Armory Entrance Hallway	M136	BRL
Vault Floor	M137	79
Supply Room Floor	M138	BRL
Wall were Bullet trap was in IR	M139	BRL
Floor were Bullet trap was in IR	M140	BRL
Floor near rear wall of Range	M141	BRL
Rear Wall of old Range	M142	BRL
Left Wall of old Range	M143	BRL
Blank		
Bulk Paint Sample Taken	Class Room	BRL

Note 1: µg/ft² refers to micrograms or one millionth of a gram per sq ft.
Note 2: BRL means Not Detected at the Reporting Limit.

iii) Drill Hall: Conducting classes and drill formations is the main purpose in the hall. (See Encl. 8, photo 21). Illumination levels ranged from 11 to 32 FC's.

iv) Furnace/General Mechanical Ventilation: Good.

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
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Page 1949 of 2531

SESS
SUBJECT: Industrial Hygiene Consultation and Health Hazard Information Module

v) The following table identifies area deficiencies:

AREA	DEFICIENCIES
Class Room	Water leaks walls and ceilings
Old Range	Hole in wall cinder block
Library	Water Damage to wall & ceiling

vi) Due to the low noise levels (administrative areas) there was no requirement for a Hearing Conservation Program. The only requirement would be when the M-Day troops were firing their weapons. All M-Day and full-time soldiers had earplugs.

vii) A listing of the DET HHT 1st 278th ACR personnel is attached as Encl. 4.

viii) A design floor plan of the armory is attached as Encl. 5. Illumination levels are listed below in Paragraph 5.

5. ILLUMINATION SURVEY RESULTS:

a) Illumination Levels: The following additional illumination level readings were taken during the survey and are reported below in foot candles (FC's).

AREA/LOCATION	FOOT CANDLES (FC)
Front Entrance Hallway	30-46
Commander's Office	37-73
Admin Office	86-119
Kitchen	32-60
Locker Room	10-47
Female Latrine	18-26
Drill Hall	11-32
Vault	21-29
Class Room	48-73
Recruiting Office	55-71
Male Latrine	15-56
Library	50-94
Supply Room	18-26
Old Inactive Indoor Range Area	20-30
Training Aid Room	15-24
Mechanical Room	17-19

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1950 of 2531

SESS
SUBJECT: Industrial Hygiene Consultation and Health Hazard Information Module

As indicated in the IES Lighting Handbook, Application Volume 1987, Offices: 20-50 FC's, Supply and Publication Areas: 20-50 FC's, Assembly 20-50 FC's, Restrooms: 5-10 FC's, Classrooms: 50-100 FC's, Kitchen: 20-50 FC's, FC's, Library: 50-100 FC's, Storage Rooms: 10-20 FC's, Mail Room: 20-50 FC's.

6. TECHNICAL ASSISTANCE:

Non-Responsive

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1951 of 2531

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2/8/95 CHPMFRNT.XLS

HHIMS Industrial Hygiene Survey Form

Front page

ARLOC

Installation: [redacted]

Building

Room Number

Location: A A

Operation: A D O

Survey Date: 1 0 0 5 1 7 (month / day)

Evaluator: [redacted]

Macom: W G

Submacom: X X

Unit / Organization (45)

Supervisor: Mr. [redacted] Mo. [redacted] Rank [redacted]

RAC

Supervisor, or Point of Contact Telephone Number

DSN [redacted] Commercial [redacted]

Frequency (hrs/day): 0 0 8

No. CIVs

No. MIL

Contractors: 0 0

No. LOCs: 0 0

Lab Hoods: 0 0

Vapor Degreasers: 0 0

Spray Booths: 0 0

Open Surface Tanks: 0 0

Ventilation Units: 0 0

Controls Present (If >6, continue in comments)(25)	Evaluation (25 characters max)	Unit code	Controls Required (25 characters max)
OTH	11-32	F T C	20-50 FTC
OTH	15-24	F T C	20-50 FTC

Gloves	e*	R	U
acid			
cold surfaces			
hot surfaces			
NBC agents			
oil			
solvents			
surgical gloves			
leather / cotton			
other			

Respirator	e*	R	U
airline			
abrasive blasting hood			
disposable			
full face air purifying			
1/2 face air purifying			
powered air purifying			
1/4 face air purifying			
self-contained			
other			

Manufacturer's Description (10 characters max)

NIOSH TC # or Foreign equivalent (10 characters max)

Eyes and Face	e*	R	U
chemical splash			
full face shield			
chem/safety impact			
safety impact			
welding helmet			
sunglasses			
welding goggles/glasses			
laser eye protection			
other			

Hearing	e*	R	U
canal caps			
(>85-108 dBA steady) earplugs			
" helmets w/ muffs			
" muffs alone			
(108-118) muff/earplug comb			
muffs and earplugs			
(118 or >) with time limit			
other			
other			

Body	e*	R	U
aprons			
cold weather clothing			
coveralls			
full body suit			
heat reflective			
vest/suit			
safety belt/harness			
special purp. clothing			
other			

Head and Feet	e*	R	U
cold weather boots/hot			
hard hats			
impermeable boots			
safety shoes (conductive)			
safety (nonconductive)			
other			
other			
other			
other			

e* = evaluator's recommendation or agreement

Reminders: ergonomics - dermatitis - physical agents - flammable storage
EYE (permanent) ____ - EYE (portable) ____ - SHW - GMV - LSV

ACC AOM OSA DSN LAS LCK
RAD SCB EPL RHS SPR WEL

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May, 2018

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HHMS Industrial Hygiene Survey Form

Back page

CAS code

PONOISECO
POFOOTHAZ
POFLYPROJ
POXYEHAZA
POFLAMHAZ
POLIFTING
POSHARPOB
PONOTOBJE
POELSHOCK
COLLISEOIL

PAC | EPC

Hazard Description

Social Security Number or Unique Identifier

Last Name (20 characters max)

First Name (20 characters max)

MI | Sex | Category

Personnel data provided by the facility is attached to this form.

Insert Privacy Act Statement

Comments

Operation described is UNIT IS CURRENTLY DEPLOYED. WHEN IN FULL OPERATION DAY TO DAY FUNCTION ARE PERSONNEL ADMIN & TRAINING. SUPPORTING THE SOLDIER PAY, PROMOTION & ENLISTMENTS

This operation was explained to the subjects, but was not actually observed.

There is a noise data sheet attached to this form

There is a ventilation data sheet attached to this form

(comments continued on attached)

2/8/95 CHPMBACK.XLS

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1953 of 2531

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Appendix A

WORKPLACE CHEMICAL LIST

EMPLOYER NAME:

FEDERAL EMPLOYER'S IDENTIFICATION NUMBER

ADDRESS:

PRIMARY SIC CODE *

SECONDARY SIC CODE OPTIONAL

TERTIARY SIC CODE OPTIONAL

NUMBER EMPLOYEES

WORKPLACE LOCATION (Not P.O. Box), IDENTIFICATION (If any), AND COUNTY:

ARMORY

1232 Peach St.

Selmer, TN 38375

(COUNTY): McNairy

DESCRIPTION OF PROCESS OR OPERATION:

CHEMICAL/SUBSTANCE NAME	CHEMICAL ABSTRACTS SERVICES (CAS) NO.	COMMON OR TRADE NAME(S) (LABEL IDENTITY)	WORK AREA WHERE CHEMICAL IS NORMALLY USED OR STORED
PAINT,POLYURETHANE,BLK	01-141-2419	PAINT	Flame.Store. Cabinet, Sup. Rm.
PAINT, 383 GREEN	01-160-6741	PAINT	Flame. Store. Cabinet, Sup. Rm.
PAINT, BROWN	01-160-6744	PAINT	Flame. Store. Cabinet, Sup. Rm.
PAINT, SPRAY		SPRAY PAINT	Flame. Store. Cabinet, Sup. Rm.
PAINT, PRIMER		PRIMER	Flame. Store. Cabinet, Sup. Rm.
PAINT, SPRAY ENAMEL		ENAMEL SPRA. PAI.	Flame. Store. Cabinet, Sup. Rm.
PAINT, MARKING			Flame. Store. Cabinet, Sup. Rm.
PAINT, ENAMEL, BROWN	00-598-5460		Flame. Store. Cabinet, Sup. Rm.
PAINT, ENAMEL, O.D.	00-598-5458		Flame. Store. Cabinet, Sup. Rm.
PAINT, ENAMEL, BLACK	00-297-0547		Flame. Store. Cabinet, Sup. Rm.
PAINT, GREEN			Flame. Store. Cabinet, Sup. Rm.
PAINT, BROWN	00-598-5460		Flame. Store. Cabinet, Sup. Rm.
PAINT, ACRYLIC			Flame. Store. Cabinet, Sup. Rm.
ADHESIVE, TENT PATCH	00-264-3848		Flame. Store. Cabinet, Sup. Rm.

* May be obtained by calling (615) 741-6384.

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Released by National Guard Bureau
Page 1954 of 2531

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Appendix A

WORKPLACE CHEMICAL LIST

EMPLOYER NAME:

ADDRESS:

FEDERAL EMPLOYER'S IDENTIFICATION NUMBER

WORKPLACE LOCATION (Not P.O. Box), IDENTIFICATION (If any), AND COUNTY:

ARMORY
1232 Peach St.
Selmer, TN 38375
(COUNTY): McNairy

PRIMARY SIC CODE
SECONDARY SIC CODE OPTIONAL
TERTIARY SIC CODE OPTIONAL
NUMBER EMPLOYEES

DESCRIPTION OF PROCESS OR OPERATION:

CHEMICAL/SUBSTANCE NAME	CHEMICAL ABSTRACTS SERVICES (CAS) NO.	COMMON OR TRADE NAME(S) (LABEL IDENTITY)	WORK AREA WHERE CHEMICAL IS NORMALLY USED OR STORED
ENGINE OIL		HDO	Flammable Storage Room
CARBON REMOVAL COUMPOUND	00-965-2332	CARBON REMOVAL	Flammable Storage Room
CLEANING COMPOUND SOLV.	00-224-6663		Flammable Storage Room
PRESERVATIVE		CLP-BREAK FREE	Flammable Storage Room
LUBE OIL, GEN. PURPOSE	VV-L-800c	LUBE OIL	Flammable Storage Room
GEAR OIL		80W90	Flammable Storage Room
INHIBITOR, LIQ. COOL SY	01-160-3868	ANTI-FREEZE	Flammable Storage Room
GREASE, ELECT. MOTOR	00-257-5358		Flammable Storage Room
PENETRATING OIL			Flammable Storage Room
ENGINE OIL, 2 STROKE			Flammable Storage Room
DEXRON II, HYDRAULIC FL	00-689-2382	DEXRON II	Flammable Storage Room
DEXRON III, HYDRAU. FL.	01-353-4799	DEXRON III	Flammable Storage Room
N-AMYL ACETATE	00-123-7047		Flammable Storage Room
HYDRAULIC FL., TRACTOR			Flammable Storage Room
LUBE OIL			Flammable Storage Room

* May be obtained by calling (615) 741-6384.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1955 of 2531

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Analytical Environmental Services, Inc

Date: 27-May-10

Lab Order: 1005H72
Client: SES
Project: Selmer, TN Armory
Matrix: Wipe
Date Received: 5/21/2010 2:10:00 PM

LEAD ON WIPES (N9100/7082)

N7082

Laboratory ID	Client Sample ID	Result	Units	Reporting Limit	DF	Qual	Date Collected	Date Analyzed	Analyst
1005H72-001A	M129	BRL	ug, Total	20	1		05/17/2010	05/26/2010	MW
1005H72-002A	M130	BRL	ug, Total	20	1		05/17/2010	05/26/2010	MW
1005H72-003A	M131	BRL	ug, Total	20	1		05/17/2010	05/26/2010	MW
1005H72-004A	M132	BRL	ug, Total	20	1		05/17/2010	05/26/2010	MW
1005H72-005A	M133	BRL	ug, Total	20	1		05/17/2010	05/26/2010	MW
1005H72-006A	M134	BRL	ug, Total	20	1		05/17/2010	05/26/2010	MW
1005H72-007A	M135	BRL	ug, Total	20	1		05/17/2010	05/26/2010	MW
1005H72-008A	M136	BRL	ug, Total	20	1		05/17/2010	05/26/2010	MW
1005H72-009A	M137	79	ug, Total	20	1		05/17/2010	05/26/2010	MW
1005H72-010A	M138	BRL	ug, Total	20	1		05/17/2010	05/26/2010	MW
1005H72-011A	M139	BRL	ug, Total	20	1		05/17/2010	05/26/2010	MW
1005H72-012A	M140	BRL	ug, Total	20	1		05/17/2010	05/26/2010	MW
1005H72-013A	M141	BRL	ug, Total	20	1		05/17/2010	05/26/2010	MW
1005H72-014A	M142	BRL	ug, Total	20	1		05/17/2010	05/26/2010	MW
1005H72-015A	M143	BRL	ug, Total	20	1		05/17/2010	05/26/2010	MW
1005H72-016A	BLANK	BRL	ug, Total	20	1		05/17/2010	05/26/2010	MW

Qualifiers: BRL - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
DF - Dilution Factor

Results are blank corrected where applicable

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1956 of 2531

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Analytical Environmental Services, Inc

Date: 24-May-10

Lab Order:	1005I35
Client:	SES
Project:	Selmer, TN Armory
Matrix:	Paint
Date Received:	5/21/2010 2:10:00 PM

TOTAL LEAD IN PAINT (N7082)

PAINT

Laboratory ID	Client Sample ID	Result	Units	Reporting Limit	DF	Qual	Date Collected	Date Analyzed	Analyst
1005135-001A	SAMPLE FRM CLASSROOM	BRL	wt%	0.00949	1		05/17/2010	05/24/2010	TA

Qualifiers: BRL - Not Detected at the Reporting Limit; B - Analyte detected in the associated Method Blank; DF - Dilution Factor

Results are Blank corrected where applicable

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Selmer, TN, Armory

SUBJECT: Personnel Roster

NAME	RANK	POSITION
Non-Responsive		

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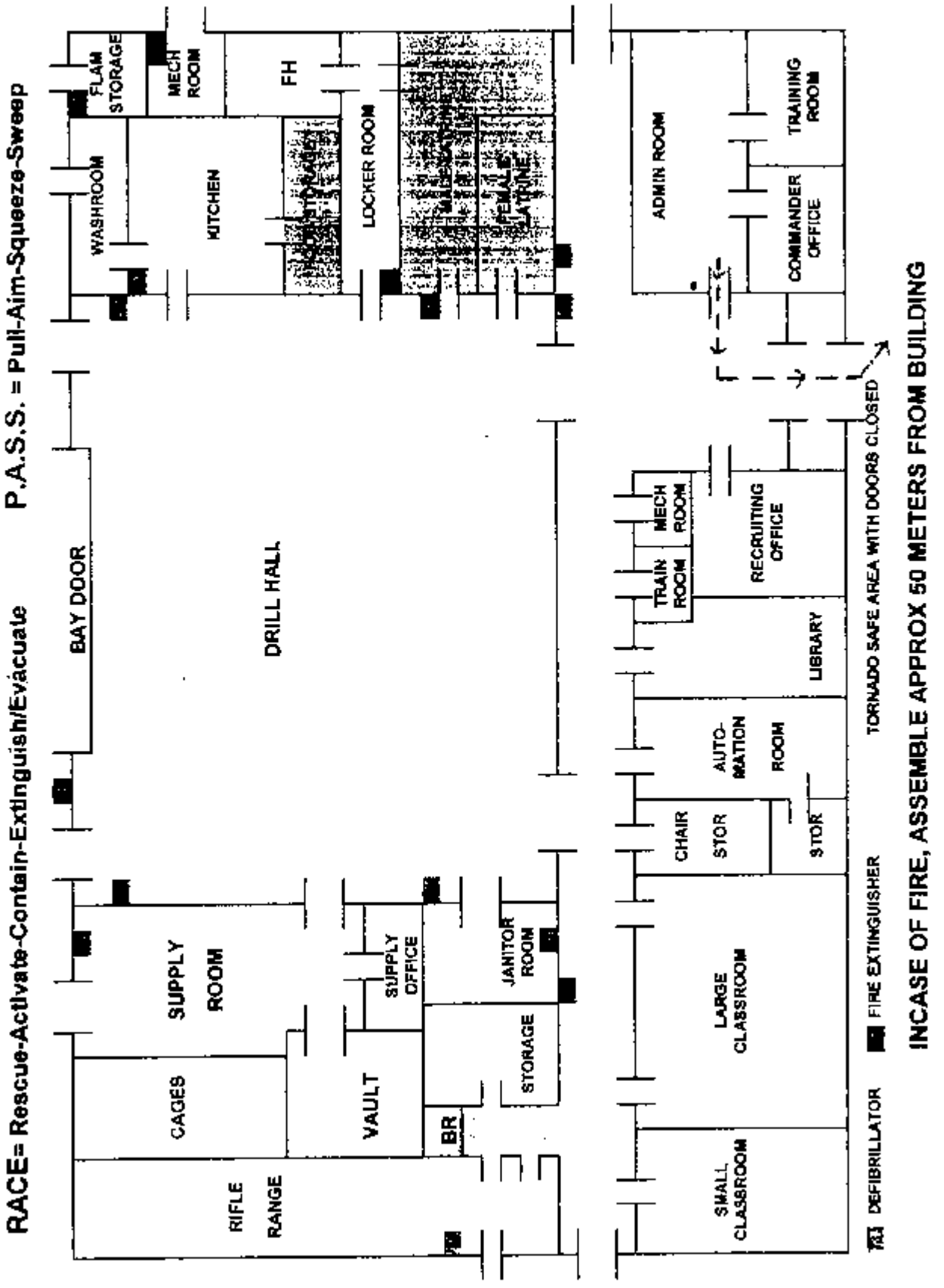
RACE= Rescue-Activate-Contain-Extinguish/Evacuate
P.A.S.S. = Pull-Aim-Squeeze-Sweep
FLAM STORAGE
MECH ROOM
FH
WASHROOM
KITCHEN
LOCKER ROOM
FEMALE LATRINE
ADMIN ROOM
TRAINING ROOM
COMMANDER OFFICE
BAY DOOR
DRILL HALL
MECH ROOM
TRAIN ROOM
RECRUITING OFFICE
LIBRARY
AUTO-MATION ROOM
CHAIR STOR
STOR
SUPPLY ROOM
SUPPLY OFFICE
JANITOR ROOM
STORAGE
LARGE CLASSROOM
CAGES
VAULT
BR
RIFLE RANGE
SMALL CLASSROOM
TORNADO SAFE AREA WITH DOORS CLOSED
FIRE EXTINGUISHER
DEFIBRILLATOR
INCASE OF FIRE, ASSEMBLE APPROX 50 METERS FROM BUILDING

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ENCLOSURE 6

ARMORY CLEANUP REQUIREMENTS

High Test Results

If the public utilizes your facility and the test results for lead came back above 40 $\mu g/ft^2$ you are responsible for cleaning this area and adjoining areas to meet the 40 $\mu g/ft^2$ or less, unless:

1. You can guarantee that no children under the age of 7 will come into your facility.

2. Your state public health has other guidance, for example, signage is required to warn personnel who are pregnant or of child bearing age, or under the age of 7 years old.

3. Signs stating "No smoking, drinking, eating, or applications of cosmetics without washing of hands prior to activity" are properly installed in your facility.

1. Cleaning of Building.

Before proceeding into the cleanup mode, first discuss with your Environmental Office what procedures are recommended and then coordinate your cleanup efforts with local agencies, if warranted.

a. The building, as well as the dusty materials and equipment in it, should be cleaned one time to reach the lead dust levels that are appropriate for the function of the facility, for example, facilities used by full-time personnel only, utilized by adults or children 7 years old or older children only, or not utilized by pregnant individuals and/or children under the age of 7. **NOTE:** This type of cleaning implies that this is not at a facility that has an active Indoor Firing Range. For facilities with active ranges, these facilities should be monitored with wipe samples taken over the drill floor area by the Range Custodian quarterly, to ascertain that the level of lead is at the required level for your particular facility and situation.

   1. This cleanup can be accomplished using a HEPA vacuum (a very tedious and time-consuming operation) and then by utilizing a wet method with "Spic n Span" or something equivalent to this detergent – using wet rags to wipe down surfaces and mops soaked in this solution to do the entire floor area. **NOTE: Personal protective gloves, rubber boots, or protective disposable shoe/boot covers should be used during this procedure and personnel who have performed the cleanup should wash their clothing separately from their family's clothing.**

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1960 of 2531

BEST AVAILABLE COPY

ENCLOSURE 6

especially if they have young children at home. Personnel should wash their hands after performing this operation to assure that lead contaminates are not ingested.

2. Frequent changing out of the water used for cleaning is vital. Disposal of this hazardous waste water and rags/mop heads, Personal Protective Equipment (PPE), etc., should be coordinated with your Environmental Office.

b. Clean all ductwork where lead was found. EPA has a protocol specifically for replacing or cleaning lead in dust form in HVAC systems. EPA Office of Pollution Prevention and Toxics, "*Renovate Right – Important Lead Hazard Information for Families, Child Care Providers and Schools*". http://www.epa.gov/lead/pubs/rrpamph.pdf .

c. Continue to enforce good housekeeping and hygiene practices. These measures make good sense to minimize exposures to any toxic chemicals in the workplace.

d. Provide lead awareness training to the general workforce and any occupants of your facility.

***NOTE:* Before you start any new procedures or practices be aware of the local city and state regulations in your area.**

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1961 of 2531

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ENCLOSURE 6

ARMORY

CLEANUP & FOLLOW-UP HOUSEKEEPING RECOMMENDATIONS

Materials Needed:

1. Cloth Mop head(s) & Mop head holder(s) with handle.
2. Mop bucket(s) with wringer.
3. Clean cotton rags and sponges.
4. Disposable gloves.
5. Large barrel (55 gallon) to store wastewater in after changing out of dirty scrub water.
6. Disposable overshoes or rubber boots. Personnel conducting cleaning operations should not take clothes, boots, etc. home for laundering.
7. HEPA vacuum
8. Six (6) mill plastic bags to dispose of waste.
9. Wastewater containers.

Disposal of Waste Water and Cleaning Materials:

1. ***NOTE:*** Consult with the Local Army National Guard Environmental Office prior to taking any collection, disposal, or commencement of wiping activities. Each state and territory may have additional regulatory guidance regarding the collection, storage, and disposal of wastewater.

2. Mop heads should be disposed of after initial cleaning, unless otherwise advised by Environmental Office personnel. ***NOTE:*** **Thorough cleaning of mop heads may be sufficient enough to permit subsequent reuse on future Armory cleanups, but check with the local Environmental Office before reuse.**

3. Disposable gloves should be treated as hazardous waste material.

4. Soiled cotton rags should be treated as hazardous waste material.

5. Wash water contaminated with lead may be collected and allowed to slowly evaporate leaving lead deposits/sludge that may be collected in plastic containers, placed in metal drums, and stored for future delivery to an authorized hazardous waste disposal site.

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1962 of 2531

ENCLOSURE 6

a. Drums shall be properly labeled to identify contents in accordance with (IAW) Federal, state, and local regulatory guidance.

b. Disposal of containerized waste shall be coordinated IAW state hazardous waste program requirements.

c. The Environmental Office shall coordinate removal and disposal of all containerized hazardous waste through established waste streams.

Post-Cleanup Precautionary Measures:

1. Thoroughly wash hands with soap and water.

2. Rinse off rubber boots with soap and water, capturing wastewater for collection into the established waste stream. If personnel have chosen to use overshoes for protection, dispose of the used overshoes into the established waste stream. *NOTE*: **This recommendation is for initial cleanup activities; PPE requirements may be reduced after it has been determined that non-hazardous levels of lead have been achieved.**

3. Wash BDU's or personal clothing separately from children's clothes.

IMPORTANT NOTES:

1. **No eating, drinking or application of cosmetics is allowed during cleanup procedures (these may be allowed after washing of hands/face and done outside of cleanup area).**

2. **Avoid blowing, shaking or like actions which could potentially disperse lead dust. Dry sweeping, dusting, wiping, or blowing with compressed air shall not be permitted.**

Initial Armory Cleanup:

1. Use a vacuum cleaner equipped with a HEPA exhaust filter. HEPA vacuum all surfaces in room (ceiling, wall trim, and floors). Start with the ceiling and work down, moving toward the entry door. **Completely clean each room before moving on.**

2. Prepare water and detergent for the wipe down phase, according to manufacturer's recommendations.

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1963 of 2531

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ENCLOSURE 6

3. Wet wipe, with cotton rags or sponge, any horizontal, diagonal or vertical surfaces up six (6) feet from floor surfaces using hot water and "Spic-n-Span" or an equivalent product.

***NOTE*: If walls to be cleaned show signs of deterioration, for example, chipping or crumbling paint in which wiping, scrubbing, or disrupting might potentially increase or spread contamination, then this portion of the cleanup should be avoided.**

4. Now prepare water and detergent (for example, Spic n Span, Mr. Clean, Pine Sol) for the mopping phase, according to manufacturer's recommendations, which should be found on the product's label for general clean up.

    a. Change out water and detergent frequently (when water appears dirty)

    b. Rinse out mop heads frequently to prevent contamination of dirty water.

5. Cover entire drill floor surface with above prescribed water and detergent.

6. Final rinse should be with clean water only – after mop heads have been cleaned.

Recommended Follow-up Housekeeping Practices ***after Clearance sampling of cleaned area is performed by certified personnel:***

1. Floor cleaning and dusting should be accomplished using the wet cleaning described in Initial Armory Cleanup SOP.

NOTE: The only exception to these wet cleaning procedures is the use of an approved chemically treated dust floor mop. This can be used for follow-up armory cleaning by sweeping of large particles of dirt and paper.

    a. Use of a pre-treated (chemically treated) dust floor mop will prevent lead dust particles from being disbursed into the surrounding atmosphere.

    b. If a pre-treated dust mop is used – Do Not Shake Mop Head – have mop head laundered after use. **Always keep used dust mop heads in sealed double plastic bags when stored at an armory or facility.** Shaking of a pre-treated mop head may release unwanted contaminants into surrounding atmosphere.

2. Frequency of Cleanup – Armories will vary, according to usage and how often they should be cleaned. The following cleaning schedule is provided:

    a. Only full-time technicians and traditional soldiers using facility during the month. (Cleaned Monthly.)

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1964 of 2531

BEST AVAILABLE COPY

ENCLOSURE 6

b. Occasional activities taking place during the month, for example, 1-2 classes or volleyball games, etc. (Cleaned Twice Monthly.)

c. Used regularly by soldiers or outside agencies/personnel. (Cleaned Regularly – at least Weekly)

IMPORTANT NOTES:

1. **Armories with adjoining Indoor Firing Ranges (IFR) should be cleaned more than weekly, again depending on the use of the Armory and IFR.**

2. **Clearance sampling/testing is to be accomplished by certified IH personnel after these cleanup procedures are followed. If the area is an average Armory, occupied by adults only, for whom you are cleaning and is not a converted IFR space, you may continue to utilize the Armory space before officials re-test this space. Please notify your Safety and/or Occupational Health personnel of the completion of this cleaning regime and they will notify the proper officials of the sampling/testing requirements needed.**

3. **If lead cleanup work was contracted out, a third party should do the clearance sampling.**

4. **If young children and pregnant females are, or may be present, signs shall be posted on all facilities, warning of the potential danger of exposure to lead dust.**

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1965 of 2531

BEST AVAILABLE COPY

References

Army Regulation (AR) 11-34, The Army Respiratory Protection Program.

Army Regulation (AR) 40-5, Preventative Medicine.

Army Regulation (AR) 385-10, The Army Safety Program.

NGR 385-10, Army National Guard Safety and Occupational Health Program.

TB MED 503, The Army Industrial Hygiene Program.

Title 29, Code of Federal Regulations (CFR), 1999, revision, Part 1910, Occupational Safety and Health Standards.

TG 022, US Army Environmental Hygiene Agency (YSAEHA), Industrial Hygiene Evaluation Guide.

TG 141, US Army for Health Promotion and Preventative Medicine (USACHPPM) Industrial Hygiene Air Sampling Guide.

IES Lighting Handbook

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Photo No. 1

Photo No. 2

Photo No.3

Photo No.4

Photo No.5

Photo No.6

ENCLOSURE 8
Page 1 of 5

Photo No.7

Photo No.8

Photo No.9

Photo No.10

Photo No.11

Photo No.12

ENCLOSURE 8
Page 2 of 5

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Photo No.13

Photo No.14

Photo No.15

Photo No.16

ENCLOSURE 8
Page 3 of 5

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1969 of 2531

BEST AVAILABLE COPY

Photo No.17

Photo No.18

Photo No.19

Photo No. 20

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1970 of 2531

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Photo No.21

Photo No.22

Photo No.23

Photo No. 24

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1971 of 2531

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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-AVN-SI February 7, 2005

MEMORANDUM FOR: The Adjutant General of Tennessee, ATTN: [redacted] Non-Responsive State Occupational Health Office, 3041 Sidco Dr, P O Box 41502, Nashville, TN 37204-1502.

SUBJECT: Transmittal of Survey Reports for the ARNG Lawrenceburg Armory, the Hohenwald Armory, the Waynesboro Armory, the Savannah Armory, and the Selmer Armory in TN.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, 30 August 1986, Medical Service, Preventive Medicine.

c. National Guard Regulation (NGR) 385-10, 1988, Army National Guard Safety and Occupational Health Program.

d. AR 11-34, The Army Respiratory Protection Program, 15 February 1990.

e. TB MED 502, Occupational and Environmental Health Respiratory Protection Program, February 1982.

f. DA PAM 40-503, 30 October 2000, The Army Industrial Hygiene Program.

g. DA PAM 40-501, 10 December 1998, Hearing Conservation.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2001, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

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j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

k. Title 29, Code of Federal Regulations (CFR), 2000 rev., part 1910, Occupational Safety and Health Standards.

l. Reports dated 27-30 November, and 7 December-26 January 2004, Industrial Hygiene Technician, 1503 Zaiger Drive,Colorado Springs, CO 80915

2. General.

a. At the request of the TNARNG Safety and Occupational Health Office, an Industrial Hygiene Service was put together to conduct Health Hazard Information module (HHIM) Field surveys and industrial hygiene sampling of the ARNG Lawrenceburg Armory, the Hohenwald Armory, the Waynesboro Armory, the Savannah Armory, and the Selmer Armory in TN.

b. Non-Responsive ndustrial Hygiene Technician, 1503 Zaiger Drive,Colorado Springs, CO 80915 conducted the surveys.

3. Findings. All HHIM field survey forms and survey findings of the reports. (See enclosure 1)

4. Recommendations.

a. Follow all recommendations made in reference 1.l., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Control water infiltration in the armory and/or replace or repair damaged surfaces or components (ceiling and floor tiles). Building conditions that present IAQ concerns or problems not only exacerbates normally minor health issues but also tend to promote or accelerate building deterioration.

c. The recommendations given in the comment section of the HHIM data sheets and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-05. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-06 IHIP.

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d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present survey, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

f. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

5. If additional information is needed about the industrial hygiene survey or air sample

Non-Responsive

CF:
NBG-AVN-SH

Encl
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Industrial Hygiene Report
For
Tennessee Army National Guard
Det 1, Battery C (-), 2-115th FA
1232 Peach Street
Selmer, TN 38375

Prepared for:
Department of the Army and Air Force
National Guard Bureau Regional
Industrial Hygiene Office
510 Plaza Drive
Suite 1530
College Park, GA 30349

Non-Responsive

DBA [redacted]

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 1975 of 2531

BEST AVAILABLE COPY

Table of Contents

Subject ..... Page 1

Background ..... Page 1
- Introduction
- Site Description
- Scope of Work
- POC

Instrumentation ..... Page 1

Findings
- MSDS..... Page 1
- Lead Wipe Results ..... Page 2
- Drill Hall ..... Page 2
- Indoor Firing Range ..... Page 2
- Kitchen ..... Page 2
- Area Deficiencies ..... Page 3

ILLUMINATION SURVEY RESULTS
- Illumination ..... Page 4

Recommendations
- MSDS's ..... See Enclosure 10
- Lead Cleanup Procedures ..... See Enclosure 10
- Area Lighting ..... See Enclosure 10
- Fire Extinguishers ..... See Enclosure 10
- Restrooms ..... See Enclosure 10

Enclosures
1. Health Hazard Information Module (HHIM) Survey Form
2. Listing of Hazardous Chemicals/Materials
3. Analytical Lead & Asbestos Results/Submission Forms
4. Personnel Roster
5. Armory Building Floor Plan
6. Hazard Communication Sample Written Program
7. Hazardous Material Inventory List
8. Lead Cleanup Procedures
9. References
10. Recommendations
11. Pictures: 1-5
12. Pictures: Lead Wipe Samples: M04697-M04714 & M04717; Asbestos Sample: M04716

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December 8, 2004

MEMORANDUM FOR: Tennessee Army National Guard, Attn: Non-Responsive dministration Officer, 759 East Main Street, Henderson, Tennessee 38340

SUBJECT: Industrial Hygiene Consultation and Health Hazard Information Module (HHIM) Survey, Selmer Army National Guard, Selmer, Tennessee

1. BACKGROUND: At the request of Non-Responsive National Guard Bureau Regional Industrial Hygienist, an Industrial Hygiene Consultation and Health Hazard Information Module Field Survey were performed at the Savannah Army National Guard Armory, Savannah, Tennessee on November 22, 2004. The POC was Non-Responsive His address was 2-115 FA BN, 759 East Main Street, Henderson, Tennessee 38340. The armory was built in 1993. The purpose of the survey was to perform lead wipe samples; a noise survey, a ventilation survey, an Illuminations survey, and complete HHIM field survey forms on all industrial operations at the facility (See encl.1 for completed HHIM Survey Form).

2. INSTRUMENTATION: The following survey instrumentation was provided by the contractor and was used to obtain lead wipe dust samples and illumination measurements. All other instrumentation was operated according to manufacture recommendations.

a) Sper Scientific 840021, Light Meter, S/N: 02997, calibrated: 1-15-04
b) Ghost Lead Dust Wipes, Manufactured: December 1, 2003, Expiration: 06/06
c) TSI Velocicalc 8346, S/N: 00040107, calibrated: 01-12-04
d) Quest Model 2700, Sound Level Meter, S/N: HUC030020, calibrated: 4/28/04
e) Quest QC-10/QC-20, Acoustic Calibrator, S/N: Q10080144, calibrated: 6/16/04
f) Circuit Tester

3. Findings:

a) Detachment 1, Battery C, 2nd Battalion, 115th Field Artillery:

i) Fifty-five M-Day soldiers were deployed. The unit maintained155mm howitzers, which were towed by 5 ton vehicles. Presently, many soldiers were utilized in military police and security positions.

ii) The administration office in Henderson was responsible to the battery in the area of readiness and personnel support such as pay, assignments, training, promotions, family support, equipment, and schools.

iii) Material Safety Data Sheets (MSDS) were readily available on all chemicals and hazardous materials at the armory. There was a chemical list at the front of the MSDS binder. An update HAZCOM SOP was included in the report. All employees must be initially trained in the Federal Hazardous Communication Program IAW 1910.1200 (see encl 2 for a listing of hazardous chemicals/materials at the facility).

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iv) Nineteen lead dust wipe samples were taken, using a 10 inch by 10 inch template. Fourteen samples were above the federal standard of 40µg/ft². Nine samples were above the Army National Guard standard of 200µg/ft². Pictures of the lead sample wipes were taken (see encl 12, photo's M04697 to M04714 & M04717). The analytical lead result sheet included the sampled locations and the results. Also, the sample submission sheets were enclosed in the report (See enclosure 3). The following table notes where the samples were taken, the surveyor's field number, and the lead results:

Location:	Surveyor's Field No:	Results:
Fan Base Surface, Classroom No.2	M04697	61 µg/ft²
Chair Storage Room Floor	M04698	20 µg/ft²
Rifle Storage Room Shelf	M04699	68 µg/ft²
East End Floor, Near Backstop, Old IFR	M04700	3900 µg/ft²
North End Floor, Old IFR	M04701	4200 µg/ft²
Firing Line Floor, Old IFR	M04702	1100 µg/ft²
Plenum Frame Bottom Ledge, Old IFR	M04703	3200 µg/ft²
Collapsible Support Shelf, Old IFR	M04704	6200 µg/ft²
Floor, Classroom No.1	M04705	81 µg/ft²
Wooden Shelf, Library	M04706	29 µg/ft²
Floor, Mechanical Room No.1	M04707	75 µg/ft²
Actuator Surface, Drill Hall	M04708	290 µg/ft²
Elevated Stage Carpet, Drill Hall	M04709	29 µg/ft²
West End Floor, Drill Hall	M04710	240 µg/ft²
Metal Shelf, Kitchen Storage Room	M04711	<14 µg/ft²
Vault Floor, Supply Room	M04712	200 µg/ft²
Metal Shelf, Supply Area	M04713	170 µg/ft²
Metal Shelf, Administrative Area	M04714	17 µg/ft²
Locker Shelf	M04717	360 µg/ft²

Note 1: IFR refers to Indoor Firing Range
Note 2: µg/ft² refers to micrograms or one millionth of a gram per square foot
BDL: Below Detection Level

v) Drill Hall: Conducting drill and ceremonies in the large hall was its main purpose (see encl 11, photo 1). Two halogen ceiling lamp were burned out. A badly rusted flammable storage cabinet was outside next to the drill hall (see encl 2, photo 2). Illumination levels ranged from 9 to 18 FC's.

vi) Administration Office: Four fluorescent tubes were burned out. Illumination levels ranged from 6 to 54 FC's.

vii) Old Indoor Firing Range: Four fluorescent tubes were burned out (see encl 11, photo 3). Illumination levels ranged from 5 to 83 FC's.

viii) Supply Room: The supply area or equipment storage room could hold TA-50, tents, support systems; M16A2's, M40 masks and basic class 7 and 8 items (see encl 11, photo 4). Two fluorescent ceiling tubes were burned out. A flammable storage cabinet was in the area. Illumination levels ranged from 12 to 17 FC's.

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ix) Supply Office: Two fluorescent tubes were burned out. Illumination levels ranged from 23 to 25 FC's.

x) Janitor's Room: One fluorescent ceiling tube was burned out. Illumination levels ranged from 3-15 FC's.

xi) Men's Restroom: Two fluorescent tubes and two shower ceiling bulbs were burned out. Illumination levels ranged from 1 to 53 FC's.

xii) Women's Restroom: One shower bulb was burned out. Illumination levels ranged from 1.5 to 32 FC's.

xiii) Kitchen: The outside grease trap was located on the dock (see encl 11, photo 5). Eight fluorescent tubes were out in the main area and six fluorescent tubes were out in the food storage area. There were no bulbs over the stove. Illumination levels ranged from 2 to 70 FC's.

xiv) Hallway: Two fluorescent tubes were burned out. Illumination levels ranged from 6 to 61 FC's.

xv) Classroom No.1: One ceiling lamp was burned out. Illumination levels ranged from 42 to 63 FC's.

xvi) Classroom No.2: One ceiling lamp was burned out. Illumination levels ranged from 25 to 60 FC's.

xvii) Flammable Storage Room: The explosion proof lighting bulb was burned out. Illumination levels ranged from 6 to 8 FC's with the door partially open.

xviii) Weight Room: Three fluorescent tubes were burned out. Illumination levels ranged from 6 to 26 FC's.

xix) Foyer: An asbestos sample was taken from the floor. The analytical asbestos result sheet included the sampled location and the result. Also, the sample submission sheet was enclosed in the report (See enclosure 3). The following table notes where the sample was taken, the surveyor's field number, and the asbestos result:

Area	Material Sampled	Field Number	Results
Foyer	Floor	M04716	Non Detected

xx) Due to the low noise levels (administrative areas) there was no requirement for a Hearing Conservation Program.

xxi) Physical exams were performed in Lavinia.

xxii) A listing of Selmer Armory personnel was shown in encl. 4.

xxiii) A building floor plan was attached as encl. 5.

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xxiv) A sample HAZCOM SOP was attached as encl. 6.

4. ILLUMINATION SURVEY RESULTS:

a) Illumination Levels: The following additional illumination level readings were taken during the survey and are reported below in foot candles (FC's).

AREA/LOCATION	FOOT CANDLES (FC)
Administrative Office	6-54
Training Office	13-65
Commander's Office	35-45
Recruiter's Office	19-35
Drill Hall, Door Closed	9-18
Mechanical Room No.1	9-23
Mechanical Room No.2	20-42
Training Aids Room	14-20
Library	26-58
Learning Center	45-67
Chair Storage	9-17
Classroom No.1	42-63
Classroom No.2	25-60
Kitchen Area	32-45
Kitchen Scullery	48-70
Kitchen Mess Storage	2-46
Flammable Storage Room	6-8
Supply Area/Equipment Storage	8-17
Vault Room	18-26
Janitor's Room	3-15
Men's Restroom	1-53
Women's Restroom	1.5-32
Range Storage	14-18
Old Indoor Firing Range	5-83
Weight Room	6-26

As indicated in the IES Lighting Handbook, Application Volume 1987, Offices: 20-50 FC's, Supply and Publication Areas: 20-50 FC's, Assembly 20-50 FC's, Restrooms: 5-10 FC's, Classrooms: 50-100 FC's, Kitchen: 20-50 FC's, FC's, Library: 50-100 FC's, Storage Rooms: 10-20 FC's, Mail Room: 20-50 FC's.

5. Recommendations: See enclosure 10

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Page 1980 of 2531

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6. TECHNICAL ASSISTANCE:

[redacted]

CF:

Occupational Health Office
ATTN: [redacted] ANG,NC
Tennessee Army National Guard
AGTN-SAHO
Houston Barracks
3041 Sidco Drive
Nashville, TN 37204-1501

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Enclosure 1

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HEALTH HAZARD INFORMATION MODULE FIELD SURVEY

*SEE PRIVACY ACT STATEMENT ON REVERSE.
(For use of this form, see HHIM User's Instructions.)

SECTION 1. DEMOGRAPHIC DATA

a. ARLOC 47000 b. INSTALLATION TN NAT GUARD c. BLDG/RM NUMBER ARMORY SELMER, TN
d. LOCATION/CODE AD / e. OPERATION/CODE AOD / f. DESCRIPTION DET 1, BATTERY C, 2-115 FA WAS DEPLOYED WITH 55 M-DAY SOLDIERS. THE 2-115TH BN IN HENDERSON, TN WAS RESPONSIBLE FOR TRAINING, SCHOOLS, ASSIGNMENTS, PROMOTIONS & EQUIP
g. MACOM/CODE NG / [redacted] Non-Responsive CODE XX / i. SUPERVISOR [redacted] Non-Responsive
j. TELEPHONE/AUTOVON NUMBER [redacted] k. RAC 3 l. FREQUENCY (Hrs Per Day) 9 HRS/DY
m. NO CIV(S) ____ n. NO MIL ____ o. NO CONTRACTOR(S) ____ p. NO LOC(S) ____ q. NO OTHER ____

SECTION 2. IH STAFFING DATA

a. LAB HOODS 0 b. VAPOR DEGREASERS 0 c. MAINTENANCE BAYS 0 d. SPRAY BOOTHS 0
e. OPEN SURFACE TANKS 0 f. VENTILATION UNITS 0

SECTION 3. SURVEY DATA

a. SURVEY DATE 11-22-04 b. EVALUATOR (INITIALS) [redacted] Non-Responsive

c. CONTROLS PRESENT	d. EVALUATION	e. UNIT CODE	f. CONTROLS REQUIRED	g. STATUS
OTH (DRILL HALL)	9-18 FC INSUFFICIENT	FTC	30 FTC	RECMD
OTH (SUPPLY RM)	13-17 FC INSUFFICIENT	FTC	30 FTC	RECMD
OTH (LIBRARY)	26-58 FC INSUFFICIENT	FTC	50 FTC	RECMD
OTH (WEIGHT RM)	6-26 FC INSUFFICIENT	FTC	30 FTC	RECMD

h. PERSONAL PROTECTIVE EQUIPMENT (R=REQUIRED; A=AVAILABLE)

1. RESPIRATOR

	MANUFACTURER	NIOSH TC NO	R/A
DISPOSABLE			/
½ FACE AIR PURIFYING			/
½ FACE AIR PURIFYING			/
FULL FACE AIR PURIFYING			/
POWERED AIR PURIFYING			/
AIRLINE			/
SELF-CONTAINED			/
ABRASIVE BLASTING HOOD			/

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	R/A
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	/
OIL	/	SAFETY/IMPACT	/	EARPLUGS	X/X	COVERALLS	/	IMPERMEABLE BOOTS	/
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	/
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/HARNESS	/	SAFETY/NONCONDUCTIVE SHOES	/
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/					BDU's	X/X		

SECTION 4. HAZARD INVENTORY DATA

a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC or EPC	d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO)
7439-92-1	LEAD, INORGANIC DUSTS & FUMES, AS PB	2B	YES

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Page 1982 of 2531

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SECTION 5 PERSONNEL

Non-Responsive

					ECORY
					96R
					96R

SECTION 6 COMMENTS (add blank sheet of paper if necessary)

- THE UNIT MAINTAINED 155 HOWITZERS, WHICH WERE TOWED.
- MSDS's WITH LIST WAS IN A BINDER.
- FACILITY WAS BUILT IN 1993.
- PHYSICALS WERE PERFORMED AT THE MILAN TRAINING AREA, NEAR LAVINIA, TN.

PRIVACY ACT STATEMENT

Title 4 U.S. Code, Section 301, Executive Order 9397 authorizes the use of your Social Security Number as a identity and monitor data relating each DA civilian employee of this information to provide histories of exposure for ...

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Enclosure 2
Appendix A

WORKPLACE CHEMICAL LIST

MPLOYER NAME:

ADDRESS:

FEDERAL EMPLOYER'S IDENTIFICATION NUMBER

WORKPLACE LOCATION (Not P.O. Box), IDENTIFICATION (If any), AND COUNTY:

ARMORY
1232 Peach St.
Selmer, TN 38375
(COUNTY): McNairy

PRIMARY SIC CODE *
SECONDARY SIC CODE OPTIONAL
TERTIARY SIC CODE OPTIONAL
NUMBER EMPLOYEES

DESCRIPTION OF PROCESS OR OPERATION:

CHEMICAL/SUBSTANCE NAME	CHEMICAL ABSTRACTS SERVICES (CAS) NO.	COMMON OR TRADE NAME(S) (LABEL IDENTITY)	WORK AREA WHERE CHEMICAL IS NORMALLY USED OR STORED
PAINT,POLYURETHANE,BLK	01-141-2419	PAINT	Flame.Store. Cabinet, Sup. Rm.
PAINT, 383 GREEN	01-160-6741	PAINT	Flame. Store. Cabinet, Sup. Rm.
PAINT, BROWN	01-160-6744	PAINT	Flame. Store. Cabinet, Sup. Rm.
PAINT, SPRAY		SPRAY PAINT	Flame. Store. Cabinet, Sup. Rm.
PAINT, PRIMER		PRIMER	Flame. Store. Cabinet, Sup. Rm.
PAINT, SPRAY ENAMEL		ENAMEL SPRA. PAI.	Flame. Store. Cabinet, Sup. Rm.
PAINT, MARKING			Flame. Store. Cabinet, Sup. Rm.
PAINT, ENAMEL, BROWN	00-598-5460		Flame. Store. Cabinet, Sup. Rm.
PAINT, ENAMEL, O.D.	00-598-5458		Flame. Store. Cabinet, Sup. Rm.
PAINT, ENAMEL, BLACK	00-297-0547		Flame. Store. Cabinet, Sup. Rm.
PAINT, GREEN			Flame. Store. Cabinet, Sup. Rm.
PAINT, BROWN	00-598-5460		Flame. Store. Cabinet, Sup. Rm.
PAINT, ACRYLIC			Flame. Store. Cabinet, Sup. Rm.
ADHESIVE, TENT PATCH	00-264-3848		Flame. Store. Cabinet, Sup. Rm.

* May be obtained by calling (615) 741-6384.

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Page 1984 of 2531

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Appendix A

WORKPLACE CHEMICAL LIST

EMPLOYER NAME:

ADDRESS:

FEDERAL EMPLOYER'S IDENTIFICATION NUMBER

PRIMARY SIC CODE

SECONDARY SIC CODE OPTIONAL

TERTIARY SIC CODE OPTIONAL

NUMBER EMPLOYEES

WORKPLACE LOCATION (Not P.O. Box), IDENTIFICATION (If any), AND COUNTY:

ARMORY
1232 Peach St.
Selmer, TN 38375
(COUNTY): McNairy

DESCRIPTION OF PROCESS OR OPERATION:

CHEMICAL/SUBSTANCE NAME	CHEMICAL ABSTRACTS SERVICES (CAS) NO.	COMMON OR TRADE NAME(S) (LABEL IDENTITY)	WORK AREA WHERE CHEMICAL IS NORMALLY USED OR STORED
ENGINE OIL		HDO	Flammable Storage Room
CARBON REMOVAL COUMPOUND	00-965-2332	CARBON REMOVAL	Flammable Storage Room
CLEANING COMPOUND SOLV.	00-224-6665		Flammable Storage Room
PRESERVATIVE		CLP-BREAK FREE	Flammable Storage Room
LUBE OIL, GEN. PURPOSE	VV-L-800c	LUBE OIL	Flammable Storage Room
GEAR OIL		80W90	Flammable Storage Room
INHIBITOR, LIQ. COOL SY.	01-160-3868	ANTI-FREEZE	Flammable Storage Room
GREASE, ELECT. MOTOR	00-257-5358		Flammable Storage Room
PENETRATING OIL			Flammable Storage Room
ENGINE OIL, 2 STROKE			Flammable Storage Room
DEXRON II, HYDRAULIC FL	00-689-2382	DEXRON II	Flammable Storage Room
DEXRON III, HYDRAU. FL.	01-353-4799	DEXRON III	Flammable Storage Room
N-AMYL ACETATE	00-123-7047		Flammable Storage Room
HYDRAULIC FL., TRACTOR			Flammable Storage Room
LUBE OIL			Flammable Storage Room

* May be obtained by calling (615) 741-6384.

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Page 1985 of 2531

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TITLE	**HAZARDOUS MATERIALS INVENTORY LIST**
Purpose	Document the type, quantity, and location of hazardous materials at the facility
Frequency	Monthly
Materials	Checklist, Inventories, MSDSs
References	Module 3, HAZMAT Employee Training OSHA Checklists TEAM Guide, Section 3, Hazardous Materials Management
Instructions	The storage areas and containers should be inventoried monthly. The inspection log should be conspicuously posted in the storage area to verify that inspections have been performed.

Facility Location	Armory, 1232 Peach St. Selmer	**Page Number** 1 **of** 1	
Storage Area	Flammable Storage Room - Rear of Armory - NE Corner		
Inspector Signature	Non-Responsive	**Date**	14 Mar 01

Item	Trade Name/ Nomenclature	National Stock Number	Container Size/Type	Quantity on Hand	Location
1	Grease, Auto, Artillery	00-119-7693	14oz tube	8	Shelf
2	Oil, Engine, 2 Stroke		2.6 oz bottle	3	Shelf
3	Hydraulic Fluid, Dexron II		Qt. bottle	1	Shelf
4	Hydraulic Fluid, Dexron III		Qt. bottle	14	Shelf
5	CLP, Break Free		Gal	3	Shelf
6	Oil, Engine		5 Gal Can	2	Floor
7					
8					
9					
10					

Comments:

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TITLE	HAZARDOUS MATERIALS INVENTORY LIST
Purpose	Document the type, quantity, and location of hazardous materials at the facility
Frequency	Monthly
Materials	Checklist, Inventories, MSDSs
References	Module 3, HAZMAT Employee Training OSHA Checklists TEAM Guide, Section 3, Hazardous Materials Management
Instructions	The storage areas and containers should be inventoried monthly. The inspection log should be conspicuously posted in the storage area to verify that inspections have been performed.

Facility Location	Armory 1232 Peach St. Selmer, TN	Page Number 1 of	
Storage Area	Flammable Storage Cabinet, Supply Room		
Inspector Signature	Non-Responsive [redacted]	Date	3/8/01

Item	Trade Name/ Nomenclature	National Stock Number	Container Size/Type	Quantity on Hand	Location
1	Paint, Primer, Spray		16oz can	1	Top Shelf
2	Paint, Spray		16oz can	3	Top Shelf
3	Paint, Enamel, Spray		16oz can	2	Top Shelf
4	Paint, Marking		16oz can	2	Top Shelf
5	Paint, Aliphatic, Poly, Comp. A		Qt can	3	Top Shelf
6	Paint, Aliphatic, Poly, Com. B (Catalyst)		1/2pt can	3	Top Shelf
7	Paint, Enamel Alkyd		Qt can	7	2nd Shelf
8	Paint, Enamel		5gal can	1	Bottom Shelf
9	Adhesive, Tent Patch		1/2pt can	15	Top Shelf
10					

Comments:

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TITLE	**HAZARDOUS MATERIALS INVENTORY LIST**
Purpose	Document the type, quantity, and location of hazardous materials at the facility
Frequency	Monthly
Materials	Checklist, Inventories, MSDSs
References	Module 3, HAZMAT Employee Training OSHA Checklists TEAM Guide, Section 3, Hazardous Materials Management
Instructions	The storage areas and containers should be inventoried monthly. The inspection log should be conspicuously posted in the storage area to verify that inspections have been performed.

Facility Location	Armory, 1232 Peach St. Selmer, TN	**Page Number** 1 **of** ____	
Storage Area	Outside Flammable Storage Cabinet (Motorpool)		
Inspector Signature		**Date**	

Item	Trade Name/ Nomenclature	National Stock Number	Container Size/Type	Quantity on Hand	Location
1	Gasoline		5gal jug	2	Top Shelf
2	Fuel Mix (Weed Eater)		1gal jug	1	Top Shelf
3	MOGAS		5gal can	3	Bottom
4	~~Diesel~~ Diesal		5gal	2	Bottom
5					
6					
7					
8					
9					
10					

Comments:

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TEST REPORT
Page 1 of 2
12/7/04

DATA CHEM LABORATORIES, INC.

Submitted To: Non-Responsive [redacted]

Reference Data:	Lead
Client Sample No.:	M04697 through M04717
P.O. No.:	Not Available
Sample Location:	Selmer, TN, Armory
Project No.:	5
Sample Type:	Ghost Wipe
Method Reference:	3050B/6010B
DCL Set ID No.:	04-S-6109
DCL Sample ID No.:	04-34433 through 04-34453
Sample Receipt Date:	11/24/2004
Preparation Date:	12/02/04
Analysis Date:	12/06/04

The samples were prepared in accordance with EPA method 3050B. Sample condition was acceptable upon receipt except where noted. The samples were then analyzed in accordance with EPA method 6010B using a Perkin Elmer 3000XL (ICP) purged spectrometer.

The results are provided in the enclosed data table. Results relate only to the items tested and are not blank corrected unless indicated in the data table.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Non-Responsive [redacted]

513 733-5336, FAX 513 733-5347

Results
Lead

Client #	DCL #	Total Area (ft^2)	µg/Wipe	µg/ft^2
M04697	04-34433	0.694	42.	61.
M04698	04-34434	0.694	14.	20.
M04699	04-34435	0.694	47.	68.
M04700	04-34436	0.694	2700.	3900.
M04701	04-34437	0.694	2900.	4200.
M04702	04-34438	0.694	740.	1100.
M04703	04-34439	0.694	2200.	3200.
M04704	04-34440	0.694	4300.	6200.
M04705	04-34441	0.694	56.	81.
M04706	04-34442	0.694	20.	29.
M04707	04-34443	0.694	52.	75.
M04708	04-34444	0.694	200.	290.
M04709	04-34445	0.694	20.	29.
M04710	04-34446	0.694	170.	240.
M04711	04-34447	0.694	ND	<14.
M04712	04-34448	0.694	140.	200.
M04713	04-34449	0.694	120.	170.
M04714	04-34450	0.694	12.	17.
M04715	04-34451	0	ND	-
M04717	04-34453	0.694	250.	360.
	Prep Blank		ND	
% Recovery	LCS 1		94.	
% Recovery	LCS 2		98.	
RPL			10.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

Analyst

DATA CHEM LABORATORIES, INC.

ANALYTICAL REQUEST FORM

☑ **REGULAR** Status (5 working days from receipt)

☐ **RUSH** Status Required - ADDITIONAL CHARGE

RESULTS REQUIRED BY _____ DATE

CONTACT DATACHEM LABS PRIOR TO SENDING SAMPLES

Date 11-22-04 Purchase Order No. _____

Company Name MINCKLER & ASSOCIATES

Address 1503 ZAIGER DRIVE

Colorado Springs COLO 80915

City

Person to [redacted] Non-Responsive

Telephon[redacted]

Fax Telep[redacted]

Billing Ad[redacted]

MR. [redacted]

NATIO[redacted]

Quote No. _____

Sample Collection

Sampling Site SELMER, TN ARMORY; PROJ No. 5

Industrial Process N/A

Date of Collection 11-22-04

Time Collected 7:47 a.m.

Date of Shipment 11-22-04

QC Requirem[redacted] Non-Responsive

Collector's N[redacted]

Signature [redacted]

REQUEST FOR ANALYSES

Laboratory Use Only	Client Sample Number	Media Type?	Sample Volume (Liters)	ANALYSES REQUESTED - Use Method Number if Known
34433	M04697	GHOST WIPE	10IN X 10IN	LEAD- CLASSROOM No. 2, FAN BASE SURFACE
34434	M04698	"	"	LEAD-CHAIR STORAGE RM FLOOR
34435	M04699	"	"	LEAD- RIFLE STORAGE RM SHELF
34436	M04700	"	"	LEAD- EAST END FLOOR, NEAR BACKSTOP OLD IFR
34437	M04701	"	"	LEAD- NORTH END FLOOR, OLD IFR
34438	M04702	"	"	LEAD- FIRING LINE FLOOR, OLD IFR
34439	M04703	"	"	LEAD- PLENUM FRAME BOTTOM LEDGE
34440	M04704	"	"	LEAD- COLLAPSIBLE SPT SHELF-OLD IFR
34441	M04705	"	"	LEAD-CLASSROOM No. 1 FLOOR
34442	M04706	"	"	LEAD- WOODEN SHELF, LIBRARY
34443	M04707	"	"	LEAD- MECH RM No. 1, FLOOR
34444	M04708	"	"	LEAD- ACCUATOR FRAME, DRILL HALL
34445	M04709	"	"	LEAD- ELEVATED STAGE, CARPET, DRILL HALL

CHAIN OF CUSTODY

Relinquished (Signature)	[redacted] Non-Responsive	Time 4/04 13:30
Relinquished (Signature)	[redacted]	Time

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DATA CHEM LABORATORIES, INC.

ANALYTICAL REQUEST FORM

☑ REGULAR Status (5 working days from receipt)

☐ RUSH Status Required - ADDITIONAL CHARGE
RESULTS REQUIRED BY _____ DATE
CONTACT DATACHEM LABS PRIOR TO SENDING SAMPLES

Date 11-22-04 Purchase Order No. _____
Company Name MINCKLER & Associate
Address 1503 ZAIGER DRIVE
Colorado Springs Colo. 80915
City
Person to Co[redacted] Non-Responsive
Telephone ([redacted]
Fax Telepho[redacted]
Billing Addre[redacted]
MR. E[redacted]
NATIO[redacted]
REQUEST F[redacted]

Quote No. _____
Sample Collection
Sampling Site SELMER, TN ARMORY; PROJ No. 5
Industrial Process N/A
Date of Collection 11-22-04
Time Collected 7:47 a.m.
Date of Shipment 11-22-04
QC Requirements ☑ Standard ☐ Other
Collector's N[redacted] Non-Responsive
Signature [redacted]

Laboratory Use Only	Client Sample Number	Media Type	Sample Volume (Liters)	ANALYSES REQUESTED - Use Method Number if Known
34446	M04710	GHOST WIPE	10IN X 10IN	LEAD - WEST END FLOOR, DRILL HALL
34447	M04711	"	"	LEAD - METAL SHELF, KITCHEN STORAGE RM
34448	M04712	"	"	LEAD - VAULT FLOOR, SUPPLY AREA
34449	M04713	"	"	LEAD - METAL SHELF, SUPPLY AREA
34450	M04714	"	"	LEAD - METAL SHELF, ORDERLY RM
34451	M04715	"		LEAD - BLANK
34452	M04716	PLASTIC BAG		ASBESTOS - FOYER FLOOR
34453	M04717		10X10	Lead

CHAIN[redacted] Non-Responsive

Relinquishe[redacted] (Signature)		[redacted] / Time	04/04 13:50
Relinquishe[redacted] (Signature)		[redacted] / Time	

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DATA CHEM LABORATORIES, INC.

11/30/04
Page 1 of 2

SUBMITTED TO:

Non-Responsive [redacted]

REFERENCE DATA:

Client Sample No.:	M04716
P.O. No.:	Not Available
Sample Location:	Selmer, TN, Armory, Project No. 5
Sample Type:	Bulk
Method Reference:	EPA-600/R-93/116
DCL Set ID No.:	04-A-6109
DCL Sample ID No.:	04-34452
Sample Receipt Date:	11/29/04
Analysis Date:	11/30/04

We certify that the following samples were prepared and analyzed by Polarized Light Microscopy for asbestos and other fibrous constituents using EPA-600/R-93/116. The samples were acceptable upon receipt except where noted. The samples were examined under a stereomicroscope in a laboratory fume hood for general composition and phase separation. If needed, portions of the sample were removed and ground with a mortar and pestle before being mounted on a glass microscope slide. Mountings of representative portions of the material are prepared in one or more appropriate refractive index liquids (1.550, 1.605, 1.680) and examined by Polarized Light Microscopy*. Estimates of concentration are made on an area basis. The results of the analysis apply only to the materials analyzed and are summarized on the attached bulk asbestos analysis data sheets. DataChem Laboratories will dispose of all bulk samples after 60 days unless other arrangements are made.

Non-Responsive [redacted]

not visible by PLM and can only be detected by electron microscopy techniques. Floor tiles are analyzed as homogeneous materials if insufficient mastic is present or if phases have been cross contaminated.

DataChem Laboratories NVLAP Lab ID: 101917. Laboratory accreditation by the National Institute of Standards and Technology does not in any way constitute approval or endorsement by NIST.

CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3706
513 733-5335, FAX 513 733-5347

WEST COAST OFFICE
11 SANTA YORMA COURT
NOVATO, CALIFORNIA 94945
800 280-8071, FAX 415 893-9469

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11/30/04

DataChem Laboratories
Polarized Light Microscopy
Asbestos Analytical Report

Client: Minckler & Associates
Location: Selmer, TN, Armory, Project No. 5
Set ID: 04-A-6109

Client Sample ID:	M04716	M04716
DCL Sample ID:	04-34452A	04-34452B
Macroscopic Examination		
Accepted/Rejected:	Accepted	Accepted
Homogeneity:	Layered	Layered
Color:	Grey	Tan
Texture:	Compact	Resinous
Description:	Tile	Mastic
Analysis:	PLM	PLM
Asbestiform Minerals		
% Chrysotile:		
% Amosite:		
% Crocidolite:		
% Tremolite - Actinolite:		
% Anthophyllite:		
% Total Asbestos:	ND	ND
Other Materials		
% Cellulose:		Trace
% Fiberglass:		
% Other Fibers:		
% Resin/Binder:	>10 ≤ 20	>70 ≤ 80
% Non Fibrous:	>70 ≤ 80	>10 ≤ 20

ND = None Detected Trace = <1%

Special Prep Procedures: None.

*Notes: P. O. #: Not Available.

Non-Responsive

All values are in area percent by visual estimate. The Federal Register Vol. 55 No. 224 Tuesday Nov. 20 1990 Rules and Regulations states "... If the asbestos content is estimated to be less than 10% by a method other than point counting,... (the analysis) be repeated using the point counting technique by PLM." Any of the above samples can be reanalyzed by point counting at the client's request.
Wherever possible, separate phases are analyzed and reported individually.

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Page 1994 of 2531

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Enclosure 4

Selmer Armory
Selmer, TN

SUBJECT: Personnel Roster

NAME	RANK/TITLE	POSITION	UNIT ASSIGNED

Non-Responsive

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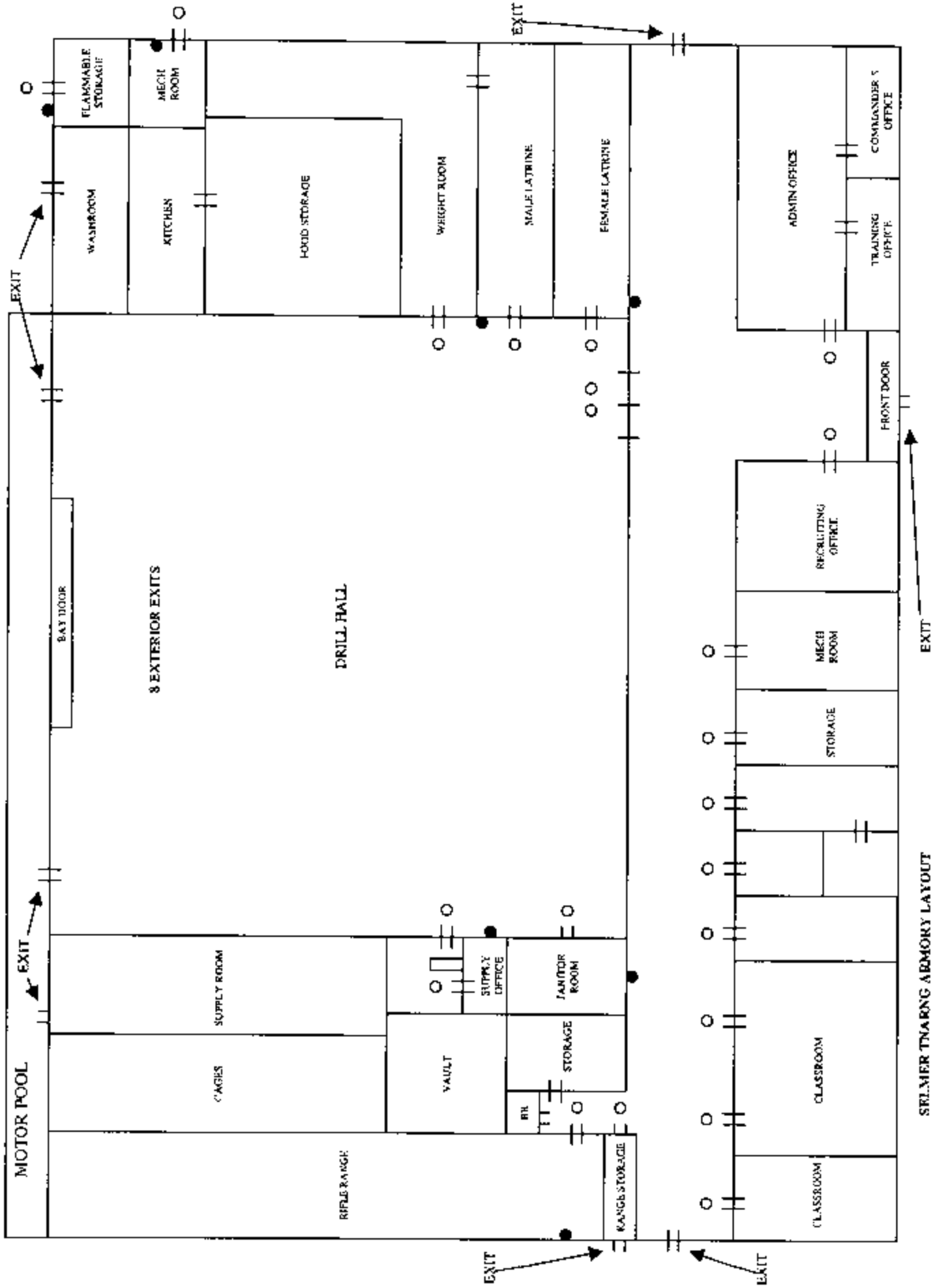
Enclosure 5



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HAZARD COMMUNICATION SAMPLE WRITTEN PROGRAM

NOTE: The written program must include the specific methods that are used to achieve compliance with the requirements of the Hazard Communication Standard (29 CFR 1910.1200). The specific methods described in this sample written program are for illustrative purposes, and other effective methods may be substituted to satisfy local needs or practices.

I. General

The purpose of this instruction is to ensure that (facility name) is in compliance with the OSHA Hazard Communication Standard (HCS) 29 CFR 1910.1200.

The [occupational safety and health manage (OS&H) manager) or other technically qualified designee] is the overall coordinator of the facility program acting as the representative of {senior facility official], who has overall responsibility.

In general, each employee in the facility will be appraised of the substance of the HCS, the hazardous properties of chemicals they work with, and measures to take to protect themselves from these chemicals.

II. List of Hazardous Chemicals

The [OS&H manager or designee] will maintain list of all hazardous chemicals used in the facility, and update the list as necessary. The hazardous chemical list will be updated upon receipt of hazardous chemicals at the facility. The list of hazardous chemicals is maintained at [location].

III. Material Safety Data Sheets (MSDS's)

The [OS&H manager or designee] will maintain an MSDS library on every substance on the list of hazardous chemicals in the {location]. The MSDS will consist of a fully completed OSHA Form 174 or equivalent. The [location manager or supervisor] will ensure that each [work area or shop] maintains an MSDS for hazardous materials used in that area. MSDS's will be readily available to all employees.

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The [local OS&H manager or designee] is responsible for acquiring and updated MSDS's. The [local OS&H manager or designee] will review each MSDS for accuracy and completeness and will consult with the [Area/Region/Headquarters OS&H manager] if additional research is necessary. The [local OS&H manager or designee] must clear all new procurements for the facility. Whenever possible, the least hazardous substance will be procured.

IV. Contractor Employers

The [local OS&H manager or designee], upon notification from the [responsible supervisor], will advise outside contractors of any chemical hazards which may be encountered in the normal course of their work on the premises.

V. Non-Routine Tasks

[Maintenance or other supervisors] contemplating a non-routine task, e.g. boiler repair, will consult with the [local OS&H manager or designee] and will ensure that employees are informed of chemical hazards associated with the performance of these tasks and appropriate protective measures. This will be accomplished by a meeting of supervisors and the OS&H manager with affected employees before such work is begun.

VI. Additional Information

Further information on this written program, the hazard communication standard, and applicable MSDS's is available at [location/telephone number].

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HAZARDOUS MATERIAL INVENTORY

FACILITY NAME: _____ STORAGE AREA: _____ PAGE ____ OF ____ PAGES

LOCATION: _____

CML NAME (FROM MSDS)	NSN	CAS NUMBER	HAZARD CATEGORY (FIRE / EXPOSURE RELEASE OF PRESSURE / REACTIVITY / IMMEDIATE HEALTH HAZARD (ACUTE) / DELAYED HEALTH HAZARD (CHRONIC))	SIZE CON	# DAYS ONSITE	*EST AVG DAILY AMT	*EST MAX AMT STORED	*ANL AMT REC'D	*ANL AMT SHIPPED (WASTE OR RECY)	EHS TPQ	EHS RQ	CERCLA RQ	TAB
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ALL AMOUNTS MUST BE EXPRESSED IN LBS

CONVERSIONS:(# LBS PER GL) SOLVENTS-6.7 MOGAS-6.2 DIESEL-7.1 JP8-6.2 ALL OTHERS-8.3
2 LBS = 1 QT 1 LB = 1 PT

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FOIA Requested Record #J-15-0085 (TN)
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Page 1999 of 2531

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May, 2018

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Enclosure 8

Step-by-Step Summary

Cleaning: How To Do It

1. Include step-by-step procedures for precleaning, cleaning during the job, and daily and final cleaning in project design or specifications.

2. Assign responsibilities to specific workers for cleaning and for maintaining cleaning equipment.

3. Have sufficient cleaning equipment and supplies before beginning work.

4. If contamination is extensive, conduct precleaning of the dwelling unit. Move or cover all furniture and other objects.

5. Conduct ongoing cleaning during the job, including regular removal of large and small debris and dust. Decontamination of all tools, equipment, and worker protection gear is required before it leaves containment areas. Electrical equipment should be wiped and high-efficiency particulate air (HEPA) vacuumed, not wetted down, to minimize electrocution hazards.

6. Schedule sufficient time (usually 30 minutes to an hour) for a complete daily cleaning, starting at the same time near the end of each workday after lead hazard control activity has ceased.

7. For final cleaning, wait at least 1 hour after active lead hazard control activity has ceased to let dust particles settle.

8. Use a vacuum cleaner equipped with a HEPA exhaust filter. HEPA vacuum all surfaces in the room (ceilings, walls, trim, and floors). Start with the ceiling and work down, moving toward the entry door. Completely clean each room before moving on.

9. Wash all surfaces with a lead specific detergent, high-phosphate detergent, or other suitable cleaning agent such as Mr. Clean or Spic-n- Span to dislodge any ground-in contamination, then rinse. Change the cleaning solution after every room is cleaned.

10. Repeat step 8. To meet clearance standards consistently, a HEPA vacuum, wet wash, and HEPA vacuum cycle is recommended. For interim control projects involving dust removal only, the final HEPA vacuuming step is usually not needed. Other cleaning methods are acceptable, as long as clearance criteria are met and workers are not overexposed.

11. After final cleaning, perform a visual examination to ensure that all surfaces requiring lead hazard control have been addressed and all visible dust and debris have been removed. Record finding s and correct any incomplete work. This visual examination should be performed by the owner of an owner's representative who is independent of the lead hazard control contractor.

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12. If other construction work will disturb the lead-based paint surfaces, it should be completed at this point. If those surfaces are disturbed, repeat the final cleaning step after the other construction work has been completed.

13. Paint or otherwise seal treated surfaces and interior floors.

14. Conduct a clearance examination.

15. If clearance is not achieved, repeat the final cleaning.

16. Continue clearance testing and repeated cleaning until the dwelling achieves compliance with all clearance standards. As an incentive to conduct ongoing cleaning and a thorough final cleaning, the cost of repeated cleaning after failing to achieve clearance should be borne by the contractor as a matter of the job specifications, not the owner.

17. Do not allow residents to enter the work area until cleaning is completed and clearance is established.

18. Cleaning equipment list:

* HEPA vacuums.

* Detergent.

*Waterproof gloves.

* Rags.

* Sponges.

* Mops.

* Buckets.

* HEPA vacuum attachments (crevice tools, beater bar for cleaning rugs).

* 6-mil plastic bags.

* Debris containers.

* Waste water containers.

* Shovels.

* Rakes.

* Water-misting sprayers.

* 6-mil polyethylene sheeting (or equivalent).

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REFERENCES:

a) Title 29, Code of Federal Regulations (CFR) Part 1910, Occupational Safety and Health Administration (OSHA).

b) ARNG PAM 385-16, Guidelines for Converting Indoor Firing Ranges to Other Uses.

c) NGR 385-15, Policy and Responsibilities for Inspection/Evaluation and Use of National Guard Indoor Firing Ranges.

d) Army Regulation (AR) 40-5, 15 October 1990, Medical Service, Preventive.

e) AR 11-34, 15 February 1990, The Army Respiratory Program.

f) AR 385-10, 23 May 1988, Army Safety Program.

g) FC-Reg. 385-2, 1 July 1999, Ionizing and Nonionizing Radiation Protection Program

h) Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.

i) Technical Bulletin Medical (TB MED) 503, 1 February 1985, The Army Industrial Hygiene Program.

j) Technical Bulletin Medical (TB MED) 530, 1 January 1991, Food Service Sanitation

k) National Guard Regulation (NGR) 385-10, 20 December 1989, Army National Guard Safety and Occupational Health Program.

l) Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist (ACGIH), Cincinnati, Ohio.

m) IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.

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Enclosure 10

Recommendations:

a) An updated HAZCOM SOP was included in the report (see encl 6). Conduct semi-annual inventories and update MSDS's on all chemicals in the facility. A hazardous material inventory sheet was included in the report (see encl 7). Tab the MSDS's on side with numbers corresponding to the hazardous material inventory sheet tab numbers for easy access in case of a spill. Include a chemical list in the janitor's MSDS book and the unit's MSDS book. A risk assessment code (RAC) of 3 was assigned to this operation.

b) Due to the lead dust wipe results, it is recommended that the old indoor firing range be thoroughly cleaned from top to bottom to include the floor, the plenum frame, the collapsible shelves, and the light fixtures/covers. Also, the drill hall floor, the drill hall air supply vent tray/ducts, the lockers, the classroom floor, the mechanical room floor, the vault floor, and the supply room shelves must be thoroughly wiped down and or wet mopped with an industrial cleaner using tri-phosphates, Mr. Kleen or Spic-n-Span. For additional lead cleaning measures, see enclosure 8. A risk assessment code (RAC) of 1 was assigned to this operation.

c) Replace the lamps, fluorescent tubes, and or bulbs in the administrative office, the classrooms, the old indoor firing range, the supply room, the supply office, the drill hall, the flammable storage room, the men and women's restroom, the weight room, the main kitchen and storage areas, the hallway, and the janitor's room. Also, ensure that all exit signs back up emergency fire lights are working. A risk assessment code (RAC) of 2 was assigned to this operation.

d) Submit a work order to increase the illumination levels in the drill hall and supply area to 30 FC's. A risk assessment code (RAC) of 3 was assigned to this operation.

e) Replace the rusted flammable storage cabinet. A risk assessment code (RAC) of 3 was assigned to this operation.

f) Schedule a time when the contractor can clean out the kitchen grease to ensure that the outside grease trap is maintained. A risk assessment code (RAC) of 3 was assigned to this operation.

g) Perform monthly checks on fire extinguishers. Each month, ensure that the devices are turn upside down and tapped with a rubber mallet to loosen any material at the bottom. A risk assessment code (RAC) of 1 was assigned to this operation.

h) If work practices change, a new assessment should be made on the controls in place

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Enclosure 11

Photo No.1

Photo No.2

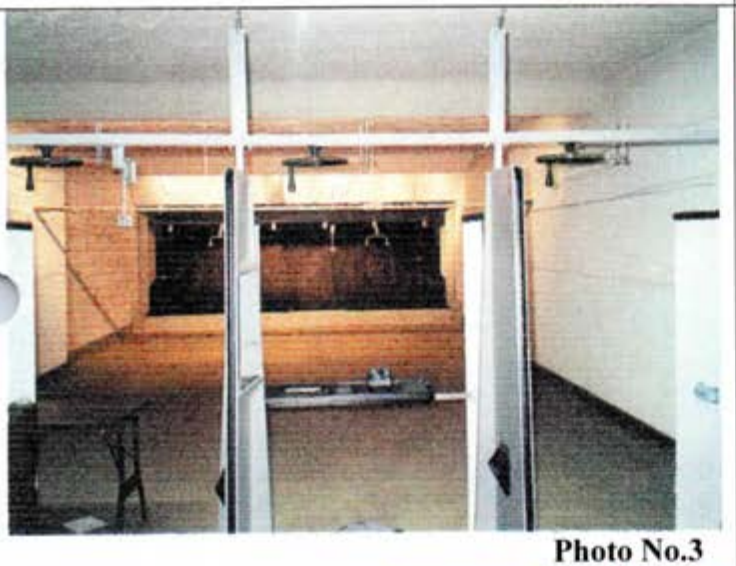

Photo No.3

Photo No.4

Photo No.5

Enclosure 12

Fan Base Surface, Classroom No.2

Floor, Chair Storage Room

Shelf, rifle Storage Room

East Floor, Backstop, Old Indoor Firing Range (IFR)

North End Floor, Old IFR

Firing Line Floor, Old IFR

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Plenum Frame Bottom Ledge, Old IFR

Collapsible Support Shelf, Old IFR

Floor, Classroom No.1

Wooden Shelf, Library

loor, Mechanical Room No.1

Actuator Frame, Drill Hall

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Elevated Stage, Carpet, Drill Hall

West End Floor, Drill Hall

Metal Shelf, Kitchen Storage Room

Vault Floor, Supply Area

Metal Shelf, Supply Area

Metal Shelf, Administrative Office

Locker Shelf

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NATIONAL GUARD REGION SOUTH
INDUSTRIAL HYGIENE OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

NGB-ARS-IHSE (40-5f)

27 August 2010

MEMORANDUM FOR THE ADJUTANT GENERAL OF TENNESSEE, ATTN: [redacted] Non-Responsive op Foreman, Shelbyville Army National Guard Armory, Company G, Forward Support Company, Regimental Support Squadron, 278th Armored Cavalry Regiment, 2009 South Cannon Blvd., Shelbyville, Tennessee 37160.

THRU Non-Responsive Deputy State Surgeon, Tennessee National Guard, HQS, AGTN-DCSPER-DSS, P.O. Box 41502, Houston Barracks, Nashville, Tennessee 37204-1501.

SUBJECT: Industrial Hygiene Survey the Shelbyville Army National Guard Armory, Shelbyville, Tennessee 37160.

1. References.

a. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1996 rev.

a. Title 29, Code of Federal Regulations (CFR), 2009 rev., part 1910, Occupational Safety and Health Standards.

b. Title 29 CFR, General Industry, revised 1996 rev. Part 1940

c. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 25 May 2007

d. AR 385-10, The Army Safety Program, 23 August 2007.

e. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.

f. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, 12 September 2008.

g. TB MED 503, The Army Industrial Hygiene Program, 30 October 2000.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2010 American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 26th rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

k. NG PAM 420-15, 03 November 2006, Facilities Engineering, Rehabilitation and Conversion of Indoor Firing Ranges.

l. Industrial Hygiene Survey Report, Non-Responsive [redacted] Environmental Associates, Inc.,1108 East Dolphin Drive, Oak Island, NC.

2. General.

a. At the request of Non-Responsive [redacted] N, of the Tennessee National Guard Occupational Health Office, an Industrial Hygiene Survey was put together to conduct a Health Hazard Information module (HHIM) Field survey of the s and industrial hygiene sampling of the Shelbyville National Guard Armory.

b. The surveys were conducted by Non-Responsive [redacted] Environmental Associates, Inc., Oak Island, NC.

3. Findings. All Health Hazard information is on the survey findings of the report. (See enclosure 1). Operations of very short duration were not sampled due to the requirements of the sampling method. If the operation changes or if the length of the operation is increased, contact this office to schedule sampling if it is deemed needed then.

4. Recommendations. Understand that all findings found in the enclosed report have been reviewed by the Regional Industrial Hygienist and the following recommendations are the ones to be followed.

a. Use the guidance given in the enclosed report as good IH practices, requesting industrial hygiene (IH) services where needed. The recommendations that follow are based on the survey findings as reported:

i. Upgrade lighting to appropriate recommended light levels (SEE REPORT). Painting the walls and floors a light color, cleaning existing light fixtures, rearranging furniture to make better use of available light, and supplemental or task lighting are considerations in increasing available light levels. [ANSI/IES-RP7-1991]

ii. Replace burnt out lights in the vehicle maintenance bay, drill hall, weight room; and kitchen. **(RAC 2)**

b. The recommendations given in the comment section of the HHIM data sheets and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-10. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-11 IHIP.

c. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present survey, especially if this will help eliminate health hazards and reduce medical surveillance cost.

d. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance, also provided a corrective action plan to the OHN within 30 days of receipt of this report.

e. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

5. If additional information is needed about the industrial hygiene survey or air sample

Non-Responsive

[redacted]

CF: NGB-ARS-IHSE
Safety and Occupational Health Manager, Tennessee State Safety and Occupational Health Manager, 3041 Sidco Drive, Nashville, TN 37204-1504

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Non-Responsive [redacted] ENVIRONMENTAL ASSOCIATES, INC.

The World Is Our Environment

INDUSTRIAL HYGIENE SURVEY
SHELBYVILLE, TENNESSEE
ARMY NATIONAL GUARD ARMORY

Submitted To:

Non-Responsive

[redacted]

278th Armor Calvary Regiment
2009 S. Cannon Street
Shelbyville, Tennessee 37160

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2012 of 2531

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Non-Responsive [redacted] ENVIRONMENTAL ASSOCIATES, INC

1108 East Dolphin Drive
Oak Island, NC 28465
Pho[redacted] Non-Responsive [redacted]

August 6, 2010

Non-Responsive [redacted]

RE: Contract between Region South Industrial Hygiene Office
and [redacted] Environmental Associates, Inc.
Industrial Hygiene Survey

Dear Non-Responsive [redacted]

In accordance with the requirements of the above reference, Nichols Environmental Associates, Inc. (NEA) is pleased to submit this report.

This submittal incorporates the requirements of the Industrial Hygiene Contract and interview information collected. The survey and sampling were performed diligently and in accordance with industry regulations, guidelines, and good management standards. The information is complete and accurate to the best of our knowledge.

If you have any questions or comments regarding the report, please contact me.

Sincerely,

Non-Responsive [redacted]

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Table of Contents

PAGE	
1.0 EXECUTIVE SUMMARY	1
2.0 BACKGROUNO	1
3.0 SITE DESCRIPTION	1
4.0 SCOPE OF WORK	2
5.0 IH SURVEY PERSONNEL & POINT OF CONTACTS	2
6.0 METHODOLOGY	2
7.0 FINDINGS	2
7.1 Illumination Survey	2
7.2 Maintenance Work-Bay (Inactive Firing Range)	3
7.3 Industrial Hygiene Lead Wipe Sampling	3
7.4 HAZCOM, Chemical Inventory, MSDS & General Observations	4
8.0 OCCUPANT HEALTH & COMFORT QUESTIONNAIRES & (OHCQ) FACILITY INFORMATION FORM (FIF)	4
9.0 HEALTH HAZARD INFORMATION MODULE FORMS (HHIM)	4
10.0 PHOTOGRAPHS	5
11.0 REFERENCES	5

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Table of Contents
(CONTINUED

12.0 LIMITATIONS 5

13.0 RECOMMENDATIONS 5

APPENDICES:

APPENDIX A: Building Diagram, Summary of Illumination Measurements

APPENDIX B: Firing Range Sample Placement Diagram, Chain of Custody Forms, Lab Sample Results & Sample Photographs

APPENDIX C: Occupant Health and Comfort Questionnaire, Facility Information Form, Health Hazard Information Module, Photographs & References

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2015 of 2531

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1.0 EXECUTIVE SUMMARY

Replace/repair lights in the vehicle maintenance bay (IFR) 22 FCS; drill hall 22 FCS (8 lights were out); weight room15 FCS (12 lights were out); and kitchen 35 FCS.

Laboratory lead wipe sample results indicated lead concentrations were below the National Guard Bureau (NGB) Pamphlet 420-15 guidelines of 200µg/ft², or lower for post cleaning indoor firing ranges (IFR). Ensure that the State of Tennessee does not have lead reduction levels lower than recommended in Pamphlet 420-15.

Evaluate OMS #8 shop activities when personnel are available

2.0 BACKGROUND

Nichols Environmental Associates, Inc. (NEA) was contracted by the National Guard Region South Industrial Hygiene Office to conduct an Industrial Hygiene Initial Baseline Survey of the Shelbyville, Army National Guard Armory, Company G, Forward Support Company, Regimental Support Squadron, 278th Armored Cavalry Regiment. The survey was conducted on July 20th, 2010 by Paul Nichols, Certified Hazard Control (CHCM).

Shelbyville Army National Guard Armory is responsible for administration, readiness and personnel support. The armory is used for drills on weekends. On weekends personnel perform within their Military Occupational Specialty.

Vehicle maintenance is the responsibility of the OMS #8 in Winchester, Tennessee. The vehicle maintenance bay, which was initially constructed to be an indoor firing range (IFR), is used periodically by the OMS #8 to repair vehicles on-site. OMS #8 personnel were not available.

The baseline survey included conducting, illumination studies, lead wipe samples, Health Hazard Information Modules (HHIMs), Hazard Communication Program, Petroleum Oil & Lubricant (POL) procedures, Facility Information Form (FIF), and Occupant Health and Comfort Questionnaires (OHCQ).

3.0 SITE DESCRIPTION

Shelbyville Army National Guard Armory, Company G, Forward Support Company, Regimental Support Squadron, 278th Armored Cavalry Regiment is located in a commercial/residential area at 2009 South Cannon Blvd., Shelbyville, Tennessee 37160. The armory was built in approximately 1980. The armory contains the usual and customary offices, classrooms, vehicle maintenance bay (inactive-indoor firing range-IFR), drill hall, kitchen, storage, supply, and men/women latrines, etc.

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There are forty (40) full-time employees assigned. At the time of the survey, a number of employees were deployed/training or on leave.

4.0 SCOPE of WORK

The industrial hygiene (IH) survey conducted at Shelbyville Army National Guard Armory included: an illumination survey of the entire facility, lead wipe samples of the vehicle maintenance bay (IFR), drill hall, and vault. A review of the Hazard Communication Program (Haz Com) was made, to include Material Safety Data Sheets (MSDS's), personal protective equipment (PPE), and inspection of the flammable/non-flammable storage cabinets. A review of the Facility Information Form (FIF) and Occupant Health and Comfort Questionnaire (OHCQ) which address questions or concerns of the employees was also completed.

5.0 IH SURVEY PERSONNEL AND POINTS OF CONTACTS

Non-Responsive Certified Hazard Control Manager (CHCM), Non-Responsive [redacted] Environmental Associates, Incorporated, was responsible for this survey. LNGA points of contacts (POCs) and coordinators were Non-Responsive [redacted] Industrial Hygiene Technician, Non-Responsive [redacted] Shop Foreman, and Non-Responsive [redacted] survey escort).

Non-Responsive [redacted] did an outstanding job of on-site coordination and should be commended for his efforts.

6.0 SURVEY METHODOLOGY

A walk-thru survey was conducted of the armory, vehicle maintenance bay (IFR), drill hall, offices, and storage areas. Employees were interviewed, and the OHCQs/FIF were reviewed. Sampling and evaluation strategies were developed from information obtained from the POCs, OHCQs, FIF, and a walk-thru. Procedures and strategies were designed for the purpose of collecting lead wipe samples, and conducting a lighting survey. The POC was charged with providing NEA detailed information about the process and the flow of operations for each area. All tests and procedures were conducted in accordance with usual and customary, generally accepted, IH protocol.

7.0 FINDINGS

7.1 Illumination Survey

Illumination readings were obtained with an Extech Model 407026 Heavy Duty Light Meter, Serial # Z118558, with a National Institute of Standards and Technology (NIST) traceable calibration. Illumination readings were recorded in

Posted to NGB FOIA Reading Room
May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2017 of 2531

foot-candles (FCS) and the Extech light meter was programmed for the type of illumination present. Illumination readings were taken in offices, class rooms, vehicle maintenance bay (IFR), drill hall, vault, kitchen, storage, supply, recreation room, and men/women latrines.

Illumination Parameters FCS

Office/ Admin = 70	Physical Fitness = 5	Vehicle Work/Bays = 50
Supply =20	Vault = 20	Drill Hall = 50
Latrines = 20	Library = 70	Kitchen= 50

The average reading taken: vehicle maintenance bay (IFR), 22 FCS; drill hall 22 FCS (8 lights were out); weight room15 FCS (12 lights were out); and kitchen 35 FCS. The other areas met or exceeded the guidelines. A building diagram and summary of illumination measurements and Army National Guard DG 415 Design Guide Lighting Standards are included in Appendix A.

7.2 Maintenance Work-Bay (Inactive Indoor Firing Range)

Vehicle maintenance is the responsibility of the OMS #8 in Winchester, Tennessee. The maintenance bay (inactive firing range) is used periodically by the OMS #8 to repair tires, change oil and fluids on 5 ton vehicles on-site. Major vehicle repair is performed in Winchester. No vehicle exhaust extensions were in the maintenance bay.

7.3 Industrial Hygiene Lead Wipe Sampling

Thirteen lead dust surface samples were collected from representative areas of the vehicle maintenance bay (former IFR), drill hall, and vault using Environmental Express Ghost Wipes™ and 12 inch by 12 inch templates. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half, and the area was again wiped in a direction 90° to the first using an "S" motion. The wipe was folded again, and the perimeter of the area was wiped. The wipe was then placed into a plastic bag and sealed. In addition, a clean wipe was placed in a resealable plastic bag and submitted as a blank sample for analysis. The samples were sent to Analytical Environmental Services, Inc., an American Industrial Hygiene Certified Laboratory, for chemical analysis. The samples were submitted using the Chain of Custody Procedure where they were individually processed and given a unique number.

No samples were above the recommended NGB guidelines of 200ug/ft² (Reference e). An indoor firing range sample placement diagram, Chain of Custody Forms, laboratory sample results and photographs are included in Appendix B.

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A table denoting sample locations, field numbers, and lead results is outlined below.

Lead Wipe Sample Locations, Field Numbers & Results

Sample Number	Sample Location	Results (µg/ft²)
SHB-01	Rear Floor (FL), Left	BRL
SHB-02	Rear FL, Right	BRL
SHB-03	Left FL	BRL
SHB-04	Right FL	BRL
SHB-05	Left FL	50
SHB-06	Right FL	40
SHB-07	Bullet Stop	101
SHB-08	Left Wall	52
SHB-09	Right Wall	BRL
SHB-10	Drill Hall, E. FL	BRL
SHB-11	Drill Hall, W, FL	BRL
SHB-12	Vault FL	BRL
SHB13	Vault Cabinet	76
Blank		

BRL=Below Reportable Limits

7.4 HAZCOM, Chemical Inventory, MSDS Review, and General Observations

POL and chemical storage is the responsibility of the OMS #8 in Winchester.

8.0 OCCUPANT HEALTH AND COMFORT QUESTIONNAIRE (OHCQ) & FACILITY INFORMATION FORM (FIF)

One armory personnel responded to the OHCQ. No problems were identified. The OHCQs and FIF forms are included in Appendix C.

9.0 HEALTH HAZARD INFORMATION MODULE (HHIM)

The HHIM Field Survey Forms were completed for operations surveyed. A roster of employees, controls/protective measures, and potential health hazards for specific operations were identified. The HHIM Field Survey Forms are included in Appendix C.

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2019 of 2531

10.0 PHOTOGRAPHS

Site photographs are included in Appendix C.

11.0 REFERENCES

A list of references used during the course of this survey is included in Appendix C.

12.0 LIMITATIONS

Variation of the work environment is an inherent part of sampling and evaluations. This report reflects conditions, operations and practices observed and reported at the time of the survey. Changes in operating conditions, materials used, and work practices can alter the environment and the outcome of this type of survey.

13.0 RECOMMENDATIONS

Replace/repair lights in the vehicle maintenance bay (IFR) 22 FCS; drill hall 22 FCS (8 lights were out); weight room15 FCS (12 lights were out); and kitchen 35 FCS.

Laboratory lead wipe sample results indicated lead concentrations were below the National Guard Bureau (NGB) Pamphlet 420-15 guidelines of 200µg/ft², or lower for post cleaning indoor firing ranges (IFR). Insure that the State of Tennessee does not have lead reduction levels lower than recommended in Pamphlet 420-15.

Evaluate OMS #8 shop activities when personnel are available.

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2020 of 2531

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APPENDIX A

Building Diagram & Summary of Illumination Measurements & NG Design Guide Lighting Standards

Posted to NGB FOIA Reading Room
May, 2018

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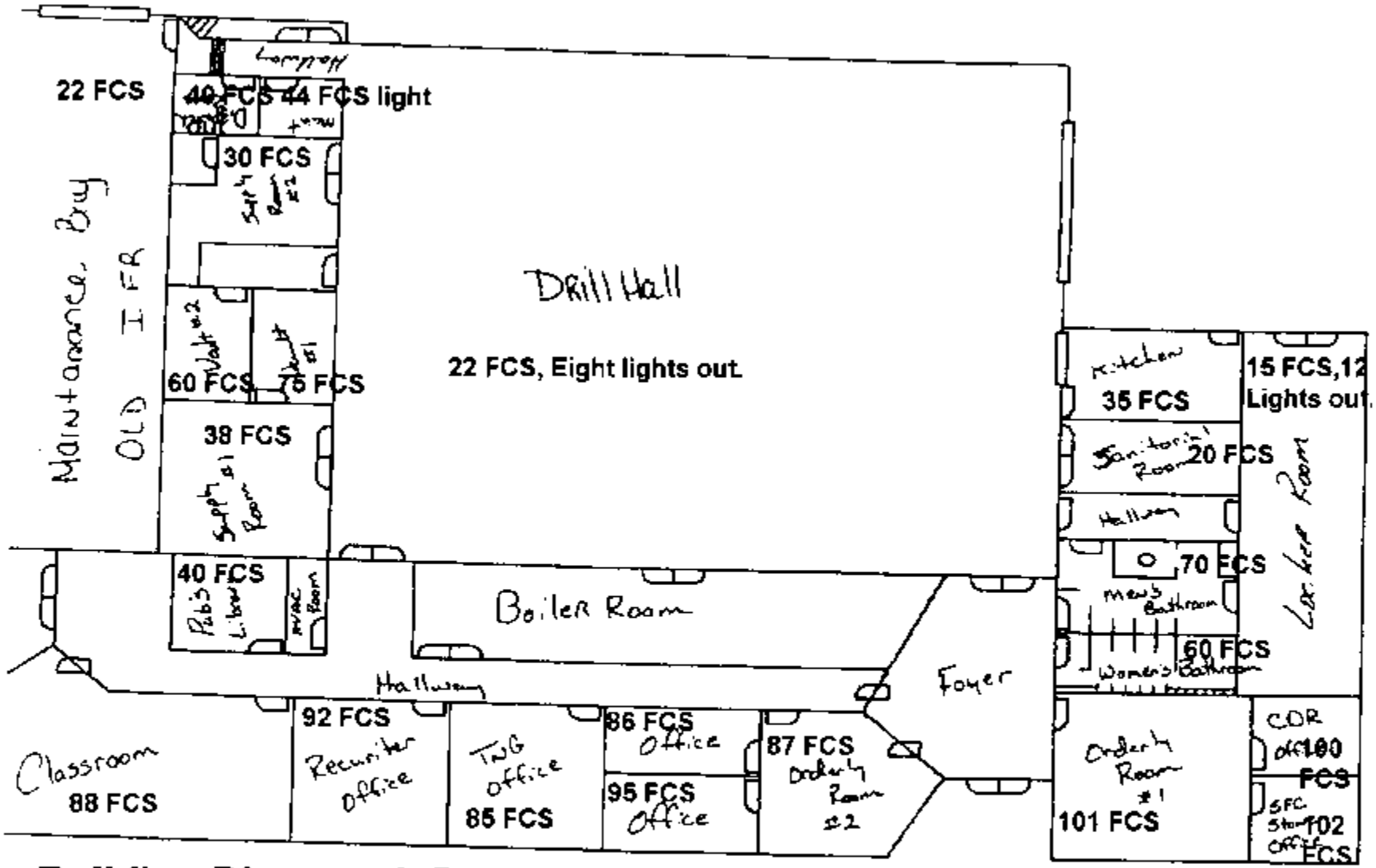

Building Diagram & Summary of Illumination Measurements

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FOIA Requested Record #J-15-0085 (TN)
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Page 2022 of 2531

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Table 8. Electrical Requirements

	FUNCTIONAL AREA	LIGHTING	OUTLETS	NOTES
Office Areas				
1	General Supervisor	70 FC, FL	1 duplex per wall	1
2	Supervisor	70 FC, FL	1 duplex per wall	1
3	Production Controller	70 FC, FL	1 duplex per wall	1
4	Inspection and Library	70 FC, FL	1 duplex per 10 LF of wall	1
5	Automation Clerk	70 FC, FL	1 duplex per 10 LF of wall	1
6	Common IT Space	70 FC, FL	1 duplex per 10 LF of wall	2
7	IT Support Activities	70 FC, FL	1 duplex per 10 LF of wall	2
8	Classroom	70 FC, FL	1 duplex per 10 LF of wall	
Personnel Areas				
1	Toilet/Shower	40 FC, FL	1 duplex GFCI per 3 sinks	
2	Locker Room	40 FC, FL	1 duplex GFCI	
3	Break Area	30 FC, FL	1 duplex per 10 LF of wall	
4	Physical Fitness Area	50 FC, FL	1 duplex per 12 LF of wall	2
Work Areas				
1	Tool Room	50 FC, FL	1 duplex per 20 LF of wall	
2	Supply Room	30 FC, FL	1 duplex per 20 LF of wall	
3	Battery Room	30 FC, FL	explosion proof	4
4	Comm & Electronic Shop	70 FC, FL	1 duplex per 2 LF of workbench	2
5	Instrument Repair Shop	70 FC, FL	1 duplex per 2 LF of workbench	2
6	Small Arms Repair Shop	70 FC, FL	1 duplex per 2 LF of workbench	2
7	Small Arms Test Room	70 FC, FL	1 duplex per 2 LF of workbench	2
8	Vault (Small Arms)	20 FC, FL	1 duplex	
9	Vault (CBT Vehicle Arms)	20 FC, FL	1 duplex	
10	Injector Test Room	70 FC, FL	1 duplex per 2 LF of workbench	2
11	Fuel and Ignition Repair Shop	70 FC, FL	1 duplex per 2 LF of workbench	2
12	Bit Storage/Issue	20 FC, FL	1 duplex per 20 LF of wall	
13	Machine Shop	50 FC, FL	1 duplex per 10 LF of wall	2
14	Carpenter Shop	50 FC, FL	1 duplex per 10 LF of wall	2
15	Lumber Storage Shed	10 FC, FL	none	

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Table 6. Electrical Requirements (Continued)

	FUNCTIONAL AREA	LIGHTING	OUTLETS	NOTES
16	Canvas Shop	50 FC, FL	1 duplex per 10 LF of wall	2
17	Metals Repair Shop	70 FC, FL	1 duplex per 10 LF of wall	2
18	Vault (Metals)	20 FC, FL	1 duplex	
19	Calibration Room	70 FC, FL	1 duplex per 2 LF of workbench	
20	Calibration Storage	20 FC, FL	1 duplex per 20 LF of wall	
21	Glass Repair Room	50 FC, FL	1 duplex per 10 LF of wall	2
22	Radiator Test & Repair Room	50 FC, FL	1 duplex per 10 LF of wall	2
23	COMSEC Repair Room	50 FC, FL	1 duplex per 10 LF of wall	2
24	Radiation Calibration Room	70 FC, FL	1 duplex per 2 LF of workbench	
25	Bulk POL Storage for Lubricating Systems	20 FC, FL	1 duplex	
26	Bulk POL Storage	20 FC, FL	1 duplex per 20 LF of wall	
27	Controlled Waste Handling	20 FC, FL	1 duplex per 20 LF of wall	
28	Bulky Equipment Storage	20 FC, FL	1 duplex per 20 LF of wall	
29	Flammable Materials Storage	20 FC, FL	1 duplex explosion proof	
30	Enclosed Unheated Storage	20 FC, FL	1 duplex per 20 LF of wall	
Wormways				
1	General Purpose Wormway	50 FC, FL	1 duplex per 10 LF of wall	2
2	Warm-Up Bay	50 FC, FL	1 duplex per 10 LF of wall	2
3	Welding Shop	50 FC, FL	1 duplex per 10 LF of wall	2
4	Wash Bay	50 FC, FL	N/A	2
5	Paint Stripping Bay	50 FC, FL	1 duplex per 10 LF of wall	2
6	Paint Preparation Bay	50 FC, FL	1 duplex per 10 LF of wall	2
7	Paint Booth	50 FC, FL	1 duplex per 10 LF of wall	2
8	Lubrication Bay	50 FC, FL	1 duplex per 10 LF of wall	2
9	Engine/Transmission Test Cell	50 FC, FL	1 duplex per 10 LF of wall	2
10	Electronics Bay	50 FC, FL	1 duplex per 10 LF of wall	2
11	Body Shop	50 FC, FL	1 duplex per 10 LF of wall	2

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APPENDIX B

IFR Sample Placement Diagram, Chain of Custody Forms, Lab Sample Results & Sample Photographs

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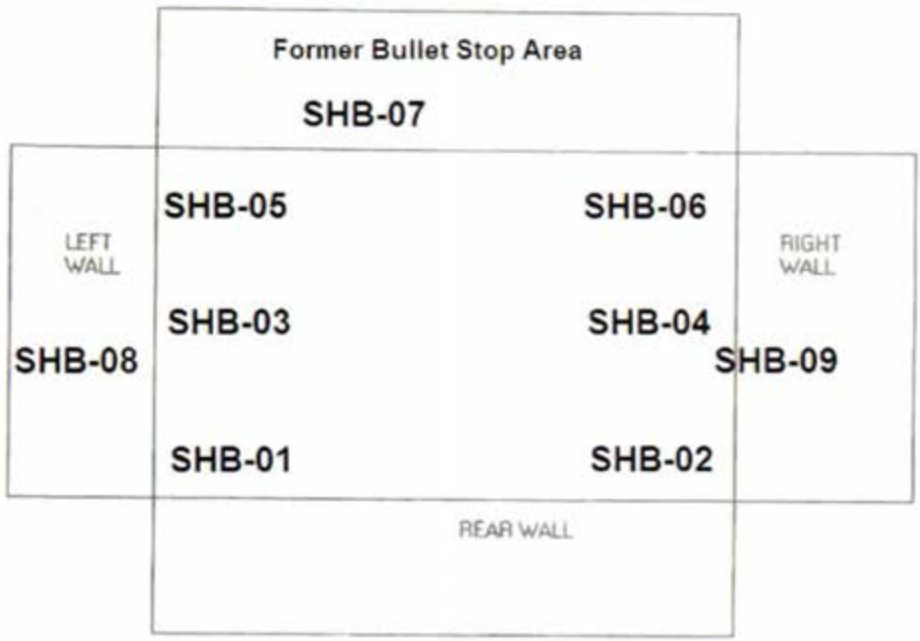
INDOOR FIRING RANGE SAMPLE PLACEMENT DIAGRAM



DRILL HALL
SHB-10, DRILL HALL, E, FL
SHB-11, DRILL HALL,W, FL

VAULT
SHB-12, VAULT FL
SHB-13 VAULT CABINET

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AES

ANALYTICAL ENVIRONMENTAL SERVICES, INC.

July 29, 2010

Non-Responsive [redacted]

RE: Shelbyville, TN

Dear Non-Responsive [redacted]

Order No: 1007J13

Analytical Environmental Services, Inc. received 14 samples on 7/23/2010 10:30:00 AM for the analyses presented in following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.

AES' certifications are as follows:

-NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/10-06/30/11.

-AIHA Certification ID #100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) effective until 09/01/11.

These results relate only to the items tested. This report may only be reproduced in full.

If you have any questions regarding these test results, please feel free to call.

Non-Responsive [redacted]

3785 Presidential Parkway • Atlanta, Georgia 30340 • (770) 457-8177 • FAX: (770) 457-8188

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Page 2027 of 2531

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Analytical Environmental Services, Inc

Date: 29-Jul-10

Lab Order: 1007J13
Client: Non-Responsive [redacted]nvironmental Associates, Inc.
Project: Shelbyville, TN
Matrix: Wipe
Date Received: 7/23/2010 10:30:00 AM

LEAD ON WIPES (N9100/7082)

N7082

Laboratory ID	Client Sample ID	Result	Units	Reporting Limit	DF	Qual	Date Collected	Date Analyzed	Analyst
1007J13-001A	SHB-01 REAR FLOOR	BRL	ug, Total	20	1		07/20/2010	07/28/2010	MP
1007J13-002A	SHB-02 REAR FLOOR RT	BRL	ug, Total	20	1		07/20/2010	07/28/2010	MP
1007J13-003A	SHB-03 LEFT FLOOR	BRL	ug, Total	20	1		07/20/2010	07/28/2010	MP
1007J13-004A	SHB-04 RIGHT FLOOR	BRL	ug, Total	20	1		07/20/2010	07/28/2010	MP
1007J13-005A	SHB-05 LEFT FLOOR	50	ug, Total	20	1		07/20/2010	07/28/2010	MP
1007J13-006A	SHB-06 RIGHT FLOOR	40	ug, Total	20	1		07/20/2010	07/28/2010	MP
1007J13-007A	SHB-07 BULLET STOP	101	ug, Total	20	1		07/20/2010	07/28/2010	MP
1007J13-008A	SHB-08 LEFT WALL	52	ug, Total	20	1		07/20/2010	07/28/2010	MP
1007J13-009A	SHB-09 RIGHT WALL	BRL	ug, Total	20	1		07/20/2010	07/28/2010	MP
1007J13-010A	SHB-10 DRILLHALL E FLOOR	BRL	ug, Total	20	1		07/20/2010	07/28/2010	MP
1007J13-011A	SHB-11 DRILLHALL W FLOOR	BRL	ug, Total	20	1		07/20/2010	07/28/2010	MP
1007J13-012A	SHB-12 VAULT FLOOR	BRL	ug, Total	20	1		07/20/2010	07/28/2010	MP
1007J13-013A	SHB-13 VAULT CABINET	76	ug, Total	20	1		07/20/2010	07/28/2010	MP
1007J13-014A	BLANK	BRL	ug, Total	20	1		07/20/2010	07/28/2010	MP

Qualifiers BRL - Not Detected at the Reporting Limit DF - Dilution Factor
B - Analyte detected in the associated Method Blank
Results are blank corrected where applicable

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2028 of 2531

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2029 of 2531

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ANALYTICAL ENVIRONMENTAL SERVICES, INC
3785 Presidential Parkway, Atlanta GA 30340-3704
TEL: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

Work Order 1007J13

Date 7/20/10 Page 1 of 1

[redacted]

NALYSIS REQUESTED

ad

RESERVATION (See codes)

Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.

No # of Containers

REMARKS

		DATE	TIME
1	SHB-01 Rear Floor	7/20/10	
2	SHB-02 Rear Floor Rt.	"	
3	SHB-03 Left Floor	"	
4	SHB-04 Right Floor	"	
5	SHB-05 Left Floor	"	
6	SHB-06 Right Floor	"	
7	SHB-07 Bullet Stop	"	
8	SHB-08 Left Wall	"	
9	SHB-09 Right Wall	"	
10	SHB-10 Drill Hall E Floor	"	
11	SHB-11 Drill Hall W Floor	"	
12	SHB-12 Vault Floor	"	
13	SHB-13 Vault Cabinet	"	
14		"	

ELINQUISHED BY DATE/TIME RECEIVED BY DATE/TIME

[redacted]

/23/10
10:30

ETHOD
IA
IA
MAIL COURIER

PROJECT INFORMATION

PROJECT NAME: Shelbyville, TN

PROJECT #

SITE ADDRESS: 2009 South Cannon Blvd

SEND REPO[redacted]

INVOICE T[redacted]
(IF DIFFER[redacted]
bill to:
Suite [redacted]

QUOTE # PO#

RECEIPT

Total # of Containers

Turnaround Time Request
- (X) Standard 5 Business Days
- ( ) 2 Business Day Rush
- ( ) Next Business Day Rush
- ( ) Same Day Rush (with req.)
- ( ) Other

STATE PROGRAM (if any)
E-mail? Y / N Fax? Y / N
DATA PACKAGE I II III IV

[redacted] NEXT BUSINESS DAY; IF NO TAT IS MARKED ON COC AES WILL PROCEED AS STANDARD TAT
AMPLES RECEIVED AFTER 3PM OR SATURDAY ARE CONSIDERED ... AMPLES ARE DISPOSED OF 30 DAYS AFTER COMPLETION OF REPORT UNLESS OTHER ARRANGEMENTS ARE MADE.

MATRIX CODES A Air GW = Groundwater SE = Sediment SO Soil SW = Surface Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify) WW = Waste Water
RESERVATIVE CODES H+1 Hydrochloric acid + ice + ice only N Nitric acid S+1 Sulfuric acid + ice SM+1 Sodium Bisulfate/Methanol + ice + Other (specify) NA None

White Copy - Original; Yellow Copy - Client

Non-Responsive

Client: Nichols Environmental Associates, Inc.
Project: Shelbyville, TN
Lab Order: 1007J13

Dates Report

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1007J13-001A	SHB-01 REAR FLOOR	7/20/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007J13-002A	SHB-02 REAR FLOOR RT	7/20/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007J13-003A	SHB-03 LEFT FLOOR	7/20/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007J13-004A	SHB-04 RIGHT FLOOR	7/20/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007J13-005A	SHB-05 LEFT FLOOR	7/20/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007J13-006A	SHB-06 RIGHT FLOOR	7/20/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007J13-007A	SHB-07 BULLET STOP	7/20/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007J13-008A	SHB-08 LEFT WALL	7/20/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007J13-009A	SHB-09 RIGHT WALL	7/20/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007J13-010A	SHB-10 DRILLHALL E FLOOF	7/20/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007J13-011A	SHB-11 DRILLHALL W FLOOI	7/20/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007J13-012A	SHB-12 VAULT FLOOR	7/20/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007J13-013A	SHB-13 VAULT CABINET	7/20/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007J13-014A	BLANK	7/20/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2030 of 2531

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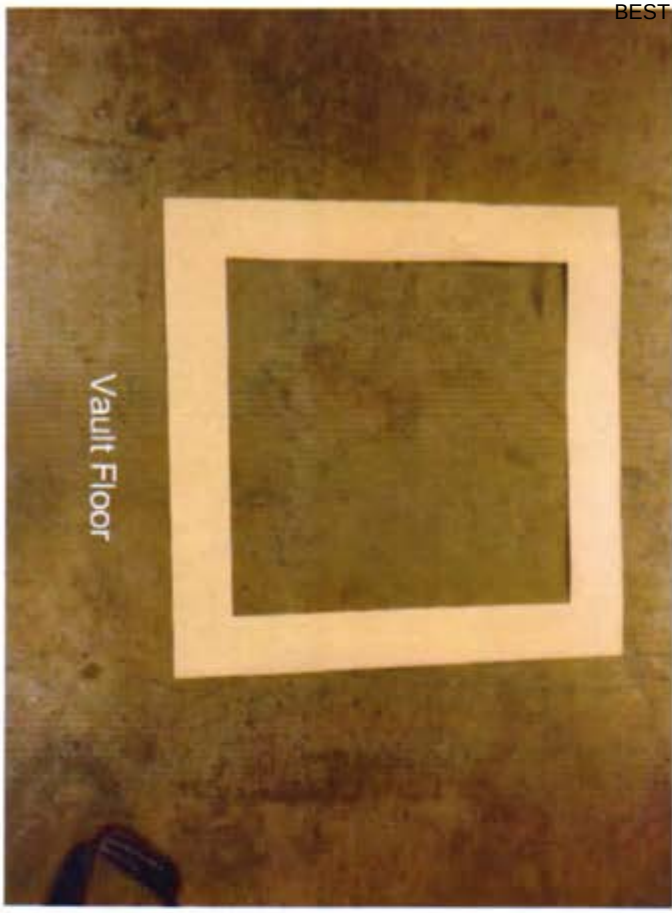

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APPENDIX C

Facility Information Form, Occupant Health and Comfort Questionnaires, Health Hazard Information Module, Photographs & References

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Facility Information Form

State: Tennessee
Facility: TN ARNG
Facility Address: 2009 S. Cannon Blvd., Shelbyville, TN 37334
Phone#:931-962-2700
Work Schedule (M-F, 8-4:30)

Date Prepared: 7/22/10
Supervisor: Non-Responsive

Fax #:_____

General Information	
Number of Maintenance Bays: Number of Exhaust Extensions:	0
Total Number of Personnel:	40
Number of Maintenance Personnel:	
Number of Administrative Personnel:	
Approximate area of facility (ft²) ApproximateDate/ Construction	1980

Operations		
	Yes (if Yes, How Many Hours per Day on Average)	No
Abrasive Blasting (List Type)	none	
Aerosol Can Painting		
Air Compressors (How many?) Armament	none	
Aviation Life Support Equipment	none	
Avionics	none	
Battery Charging Room or Battery Storage Room	none	
Brake/Clutch Repair and/or Replacement	none	
Calibration of Equipment	none	
Canvas Repair	none	
Carpentry Shop	none	
Grinding, buffing, polishing, sanding	none	
Hazardous Materials/POL Handling	none	
Electronics Repair	none	
Pneumatic Tool Operation	none	
Respirators (what kind?) Refueling	no	
Solvent Tank Use (How Many)	no	
Spray Paint Booth	none	
Sheet Metal Working	none	
Small Arms Repair	none	
Soldering	none	
Supply/Warehouse	none	
Testing and Tuning of Engines	no	
Welding (List Types)	no	
Other Noise sources	none	

Please write below any special concerns that you would like to have addressed during the survey:

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OCCUPANT HEALTH AND COMFORT QUESTIONNAIRE

Indoor Air Quality Survey (NO NAMES)

Date: [illegible]

1. Location of Facility [illegible]

2. Area or room where you spend the most time in the building

3. Gender Male Female
   Age Under 25 25-34 35-44 45-54 55 and over

4. Do you:

Smoke?	Yes	No
Have hay fever/pollen allergies?	Yes	No
Have skin allergies/dermatitis?	Yes	No
Have a cold/flu?	Yes	No
Have sinus problems?	Yes	No
Have other allergies?	Yes	No
Wear contact lenses?	Yes	No
Operate video display terminals?	Yes	No
Take medication for asthma, allergies,sinus,lung or immune problems?	Yes	No

5. Do any of your work activities produce dust or odor? Yes No
Describe:

6. Office characteristics

   Number of persons sharing same room/work area --1-- Number of windows in room/work area---------
   0

   Please rate adequacy of your workspace (i.e. desk space, size of work area)

   Poor 1 2 Average 3 4 Excellent 5

   Please rate room temperature

   Poor 1 2 Average 3 4 Excellent 5

7. How many years or months have you worked
   In this room/area? 1 yr In this building? 17 yrs

8. *List symptoms you have experienced in this building. More than one answer may apply (for example headaches may occur frequently, and improve on vacation.) When do these symptoms occur?*

Have you seen a doctor for any or all of these symptoms? Yes No

If yes, did your doctor relate this to your work, and if so, what were the diagnosis and recommended treatment? When do symptoms disappear?

9. *In your opinion what is the cause of perceived indoor air quality problems?* [illegible]

Thank you very much for your cooperation.

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FOIA Requested Record #J-15-0085 (TN)
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ARLOC	INSTALLATION	BLDG/	RMNO.
47000	Shelbyville Armory, 2009 S. Cannon Blvd., Shelbyville, TN 37160		

LOCATION/CODE	OPERATION/CODE/ ADO
SURVEY DATE: 0720/10, Evaluator: Non-Responsive	

WACOM/CODE	SUBMACOM/CODE	SUPERVISOR
National Guard Bureau/NG	ARNG	Non-Responsive

TELEPHONE	UNIT/ORGARNIZATION	RAC	FREQUENCY (hrs/day
Non-Responsive	Shelbyville Armory	3	HRS/DAY As Needed

NO. CIV(S)	NO. MIL	NO. CONTRACTORS	NO. LOC(S)0	NO. OTHER
0	40	0		0

SECTION 2 : FACILITY DATA

LAB HOODS	VAPOR DEGREASERS	SPRAY BOOTHS
0	0	0
MAINTENANCE BAYS	**OPEN SURFACE TANKS**	**VENTILATION UNITS**
0	0	0

SECTION 3: SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS
Video display terminal	Admin use computers Adequate lights in admin offices		50-75 FCS	

PERSONAL PROTECTIVE EQUIPMENT (R= REQUIRED; U = UTILIZED)

GLOVES	R/U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R/U
ACID	/	AIR LINE			/
COLD SURFACES	/	ABRASIZE BLASTING HOOD			/
HOT SURFACES	/	DISPOSABLE			/
N8C AGENTS	/	FULL FACE AIR PURIFYING			/
OIL		1/2 FACE AIR PURIFYING			/no
SOLVENTS	/	1/4 FACE AIR PURIFYING			/
SURGICAL GLOVES	/	SELF CONTAINED			/

EYES/FACE	R/U	HEARING	R/U	BODY	R/U	HEAD/FIT	R/U
HEMICAL SPLASH		(CANAL CAPS		APRONS	/	(COLD WEATHER BOOTS/HATS	

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FULL FACE SHEILD	/	EARPLUGS		fcOLD WEATHER CLOTHING	/	HARD HATS	/
CHEMICAL/SAFETY	/	HELMETS	/	COVERALLS		IMPERMEABLE BOOTS	
SAFETY/IMPACT	/	MUFFS	/	FULL BODY SUIT	/	SAFETY/CONDUCTIVE SHOES	/
WELDING HELMET	/	dUFF/EARPLUG COMBO	/	HEAT REFELECTIVE VEST/SUIT	/	SAFETY/NCN-CONDUCTIVE SHOES	/
		MFF/EARPLUG W/TIME LIMIT		SAFETY BELT/HARNESS	/		/

1 SECTION 4: HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
POVDT	Video Display Terminal	2	F
PODTRESS	Physical Stress	2	F

SECTIONS: PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY
McGehee	Darrell		M	4743	
Garner	John		M	8909	

SECTIONS; COMMENTS

1. Computers are used in the shop and admin office.

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Shop Bay (Firing Range)

Work Bay

Shop Bay (Firing Range)

Work Bay

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REFERENCES

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 22 July 2005.

c. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, October 1988.

d. AR 385-10, The Army Safety Program, 29 February 2000.

e. National Guard Pam 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006.

f. NGR 385-15, Policy and Responsibilities, Evaluation and Operation of Army National Guard Indoor Firing Ranges, 3 November 2006.

g. DA PAM 40-503, The Army Industrial Hygiene Program, 30 October 2000.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2003, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. Title 29, Code of Federal Regulations (CFR), 2001 rev., part 1910, Occupational Safety and Health Standards.

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NATIONAL GUARD REGION SOUTH
INDUSTRIAL HYGIENE OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

NGB-ARS-SEIH November 27, 2007

MEMORANDUM FOR: Non-Responsive RN, Occupational Health Nurse, Tennessee State Safety and Occupational Health Office, 250 8th Avenue, Smyrna, Tennessee 37167.

SUBJECT: Shelbyville National Guard Armory, Lead Sampling Survey, 2009 Cannon Boulevard, Shelbyville, Tennessee.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 22 July 2005.

c. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, October 1988.

d. AR 385-10, The Army Safety Program, 29 February 2000.

e. National Guard Pam 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006.

f. NGR 385-15, Policy and Responsibilities, Evaluation and Operation of Army National Guard Indoor Firing Ranges, 3 November 2006.

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i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. Title 29, Code of Federal Regulations (CFR), 2001 rev., part 1910, Occupational Safety and Health Standards.

2. General.

a. As requested by Non-Responsive, Tennessee Occupational Health Office, personnel with the National Guard Region South Industrial Hygiene Office performed an inspection at the referenced site. The apparent objective of the inspection was to collect surface wipe samples from the former Indoor Firing Range (IFR) for analysis of total lead to confirm/deny the presence of lead dust.

b. Non-Responsive with the National Guard Region South Industrial Hygiene Office in College Park Georgia performed the site visit.

3. Findings.

General Information

At the time of the sampling activity, the interior of the Shelbyville Armory IFR was emptied of all associated IFR equipment including the bullet trap and firing line. However, the area appeared to be in use as an automotive maintenance shop. A chain-link metal cage was observed surrounding the former bullet stop. Inside the metal cage were metal shelving units, a metal flammable storage cabinet and miscellaneous materials were stored.

At the rear of the former IFR was an entrance observed as a roll-up metal door. A disabled vehicle was stored in the maintenance bay along with a metal table, flammable cabinet and other automotive spare parts. The walls of the former IFR were constructed of cinder-block walls and the floor of the former IFR was constructed of concrete with the ceiling observed to be constructed of metal. The former bullet trap location was identified along what was referred to as the front wall and the firing line was previously located at the rear wall.

Sampling Activities

Based on the number of surfaces observed, samples were collected in accordance with National Guard Bureau Pamphlet 420-15. Ghost Wipe™ is pre-moistened media made of non-woven polyvinyl alcohol fiber and approved by American Industrial Hygiene Association (AIHA) for lead sampling. The wipes also meet all American Standards Testing Materials (ASTM) Designation E1792-96E specifications for sampling materials for lead in surface dust.

The surface samples were collected by placing a 1 square foot sampling template on the surface area and wiping the outlined area with a Ghost Wipe™. After the area inside the template was wiped, each individual sampling media was placed into separate, labeled re-sealable plastic bags and sealed. After each sample collection, a new surface area template was used and new disposable gloves were donned. A total of 15 samples were collected, three from each surface area with the exception of the ceiling area. The ceiling could not be reached due to the height and the lack of an adequate ladder to access this area. Two additional samples were collected from the surfaces of the metal shelving and metal table located in the former IFR. All collected samples were submitted to Analytical Environmental Services, Inc. (AES) in Atlanta, Georgia for subsequent analysis of total lead. In addition, one wipe was placed into a re-sealable bag and submitted as a blank sample for analysis.

Photographs of the observation made during the inspection are attached for reference.

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2045 of 2531

Laboratory Results

The results of the lead dust sampling activities are summarized in the following table.

Sample Number	Sample Location	Laboratory Results[1]
TNSV-01	Lower Front Wall	BRL
TNSV-02	Middle Front Wall	BRL
TNSV-03	Upper Front Wall	BRL
TNSV-04	Lower Right Wall	BRL
TNSV-05	Middle Right Wall	BRL
TNSV-06	Upper Right Wall	BRL
TNSV-07	Lower Rear Wall	BRL
TNSV-08	Middle Rear Wall	BRL
TNSV-09	Upper Rear Wall	BRL
TNSV-10	Lower Left Wall	BRL
TNSV-11	Middle Left Wall	BRL
TNSV-12	Upper Left Wall	BRL
TNSV-13	Floor Front Wall	95
TNSV-14	Middle Floor	77
TNSV-15	Floor at Rear Wall	23
TNSV-16	Metal Shelving at Front Wall	184
TNSV-17	**Work Table at Left Wall**	**10,300**
TNSV-Blank	Field Blank	BRL

[1] Results reported in micrograms per square feet ($\mu g/ft^2$)
[2] BRL = Below Reportable Limits

The laboratory results indicate lead concentrations detected above the IFR post cleaning standard. In accordance with the National Guard Bureau Pamphlet 420-15, the Shelbyville Armory IFR cannot be converted for other uses until the lead dust levels are reduced to $200\mu g/ft^2$ or lower depending on local requirements.

The laboratory results are attached for review.

4. Recommendations.

a. Prior to initiating decontamination activities and in accordance with 29 CFR 1910.1025, perform and conduct training for employees exposed to lead concentrations above the standard or who may suffer skin or eye irritation from exposure to lead.

b. Review NG Bureau Pamphlet 420-15 prior to conducting decontamination of the IFR and conduct cleaning activities in accordance with the regulatory document. Decontamination activities should also include items currently stored in the former IFR. Keep in mind that EPA (40 CFR 745 Subpart D) and your state may have lead reduction levels lower than the levels recommended in Pamphlet 420-15.

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Page 2046 of 2531

c. Ensure that appropriate personal protective equipment is worn during decontamination activities.

d. Consult with local Environmental Agency for guidance on proper disposal of materials used in decontaminating the IFR.

e. Upon completion of the decontamination activities, contact the Regional IH office for evaluation and collection of confirmatory lead dust samples.

5. If additional information is needed about the contractors report, please contact SGT

Non-Responsive

CC: Non-Responsive, CFMO, 3041 Sidco Drive, Nashville, Tennessee 37204-1504

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Page 2047 of 2531

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Photo 1: View of the Shelbyville, Tennessee Armory.

Photo 2: View of the former bullet stop area with miscellaneous materials stored.

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Photo 3: View of right wall of the former IFR.

Photo 4: View of the left wall of the former IFR.

Project Name: Shelbyville Tennessee Armory

Date Photos Taken: 8 November 2007

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Photo 5: View of the metal ceiling of the former IFR along with the concrete floor and vehicle.

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Page 2049 of 2531

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Project Name: Shelbyville Tennessee Armory

Date Photos Taken: 8 November 2007

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Analytical Environmental Services, Inc.

Date: 11/21/2007

LEAD ON WIPES (N9100/7082)
N7082

CLIENT: National Guard Bureau Region-South III
Project: Shelbyville Tennessee Armory
Delivery Order:
PO No:

Lab Order: 0711806
Date Received: 11/14/2007 10:30 AM
Matrix: Wipe

Laboratory ID	Client Sample ID	Results	Units	Report Limit.	DF	Date Collected	Date Analyzed	Analyst
0711806-001A	TNSV-01	BRL	µg/ft²	20	1	11/9/2007	11/16/2007	JY
0711806-002A	TNSV-02	BRL	µg/ft²	20	1	11/9/2007	11/16/2007	JY
0711806-003A	TNSV-03	BRL	µg/ft²	20	1	11/9/2007	11/16/2007	JY
0711806-004A	TNSV-04	BRL	µg/ft²	20	1	11/9/2007	11/16/2007	JY
0711806-005A	TNSV-05	BRL	µg/ft²	20	1	11/9/2007	11/16/2007	JY
0711806-006A	TNSV-06	BRL	µg/ft²	20	1	11/9/2007	11/16/2007	JY
0711806-007A	TNSV-07	BRL	µg/ft²	20	1	11/9/2007	11/16/2007	JY
0711806-008A	TNSV-08	BRL	µg/ft²	20	1	11/9/2007	11/16/2007	JY
0711806-009A	TNSV-09	BRL	µg/ft²	20	1	11/9/2007	11/16/2007	JY
0711806-010A	TNSV-10	BRL	µg/ft²	20	1	11/9/2007	11/16/2007	JY
0711806-011A	TNSV-11	BRL	µg/ft²	20	1	11/9/2007	11/16/2007	JY
0711806-012A	TNSV-12	BRL	µg/ft²	20	1	11/9/2007	11/16/2007	JY
0711806-013A	TNSV-13	95	µg/ft²	20	1	11/9/2007	11/16/2007	JY
0711806-014A	TNSV-14	77	µg/ft²	20	1	11/9/2007	11/16/2007	JY
0711806-015A	TNSV-15	23	µg/ft²	20	1	11/9/2007	11/15/2007	JY
0711806-016A	TNSV-16	184	µg/ft²	20	1	11/9/2007	11/15/2007	JY
0711806-017A	TNSV-17	10300	µg/ft²	2000	100	11/9/2007	11/15/2007	JY
0711806-018A	TNSV-BLANK	BRL	µg, Total	20	1	11/9/2007	11/15/2007	JY

Qualifiers: BRL - Not Detected at the Reporting Limit DF - Dilution Factor

Results are blank corrected where applicable

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Page 2050 of 2531

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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-AVN-SI

31 March 2003

MEMORANDUM FOR: The Adjutant General of Tennessee, ATTN: Non-Responsive
2009 S. Cannon Blvd, Shelbyville, Tennessee, 37160.

SUBJECT: Transmittal of the Shelbyville, Tennessee Armory Survey Report.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, 30 August 1986, Medical Service, Preventive Medicine.

c. National Guard Regulation (NGR) 385-10, 1988, Army National Guard Safety and Occupational Health Program.

d. AR 11-34, The Army Respiratory Protection Program, 15 February 1990.

e. TB MED 502, Occupational and Environmental Health Respiratory Protection Program, February 1982.

f. DA PAM 40-503, 30 October 2000, The Army Industrial Hygiene Program.

g. DA PAM 40-501, 10 December 1998, Hearing Conservation.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2001, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

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k. Title 29, Code of Federal Regulations (CFR), 2000 rev., part 1910, Occupational Safety and Health Standards.

l. Report dated 11 March 2003, Industrial Hygiene Survey, LAE Consulting, Severn, Maryland.

2. General.

a. At the request of the TNARNG Safety and Occupational Health Office, an Industrial Hygiene Service was put together to conduct Health Hazard Information module (HHIM) Field surveys and industrial hygiene sampling of the Shelbyville Armory, Shelbyville, Tennessee .

b. LAE Consulting, 1218 Scattered Pines Court, Severn, Maryland 21144 conducted the survey.

3. Findings. All HHIM field survey forms and survey findings of the report. (See enclosure 1)

4. Recommendations.

a. Follow all recommendations made in reference 1.l., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Control water infiltration in the armory and/or replace or repair damaged surfaces or components (ceiling and floor tiles). Building conditions that present IAQ concerns or problems not only exacerbates normally minor health issues but also tend to promote or accelerate building deterioration.

c. The recommendations given in the comment section of the HHIM data sheets and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-03. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-04 IHIP.

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present survey, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

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NGB-AVN-SI
SUBJECT: Transmittal of the Shelbyville Armory Survey Report.

f. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

5. If additional information is needed about the industrial hygiene survey or air sample

Non-Responsive

[redacted]

CF:
NBG-AVN-SH
State Occupational Health Office, P O Box 41502, Nashville, TN 37204-1502.
State Safety Manager, P O Box 41502, Nashville, TN 37204-1502.

Encl
as

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LAE Consulting
1218 Scattered Pines Court, Severn, Maryland 21144
Telephone: (410) 551-2717

11 March 2003

MEMORANDUM FOR: Battery, B 1/115th Field Artillery, ATTN: [redacted] 09 S. Cannon Blvd, Shelbyville, Tennessee, 37160

SUBJECT: Industrial Hygiene Survey of Shelbyville National Guard Armory, Shelbyville, Tennessee

1. References.

a. Title 29, Code of Federal Regulations (CFR) Part 1910, Occupational Safety and Health Administration (OSHA).

b. AR 40-5, Preventive Medicine, 15 October 1990.

c. AR 385-10, 23 May 1988, Army Safety Program.

d. TB MED 503, The Army Industrial Hygiene Program.

e. Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.

f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.

g. Title 40, Code of Federal Regulations (CFR) Part 745, Lead, Identification of Dangerous Levels of Lead: Final rule.

h. National Institute for Occupational Safety and Health (NIOSH), (76-130) Technical Information, Lead Exposure and Design Considerations for Indoor Firing Ranges GPO, 1975.

i. Industrial Ventilation, 22nd, Edition, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

2. Purpose. The purpose of this survey was to conduct a baseline Industrial Hygiene survey of the Shelbyville NG Armory. The facility was visually examined and the Building Custodian was interviewed for historical information related to the building and the operations performed. A diagram of the building can be found in Enclosure 1. Laboratory results of Lead wipe samples at Enclosure 2. Photographs of the facility can be found in Enclosure 3. Health Hazard Inventories can be found in Enclosure 4.

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SUBJECT: Industrial Hygiene Survey of Shelbyville National Guard Armory, Shelbyville, Tennessee

3. Background. At the request of Non-Responsive of the National Guard Bureau Region South Industrial Hygiene Office, M[redacted]AE Consulting conducted an industrial hygiene survey at the Na[redacted]y in Nashville, North Carolina on 12 February 2003.

4. Facility Description. This facility houses the Battery B 1/115th FA. The soldiers performs administrative duties Monday through Friday between 0800 and 2000 hours. AGR soldiers may perform within their Military Occupational specialty (MOS) during Drill weekend. The Armory is utilized for drills on the weekend. The building was constructed in 1979. The facility houses four administrative areas, one kitchen/mess hall, two classrooms, a Drill hall, Supply Room, and a maintenance bay.

5. Findings.

a. A maintenance bay is located in the Converted Indoor Firing range. The bay can accommodate one vehicle. Rolling overhead doors are used for the entrances. The maintenance area is located in the lower level of the Armory. The local OMS utilizes the bay for repairing of vehicles. Electric and Acetylene welder units, and grinding / sanding machines, Solvent dipping tank, were identified as possible operations taken place in this area. The frequency of these operations are unknown since OMS personnel were not present and /or available for an interview. An eyewash is not available. Eye and hearing protection warning signs are posted. Personnel Protective Equipment (PPE) was on hand for the solvent tank. PPE was not available for the welding and sanding operation. Equipment may be maintained at the OMS shop. Local exhaust ventilation is not provided. Ventilation is provided by opening the overhead rolling door.

b. Material Safety Data Sheets (MSDS) and chemical inventory was available and located in the motor pool bay area on chemicals that are in use by this Armory. Two flammable cabinet in the maintenance bay area store containers of spray paint, isopropyl alcohol, 1 gallon cans of latex paint, 1lb canisters of propane fuel and weapon cleaner/lubricant.

c. A Hazardous Waste Accumulation Point is designated in a corner of the maintenance bay. Used oil, rags and lube grease are stored in containers in this area. A berm or any other method of containment was not in place.A fire extinguisher is hung on a wall inside the accumulation area. Other excess items such as a radio (plugged in to wall outlet) wooden vehicle wheel blocks, and a metal chair is stored in this location.

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Page 2055 of 2531

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d. Possible Asbestos Containing Material (PACM) was found on top of the Pepsi machine located in the Drill Hall. The material may have come from a water pipe. The material was collected and analyzed for Asbestos. Analyzes found No Asbestos detected.

e. Ten (10) wipe samples for Lead were taken from various locations in the Armory (Table 1). Consideration was given to areas in the deactivated Indoor Firing Range. Two of the ten samples were above the clearance level of 40 ug/ft^2 indicated in reference g.

Table 1

Sample Number	Sample Location	Results
1	Right wall were deflector was attached to the wall 7 ft up wall	<12 ug/ft^2
2	Left wall were deflector was attached to the wall 5 ft up wall Left	<12 ug/ft^2
3	Former pit floor	76 ug/ft^2
4	Middle of floor of former range	15 ug/ft^2
5	Wall acoustic 6 ft	<12 ug/ft^2
6	Top of Pepsi machine in drill hall	220 ug/ft^2
7	Middle Drill Hall floor	<12 ug/ft^2
8	Top of gray metal wall locker in kitchen	19 ug/ft^2
9	Filter in AHU	<12 ug/ft^2
10	Blank	<12 ug/ft^2

6. Recommendations.

a. Consider performing an evaluation of the operations in the maintenance bay while when personnel of the OMS shop is available for an interview. Recommend contacting the Tennessee Safety and Occupational Health office for assistance in this matter.

b. Continue to update the chemical inventory when receiving new items. Ensure all chemicals known to be hazardous have a MSDS and include the item onto the chemical inventory. Dispose of all excess known to be hazardous chemicals through the USPFOTN or contact the Tennessee Occupational Safety and Health Office (TN, OSHO) for technical assistance. Ensure that the storage location of the chemical is included on the inventory. Make a master copy of the inventory and all associated MSDSs and place it within the Armory were it is accessible to all personnel. All personnel who work at the Armory should be familiar with MSDSs and their location.

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Page 2056 of 2531

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6. Recommendations.

c. The Resource Conservation and Recovery Act, an environment regulation under the Environment Protection Agency states that a generator may accumulate up to 55 gallons of HW onsite for 90 days or less without obtaining a permit. The waste must be placed a container that is clearly labeled with the words "Hazardous Waste" and the name of the waste place in the container. The start date of the accumulation must also be written on the label. The waste container must be placed in a secondary containment that provides catchment in case of an accidental spill. The building storing the container must be approved for storage of HW. A generator who accumulates HW for more than 90 days is considered an operator of a HW storage facility and must obtain permits from the regional state EPA office. Each installation with the capacity for a release of a reportable quantity of oil or a Hazardous substance must prepare and implement a Spill Prevention, Control, and Countermeasures (SPCC) Plan and an Installation Spill Contingency Plan (ISCP). The Spill Contingency Plan should be reviewed and updated every three years. The SPCC plan must include at a minimum spill prevention, readiness of response materials and equipment, personnel training, containment provisions, and a list of spills in past 12 months and the corrective action taken. The ISCP is a plan that describes how personnel will response to a release. The ISCP must include names, addresses and phone numbers of Armory Spill Response Coordinator(s), location of emergency equipment and response materials, an evacuation plan, a flow chart or description of arrangements with local fire and police departments, state or local emergency response teams, a description of personnel actions and responsibilities in response to fires, explosions, or any other unplanned release of hazardous materials at the Armory. Recommend that each individual in the organization is educated on the Spill Response Procedures and the location of response equipment and Spill Plan. Contact the Tennessee Safety and Occupational Health office for technical assistance on reviewing and or developing Spill Contingency Plans and with assistance in determining the category of the waste that is stored. If funding is available considering purchasing an outside chemical storage building that is rated for fire and made for chemical storage.

d. Any material containing more than one percent Asbestos is considered an Asbestos Containing Material [OSHA 29 CFR, 1910.1101]. The material collected was not an Asbestos Containing Material.

e. Recommend that the Tennessee Safety and Occupational Health office review the lead wipe sample results. If sample results are greater than or equal to 40 ug/ft^2 consider decontamination of the range.

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Page 2057 of 2531

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7. Technical Assistance. For technical assistance, regarding information found in this

Non-Responsive

[redacted]

3. Facility Photos
4. Lead Wipe Results

CF: Safety Occupational Health Office, Houston Barracks
ATTN: AGTN-SAHO, 3041 Sidco Drive, Nashville, TN 37204-1501

LAE Consulting
1218 Scattered Pines Court, Severn, Maryland 21144
Telephone: (410) 551-2717

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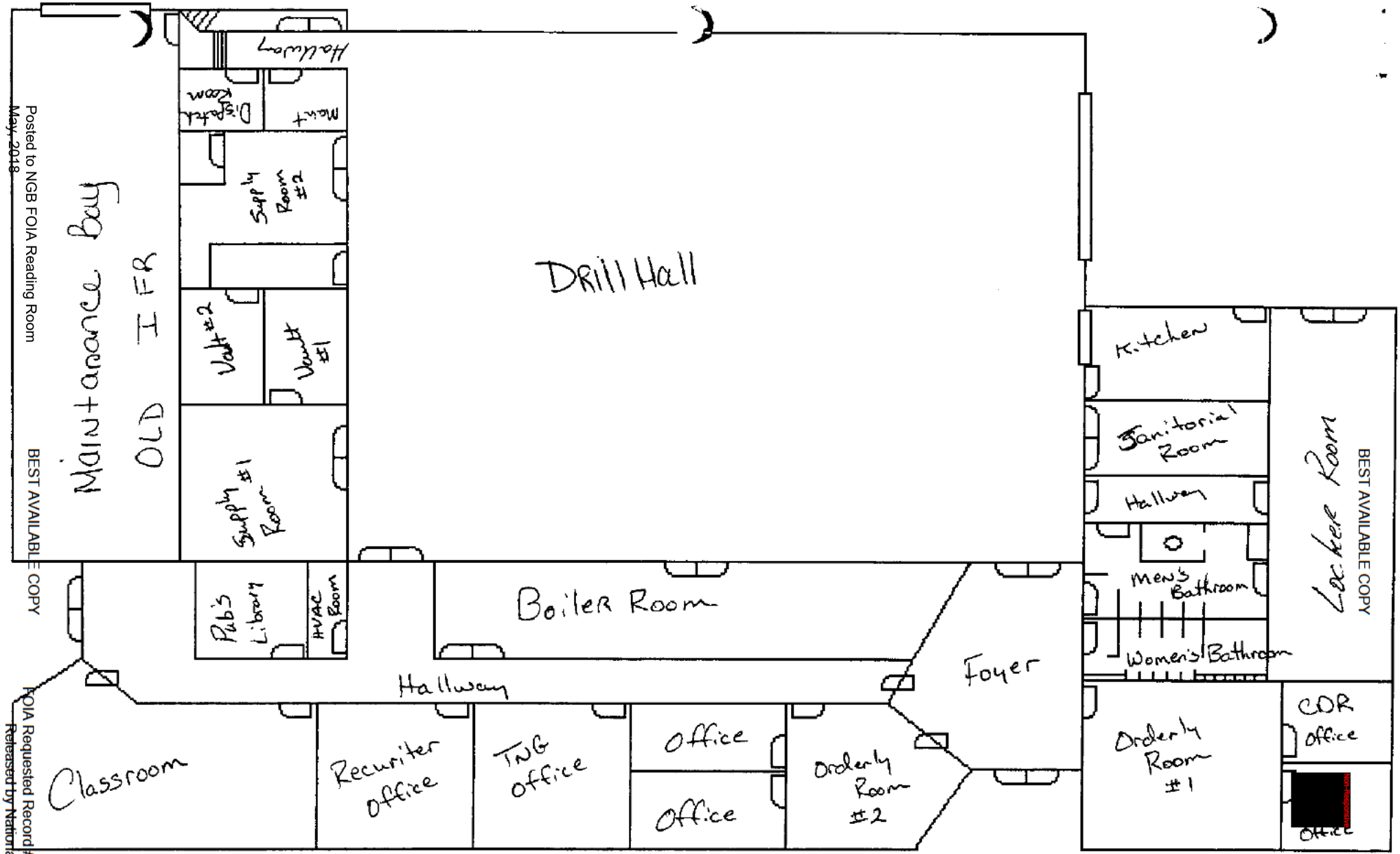
Page 2058 of 2531



SHELBYVILLE NG Armory, TN

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Page 2059 of 2531

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HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

[redacted]

ARLOC	INSTALLATION	BLDG/RM NO.
	SHELBYVILLE N.G. Armory	2009 S. Cannon Blvd SHELBYVILLE, TN 37160

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR
12 Feb 03	LAE Consulting

MACOM/CODE	SUBMACOM/CODE	[redacted]
[redacted]		

[redacted]	UNIT/ORGANIZATION	RAC [redacted]	(hrs/day)
	Battery B 1/115th FA		8+ hrs

		NO. CONTRACTORS	NO. LOC(S)	NO. OTHER
	2			8

SECTION 2: FACILITY DATA

LAB HOODS	VAPOR DEGREASERS	SPRAY BOOTHS

MAINTENANCE BAYS	OPEN SURFACE TANKS	VENTILATION UNITS
1		

SECTION 3: SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS

PERSONAL PROTECTIVE EQUIPMENT (R= REQUIRED; U = UTILIZED)

GLOVES	R/U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R/U
ACID	/	AIR LINE			/
COLD SURFACES	/	ABRASIZE BLASTING HOOD			/
HOT SURFACES	/	DISPOSABLE			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	1/2 FACE AIR PURIFYING			/
SOLVENTS	✓ / \	1/4 FACE AIR PURIFYING			/
SURGICAL GLOVES	/	SELF CONTAINED			/

EYES/FACE	R/U	HEARING	R/U	BODY	R/U	HEAD/FIT	R/U
CHEMICAL SPLASH	/	CANAL CAPS	✓/	APRONS	/	COLD WEATHER BOOTS/HATS	/
FULL FACE SHEILD	✓ /	EARPLUGS	/	COLD WEATHER CLOTHING	/	HARD HATS	/
CHEMICAL/SAFETY	/	HELMETS	✓/	COVERALLS	/	IMPERMEABLE BOOTS	/
SAFETY/IMPACT	/	MUFFS		FULL BODY SUIT	/	SAFETY/CONDUCTIVE SHOES	/
WELDING HELMET	✓ /	MUFF/EARPLUG COMBO	/	HEAT REFELECTIVE VEST/SUIT	/	SAFETY/NON-CONDUCTIVE SHOES	/
		MUFF/EARPLUG W/TIME LIMIT	/	SAFETY BELT/HARNESS	/		/

SECTION 4: HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
N39-92-1	Lead, Inorganic Dust + Fumes		
CO WELD FUMES	Welding Fumes		
POWELD SPA	Welding Sparks		

SECTION 5: PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

SECTION 6: COMMENTS

☐ No comments ☑ See attached sheet

TN DOS Safety + Occupational Health office has Personnel Data

SHELBYVILLE, TN ARMORY
Conducted INDOOR Range
Lead Wipe Sample Locations

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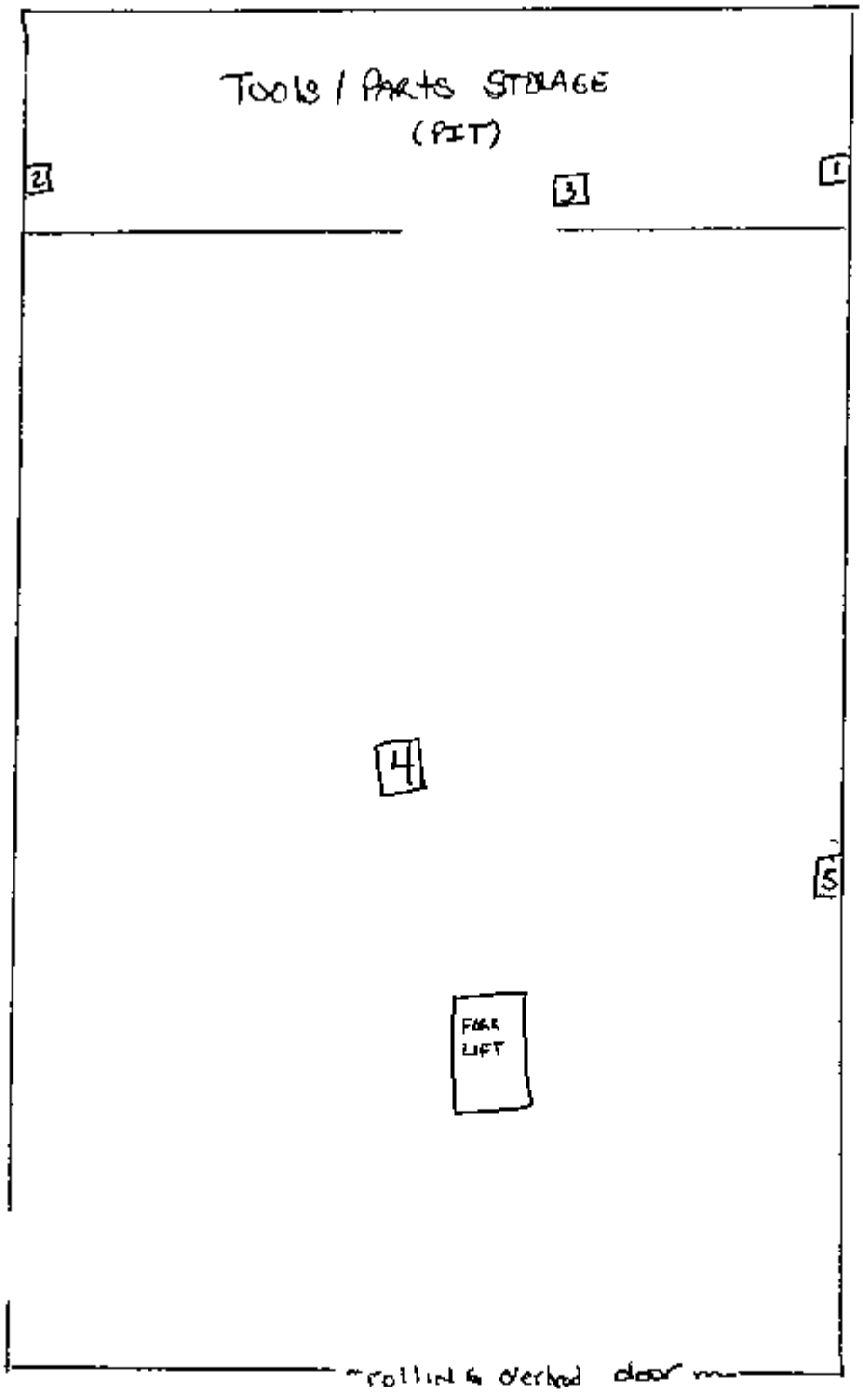

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AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client:	LAE Consulting	**Job Name:**	Shelbyville NG Armory, Shelbyville, TN	**Chain Of Custody:**	109644
Address:	1218 Scattered Pine Court	**Job Location:**	Not Provided	**Date Analyzed:**	02/21/2003
	Severn, Maryland 21144	**Job Number:**	Not Provided	**Person Submitting:**	[redacted]
		P.O. Number:	Not Provided	**Report Date:**	21-Feb-03
Attention:	[redacted]				

Page 1 of 1

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit		Final Result			Comments
0326990	1	Flame	Wipe	****	1.000	12.00	ug/ft²	<	12	ug/ft²	
0326991	2	Flame	Wipe	****	1.000	12.00	ug/ft²	<	12	ug/ft²	
0326992	3	Flame	Wipe	****	1.000	12.00	ug/ft²		76	ug/ft²	
0326993	4	Flame	Wipe	****	1.000	12.00	ug/ft²		15	ug/ft²	
0326994	5	Flame	Wipe	****	1.000	12.00	ug/ft²	<	12	ug/ft²	
0326995	6	Flame	Wipe	****	1.000	12.00	ug/ft²		220	ug/ft²	
0326996	7	Flame	Wipe	****	1.000	12.00	ug/ft²	<	12	ug/ft²	
0326997	8	Flame	Wipe	****	1.000	12.00	ug/ft²		19	ug/ft²	
0326998	9	Flame	Wipe	****	1.000	12.00	ug/ft²	<	12	ug/ft²	
0326999	10	Flame	Wipe Blank	****	N/A	12.00	ug	<	12	ug	

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7420; Water: SM-3111B

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7421; Water: SM-3113B

N/A = Not Applicable mg/Kg = parts per million (ppm) by weight mg/L = parts per million (ppm)

%Pb = percent lead by weight ug = micrograms ug/L = parts per billion (p[redacted]

Note: All results have two significant digits. Any additional digits shown should not b[redacted]
considered when interpreting the result.

Non-Responsive

Manager: [redacted]

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples.

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Page 206 of 251
Rejected Record #J-15-0088

FOIA Requested Record #J-15-0088
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Page 2064 of 2531

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AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client:	LAE Consulting	**Job Name:**	Shelbyville NG Armory	**Chain Of Custody:**	109645
Address:	1218 Scattered Pine Court	**Job Location:**	Shelbyville, TN	**Date Analyzed:**	02/25/2003
	Severn, Maryland 21144	**Job Number:**	Not Provided	**Person Submitting:**	[redacted]
		P.O. Number:	Not Provided		

Attention: [redacted]

Page 1 of 1

Summary of Polarized Light Microscopy

AMA Sample Number	Client Sample #	Total Asbestos	Chrysotile Percent	Amosite Percent	Crocidolite Percent	Other Asbestos Percent	Mineral Wool Percent	Fiberglass Percent	Organic Percent	Synthetic Percent	Other Percent	Particulate Percent	Sample Color	Analyst ID	Comments
0326989	1	NAD	--	--	--	--	18	--	2	--	--	80	Beige	CK	

The following footnotes only apply to those samples which the total asbestos result is flagged with a note number.

1 TEM RECOMMENDATION - Please note, due to resolution limitations with optical microscopy and/or interference from matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos. It is recommended that the additional analytical technique of TEM be used to check for asbestos fibers below the resolution limits of optical microscopy.

2 MATRIX REDUCTION RECOMMENDATION - Please note, due to interference from the matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos which is obscured from view. It is recommended that the additional preparation technique of gravimetric reduction be performed on this sample to minimize the obscuring effects of matrix components, followed by reanalysis by PLM and/or TEM.

Analysis Method - EPA/600/R-93/116 dated July 1993

NAD = "No Asbestos Detected" TR = "Trace equals less than 1% of this component"

[redacted]

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Shelbyville NG Armory, Shelbyville, TN
Battery B, 1/115th FA

Views of the Converted Indoor Firing Range

View of Lead wipe sample # 1 location,
in the Converted Indoor Firing Range

View of Lead wipe sample #2 location,
in the Converted Indoor Firing Range

View of Lead wipe sample #3 location,
In the Converted Indoor Firing Range

View of Lead wipe sample #4 location,
In the Converted Indoor Firing Range

View of Lead wipe sample #5,
In the Converted Deactivated Indoor Firing range

View of lead wipe sample #6 location, (yellow card)
on top of Peapsi machine in the Drill Hall

View of Lead wipe sample #7 location, (yellow card) on the Drill Hall Floor

View of Lead wipe sample #8 location, (yellow card) on top of grey metal wall locker in the mess

Air Handling Units, Location of Lead wipe sample #9

A solvent tank located in the converted Indoor firing range

Views of the Hazardous Waste Accumulation Area
located in the Converted Indoor Firing Range

Grinding/Sanding operation located in the Converted Indoor Firing Range

An Arc welding unit located in the Converted Indoor Firing Range

Views of (2) Flammable cabinets located in the Converted Deactived Firing Range

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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-ARS-IHSE (40-5f) November 18, 2006

MEMORANDUM FOR: Adjutant General AR ARNG, ATTN: Non-Responsive State Occupational Health Office, Camp Robinson North Little Rock, AR 72118-2200.

Thru : Non-Responsive, DET 4 MED JTFHQ PO BOX 011 BLDG 6401 RMTC, NLR,AR 72199-9600.

SUBJECT: Transmittal of the Survey Reports for FMS 4 Malvern, Malvern Armory, Sheridan Armory, Arkansas.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, 30 August 1986, Medical Service, Preventive Medicine.

c. National Guard Regulation (NGR) 385-10, 1988, Army National Guard Safety and Occupational Health Program.

d. AR 11-34, The Army Respiratory Protection Program, 15 February 1990.

e. TB MED 502, Occupational and Environmental Health Respiratory Protection Program, February 1982.

f. DA PAM 40-503, 30 October 2000, The Army Industrial Hygiene Program.

g. DA PAM 40-501, 10 December 1998, Hearing Conservation.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2003, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

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SUBJECT: Transmittal of the Survey Reports for FMS 4 Malvern, Malvern Armory, Sheridan Armory, Arkansas.

k. Title 29, Code of Federal Regulations (CFR), 2000 rev., part 1910, Occupational Safety and Health Standards.

l. Industrial Hygiene Survey Report, OSHEA II, Industrial Hygiene Consulting, Fayetteville, NC.

2. General.

a. At the request of MAJ Fermin DeOrbegoso, AR ARNG Occupational Health Office, an Industrial Hygiene Service was put together to conduct Health Hazard Information module (HHIM) Field surveys and industrial hygiene sampling at the FMS 4 Malvern, Malvern Armory, Sheridan Armory, Arkansas.

b. The surveys were conducted by OSHEA II, Industrial Hygiene Consulting, P.O. Box 35669 Fayetteville, N.C. 28303

3. Findings. All HHIM field survey forms, industrial hygiene sampling and survey findings of the report are enclosed (See ENCL 1). The afford mentioned report has been designed, by this office, to extract personal data from the report which is enclosed. Additionally were applicable Hearing Conservation Program Notification Letters were generated based on the noise dosimetry performed.

4. Recommendations.

a. Follow all recommendations made in paragraph 6 of the enclosed report. Request industrial hygiene (IH) services where needed to complete the recommendations.

b. The recommendations given in the comments section of the HHIM data sheets and data collected will serve as an update of the baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY2006. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY2007 IHIP. H

c. Have all HHIM data entered into the HHIM computer module.

d. Use the report to help in correcting all deficiencies noted.

e. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present visits, especially if this will help eliminate health hazards and reduce medical surveillance cost.

f. Contact the State Occupational Health Nurse, MAJ Fermin DeOrbegoso, for any medical Surveillance that may be needed.

k. To execute your responsibilities in correcting all deficiencies, coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

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NGB-ARS-IHSE (40-5f) November 18, 2006

SUBJECT: Transmittal of the Survey Reports for FMS 4 Malvern, Malvern Armory, Sheridan Armory, Arkansas.

5. The present report addressed to the local facility commanders was divided in such a way that personal data can be detached and kept by the OHM or blocked when forwarding these reports to other entities within

Non-Responsive

[redacted]

CF: NGB-ARS-IH
State Occupational Health Office, Camp Robinson, North Little Rock, AR 72118-2200
State Safety Manager, Camp Robinson North Little Rock, AR 72118-2200.

ENCL.
as

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Arkansas Army National Guard
Sheridan Armory

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Page 2078 of 2531

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MEMORANDUM FOR: Arkansas Army National Guard: ATTN: Non-Responsive Armory Supervisor, at Delta Company 153rd Infantry Battalion, Sheridan, Arkansas 72150

SUBJECT: Baseline Industrial Hygiene Health Hazard Information Module (HHIM) Survey at Delta Company 153rd Infantry Battalion, 91 Grant 74, Sheridan, Arkansas 72150

September 17, 2006

REFERENCES

a. Title 29 Code of Federal Regulations (CFR) part 1910, Occupational Safety and Health Administration (OSHA).

b. Army Regulation 385-10, The Army Safety Program.

c. Army Regulation 11-34, February 1990, The Army Respiratory Protection Program

d. Technical Bulletin (TB MED) 503, 1 February 1985, The Army Industrial Hygiene Program

e. Industrial Ventilation, 22nd Edition, The American Conference of Governmental Industrial Hygienist (ACGIH), Cincinnati, Ohio.

f. National Guard Regulation 385-10, 20 December 1989, Army National Guard Safety and Occupational Health Program.

g. IES Lighting Handbook, Application Volume 2000, Illumination and Engineering Society of North America.

h. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation Program.

i. Technical Bulletin (TB MED) 503, 1 February 1985, The Army Industrial Hygiene Program.

j. Army Regulation (AR) 40-5, 15 October 1990, Preventive Medicine.

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2079 of 2531

2. **GENERAL:** At the request of [redacted] National Guard Bureau South, Regional Industrial Hygienist, Atlanta, Georgia, a Health Hazard Information Module Baseline Survey was performed at Delta Company 153rd Infantry Battalion, Sheridan, Arkansas. The purpose of this survey was to evaluate health hazards, existing controls in the work site to perform a baseline survey in accordance with references 1a through 1j and collect bulk samples.

3. **FINDINGS:**

Armory Site Description: Delta Company 153rd Infantry Battalion is housed in this armory. Four full time individuals perform administrative duties. The armory was constructed in the1970's and is approximately 8,000 square feet. It contains several offices/ five administrative areas, kitchen, supply rooms, and weapons room/vault. The armory was well kept but there was evidence of leaking as indicated by the water circles on the ceiling tiles.

This classroom contained a few water circles in the ceiling tile.

The drill hall is used on drill weekends.

The armory's drill hall contained a painted concrete floor. Other areas in the armory contained carpet.

The ceiling was concrete with fourteen halogen lights to illuminate the room.

The recruiter's office contained chipped tile in four areas. Samples were collected and sent to the lab for analysis. The analysis will be divulged later in the report.

There was evidence of mice in the building. Traps were placed in corners of four rooms.

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Food prep area of the kitchen. The kitchen is used during drill weekends. Spouses cook burgers and hot dogs occasionally; however, food is primarily catered during drill.

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This area was the converted shooting area. It is primarily used for storage. Wipe sampling was performed and the analysis addressed later in the report.

In administrative office areas phone answering, computer use and paper generation is performed.

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Illumination levels were obtained in all areas of the armory and addressed later in the report.

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Oil, propane fuel, insecticide, anthropoid repellant and cleaning solvents are kept in these storage containers.

a. **Hearing Conservation Program:** All employees are enrolled in the Hearing Conservation Program and receive annual audiograms.

b. **HAZCOM:** HAZCOM training had been performed prior to this survey. MSDS were available for their inventory.

c. **Illumination:** Illumination levels were recorded in all administrative areas, classrooms, training rooms and supply areas throughout the Armory. See chart below for specific location of measurements.

Location	*Illumination level (FTC)*	*IES Standard (FTC)*
Chief's office	86.6------119.4	50----100
Class room	67.0-------85.2	50----100
Hallways	38.3-------90.6	50----100
Kitchen	87.3-------112.9	50----100
Weight room	132.1-----137.4	50----100
Converted range	23.2-------28.4	5------10
Vault	21.1-------32.9	50----100
Supply	15.6-------17.3	50----100
C&E maintenance	5.9---------29.5	5-----10
Empty storage	73.0-------74.9	50----100
Recruiter's office	65.2--------80.5	50----100

Readings are at the IES lighting standard of 50 to 100 foot candles. Storage areas standard is 5-10 foot candles.

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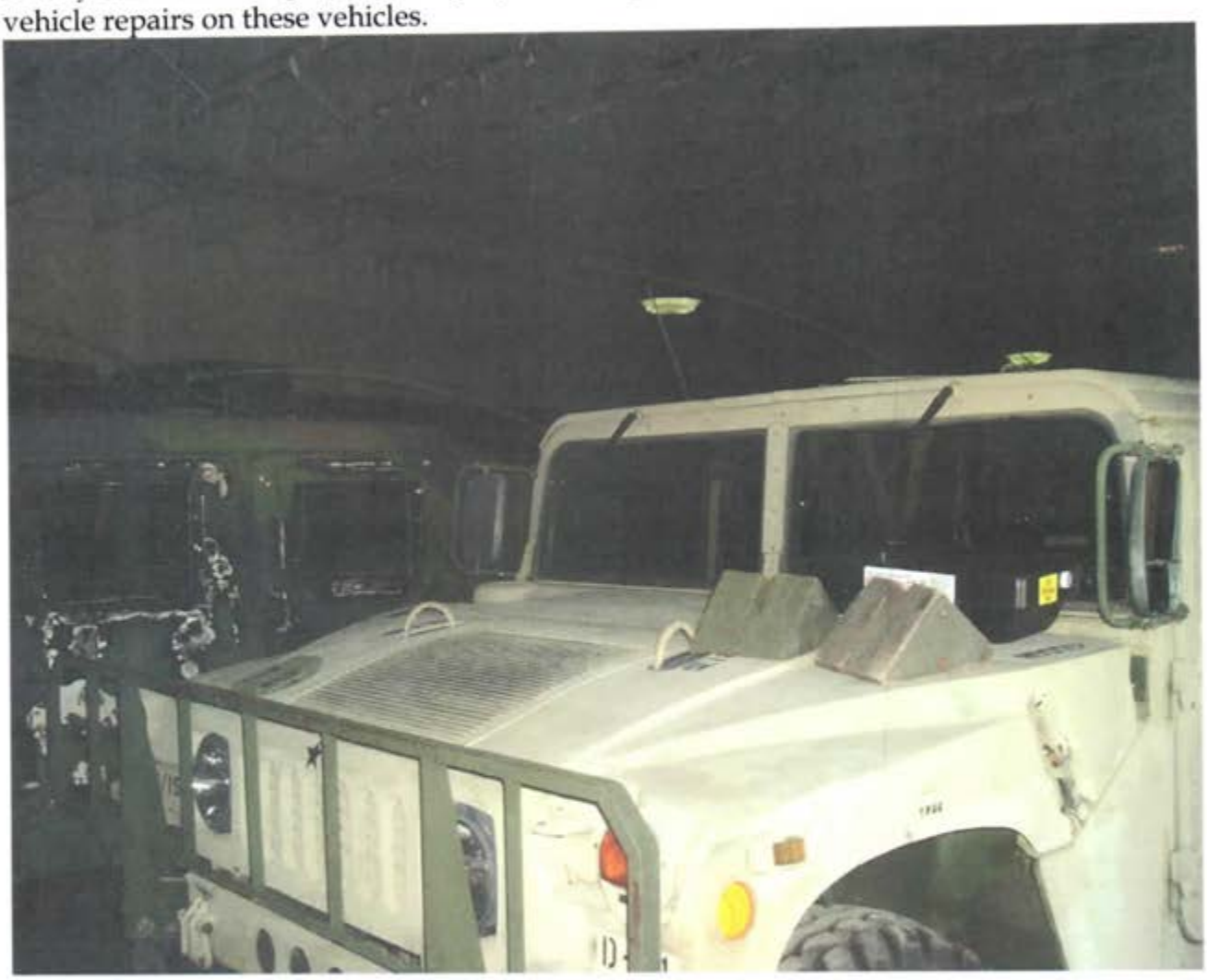
d. Wipe sampling was performed in the Armory. Thirty samples were collected and sent to the laboratory for lab analysis. Samples were analyzed for lead. All sample results were below reading limits (BRL) in the kitchen, converted indoor range and the drill hall. A bulk sample was taken of the floor tile. Laboratory analysis revealed that there was no asbestos in the tile.

e. **Motor Pool Area:** The motor pool is located behind the armory. The vehicles on site were HUMMWV's. They were secured in a building behind the armory because the county fair was setting up. Armory's personnel perform no maintenance operations or vehicle repairs on these vehicles.



f. A noise level survey was performed of the vehicles located on site. Noise hazard caution signs are posted on vehicles and hearing protection is available and easily assessable for personnel and visitors.

g. **Arms Room/Weapons Vault:** Weapons are stored in the armory's vault. It is reported that no weapons cleaning is performed inside of the weapons storage vault. It was also stated that weapons are cleaned before being placed in the arm's vault.

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h. **Solvent Bath:** During drill training the solvent bath is used. The fluid in the solvent bath tank is warmed and weapons are cleaned on the drill hall floor. Full time Personnel place their weapon in the cleaning solution for a few minutes, remove it and finish the cleaning process. It is stated that it is a two- part process. The cleaning process takes less than thirty minutes.

4. **Technical Assistance:**

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[redacted]

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2090 of 2531

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RECOMMENDATIONS

a. Hearing Conservation Program. Continue with annual audiometric testing for relevant personnel in accordance with reference 1h.

b. Hazardous communication or HAZCOM refresher training. Continue with annual HACOM training. Dated and signed records should be maintained of all HAZCOM training administered.

c. A work order should be resubmitted for repair of the roof.

d. Weapons are never to be cleaned inside the weapon's storage vault or any other enclosed area without adequate ventilation in accordance with references 1a and 1c. Personal Protective equipment, such as goggles, should be worn to protect eyes from splash hazards and gloves should be worn to prevent solvent absorption through the skin.

e. Based on the limited, short duration, nature, of contact cleaners, and solvents used at this armory, there is no need for a Respiratory Protection Program, neither is there a need to perform atmospheric monitoring during weapons cleaning if windows and doors are open to circulate air during weapons cleaning.

Enclosure No. 1

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INSTRUMENTATION: The following survey instrumentation was utilized to obtain noise, illumination or ventilation measurements. All equipment was used according to manufacturer/ manual recommendations. All equipment was calibrated prior to and after use.

Nomenclature	Serial No.
Extech Light Meter	L595339
Extech Sound Level Meter	6134582
Extech Sound Calibrator	5431625

Enclosure No. 2

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DD2214 -Sound Level Survey

Enclosure No. 3

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NOISE SURVEY
(Sound Lever Meter Survey)

1. DATE (YYYMMMDD) 2006 / 09/ 12	2. TYPE SURVEY (Enter Code) 2 1- INITIAL SURVEY 2- RESURVEY 3- OTHER

3. SOUND LEVEL METER		4. MICROPHONE		5. CALIBRATOR	
a. MANFACTURER Extech		a. MANFACTURER		a. MANUFACTURER Extech	
b. MODEL 407703	c. SERIAL NO. 041002810	b. MODEL	c. SERIAL NO.	b. MODEL 7703A	c. SERIAL NO. 4XX69
d. LAST ELECTROACOUSTIC CALIB DATE YR/ M/D 06/03/06		d. LAST ELECTROACOUSTIC CALIB DATE YR/M/D		d. LAST ELECTROACOUSTIC CALIB DATE YR/M/D 06/03/06	

6. WIND SCREEN (X one) USED X NOT USED __	7. MEASUREMENTS OBTAINED (X one) INDOORS ___ OUTDOORS X
8. DESCRIPTION OF AREAS/DUTIES WHERE NOISE SURVEY CONDUCTED (Illustrate on additional sheet and attach to form) Sheridan Armory 91 Grant Seventy four Sheridan, Arkansas 72150	9. PRIMARY SOURCE OF NOISE HUMMWV 10. SECONDARY SOURCE OF NOISE

11. SOUND LEVEL DATA / 12. PROTECTION REQUIRED (re: dBA- Level)

a. LOCATION	b. METER	c. dBC	d. dBA	e. RISK ASSESSMENT CODE	a. None (less than 85)	b. PLUG OR MUFF (85-108)	c. PLUG AND MUFF (108-118)	d. PLUG + MUFF + TIME LIMIT (Greater than 118)
HUMMWV	S		85.4			X		

NOTES: Rang of levels noted by /;i.e., 102/109. At operator stations, measure at ear level.
METER ACTION: Enter F for fast meter action and S for slow meter action.

13. REMARKS (*i.e. Area and equipment posted, hearing protection in use, etc.*)

Decals/ Signs were posted in work area and on machinery indicating the need for hearing protection.

14. MORE DETAILED NOISE EVALUATION REQUIRED YES NO X *(If "YES", identify type of evaluation needed)*

15. NAME(S) OF PERSON(S) IDENTIFIED FOR AUDIOMETRIC MONITORING *(Use additional sheet if more space is needed and attach to form)* All who work in this shop area

16. SUPERVISOR OF NOSE- HAZARDOUS AREA OR OPERATION

a. NAME (Last, First, Middle Initial)	b. TELEPHONE (Include area code)	c. ORGANIZATION Sheridan Armory
Non-Responsive		18. HEARING CONSERVATION MONITOR (Last Name, First Name ,MI)

DD FORM 2214, JAN 2000 PREVIOUS EDITION MAY BE USED

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Hazardous Material inventory

Enclosure No. 4

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Print Inventory

Print Inventory | Cancel

Unit	Storage	Month	Submitted
Sheridan / Co D 1 BN 153 INF	FL-01	3/2006	3/30/2006 11:43:00 AM

SLN	Item	NSN	Manu.	MSDSID	Quantity	Ctn. Size	SL	HCC	Date Updated
A-02	PAINT, ENAMEL FIRE RED	---	WAL-MART		0	11 oz			3/30/2006
A-03	PAINT ENAMEL CLEAR	---	COLOR PLACE		5	10oz			3/30/2006
A-09	PAINT, ENAMEL, BANNER RED	---	SHERWIN-WILLIAMS		0	11 oz			3/30/2006
A-10	PAINT, RED OXIDE PRIMER	---	WAL-MART		0	11 oz			3/30/2006
A01	PAINT ENAMEL FLAT WHITE	---	WAL-MART		8	11 oz			3/30/2006
A04	PAINT ENAMEL KELLY GREEN	---	WAL-MART		1	11 oz			3/30/2006
A05	PAINT ENAMEL, ORANGE	---	SHERWIN WILLIAMS		2	11 oz			3/30/2006
A06	PAINT ENAMEL LEMON YELLOW	---	SHERWIN WILLIAMS		1	11 oz			3/30/2006
A07	PAINT ENAMEL, DEWIM BLUE	--KDQ-5115	SHERWIN WILLIAMS		1	32 oz			3/30/2006
A08	CHARCOAL LIGHTER FLUID	---	SURFINE CORP		1	32 oz			3/30/2006
B-01	PAINT, ENAMEL, FLAT BLACK	---	WALMART		1	11 oz			3/30/2006
B-02	PAINT CAMOFULAGE	---	KRYLON		7	12 oz			3/30/2006
B-	BUG & TAR REMOVER	---	LIFTER 1 PRODUCTS		0	16 oz			3/30/2006

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May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2096 of 2531

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B-07	DENATURED ALCOHOL	---	AAPER ALCOHOL & CHEMICAL	18	1 pt	3/30/2006
B05	CHARCOAL LIGHTER FLUID	---	WAL-MART	0	64 oz	3/30/2006

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Page 2097 of 2531

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Print Inventory

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Unit	Storage	Month	Submitted
Sheridan / Co D 1 BN 153 INF	SA-01	3/2006	3/30/2006 1:08:00 PM

SLN	Item	NSN	Manu.	MSDSID	Quantity	Ctn. Size	SL	HCC	Date Updated
A01	INSECTICIDE D-TRANS	6840-01-067-2137	SHERWIN WILLIAMS		2	11 oz			3/30/2006
A02	ENGINE OIL	9150-01-438-6076	SAFETY CLEAN CORP		12	quart			3/30/2006
A03	BFS	9150-01-102-9455	GE		4	1 gallon			3/30/2006
A04	ATF DEX III	9150-01-353-4799	CASCADE DIST		12	1 quart			3/30/2006
A06	ANTHOPOD REPELLENT (CLOTHING)	6840-01-278-1336	DETCO		25	12 oz			3/30/2006
A07	GLASS CLEANER	7930-01-326-8110	SKILCRAFT		20	16 oz			3/30/2006
B01	ATF DEX III	9150-00-698-2482	S.C TERMINALS INC		6	1 quart			3/30/2006
B02	Insect Repellant Clothing Kit	6840013450237	Department of Defense		36	carton			3/30/2006
B03	LUBRI OIL 2 CYCLE	9150-00-117-8791	STIHL INCORPORATED		6	6.4 oz			3/30/2006
B04	PROPANE FUEL	6830-00-584-3040	COOPER TOOLS		0	14.1 oz			3/30/2006
B05	CLEANING COMPOUND SOLVENT	6850-00-926-2275	RITE-KEM INC		14	12 OZ			3/30/2006
B06	WASHER FLUID	---	SOUTHWIND INC		0	1 GAL			3/30/2006

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B07	PENETRATING OIL TYPE II	9150-00-529-7518	AM WRITING INK INC	1	15 OZ	3/30/2006
B08	GREASE	---	OIL RESEARCH CENTER	2	14 oz	3/30/2006
C04	WEADEATER GASOLINE	---		1	1 GAL	3/30/2006
C05	ENGINE OIL 15-40	9150-01-152-4117	GARD CORP	2	1 quart	3/30/2006
C06	ABSORBENT	7930-00-269-1272	CAN AM	1	50 pound	3/30/2006
C07	ABSORBENT	1430-00-078-8340		0	38 pound	3/30/2006
C08	LAWMOWER GASOLINE	---		1	5 gallon	3/30/2006
C09	ANTIFREEZE COOLANT PLUS	6850-01-441-3218	PAR PRODUCTS	8	1 gallon	3/30/2006
C10	ABSORBANT MAT OIL	---	FRANTZ CORP	2	50 pound	3/30/2006

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Page 2099 of 2531

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Laboratory Analysis

Enclosure No. 5

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Analytical Environmental Services, Inc.

Date: 9/26/2006

TOTAL LEAD IN WIPE SAMPLES
N7082

CLIENT: OSHEA II
Project: Sheridan Armory
Delivery Order:
PO No:

Lab Order: 0609974
Date Received: 9/19/2006 12:10 PM
Matrix: Wipe

Laboratory ID	Client Sample ID	Results	Units	Report Limit	DF	Date Collected	Date Analyzed	Analyst
0609974-001A	91302	BRL	µg, Total	20	1	9/13/2006	9/21/2006	VA
0609974-002A	91303	BRL	µg, Total	20	1	9/13/2006	9/21/2006	VA
0609974-003A	91304	BRL	µg, Total	20	1	9/13/2006	9/21/2006	VA
0609974-004A	91305	BRL	µg, Total	20	1	9/13/2006	9/21/2006	VA
0609974-005A	91306	BRL	µg, Total	20	1	9/13/2006	9/21/2006	VA
0609974-006A	91307	BRL	µg, Total	20	1	9/13/2006	9/21/2006	VA
0609974-007A	91308	BRL	µg, Total	20	1	9/13/2006	9/21/2006	VA
0609974-008A	91309	BRL	µg, Total	20	1	9/13/2006	9/21/2006	VA
0609974-009A	91310	BRL	µg, Total	20	1	9/13/2006	9/21/2006	VA
0609974-010A	91311	BRL	µg, Total	20	1	9/13/2006	9/21/2006	VA
0609974-011A	91312	BRL	µg, Total	20	1	9/13/2006	9/21/2006	VA
0609974-012A	91313	BRL	µg, Total	20	1	9/13/2006	9/21/2006	VA
0609974-013A	91314	BRL	µg, Total	20	1	9/13/2006	9/21/2006	VA
0609974-014A	91315	BRL	µg, Total	20	1	9/13/2006	9/21/2006	VA
0609974-015A	91316	BRL	µg, Total	20	1	9/13/2006	9/21/2006	VA
0609974-016A	91317	BRL	µg, Total	20	1	9/13/2006	9/21/2006	VA
0609974-017A	91318	BRL	µg, Total	20	1	9/13/2006	9/21/2006	VA
0609974-018A	91319	BRL	µg, Total	20	1	9/13/2006	9/21/2006	VA
0609974-019A	91320	BRL	µg, Total	20	1	9/13/2006	9/21/2006	VA
0609974-020A	91321	BRL	µg, Total	20	1	9/13/2006	9/21/2006	VA
0609974-022A	91323	BRL	µg, Total	20	1	9/13/2006	9/21/2006	VA
0609974-023A	91324	BRL	µg, Total	20	1	9/13/2006	9/21/2006	VA
0609974-024A	91325	BRL	µg, Total	20	1	9/13/2006	9/21/2006	VA
0609974-025A	91326	BRL	µg, Total	20	1	9/13/2006	9/21/2006	VA
0609974-026A	91328	BRL	µg, Total	20	1	9/13/2006	9/21/2006	VA
0609974-027A	91327	BRL	µg, Total	20	1	9/13/2006	9/21/2006	VA
0609974-028A	91329	BRL	µg, Total	20	1	9/13/2006	9/21/2006	VA
0609974-029A	91330	BRL	µg, Total	20	1	9/13/2006	9/21/2006	VA
0609974-030A	91331	BRL	µg, Total	20	1	9/13/2006	9/21/2006	VA
0609974-031A	91332	BRL	µg, Total	20	1	9/13/2006	9/21/2006	VA

Qualifiers: BRL - Not Detected at the Reporting Limit DF - Dilution Factor

Results are blank corrected where applicable

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2101 of 2531

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ANALYTICAL ENVIRONMENTAL SERVICES, INC.

Bulk Sample Summary Report

Client Name: **OSHEA II**
Project Name: **Sheridan Armory**
Project Number:

Lab ID# 102082-0
AES Job Number: **0609946**
Monday, September 25, 2006
Page 1 of 1

Client ID	AES ID	Location	Asbestos Mineral Percentage						Comments
			CH	AM	CR	AN	TR	AC	
91301 Layer: 1	0609946-001A		3	ND	ND	ND	ND	ND	Tile
91301 Layer: 2	0609946-001A		3	ND	ND	ND	ND	ND	Black Mastic

Note: CH=chrysotile, AM=amosite, CR=crocidolite, AC=actinolite, TR=tremolite, AN=anthophylite
For comments on the samples, see the individual analysis sheets.
ND = None Detected
PLM is not consistently reliable in detecting small concentrations of asbestos in floor tiles and similar nonfriable materials. Quantitative TEM is currently the only method that can be used to determine the conclusive asbestos content.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory ID 102082-0. All percentages given are by visually estimated volume. All analyses are performed in accordance with the EPA "Method for the Determination of Asbestos in Bulk Building Materials, EPA/600/R-93/116, July 1993." This report must not be reproduced except in full without the approval of Analytical Environmental Service, Inc. These test results apply only to the samples actually tested.

Microanalyst: Non-Responsive

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HHIMS **INDUSTRIAL HYGIENE SURVEY FORM**

ARLOC 047000 INSTALLATION AARNG BLDG_____ ROOM_____

LOCATION	OPERATION	SURVEY DATE	EVALUATOR	MACOM
AV	ADO	YR 06/ 09/12	KJS	NG

SUPERVISOR	ORGANIZATION	RAC
SSG Jimerson	Sheridan Armory D Co. 153 rd BN	3

PH NO.	COMMERICAL/DSN	FREQUENCY	# CIV #MIL	#CONTRACT # LOC
501 332-6081	x /	6-8 hours/ day	3 /	/

LAB HOODS	VAPOR/DEGREASERS	PAINTBOOTH	SANDBLASTING BOOTH	OPEN SURFACE
0	1	0	0	0

NO VENTILATION UNITS

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED

PPE REQUIRED UTILIZED

GLOVES	R U	RESPIRATOR	R U	EYES/FACE	R U
ACID	__/__	AIRLINE	__/__	CHEM/SPLASH	__/__
COLD SURFACE	__/__	ABRASIVE BLASTING HOOD	__/__	FULL FACE SHIELD	__/__
HOT SURFACE	__/__	DISPOSABLE	__/__	CHEM/SAF IMPACT	_x_/_x_
NBC AGENTS	__/__	FULL FACE AIR PURFYING	__/__	SAFETY IMPACT	__/__
OIL	__/__	½ FACE AIR PURFYING	__/__	WELDING HELMET	__/__
SOLVENTS	__/__	POWERED AIR PURFYING	__/__	WELDING GOGGLES	__/__
SURGICAL GLOVES	__/__	¼ FACE AIR PURIFYING	__/__	LASER EYE PROTECT	__/__
OTHER_____	__/__	SCBA	__/__	OTHER_____	__/__

EARS/ HEARING	R U	BODY	R U	HEAD AND FEET	R U
CANAL CAPS	__/__	APRONS	__/__	COLD WEATHER BT&HAT	__/__
>85-108 STDY EPLG	_x_/_x_	COLD WEATHER CL	__/__	HARD HAT	__/__
" "HLMT/PLG	__/__	COVERALLS	__/__	IMPERMEABLE BOOTS	__/__
" " MUFF ONLY	__/__	FULL BODY SUIT	__/__	SAFETY SHDE CONDUCT	__/__
108-118 MUFF/PLG	__/__	HEAT REFLECTIVE	__/__	SAFETY NON CONDUCT	_x_/_x_
118 OR> MUFF/PLG	__/__	VEST/SUIT	__/__	OTHER _____	__/__
W/ TIME LIMIT		SAFETY BELT/ HARNESS	__/__		
OTHER_____	__/__	SPECIAL PURPOSE CLO	__/__		
		OTHER BDU	_x_/_x_		

	CAS CODE	PAC	EPC	HAZARD DESCRIPTION
PONOISECO	POnoiseco	2	O	Noise, continuous
POFOOTHAZ	POstress	3	O	Mental / physical stress
POFLYPROJ	POlifting	3	D	Heavy lifting
POEYEHAZA	POeyehaza	2	A	Eye Hazards
POFLAMMHAZ				
POLIFTING				
POSHARPOBJE				
POELSHOCK				
COLUBEOIL				

DESCRIBED OPERATION

Administrative duties are performed six to eight hours a day and consists of answering phones, using computers, generating paper work and running errands.

PERSONNEL LIST ATTACHED

Enclosure No. 6

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Full Time Personnel

Non-Responsive

[redacted]

Enclosure No. 7

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Facility layout

Enclosure No. 8

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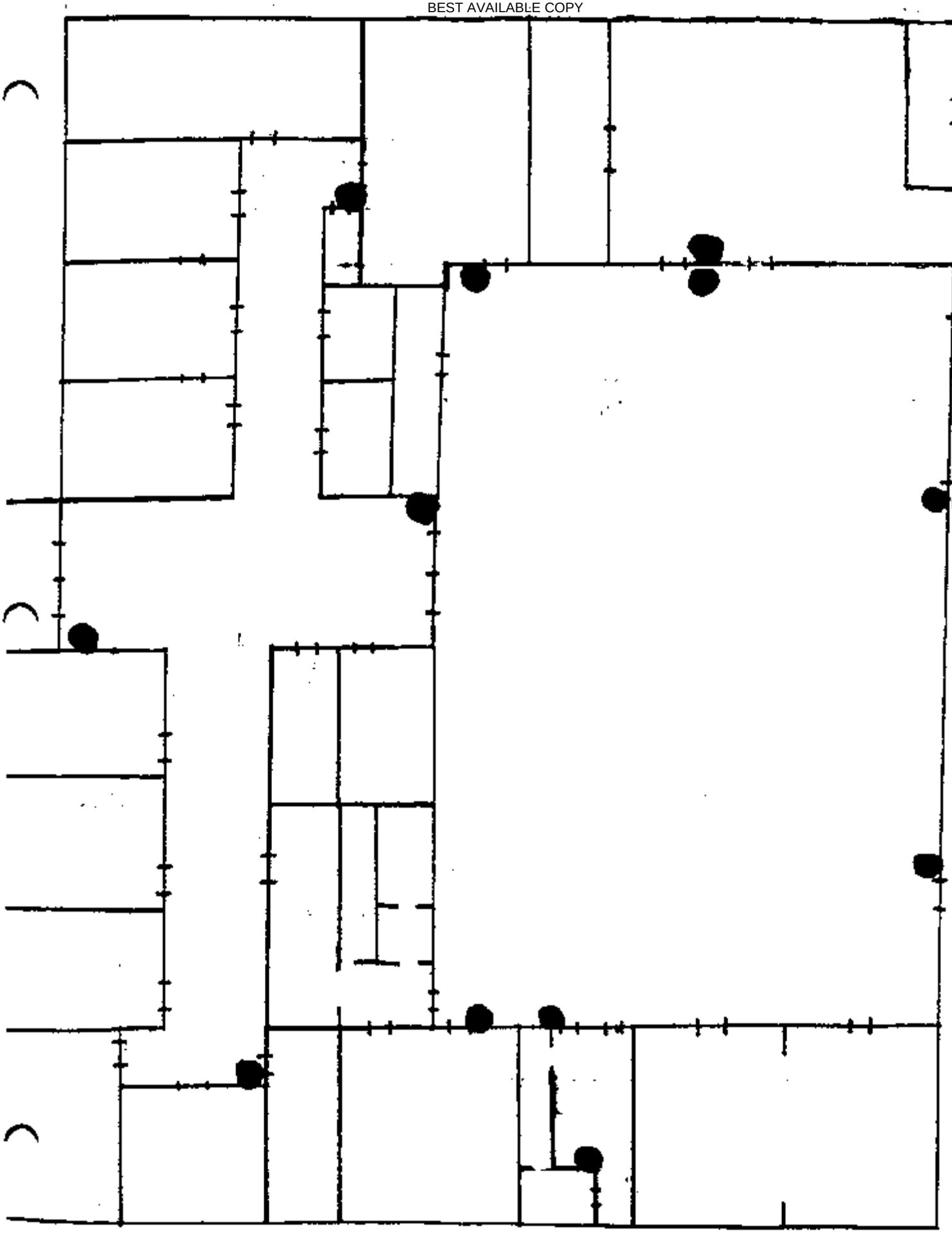

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
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NATIONAL GUARD REGION SOUTH
INDUSTRIAL HYGIENE OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

NGB-ARS-SEIH

November 21, 2007

MEMORANDUM FOR: Non-Responsive RN, Occupational Health Nurse, Tennessee State Safety and Occupational Health Office, 250 8th Avenue, Smyrna, Tennessee 37167.

SUBJECT: Smyrna National Guard Armory, Lead Sampling Survey, Smyrna, Tennessee.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 22 July 2005.

c. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, 1988.

d. AR 385-10, The Army Safety Program, 29 February 2000.

e. NGR Pam 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006.

f. NGR 385-15, Policy and Responsibilities, Evaluation and Operation of Army National Guard Indoor Firing Ranges, 3 November 2006.

g. DA PAM 40-503, The Army Industrial Hygiene Program, 30 October 2000.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2003, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. Title 29, Code of Federal Regulations (CFR), 2001 rev., part 1910, Occupational Safety and Health Standards.

2. General.

a. As requested by Non-Responsive ennessee Occupational Health Office, personnel with the National Guard Region South Office performed a visual inspection at the referenced site. The apparent objective of the inspection was to collect surface wipe samples from the former Indoor Firing Range for analysis of total lead.

b. Non-Responsive with the National Guard Region South Industrial Hygiene Office in College Park Georgia performed the site visit.

3. Findings.

General Information

At the time of the sampling activity, the interior of the Smyrna Armory Indoor Firing Range was emptied of the bullet stop and firing line. The surface areas were observed to be constructed of cinder-block walls with concrete floors and ceilings. The system appeared to be closed and the former range appeared to be generally cleaned of debris.

Sampling Activities

Based on the number of surfaces observed, samples were collected in accordance with NG Pam 420-15. Ghost Wipes™ are pre-moistened media made of non-woven polyvinyl alcohol fiber and approved by American Industrial Hygiene Association (AIHA) for lead sampling. The wipes also meet all American Standards Testing Materials (ASTM) Designation E1792-96E specifications for sampling materials for lead in surface dust.

The surface samples were collected by placing a 1 square foot sampling template on the surface area and wiping the outlined area with a Ghost Wipe™. After the area inside the template was wiped, the sampling media was placed into a labeled re-sealable plastic bag and sealed. After each sample collection, a new surface area template was used and new disposable gloves were donned. A total of 18 samples were collected, three from each surface area for submittal to Analytical Environmental Services, Inc. (AES) in Atlanta, Georgia for subsequent analysis of total lead. In addition, one wipe was placed into a re-sealable bag and submitted as a blank sample for analysis.

Laboratory Results

The results of the lead dust sampling activities are summarized in the following table.

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2108 of 2531

Sample Number	Sample Location	Laboratory Results[1]
TNSM-01	Lower Wall, Bullet Stop	40
TNSM-02	Middle Wall, Bullet Stop	49
TNSM-03	Upper Wall, Bullet Stop	289
TNSM-04	Lower Right Wall	81
TNSM-05	Middle Right Wall	BRL[2]
TNSM-06	Upper Right Wall	BRL
TNSM-07	Lower Rear Wall	40
TNSM-08	Middle Rear Wall	BRL
TNSM-09	Upper Rear Wall	72
TNSM-10	Lower Left Wall	BRL
TNSM-11	Middle Left Wall	BRL
TNSM-12	Upper Left Wall	26
TNSM-13	Floor at Bullet	BRL
TNSM-14	Middle Floor	BRL
TNSM-15	Floor at Rear Wall	BRL
TNSM-16	Ceiling at Bullet Stop	5,560
TNSM-17	Middle Ceiling	1,330
TNSM-18	Ceiling at Rear Wall	233
TNSM-B1	Field Blank	BRL

[1] Results reported in micrograms per square feet ($\mu g/ft^2$)
[2] BRL = Below Reportable Limits

The laboratory results indicate lead concentrations detected above the IFR post cleaning standard. In accordance with the National Guard Bureau Pamphlet 420-15, the Lebanon Armory IFR cannot be converted for other uses until the lead dust levels are reduced to $200\mu g/ft^2$ or lower depending on local requirements.

The laboratory results are attached for review.

4. Recommendations.

a. Prior to initiating decontamination activities and in accordance with 29 CFR 1910.1025, perform and conduct training for employees exposed to lead concentrations above the standard or who may suffer skin or eye irritation from exposure to lead.

b. Review NG Bureau Pamphlet 420-15 prior to conducting decontamination of the IFR and conduct cleaning activities in accordance with the regulatory document. Keep in mind that EPA (40 CFR 745 Subpart D) and your state may have lead reduction levels lower than the levels recommended in Pamphlet 420-15.

c. Ensure that appropriate personal protective equipment is worn during decontamination activities.

d. Consult with local Environmental Agency for guidance on proper disposal of materials used in decontaminating the IFR.

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Posted to NGB FOIA Reading Room
May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2109 of 2531

e. Upon completion of the decontamination activities, contact the Regional IH office for evaluation and collection of confirmatory lead dust samples.

5. If additional information is needed about the contractors report, please contact SGT

Non-Responsive

CC: Non-Responsive, 3041 Sidco Drive, Nashville, Tennessee 37204-1504

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2110 of 2531

Posted to NGB FOIA Reading Room
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Photo 1: View of the Smyrna, Tennessee Armory.

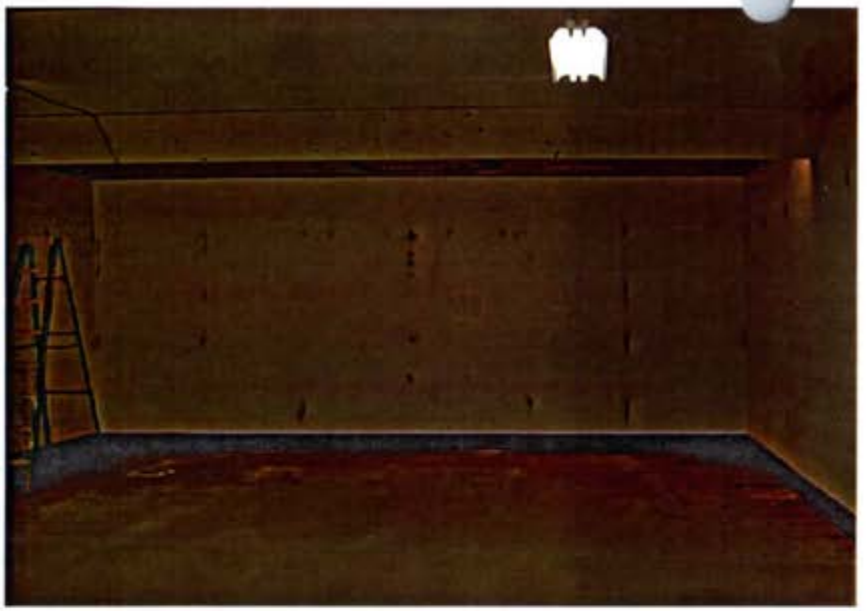

Photo 2: View of the former bullet stop and adjacent wall with sample locations.

Photo 3: View of right wall with sample location outlined.

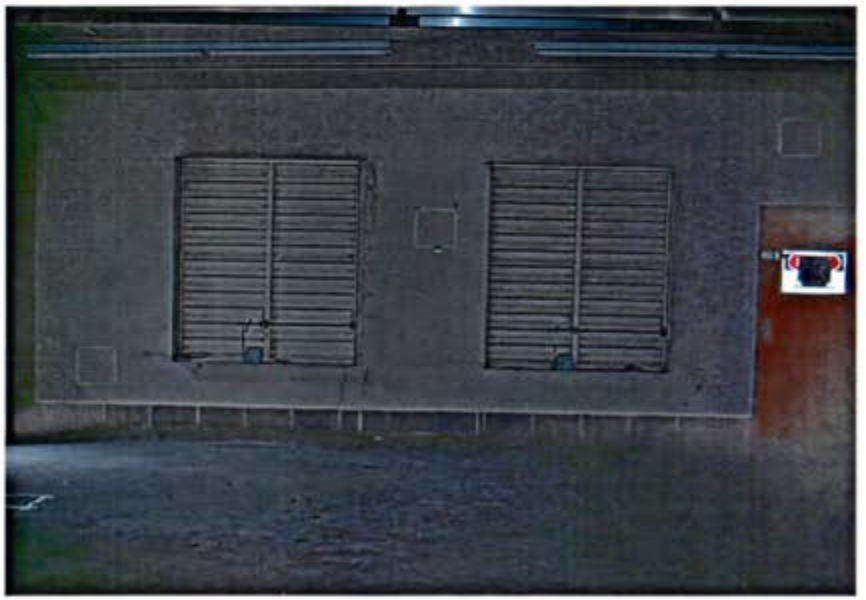

Photo 4: View of rear wall with surface sample location.

Project Name: Smyrna Tennessee Armory

Date Photos Taken: 18 October 2007

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May, 2018

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Photo 5: View of the left wall of the former IFR.

Photo 7: View of IFR ceiling with lead sample location.

Photo 6: View of floor of the former IFR

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Project Name: Smyrna Tennessee Armory

Date Photos Taken: 18 October 2007

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Analytical Environmental Services, Inc.

Date: 10/31/2007

LEAD ON WIPES (N9100/7082)
N7082

CLIENT: National Guard Bureau Region-South IH
Project: SMYRNA TN ARMORY
Delivery Order:
PO No:

Lab Order: 0710D52
Date Received: 10/24/2007 12:55 PM
Matrix: Wipe

Laboratory ID	Client Sample ID	Results	Units	Report Limit.	DF	Date Collected	Date Analyzed	Analyst
0710D52-001A	TNSM-01	40	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D52-002A	TNSM-02	49	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D52-003A	TNSM-03	289	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D52-004A	TNSM-04	81	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D52-005A	TNSM-05	BRL	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D52-006A	TNSM-06	BRL	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D52-007A	TNSM-07	40	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D52-008A	TNSM-08	BRL	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D52-009A	TNSM-09	72	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D52-010A	TNSM-10	BRL	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D52-011A	TNSM-11	BRL	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D52-012A	TNSM-12	26	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D52-013A	TNSM-13	BRL	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D52-014A	TNSM-14	BRL	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D52-015A	TNSM-15	BRL	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D52-016A	TNSM-16	5560	µg/ft²	206	10.31	10/18/2007	10/26/2007	JY
0710D52-017A	TNSM-17	1330	µg/ft²	50	2.48	10/18/2007	10/26/2007	JY
0710D52-018A	TNSM-18	233	µg/ft²	20	1	10/18/2007	10/26/2007	JY
0710D52-019A	TNSM-B-1	BRL	µg, Total	20	1	10/18/2007	10/26/2007	JY

Qualifiers: BRL - Not Detected at the Reporting Limit DF - Dilution Factor

Results are blank corrected where applicable

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2113 of 2531

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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-AVS-SEIH

2 October 2006

MEMORANDUM THRU Non-Responsive Deputy State Surgeon, Tennessee National Guard, HQS, TNARNG STARC, Attn: AGTN-DCSPER-DSS, P.O. Box 41502, Houston Barracks, Nashville, Tennessee 37204-1501

TO: ATTN: Non-Responsive th TRP CMD, 1202 East Carroll, Tullahoma, TN 37388

SUBJECT: Industrial Hygiene sampling for Lead at the Indoor Firing Range of the Smyrna National Guard Armory

1. References.

a. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1996 rev.

b. AR 40-5, Preventive Medicine, 22 July 2005.

c. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.

d. AR 385-10, 29 February 2000, Army Safety Program.

e. TB MED 503, The Army Industrial Hygiene Program, 30 October 2000.

f. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.

g. Industrial Ventilation, 25th, 2004, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

h. Title 29 Code of Federal Regulation (CFR), Part 1910.1025 Lead.

2. General.

a. At the request of Non-Responsive of the Tennessee National Safety and Occupational Health Office, a lead survey of the inactive Indoor Firing Range was conducted 8 September 2006.

b. Non-Responsive Industrial Hygiene Technician, of the Southeast Regional IH Office conducted the sampling with assistance from Non-Responsive Non-Responsive

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SUBJECT: Industrial Hygiene sampling for Lead at the Indoor Firing Range of the Smyrna National Guard Armory

3. Findings.

a. Samples were taken in the inactive Indoor Firing Range along the left side of the Armory. The Indoor Firing Range was deactivated many years ago. The range has a sign posted on the stating it was cleaned on July 18, 2006. Currently the Indoor Firing Range is not being used at all.

b. The backstop was removed and there is no visible evidence of the sand trap. Plenum wall has not been removed and the door to the area behind it was locked. A cage storage system has been installed in the range and bolted to the floor. There are backs of the cages up against the walls and locks on the doors, which prevented the minimum number samples from being taken. . All equipment stored in the range, if applicable, prior to the start of decontamination must be sampled, decontaminated, re-sampled and removed or turned in as lead contaminated material.

c. Eleven samples including one blank wipe were taken throughout the Indoor Firing Range. Results ranged from Below Reporting Limit (BRL) to 401µg/ft².

d. Post decontamination samples of surface wipes must be less than 200µg/ft² (40µg/ft² in case of possible child exposure) before applying a lead encapsulating material. Otherwise the range cannot be considered decontaminated and can not be converted for other use.

e. Any sample found to be above the limit of 200µg/ft² constitutes the range is not cleaned and not able to be converted for other use.

f. Lead Wipe Sample Results:

Sample Number	Micrograms (µg) Of Lead per Square Foot	Sample Area
SMY01	BRL	Left wall middle by entrance
SMY02	57	Floor left walkway, midway
SMY03	401	Front wall, Top, in left walkway
SMY04	304	Front wall bottom in right walkway
SMY05	226	Floor right walkway midway
SMY06	BRL	Right wall top by 1st cage on wall
SMY07	224	Floor along right wall
SMY08	BRL	Exit door bottom under no smoking sign
SMY09	81	Floor along left wall in front of entrance
SMY10	68	Floor outside entrance to Range
SMY11	BRL	BLANK

g. Attached: Sample results, diagram of where samples were taken and pictures.

4. Recommendations.

SUBJECT: Industrial Hygiene sampling for Lead at the Indoor Firing Range of the Smyrna National Guard Armory

a. Decontaminate converted Indoor Firing Range (Supply/Storage room) of lead following NG PAM 40-15. Keep in mind that EPA and your state may have lead reduction levels lower than the recommended levels in NG PAM 40-15.

b. To execute your responsibilities in correcting all deficiencies, coordinate with the Occupational Health Nurse, the FMO Environmental Office and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed about this report, please contact Non-Responsive

Non-Responsive

CF: NBG-AVN-SH

CF: Non-Responsive ccupational Health Nurse, Tennessee State Safety and Occupational Health Office, ATTN: AGTN-SAHO, Houston Barracks, 3041 Sidco Drive, Nashville, Tennessee 37204-1502

CF: Non-Responsive nnessee State Safety and Occupational Health Manager, 3041 Sidco Drive, Nashville, TN 37204-1504

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Appendices

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May, 2018

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Appendix A

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SMYRNA INDOOR FIRING RANGE

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Smyrna Cages in Indoor Firing Range

Smyrna cages bolted to the floor

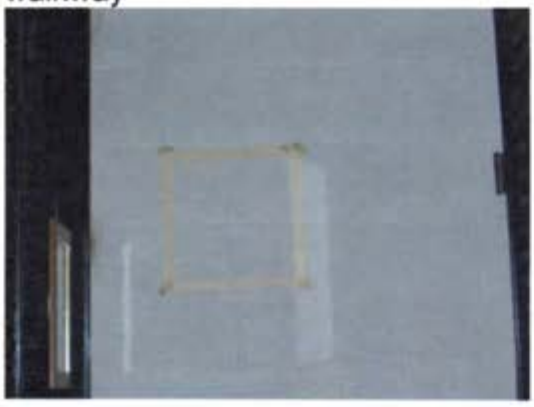
Smyrna cages looked with zip-ties

Smyrna Plenum wall

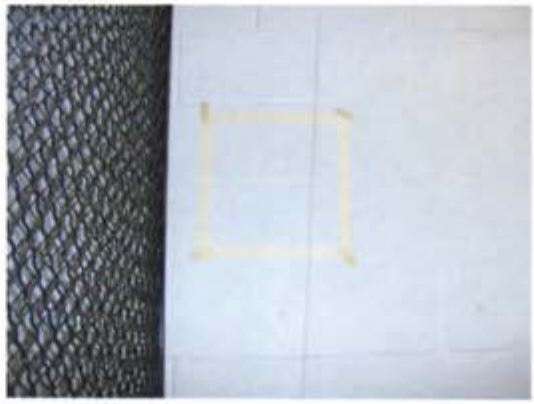
SMY01- Left wall middle by entrance

SMY02- Floor left walkway, midway

SMY03- Front wall, top, in left walkway



SMY06- Right wall, top by 1st cage on wall



SMY04- Front wall, bottom, in right walkway

SMY07- Floor along right wall

SMY05- Floor right walkway, midway

SMY08- Exit door bottom under No Smoking sign

SMY09- Floor along left wall in front of entrance

SMY10- Floor outside entrance to range

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Appendix B

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SAMPLING DIAGRAM SMYRNA IHR

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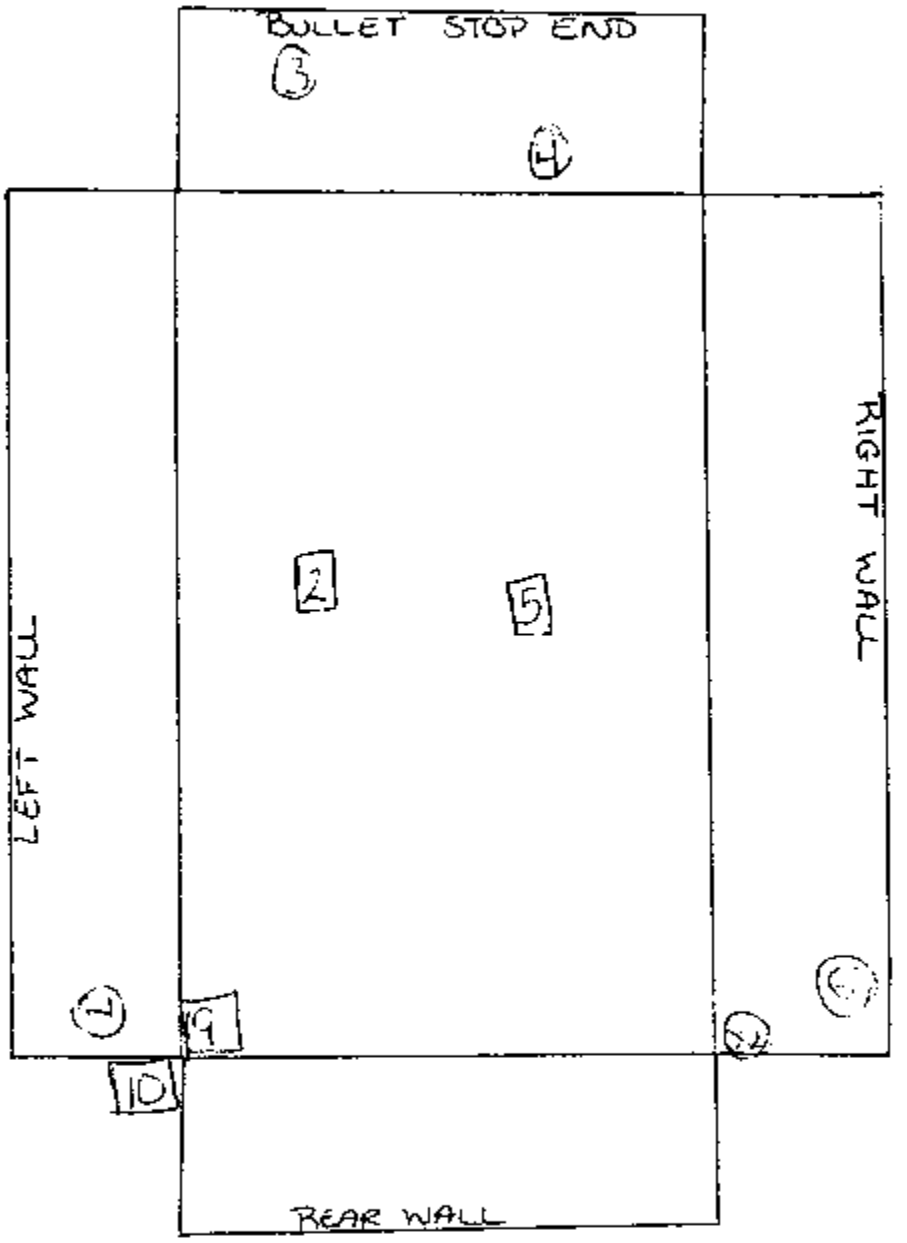

O - WALL
- CEILING
- FLOOR

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Analytical Environmental Services, Inc.

Date: 9/15/2006

TOTAL LEAD IN WIPE SAMPLES
N7082

CLIENT: National Guard Bureau Region-South IH
Project: Smyrna Armory
Delivery Order:
PO No:

Lab Order: 0609546
Date Received: 9/12/2006 12:00 PM
Matrix: Wipe

Laboratory ID	Client Sample ID	Results	Units	Report Limit	DF	Date Collected	Date Analyzed	Analyst
0609546-001A	SMY01	BRL	µg, Total	20	1	9/8/2006	9/13/2006	VA
0609546-002A	SMY02	57	µg, Total	20	1	9/8/2006	9/13/2006	VA
0609546-003A	SMY03	401	µg, Total	20	1	9/8/2006	9/13/2006	VA
0609546-004A	SMY04	304	µg, Total	20	1	9/8/2006	9/13/2006	VA
0609546-005A	SMY05	226	µg, Total	20	1	9/8/2006	9/13/2006	VA
0609546-006A	SMY06	BRL	µg, Total	20	1	9/8/2006	9/13/2006	VA
0609546-007A	SMY07	224	µg, Total	20	1	9/8/2006	9/13/2006	VA
0609546-008A	SMY08	BRL	µg, Total	20	1	9/8/2006	9/13/2006	VA
0609546-009A	SMY09	81	µg, Total	20	1	9/8/2006	9/13/2006	VA
0609546-010A	SMY10	68	µg, Total	20	1	9/8/2006	9/13/2006	VA
0609546-011A	SMY11	BRL	µg, Total	20	1	9/8/2006	9/13/2006	VA

Qualifiers: BRL - Not Detected at the Reporting Limit DF - Dilution Factor

Results are blank corrected where applicable

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2124 of 2531

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Appendix C

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Department of the Army and the Air Force
National Guard Bureau
Arlington, Virginia 22202-3231
XX XXX XXXX

*NG Pamphlet 40-15

Preventive Medicine

GUIDELINES AND PROCEDURES FOR REHABILITATION AND CONVERSION OF INDOOR FIRING RANGES (IFRs)

By Order of the Secretaries of the Army and Air Force:

H STEVEN BLUM
Lieutenant General, USA
Chief, National Guard Bureau

Official:

XXXX XXXX
XXX, XXXX
XXXX,XXX

History. This printing supersedes NG Pamphlet 385-16, 31 January 1994. Because the pamphlet has been extensively revised, the changed portions have not been highlighted.

Summary. This pamphlet prescribes policy for rehabilitation and conversion of National Guard IFRs.

Applicability. This guidance applies to all persons responsible for the operation of National Guard IFRs. As no regulation/guidance can foresee all situations that might arise, the following is written in a broad scope and is intended to be interpreted so as to ensure compliance with all applicable Federal and State laws and regulations.

Proponent. Office of the Joint Surgeon, National Guard Bureau.

Supplementation. Supplementation of this pamphlet requires the approval of the National Guard Bureau Office of the Joint Surgeon, NGB-SG-IH, 1411 Jefferson Davis Highway, Arlington, VA 22202-3231.

Interim Changes. Interim changes to this pamphlet are not official unless authenticated by, Chief Office of Policy and Liaison, National Guard Bureau. Interim changes will be destroyed on their expiration dates, unless sooner superseded or rescinded.

Suggested Improvements. Users of this pamphlet are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) to the National Guard Bureau, Office of the Joint Surgeon, ATTN: NGB-SG-IH, 1411 Jefferson Davis Highway, Arlington, VA 22202-3231.

Distribution. A.

*This regulation supersedes NG Pamphlet 385-16, dated 31 January 1994.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2126 of 2531

BEST AVAILABLE COPY

Table of Contents

Chapter 1
Introduction
1-1. Purpose

1-2. References
1-3. Explanation of abbreviations and terms
1-4. Policy and Procedures
1-5. Goal
1-6. Deviation

Chapter 2
Health and Medical Aspects
2-1. Health Effects
2-2. Medical Surveillance
2-3. Air Monitoring
2-4. Wipe Sampling Protocol and Media
2-5. Personal Protection Equipment

Chapter 3
Education, Maintenance, Cleaning and Conversion
3-1. Worker Education
3-2. Range Cleaning Instructions
3-3. Cleaning Stored Contaminated Equipment
3-4. Contaminated Sand and Lead Waste
3-5. Range Rehabilitation
3-6. Conversion of Indoor Firing Ranges

Appendixes
A. References
B. Protocol for Collecting Wipe Samples
C. Sampling Strategy for Collection of Wipe Samples

Glossary

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2127 of 2531

BEST AVAILABLE COPY

1-1. Purpose
This pamphlet establishes the policy and procedures for rehabilitation and conversion, of National Guard IFRs.

1-2. References
Required and related publications and referenced and prescribed forms are listed in appendix A.

1-3. Explanation of abbreviations and terms
Abbreviations and special terms used in this publication are listed in the glossary.

1-4. Policy and Procedures
Indoor firing ranges can be safely rehabilitated or converted for other uses, such as a storage area, classrooms or office space, provided the following –

a. Prior to conversion active ranges must be thoroughly decontaminated and cleaned to acceptable levels. *All ranges converted prior to the publication date of this pamphlet, must be inspected and evaluated to determine lead contamination.* This will be accomplished by a certified National Guard Industrial Hygienist or a person certified to perform inspections, evaluations, and determinations of IFRs IAW with OSHA standards, other nationally accepted standards, and accepted IH practices for maintenance, cleaning, conversion, ventilation, and air sampling of IFRs.

b. The level of cleanliness is to be determined by sampling. The Occupational Safety and Health Administration's (OSHA) Technical Manual, 5th Edition, provides guidance on the methods and techniques needed to collect wipe samples (appendix B).

(1) Wipe samples must be collected and analyzed prior to and after cleaning.

(2) Post-cleaning surface wipe sample results must be less than 200 micrograms per square foot (ug/ft^2) (40 micrograms in the case of child exposure). The sampling strategy, which is the amount and location of wipe samples to be collected, is provided in appendix C.

c. Equipment/items previously stored in the range must be decontaminated and cleaned to acceptable levels as determined by a person certified to perform inspections, evaluations, and determinations of IFRs IAW with OSHA standards, other nationally accepted standards, and accepted IH practices for maintenance, cleaning, conversion, ventilation, and air sampling of IFRs.

(1) Samples must be collected from equipment/items stored in the range. Sample selection is critical, because the number of items stored, length of storage, and level of contamination differs from range to range. The amount and location of the samples should be representative of the areas where lead dust is most likely to accumulate. The more samples collected, the better the statistical comparison of the results.

(2) Samples must be collected from the smooth surfaces of the equipment/items, as much as possible. Results of samples collected from a rough surface will be inaccurate due to the minimal surface contact of the media. Further, the likelihood of tearing the media filter is greater on rough surfaces.

(3) Samples should also be collected on items stored the longest period of time, and which have not been disturbed. Items stored closest to the bullet trap and firing line are likely to have higher concentrations of lead dust.

1-5. Goal
To ensure every IFR is free of lead dust which means to test less than 200 micrograms and to reduce the number of unsafe National Guard IFRs.

1-6. Deviation
Deviations from this guidance will require a written exception to policy from your Regional Industrial Hygiene Office. Questions and/or comments regarding this subject should be directed to your Regional Industrial Hygiene Office or Chief, National Guard Bureau, Office of the Joint Surgeon, ATTN: NGB-SG-IH, 1411 Jefferson Davis Highway, Arlington, VA 22202-3231.

Chapter 2
Health and Medical Aspects

2-1. Health Effects

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2128 of 2531

BEST AVAILABLE COPY

29 Code of Federal Regulations (CFR) 1910.1025, Appendix A, identifies lead as a highly toxic metal. Elemental lead is indestructible, and common in the environment. Lead can enter the body by inhalation (breathing) or ingestion (eating). In addition, lead is a cumulative poison. It accumulates in the blood, bones, and organs, including the kidneys, brain and liver. Effects include nervous and reproductive system disorders, delays in neurological and physical development, cognitive and behavioral changes, and hypertension. Symptoms include loss of appetite, difficulty sleeping, irritability, fatigue, headache, and inability to concentrate. It can stay in the bones for decades. Worker awareness and training are important to ensure that employees can recognize the symptoms of exposure and get prompt medical attention.

2-2. Medical Surveillance

All medical surveillance required by the standard must be performed by or under the supervision of a licensed physician. Medical surveillance is triggered by the results of individual air monitoring results. Medical surveillance must be made available to all employees who are exposed in excess of the action level for more than 30 days per year. IAW 29 CFR 1910.1025, appendix C, [illegible]

2-2. Air Monitoring

Worker breathing zone air samples must be collected to ensure personnel are not overexposed to airborne lead during the cleanup phase. Daily air samples will be collected on all personnel involved in the cleanup operation. These exposure levels will be used to evaluate work practices and medical surveillance requirements.

2-4. Wipe Sampling Protocol and Media

A template measuring 10 centimeters by 10 centimeters square, approximately 4 inches square, should be used to accurately measure and mark the area before collecting wipe samples. Samples should be staggered to different areas of the range. A grid system should be utilized. Samples should not be collected all on one section of a wall, or end of the building. OSHA Technical Manual provides the necessary guidance on the technique needed to collect wipe samples (appendix B). Only distilled or deionized water will be used to saturate dry sample media. At least one field blank must be submitted with every 10 samples. The field blank must be from the same lot, and labeled as a blank.

2-5. Personal Protective Equipment

29 CFR 1910.1025 (f) (2), for housekeeping and rehabilitation the employer shall select respirators from among those approved for protection against dust, fume, and mist by the National Institute for Occupational Safety and Health (NIOSH), under the provision of 42 CFR part 84. The employer shall institute a respiratory protection program in accordance with 29 CFR 1910.134 (b), (d), (e) and (f). As a minimum, personnel conducting the decontamination of the range will be provided with the following personal protective equipment.

a. Under 29 CFR 1910.1025 (g). For employees engaged in range rehabilitation and/or range conversion, the employer shall provide at no cost to the employee, and assure that the employee uses appropriate protective work clothing and equipment such as, but not limited to:

(1) Protective coveralls with hood and shoe covers or disposable Tyvek ™ full body suit.
(2) Disposable rubber gloves; and disposable shoe coverlets (If necessary).
(3) Full-face air purifying respirator with P-100 cartridges.

b. The employer shall provide the clothing required in a clean and dry condition at least daily to employees engaged in the conversion of IFRs.

c. The employer shall provide for the cleaning, laundering, or disposal of used or contaminated protective clothing and equipment.

d. The employer shall assure that all protective clothing is removed at the completion of a work shift only in areas designated for that purpose (Change Areas or Change Rooms).

e. The employer will ensure that contaminated protective clothing that is to be cleaned, laundered, or disposed of, is placed in a closed container in the change area that seals sufficiently enough to prevent dispersion of lead dust.

f. The employer will further inform in writing any person who cleans or launders protective clothing or equipment of the potentially harmful effects of exposure to lead.

g. The employer will ensure that the containers of contaminated protective clothing and equipment are labeled as follows: CAUTION: *CLOTHING CONTAMINATED WITH LEAD. DO NOT REMOVE DUST BY BLOWING OR SHAKING. DISPOSE OF LEAD CONTAMINATED WASH WATER IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, OR FEDERAL REGULATIONS.*

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2129 of 2531

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Chapter 3
Education, Maintenance, Cleaning and Conversion

3-1. Worker Education

a. 29 CFR 1910.1025, Appendix B, requires an information and training program for all employees exposed to lead above the action level or who may suffer skin or eye irritation from lead. The program must inform the employees of the specific hazards associated with their work environment, protective measures which can be taken, the danger of lead to their bodies (including their reproductive systems), and their rights under the standard. In addition you must make readily available to all employees, including those exposed below the action level, a copy of this standard and its appendices. This training program will be repeated annually for personnel in range cleanup operations.

b. The commander/supervisor will ensure that each soldier or Army National Guard (ARNG) employee is informed of the following:

(1) The content of the standard and its appendices.

(2) The specific nature of operations that could result in exposure to lead above the action level.

(3) The purpose, proper selection, fitting, use and limitations of respirators.

(4) The purpose and a description of medical surveillance program.

(5) Eating and drinking are prohibited in lead contaminated areas.

(6) Smoking and smoking materials will not be permitted in contaminated areas.

(7) Soldiers and ARNG employees must wash their hands and other exposed skin whenever they leave the work area.

(8) The engineering controls and work practices associated with the individual's job assignment.

(9) The contents of any compliance plan in effect.

(10) Instructions to soldiers and ARNG employees that chelating agents should not routinely be used to remove lead from their bodies and should not be used at all except under the direction of a licensed physician.

3-2. Range Cleaning Instructions

a. Written procedures, such as a scope of work, or Standing Operating Procedure that complies with all federal, state and local regulations must be established prior to decontamination operations.

b. The range ventilation system will be in operation during range cleaning to ensure that a negative pressure environment is maintained. In the absence of mechanical ventilation system, all doors and windows will be sealed to eliminate fugitive emissions.

c. A High Efficiency Particulate Air (HEPA) filtered vacuum system, which is designed to collect loose surface lead dust particles, is the preferred method of cleanup. If a HEPA filtered vacuum is not available, the range can be cleaned using a wet method.

d. Prohibited methods include:

(1) Wet cleaning using high-pressure systems, since this method may embed the lead into the substratum and generate large quantities of hazardous waste.

(2) Dry sweeping is not permitted.

e. All surface areas of the range must be cleaned. In addition, areas outside of the IFR where lead can be tracked must be cleaned.

f. The preferred progression of cleaning is from top to bottom and from behind the steel bullet trap to the firing line.

(1) Clean the steel bullet trap, areas in front of and behind the bullet trap, and the steel bullet trap plate(s), after removing the sand (if applicable).

(2) Clean the ceiling, floors, lights, baffles, retrieval system, heating system(s), and ventilation duct(s).

(3) Vacuum and remove acoustical material. *Painting over this material is not recommended.*

(4) Clean the floor the last, starting at the bullet trap and ending behind the firing line.

g. When using a HEPA filtered vacuum, vacuum all surface areas until no dust or residue is visible.

h. Any general purpose cleaning solutions can be used for the wet method. However, Spic and Span™ has been found to be an effective cleaning solution by other Army organizations. Mix new solutions of cleaning solution frequently. Wet wiping will require dual containers of water; one container for wetting the applicator

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2130 of 2531

(mops, rags, sponge, etc.) and the other container for rinsing the applicator after the dust has been wiped from the surfaces. After wet wiping all surfaces, permit the area to dry.

i. *Properly dispose of all hazardous waste. Do not place lead contaminated waste into the sewer system or onto the ground.*

(1) When placed in containers, wastewater should be left to evaporate.

(2) Mop-heads, sponges and rags will be discarded as hazardous waste following cleanup.

j. A thorough visual inspection to detect dust should be made following cleanup and prior to collecting post surface wipe samples.

k. Wood floors should receive a coat of deck enamel or urethane; concrete floors should be sealed with deck enamel.

l. As a variety of conditions exist in ranges, unique situation may arise and specific written guidance from your Regional Industrial Hygiene Office may be required.

m. Any cleaning activities must be under the supervision by a trained and competent personnel IAW with OSHA and other nationally accepted standards and the work shall be according to current industry engineering standards under the control of the State Construction and Facilities Management Officer. Cleaning must recognize that there likely will be "background" lead presence in the readiness center totally independent of the existence of an indoor range and that the method of cleaning is less important than achieving the goal of less than 200 micrograms (40 micrograms in the case of child exposure).

3-3. Cleaning Stored Contaminated Equipment

a. Equipment contaminated (sample result is higher than 200 ug/ft^2) with lead dust must be decontaminated before it is removed from the range.

b. Equipment located near the bullet trap and firing line should be cleaned first and then removed. The cleaning method depends on the size of the equipment and the material it is comprised of, i.e. metal, wood, concrete, porous, non-porous, smooth or rough finish etc. However, either HEPA vacuum or the wet wipe method will be used. Refer to paragraph 3-2 for additional guidance.

c. Every attempt should be made to clean and reclaim items since disposing of equipment, as hazardous waste is costly and wasteful. Only as a last resort will the item be discarded as hazardous waste. Porous items, such as office partitions and carpet that were present during firing should be considered grossly contaminated and be discarded unless analysis proves otherwise. Consult your State Environmental Office for the proper hazardous waste disposal methods.

3-4. Contaminated Sand and Lead Waste

Consult your State Environmental Office for specific disposal guidance to ensure compliance with local laws and regulations.

3-5. Range Rehabilitation

This chapter applies to all IFRs that have been identified as candidates for rehabilitation. It provides further guidance for cleaning and/or sampling that might be required prior to the start of rehabilitation.

a. The portion(s) of the range to under go rehabilitation must be sampled to determine the level of lead contamination. Wipe samples will be taken per the established sampling protocol. See appendix B.

b. All personnel involved in range rehabilitation will wear a NIOSH approved respirator (P-100) and proper personal protective equipment as prescribed in paragraph 2-5 above.

c. Prior to the start of rehabilitation, the environmental office must be notified to determine the disposition of any debris containing hazardous materials (lead).

d. Supervision shall be by a person who is certified to perform inspections, evaluations, and determinations of IFRs IAW with OSHA standards, other nationally accepted standards, and accepted IH practices for maintenance, cleaning, conversion, ventilation, and air sampling of IFRs. All work shall be according to current industry engineering standards under the control of the State Construction and Facilities Management Officer.

3-6. Conversion of Indoor Firing Ranges

Prior to the start of decontamination, employers must ensure that all procedures to be used comply with Federal, State, and local regulations. To ensure that all lead contamination is eradicated, the following procedure is established.

a. The State shall follow the project approval process as delineated in NGR 420-10 (or NGR 415-5 if the use of the military construction appropriation is required).

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2131 of 2531

BEST AVAILABLE COPY

b. All ranges slated for conversion will be inspected and evaluated NGB Regional Industrial Hygiene Office.

c. All equipment stored in the range, if applicable, prior to the start of decontamination must be sampled, decontaminated, re-sampled and removed or turned in as lead contaminated material.

d. All acoustical tiles and/or sound proofing material (if applicable) must be removed and turned in as lead contaminated material through the environmental office.

e. The bullet trap, target retrieval system and firing line stations must be removed and turned in as lead containing material through the environmental office.

f. Light fixtures and ventilation system grills must be removed and decontaminated.

g. Ventilation system ducts need to be decontaminated or removed and replaced.

h. The exhaust fans and/or the complete ventilation air-handling unit (if applicable) must be decontaminated or removed to include roof fans.

i. Cover all openings of any component previously decontaminated prior to start of interior decontamination of the firing range.

j. Prior to start of washing, the interior of the range should be vacuumed with a HEPA filtered vacuum. The range should be washed using a cleaning solution of hot water and Spic and Span in five gallons of hot water. A progression of cleaning from top to bottom, and from back to front should be used. All surface areas of the range must be cleaned. Mix new solutions of water frequently. Washing will require dual containers of water; one container for wetting the applicators (mops, rags, sponges, etc.), and the other container for rinsing the applicators. Waste water placed into containers can be left to evaporate. *Properly dispose of all hazardous waste and do not place any lead contaminated waste into the sewer system or onto the ground.* Mop heads, sponges and rags will be discarded as hazardous waste following decontamination of the range. After completion of decontamination, and prior to taking clearance samples, the ventilation system must be run for a period of 36 hours. Wipe clearance samples will be taken from ceiling, walls and floors. The range will be considered clean if no clearance sample is greater than 200 ug/ft^2, if any sample is above 200 ug/ft^2, the range is not considered clean, the range will need to be re-washed until clearance samples are below 200 ug/ft^2.

k. The regional industrial hygienist will do quality assurance sampling as needed.

l. After obtaining clearance, the walls of the range will be coated with a sealant (Not Paint), which is smooth, wood floors will receive a coat of deck enamel or urethane, concrete floors will be sealed with deck enamel. After sealing, floors will be tiled or covered with linoleum.

m. As a variety of conditions exist in ranges, unique situations may arise and specific written guidance from the Regional Industrial Hygiene Office may be required.

n. All personnel involved in the decontamination/conversion of IFRs as a minimum will be provided with the following personal protective equipment.

(1). Full Face air purifying respirator with HEPA cartridges. The requirements outline in 29 CFR 1910.134, must be met prior to placing workers in respiratory protection.

(2). Individuals will be provided personal protective equipment as required per paragraph 2-5, this pamphlet.

o. Any conversion must be supervised by a person certified to perform inspections, evaluations, and determinations of IFRs IAW with OSHA standards, other nationally accepted standards, and accepted IH practices for maintenance, cleaning, conversion, ventilation, and air sampling of IFRs. All work shall be according to current industry engineering standards under the control of the State Construction and Facilities Management Officer. Cleaning must recognize that there likely will be "background" lead presence in the readiness center totally independent of the existence of an indoor range and that the method of cleaning is less important than achieving the goal of less than 200 micrograms (40 micrograms in the case of child exposure).

p. After conversion, lead testing shall continue on an annual basis to verify that no lead migration from the substrate is occurring.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2132 of 2531

BEST AVAILABLE COPY

Appendix A
References

Section I
Required Publications

There are no entries in this section

Section II
Related Publications

ASTM E1792-03
Standard Specification for Wipe Sampling Materials for Lead in Surface Dust

AR 11-34
The Respiratory Protection Program

AR 40-5
Preventive Medicine

DODI 6055.5
Industrial Hygiene and Occupational Health

29 CFR, Part 1910
Occupational Safety and Health Administration, Department of Labor

National Institute for Occupational Safety and Health (NIOSH) 76-130
Lead Exposure and Design Considerations for Indoor Firing Ranges, Department of Health, Education and Welfare

NGR 385-15
Policy and Responsibilities for Inspection, Evaluation and Operation Army National Guard National Guard Indoor Firing Ranges (IFRs).

NGR 415-5
Army National Guard Military Construction Program Development and Execution

NGR 420-10
Construction and Facilities Management Office Operations

Technical Manual, 5th Edition
Occupational Safety and Health Administration, Department of Labor

Section III
Prescribed Forms

There are no entries in this section

Section IV
Referenced Forms

There are no entries in this section

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2133 of 2531

BEST AVAILABLE COPY

Appendix B
Protocol for Collecting Wipe Samples

B-1. If multiple samples are to be collected at the work site, prepare a rough sketch of the area(s) or room(s), which are to be wipe sampled.

B-2. A new set of clean, impervious gloves should be used for each sample to avoid contamination of the media by previous samples and to prevent contact with the substance.

B-3. Wipe Samples

a. If using Ghost Wipes™, tear open the individually sealed package. Remove the moistened wipe. Unfold the wipe.

b. If using a dry media such as MCE or Whatman™ filter, moisten the filter with distilled or deionized water prior to sampling.

B-4. Place a 10 centimeter by 10 centimeter template on the area to be wiped.

B-5. Apply uniform firm pressure while wiping the area inside the template.

B-6. To insure that all portions of the partitioned area are wiped, start at the outside edge and progress toward the center making concentric squares decreasing in size.

B-7. After collecting a sample, fold the filter or wipe inward and place into a container and number it. Note the number at the sample location on the sketch.

B-8. At least one blank filter treated in the same fashion but without wiping, should be submitted to the laboratory.

Appendix C
Sampling Strategy for Collection of Wipe Samples

C-1. Prior to cleaning the ranges, three samples must be collected and analyzed for total lead dust on each surface, i.e., floor, ceiling, bullet trap, and wall to include the plenum wall, if applicable. In addition, a total of three samples should be collected from areas which have been least disturbed by airflow. Established walkways should be avoided.

C-2. Samples should be collected from different areas of the range. A grid system should be utilized. Each range surface areas should be divided evenly into 3 by 3 sections. Samples should not be collected from only one section of a wall or end of the building.

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2134 of 2531

BEST AVAILABLE COPY

GLOSSARY

Section I
Abbreviations

ARNG
Army National Guard

CFR
Code of Federal Regulations

HEPA
High Efficiency Particulate Air

IFR
Indoor Firing Range

NIOSH
National Institute for Occupational Safety and Health

OSHA
Occupational Safety and Health Administration

ug/ft^2
Micrograms per square foot

Section II
Terms

Air monitoring
The sampling for and measuring of pollutants in the atmosphere.

Breathing zone
The imaginary globe of two feet radius surrounding the head.

General area
Collection of and later analysis of airborne contaminants in a given work environment. As the sampling pump and collection media are not attached to a worker, the concentrations found represent average concentrations in that area but may not representative of the actual exposure of the worker.

HEPA
Refers to high efficiency particulate air filter systems capable of capturing up to 99.97 percent of particles 0.3 microns in size or larger.

Lead-Contaminated Range
It is assumed that all IFRs, which have been fired in, are lead-contaminated.

Respirator
A device designed to provide the wearer with respiratory protection against inhalation of airborne contaminants.

Wipe Sample
The terms wipe, swipe, or smear samples are used synonymously to describe the techniques utilized for assessing lead surface contamination.

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2135 of 2531

BEST AVAILABLE COPY

Section III
Special Abbreviations and Terms

This section contains no entries

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2136 of 2531

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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-AVN-SI 31 March 2003

MEMORANDUM FOR: The Adjutant General of Tennessee, ATTN: Non-Responsive
1685 McMinnville Hwy, Sparta, Tennessee, 38583.

SUBJECT: Transmittal of the Sparta, Tennessee Armory Survey Report.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, 30 August 1986, Medical Service, Preventive Medicine.

c. National Guard Regulation (NGR) 385-10, 1988, Army National Guard Safety and Occupational Health Program.

d. AR 11-34, The Army Respiratory Protection Program, 15 February 1990.

e. TB MED 502, Occupational and Environmental Health Respiratory Protection Program, February 1982.

f. DA PAM 40-503, 30 October 2000, The Army Industrial Hygiene Program.

g. DA PAM 40-501, 10 December 1998, Hearing Conservation.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2001, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

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k. Title 29, Code of Federal Regulations (CFR), 2000 rev., part 1910, Occupational Safety and Health Standards.

l. Report dated 11 March 2003, Industrial Hygiene Survey, LAE Consulting, Severn, Maryland.

2. General.

a. At the request of the TNARNG Safety and Occupational Health Office, an Industrial Hygiene Service was put together to conduct Health Hazard Information module (HHIM) Field surveys and industriel hygiene sampling of the Sparta Armory, Sparta, Tennessee .

b. LAE Consulting, 1218 Scattered Pines Court, Severn, Maryland 21144 conducted the survey.

3. Findings. All HHIM field survey forms and survey findings of the report. (See enclosure 1)

4. Recommendations.

a. Follow all recommendations made in reference 1.l., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Control water infiltration in the armory and/or replece or repair damaged surfaces or cemponents (ceiling and floor tiles). Building conditions that present IAQ concerns or problems not only exacerbates normally minor health issues but also tend to promote or accelerate building deterioration.

c. The recommendations given in the comment section of the HHIM data sheets and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-03. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-04 IHIP.

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present survey, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

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SUBJECT: Transmittal of the Sparta Armory Survey Report.

f. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

5. If additional information is needed about the industrial hygiene survey or air sample

Non-Responsive

CF:
NBG-AVN-SH
State Occupational Health Office, P O Box 41502, Nashville, TN 37204-1502.
State Safety Manager, P O Box 41502, Nashville, TN 37204-1502.

Encl
as

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LAE CONSULTING
1218 Scattered Pines Court, Severn, MD, 21144
Tel: (410) 551-2717

11 March 2003

MEMORANDUM FOR: Howitzer Battery, 3/278th ACR, ATTN: Non-Responsive 1685 McMinnville Hwy, Sparta, Tennessee, 38583

SUBJECT: Industrial Hygiene Survey of Jesse Cooper National Guard Armory, Sparta, Tennessee

1. References.

a. Title 29, Code of Federal Regulations (CFR) Part 1910, Occupational Safety and Health Administration (OSHA).

b. AR 40-5, Preventive Medicine, 15 October 1990.

c. AR 385-10, 23 May 1988, Army Safety Program.

d. TB MED 503, The Army Industrial Hygiene Program.

e. Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.

f. National Institute for Occupational Safety and Health (NIOSH), (76-130) Technical Information, Lead Exposure and Design Considerations for Indoor Firing Ranges GPO, 1975.

g. Title 40, Code of Federal Regulations (CFR) Part 745, Lead, Identification of Dangerous Levels of Lead: Final rule.

h. IES Lighting Handbook, Application Volume 1981, Illumination Engineering Society of North America.

i. Occupational Safety and Health Administration (OSHA), 29 CFR, 1926.1101, Asbestos

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SUBJECT: Industrial Hygiene Survey of Jesse Cooper National Guard Armory, Sparta, Tennessee

2. Purpose. The purpose of this survey was to conduct a baseline Industrial Hygiene survey of the Jesse Cooper National Guard Armory. The facility was visually examined and the Building Custodian was interviewed for historical information related to the building and the operations performed. A diagram of the building can be found in Enclosure 1. Laboratory results of Lead wipe samples and Asbestos samples at Enclosure 2. Photographs of the facility can be found in Enclosure 3. Health Hazard Inventories can be found in Enclosure 4.

3. Background. At the request of Etienne Rodriguez of the National Guard Bureau Region South Industrial Hygiene Office, Ms. Lisa Evans of LAE Consulting conducted an industrial hygiene survey at the Jesse Cooper Guard Armory on February 10, 2003.

4. Facility Description. This facility houses the Howitzer Battery, 3/278th ACR. The Armory has two full time personnel. The personnel perform administrative duties Monday through Friday between 0800 and1630. The Armory is utilized for drills on the weekend. The Armory was built around 1986. The facility houses administrative areas, one kitchen/mess hall, one classroom, a Drill hall, Supply Room, and an Arms Room.

5. Findings.

a. A deactivated Indoor Firing Range was converted into a Team storage area. Twelve metal cages store Equipment and supplies needed by each team. The rear of the range near the entrance door is occasionally used as a classroom during drills. The ranges acoustic material and overhead lights are still present. An observation room is located behind the former firing line. The entrance to this room is off an adjacent hallway. Plexiglas fronts this room. Twelve (12) lead wipe samples were taken (Table 1). Six (6) samples from the deactivated range and six (6) from various other locations throughout the Armory. Four of the seven samples were above the clearance level of 40 ug /ft^2 indicated in reference g.

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FOIA Requested Record #J-15-0085 (TN)
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Page 2141 of 2531

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SUBJECT: Industrial Hygiene Survey of Jesse Cooper National Guard Armory, Sparta, Tennessee

Table 1.

Sample Number	Sample Location	Results
1	Filter of AHU exhaust side	<12 ug
2	Filter of AHU supply side	<12 ug
3	Wall previous backstop 6 ft up wall	38 ug/ft^2
4	Former pit floor near backstop	2100 ug/ft^2
5	Top shelf in cage FIST #2	100 ug/ft^2
6	Observation wall (Plexiglas) range side	<12 ug/ft^2
7	Range exit to hallway	44 ug/ft^2
8	Former backstop back wall 4 ft up	45 ug/ ft^2
9	Drill hall floor opposite supply room	12 ug/ ft^2
10	Center of Drill hall floor	14 ug/ ft^2
11	Top of gray metal wall locker (spice storage)	<12 ug/ ft^2
12	Blank	<12 ug/ ft^2

b. Illumination levels were measured in areas throughout the Armory (Table 2). Illumination was measured in Foot-candles. All illumination levels were below the recommended minimum standard of 50 FC for computer general use, and kitchen areas.

Table 2

Digital Training room	11.2 FC
Classroom C	12.7 FC
Supply Sgt's desk	5.75 FC
Supply Sgt's computer workstation	7.2 FC
Kitchen food prep table	7.2 FC
At 2 compartment sink	7.3 FC
Serving line	5.1 FC
Stove	18.3 FC
Pots and pans storage room	9.6 FC

c. An active leak was noticed in the Men's locker room. A rain shower was occurring during the time of the survey. Previous leaking was evident from the stain on the wall above the entrance door. The leak is occurring were the low section of the roof meets the higher area of the Drill hall.

d. The exterior facing walls in the Digital Training Room have begun to pop out. A leaking roof may have caused the cinder blocks of the wall to protrude. This office is located at the front of the building. The office shares 2 of the exterior walls with the front porch. The roof in this area of the building is flat. A gutter downspout is located along the walls were this office is located.

LAJ Consulting
1218 Scattered Pines Court, Severn, Maryland 21144
Telephone: (410) 551-2717

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Page 2142 of 2531

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SUBJECT: Industrial Hygiene Survey of Jesse Cooper National Guard Armory, Sparta, Tennessee

6. Recommendations.

a. Recommend that the Tennessee Safety and Occupational Health office review the lead wipe sample results. If sample results are greater than or equal to 40 ug/ft² consider decontamination of the range.

b. Lighting in all areas must be upgrades to meet the required 50 FC recommended [IES/ANSI RP1-1993]. Lighting in the kitchen must be upgraded to preclude safety and health accidents from occurring. Consider purchasing supplemental lighting such as desk lamps in administrative areas until funding for lighting upgrades become available.

c. Consider hiring a roofing contractor to inspect the roof for the cause of the leak. The Flashing between the upper and lower sections maybe damaged causing this problem. The continuation of this leak may pose a greater risk of mold development and could cause extensive structural damage. Continue to perform general house keeping in the locker room. Immediately dry wet areas and provide ventilation by the use floor fans.

d. Recommend inspecting the gutters and the roof of this area of the building. Gutters that are not cleaned frequently can cause water to pool on a flat roof causing the water to be wicked in to the cinder block walls.

7. Technical Assistance. For technical assistance, regarding information found in this

Non-Responsive

[redacted]

4. HHIM

CF: Safety Occupational Health Office, Houston Barracks
ATTN: AGTN-SAHO, 3041 Sidco Drive, Nashville, TN 37204-1501

LAE Consulting
1218 Scattered Pines Court, Severn, Maryland 21144
Telephone: (410) 551-2717

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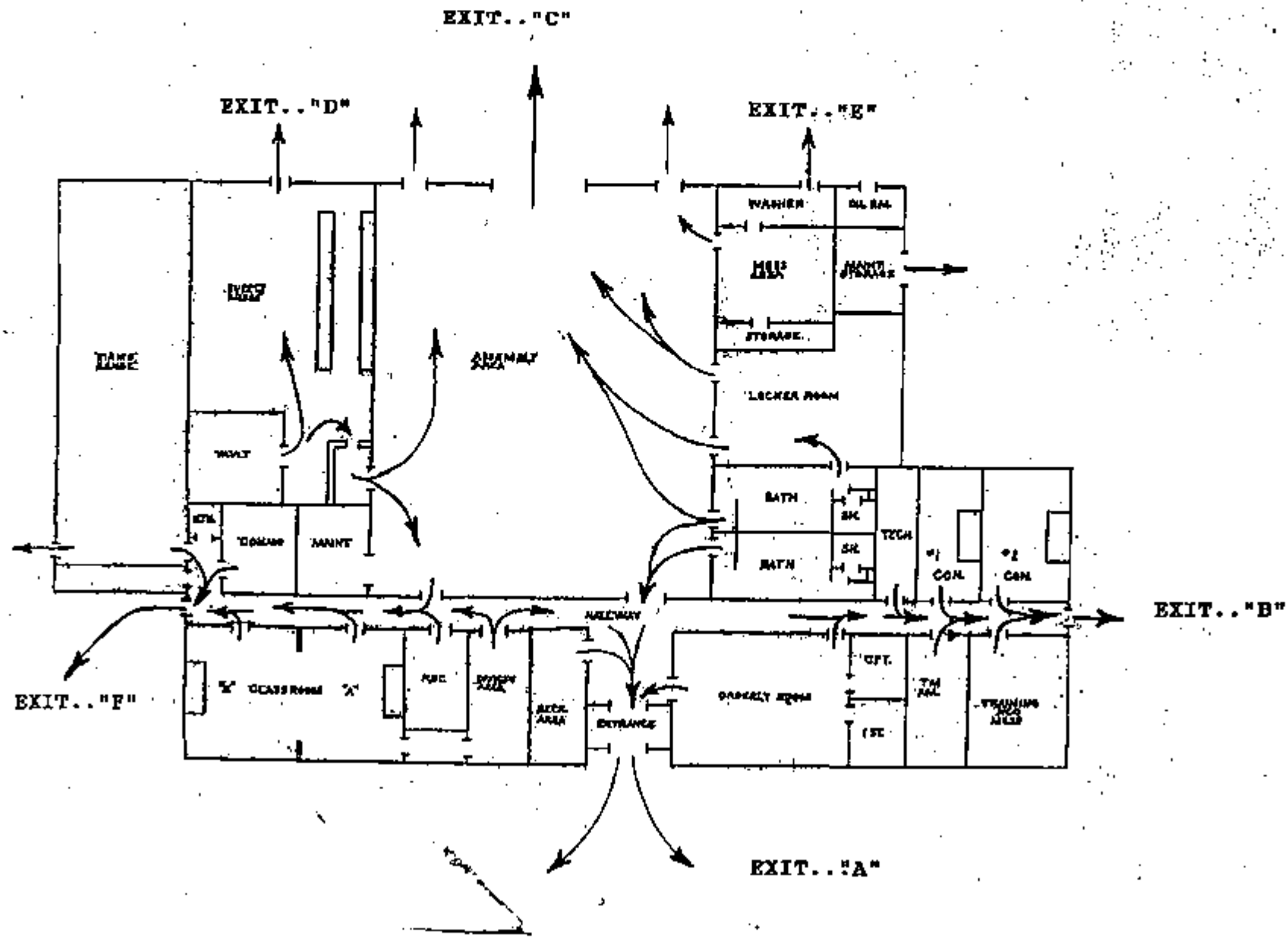
HOWITZER BTRY 3/278th ACR. SPARTA,TN.

FIRE ESCAPE PLAN



SPARTA, NG Armory, SPARTA, TN
Views of Lead Wipe Sample Location
in the
Converted Indoor Firing Range

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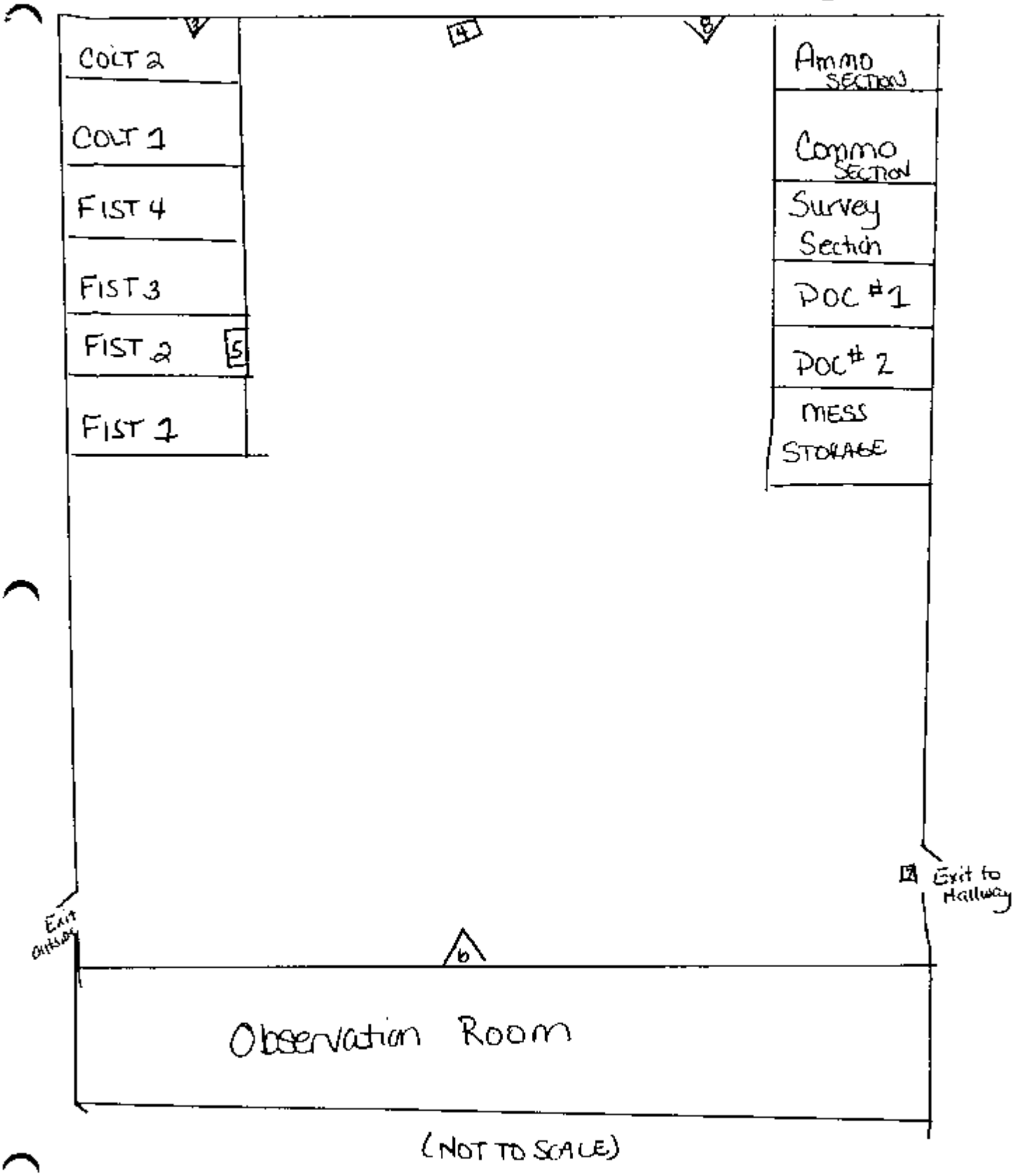

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A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client:	LAE Consulting	**Job Name:**	Sparta NG Armory, Sparta, TN	**Chain Of Custody:**	109638
Address:	1218 Scattered Pine Court	**Job Location:**	Not Provided	**Date Analyzed:**	2/21/03
	Severn, Maryland 21144	**Job Number:**	Not Provided	**Person Submitting:**	[redacted]
		P.O. Number:	Not Provided	**Report Date:**	[redacted]

Attention: [redacted]

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit		Final Result			Comments
0327018	1	Flame	Wipe	****	1.000	12.00	ug/ft²	<	12	ug/ft²	
0327019	2	Flame	Wipe	****	1.000	12.00	ug/ft²	<	12	ug/ft²	
0327020	3	Flame	Wipe	****	1.000	12.00	ug/ft²		38	ug/ft²	
0327021	4	Flame	Wipe	****	1.000	12.00	ug/ft²		2100	ug/ft²	
0327022	5	Flame	Wipe	****	1.000	12.00	ug/ft²		100	ug/ft²	
0327023	6	Flame	Wipe	****	1.000	12.00	ug/ft²	<	12	ug/ft²	
0327024	7	Flame	Wipe	****	1.000	12.00	ug/ft²		44	ug/ft²	
0327025	8	Flame	Wipe	****	1.000	12.00	ug/ft²		45	ug/ft²	
0327026	9	Flame	Wipe	****	1.000	12.00	ug/ft²		12	ug/ft²	
0327027	10	Flame	Wipe	****	1.000	12.00	ug/ft²		14	ug/ft²	
0327028	11	Flame	Wipe	****	1.000	12.00	ug/ft²	<	12	ug/ft²	
0327029	12	Flame	Wipe Blank	****	N/A	12.00	ug	<	12	ug	

FOIA Requested Record #J-15-0088
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This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples. All rights reserved. AMA Analytical Services, Inc.

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CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client:	LAE Consulting	**Job Name:**	Sparta NG Armory, Sparta, TN	**Chain Of Custody:**	109638
Address:	1218 Scattered Pine Court	**Job Location:**	Not Provided	**Date Analyzed:**	2/21/03
	Severn, Maryland 21144	**Job Number:**	Not Provided	**Person Submitting:**	[redacted] Non-Resp
		P.O. Number:	Not Provided	**Report Date:**	27-Feb-03

Attention: [redacted] Non-Resp

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Final Result	Comments

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7420; Water: SM-3111B
Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7421; Water: SM-3113B
N/A = Not Applicable mg/Kg = parts per million (ppm) by weight mg/L = parts per million (ppm)
%Pb = percent lead by weight ug = micrograms ug/L = parts per billion (ppb)
Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

[redacted] Non-Responsive

Manager: [redacted] Non-Responsive

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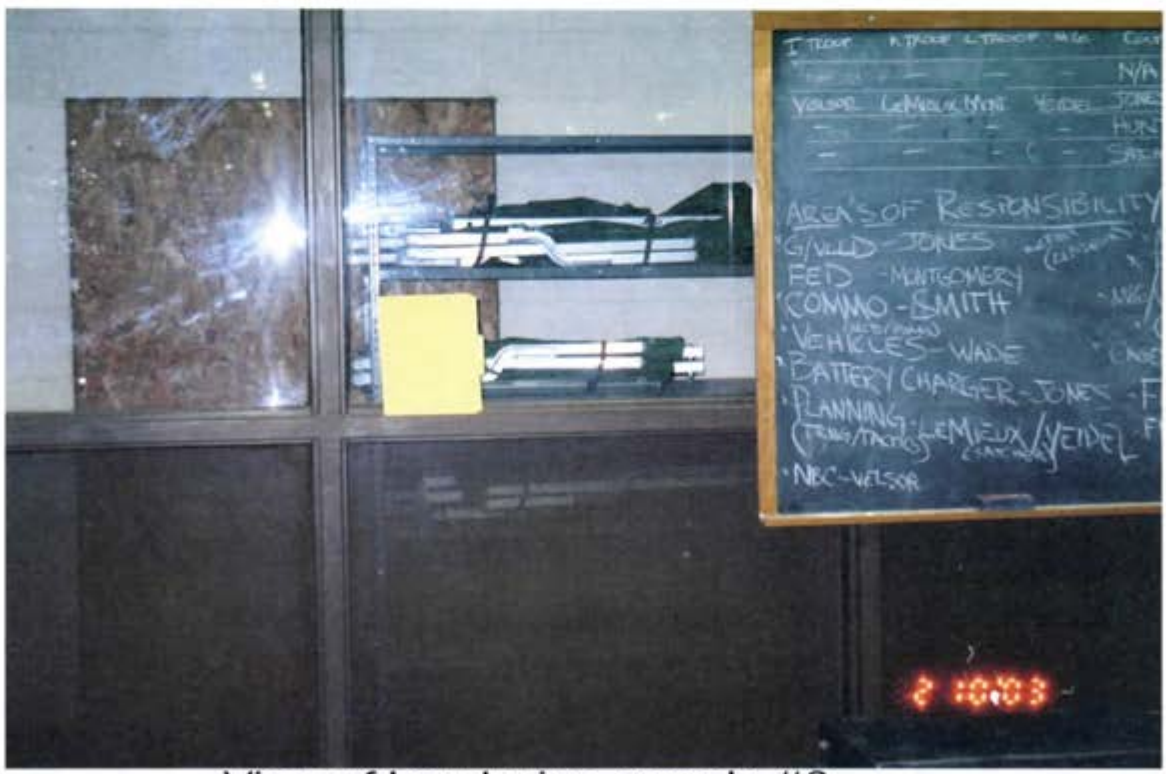
Jesse Cooper Armory,
Howitzer Battery, 3/278th ACR, Sparta, TN

Up and Down range views of the
Converted Deactivated Indoor Firing Range

View of Lead wipe sample #3,Inside Cage Colt 2.
Former backstop of DIFR

View of Lead wipe sample # 8 and #4, Previous backstop and pit area of the Deactivated Indoor Firing Range

View of Lead wipe sample #5 (yellow card)
on the top shelf inside cage FIST 2



View of Lead wipe sample #6,
Plexiglass observation wall on the DIFR side

View of Lead Wipe sample #7,
the threshold of the DIFR to the corridor

View of Lead wipe sample #9, the Drill Hall floor
opposite in front of the Supply room

View of Lead wipe sample #10 (yellow card)
Center of Drill Hall Floor

View of Lead wipe sample #11, the kitchen on
top of gray wall locker holding spices

Views of the AIr Handling Unit and the Filter

Views of an active water leak in the Men's locker

Views of popping cinder block walls in the Digital Training Room

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HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

[redacted]

ARLOC	INSTALLATION Jesse Cooper Armory SPARTA, NG Armory, TN	BLDG/RM NO. 1685 McMinnville Hwy SPARTA, TN 38583
LOCATION/CODE AA		OPERATION/CODE ADO
SURVEY DATE 10 Feb 03	EVALUATOR LAE CONSULTING	
MACOM/CODE	SUBMACOM/CODE	SUPERVISOR [redacted]
[redacted]	ORGANIZATION Howitzer Battery 178 ACR	RAC / FREQUENCY (hrs/day) 8+ hrs
	NO. CONTRACTORS	NO. LOC(S) / NO. OTHER

SECTION 2: FACILITY DATA

LAB HOODS	VAPOR DEGREASERS	SPRAY BOOTHS
MAINTENANCE BAYS	OPEN SURFACE TANKS	VENTILATION UNITS

SECTION 3: SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS

PERSONAL PROTECTIVE EQUIPMENT (R= REQUIRED; U = UTILIZED)

GLOVES	R/U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R/U
ACID	/	AIR LINE			/
COLD SURFACES	/	ABRASIZE BLASTING HOOD			/
HOT SURFACES	/	DISPOSABLE			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	1/2 FACE AIR PURIFYING			/
SOLVENTS	/	1/4 FACE AIR PURIFYING			/
SURGICAL GLOVES	/	SELF CONTAINED			/

EYES/FACE	R/U	HEARING	R/U	BODY	R/U	HEAD/FIT	R/U
CHEMICAL SPLASH	/	CANAL CAPS	/	APRONS	/	COLD WEATHER BOOTS/HATS	/
FULL FACE SHEILD	/	EARPLUGS	/	COLD WEATHER CLOTHING	/	HARD HATS	/
CHEMICAL/SAFETY	/	HELMETS	/	COVERALLS	/	IMPERMEABLE BOOTS	/
SAFETY/IMPACT	/	MUFFS		FULL BODY SUIT	/	SAFETY/CONDUCTIVE SHOES	/
WELDING HELMET	/	MUFF/EARPLUG COMBO	/	HEAT REFELECTIVE VEST/SUIT	/	SAFETY/NON-CONDUCTIVE SHOES	/
		MUFF/EARPLUG W/TIME LIMIT	/	SAFETY BELT/HARNESS	/		/

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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-AVS-SEIH 27 September 2006

MEMORANDUM THRU Non-Responsive Deputy State Surgeon, Tennessee National Guard, HQS, TNARNG STARC, Attn: AGTN-DCSPER-DSS, P.O. Box 41502, Houston Barracks, Nashville, Tennessee 37204-1501

TO: ATTN: Non-Responsive 230 SUST Bde, 502 James H. Rice Rd., Dyersburg, TN 38024

SUBJECT: Industrial Hygiene sampling for Lead at the Indoor Firing Range of the Sparta National Guard Armory

1. References.

a. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1996 rev.

b. AR 40-5, Preventive Medicine, 22 July 2005.

c. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.

d. AR 385-10, 29 February 2000, Army Safety Program.

e. TB MED 503, The Army Industrial Hygiene Program, 30 October 2000.

f. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.

g. Industrial Ventilation, 25th, 2004, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

h. Title 29 Code of Federal Regulation (CFR), Part 1910.1025 Lead.

2. General.

a. At the request of Non-Responsive of the Tennessee National Safety and Occupational Health Office, a lead survey of the inactive Indoor Firing Range was conducted 8 September 2006.

b. Non-Responsive Industrial Hygiene Technician, of the Southeast Regional IH Office conducted the sampling with assistance from Non-Responsive Non-Responsive

3. Findings.

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SUBJECT: Industrial Hygiene sampling for Lead at the Indoor Firing Range of the Sparta National Guard Armory

a. Samples were taken in the inactive Indoor Firing Range along the left side of the Armory. The Indoor Firing Range was deactivated many years ago. The range has a sign posted on the stating it was cleaned on July 26, 2006. Currently the Indoor Firing Range is not being used at all.

b. The backstop was removed and there is no visible evidance of the sand trap. Plenum wall has not been removed, and a shelving unit is stored in the room. Acoustical tiles are present on the walls of the range. Cross beams and I-beams are still present. A cage storage system has been installed in the range and bolted to the floor. All equipment stored in the range, if applicable, prior to the start of decontamination must be sampled, decontaminated, re-sampled and removed or turned in as lead contaminated material.

c. When converting a range for other uses, prior to start the area decontamination all acoustical tiles and/or sound proofing material (if applicable) must be removed and turned in as lead contaminated meterial through the environmental office. Otherwise the range cannot be considered decontaminated and can not be converted for other use.

d. Also light fixtures and ventilation system grills as well as ventilation system ducts need to be decontaminated or removed and replaced. In addition the exhaust fans and/or the complete ventilation air-handling unit (if applicable) must be decontaminated or removed to include roof fans.

e. Twenty-three samples including two blank wipes were taken throughout the Indoor Firing Range. Results ranged from Below Reporting Limit (BRL) to 1050µg/ft².

f. There were four samples from the Indoor Firing Range that showed Lead levels above the limit of 200µg/ft².

g. Post decontamination samples of surface wipes must be less than 200µg/ft² (40µg/ft² in case of possible child exposure) before applying a lead encapsulating material. Otherwise the range cannot be considered decontaminated and can not be converted for other use.

h. Lead Wipe Sample Results:

Sample Number	Micrograms (µg) Of Lead per Square Foot	Sample Area
SPA01	BRL	Top left wall
SPA02	BRL	Middle left wall
SPA03	BRL	Bottom left wall
SPA04	38	Top left bullet stop end of wall
SPA05	30	Middle bullet stop end of wall
SPA06	24	Bottom right bullet stop end of wall
SPA07	BRL	Top right wall
SPA08	BRL	Middle right wall

SUBJECT: Industrial Hygiene sampling for Lead at the Indoor Firing Range of the Sparta National Guard Armory

SPA09	BRL	Bottom right wall
SPA10	689	Top rear wall
SPA11	BRL	BLANK
SPA12	146	Middle rear wall
SPA13	238	Bottom rear wall
SPA14	932	Floor right bullet stop end
SPA15	49	Floor center
SPA16	85	Floor left rear wall
SPA17	1050	Ceiling left bullet stop
SPA18	BRL	Ceiling center
SPA19	33	Ceiling right rear wall
SPA20	BRL	BLANK
SPA21	106	Shelving in front along left wall, 2nd shelf
SPA22	102	Shelving along right wall in rear, 2nd shelf
SPA23	855	The shelf of the I-beam in middle of range

i. Attached: Sample results, diagram of where samples were taken and pictures.

4. Recommendations.

a. Decontaminate converted Indoor Firing Range (Supply/Storage room) of lead following NG PAM 40-15. Keep in mind that EPA and your state may have lead reduction levels lower than the recommended levels in NG PAM 40-15.

b. To execute your responsibilities in correcting all deficiencies, coordinate with the Occupational Health Nurse, the FMO Environmental Office and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed about this report, please contact Non-Responsive

Non-Responsive

[redacted]

CF: Non-Responsive Occupational Health Nurse, Tennessee State Safety and Occupational Health Office, ATTN: AGTN-SAHO, Houston Barracks, 3041 Sidco Drive, Nashville, Tennessee 37204-1502

CF: Non-Responsive nnessee State Safety and Occupational Health Manager, 3041 Sidco Drive, Nashville, TN 37204-1504

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Appendices

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Appendix A

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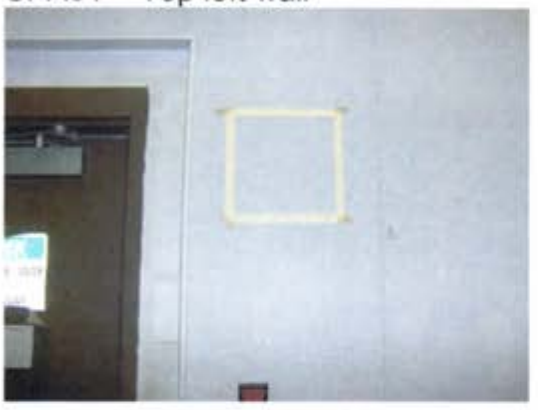
SPARTA INDOOR FIRING RANGE

Sparta Cages

SPA03 – Bottom left wall

SPA01 – Top left wall



SPA04 – Top left bullet stop end

SPA02 – Middle left wall

SPA05 – Middle bullet stop end

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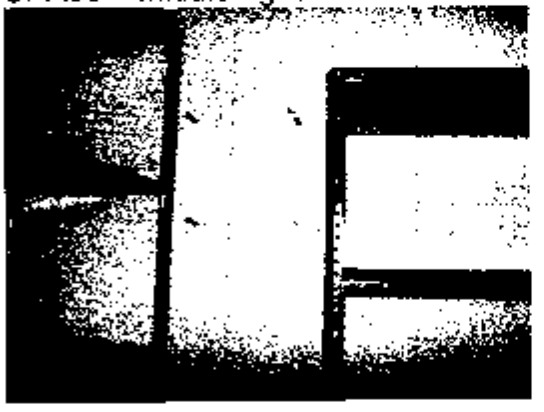
SPA06 – Bottom right bullet stop end

SPA09 – Bottom right wall

SPA07 – Top right wall

SPA10 – Top rear wall

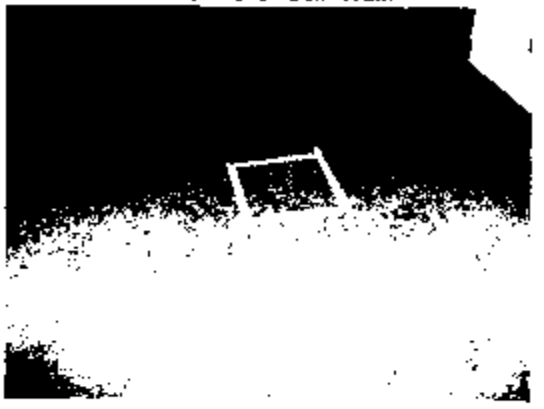
SPA08 – Middle right wall



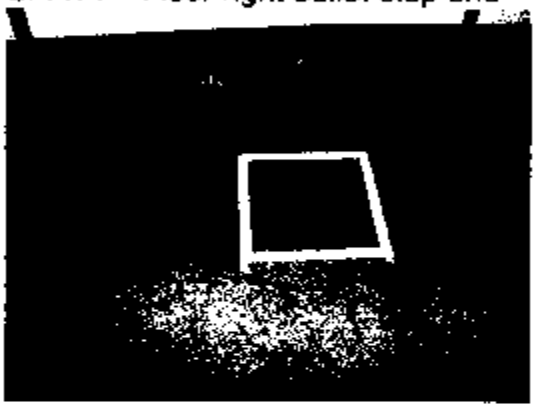
SPA12 – Middle rear wall

SPA13 – Bottom rear wall

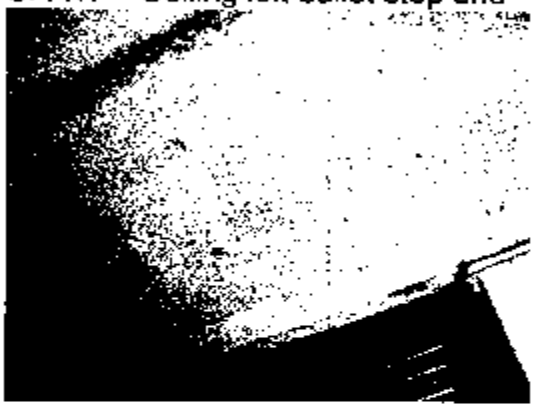
SPA16 – Floor left rear wall



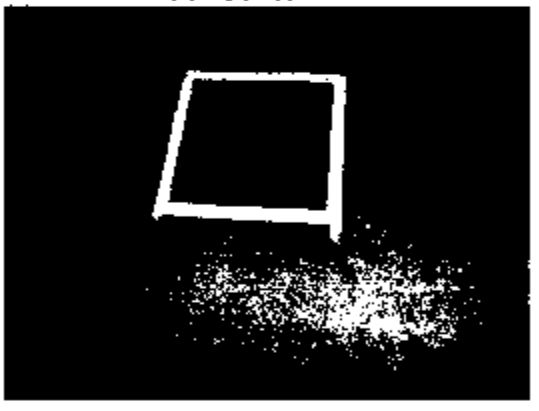
SPA14 – Floor right bullet stop end



SPA17 – Ceiling left bullet stop end



SPA15 – Floor center



SPA18 – Ceiling center

SPA19 – Ceiling right rear wall

SPA21-Shelving in front along left wall, 2nd shelf

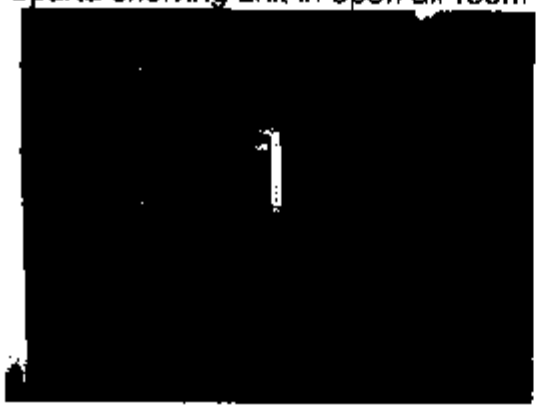
SPA22-Shelving along right wall in rear, 2nd shelf

SPA23-The shelf of the I beam in the middle of range.

Sparta Acoustical wall tiles

Sparta Plenum wall

Sparta shelving unit in open air room



Sparta ceiling and wall water damage

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Appendix B

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SAMPLING DIAGRAM - SPARTA IHR

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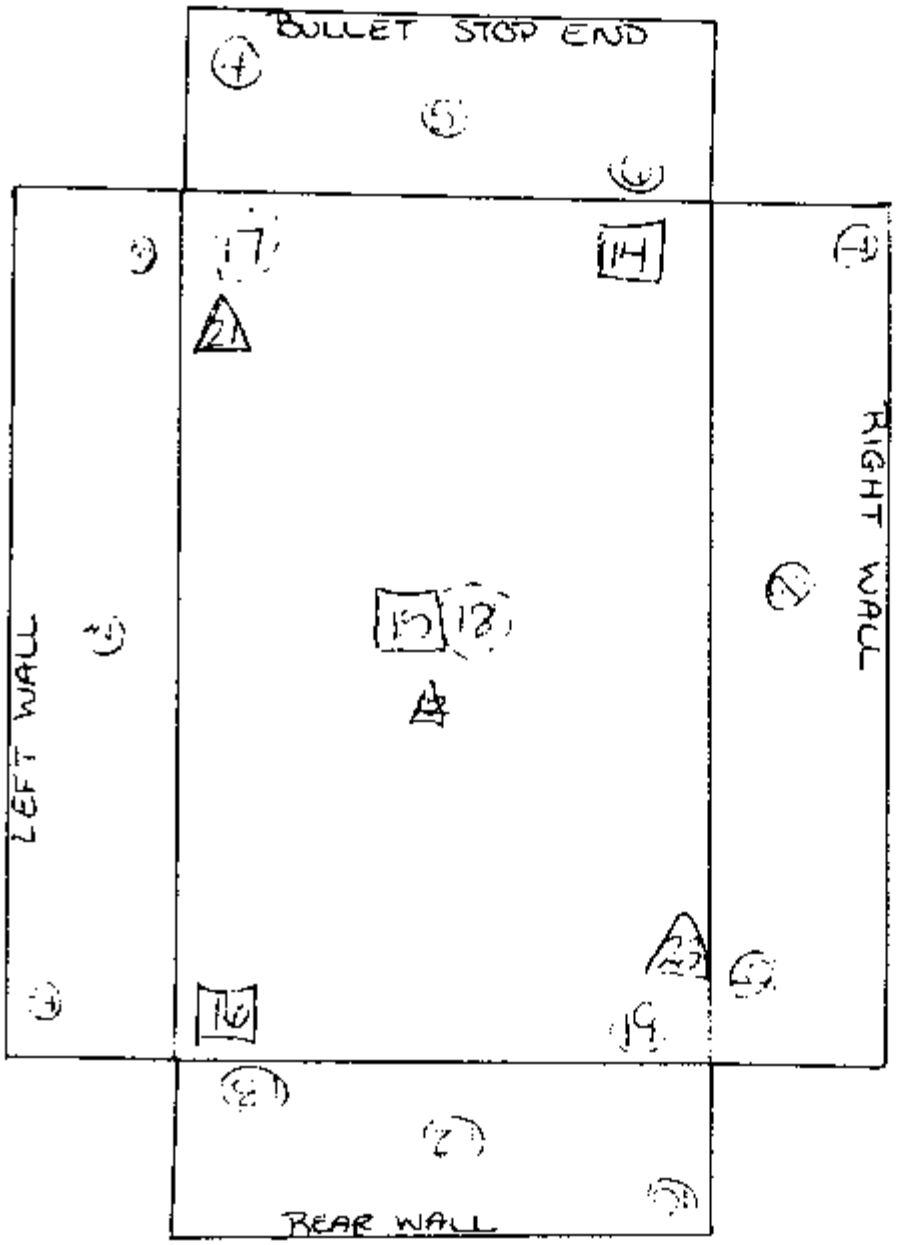

O - WALL

- CEILING

- FLOOR

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Analytical Environmental Services, Inc.

Date: 9/18/2006

TOTAL LEAD IN WIPE SAMPLES
N7082

CLIENT: National Guard Bureau Region-South IH
Project: Sparta
Delivery Order:
PO No:

Lab Order: 0609547
Date Received: 9/12/2006 12:00 PM
Matrix: Wipe

Laboratory ID	Client Sample ID	Results	Units	Report Limit.	DF	Date Collected	Date Analyzed	Analyst
0609547-001A	SPA01	BRL	µg, Total	20	1	9/8/2006	9/14/2006	VA
0609547-002A	SPA02	BRL	µg, Total	20	1	9/8/2006	9/14/2006	VA
0609547-003A	SPA03	BRL	µg, Total	20	1	9/8/2006	9/14/2006	VA
0609547-004A	SPA04	38	µg, Total	20	1	9/8/2006	9/14/2006	VA
0609547-005A	SPA05	30	µg, Total	20	1	9/8/2006	9/14/2006	VA
0609547-006A	SPA06	24	µg, Total	20	1	9/8/2006	9/14/2006	VA
0609547-007A	SPA07	BRL	µg, Total	20	1	9/8/2006	9/14/2006	VA
0609547-008A	SPA08	BRL	µg, Total	20	1	9/8/2006	9/14/2006	VA
0609547-009A	SPA09	BRL	µg, Total	20	1	9/8/2006	9/14/2006	VA
0609547-010A	SPA10	689	µg, Total	20	1	9/8/2006	9/14/2006	VA
0609547-011A	SPA11	BRL	µg, Total	20	1	9/8/2006	9/14/2006	VA
0609547-012A	SPA12	146	µg, Total	20	1	9/8/2006	9/14/2006	VA
0609547-013A	SPA13	238	µg, Total	20	1	9/8/2006	9/14/2006	VA
0609547-014A	SPA14	932	µg, Total	20	1	9/8/2006	9/14/2006	VA
0609547-015A	SPA15	49	µg, Total	20	1	9/8/2006	9/14/2006	VA
0609547-016A	SPA16	85	µg, Total	20	1	9/8/2006	9/14/2006	VA
0609547-017A	SPA17	1050	µg, Total	42	2.12	9/8/2006	9/14/2006	VA
0609547-018A	SPA18	BRL	µg, Total	20	1	9/8/2006	9/14/2006	VA
0609547-019A	SPA19	33	µg, Total	20	1	9/8/2006	9/14/2006	VA
0609547-020A	SPA20	BRL	µg, Total	20	1	9/8/2006	9/14/2006	VA
0609547-021A	SPA21	106	µg, Total	20	1	9/8/2006	9/15/2006	VA
0609547-022A	SPA22	102	µg, Total	20	1	9/8/2006	9/15/2006	VA
0609547-023A	SPA23	855	µg, Total	20	1	9/8/2006	9/15/2006	VA

Qualifiers: BRL - Not Detected at the Reporting Limit DF - Dilution Factor

Results are blank corrected where applicable

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2170 of 2531

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Appendix C

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DRAFT

Department of the Army and the Air Force
National Guard Bureau
Arlington, Virginia 22202-3231
XX XXX XXXX

*NG Pamphlet 40-15

Preventive Medicine

GUIDELINES AND PROCEDURES FOR REHABILITATION AND CONVERSION OF INDOOR FIRING RANGES (IFRs)

By Order of the Secretaries of the Army and Air Force:

H STEVEN BLUM
Lieutenant General, USA
Chief, National Guard Bureau

Official:

XXXX XXXX
XXX, XXXX
XXXX,XXX

History. This printing supersedes NG Pamphlet 385-16, 31 January 1994. Because the pamphlet has been extensively revised, the changed portions have not been highlighted.

Summary. This pamphlet prescribes policy for rehabilitation and conversion of National Guard IFRs.

Applicability. This guidance applies to all persons responsible for the operation of National Guard IFRs. As no regulation/guidance can foresee all situations that might arise, the following is written in a broad scope and is intended to be interpreted so as to ensure compliance with all applicable Federal and State laws and regulations.

Proponent. Office of the Joint Surgeon, National Guard Bureau.

Supplementation. Supplementation of this pamphlet requires the approval of the National Guard Bureau Office of the Joint Surgeon, NGB-SG-IH, 1411 Jefferson Davis Highway, Arlington, VA 22202-3231.

Interim Changes. Interim changes to this pamphlet are not official unless authenticated by, Chief Office of Policy and Liaison, National Guard Bureau. Interim changes will be destroyed on their expiration dates, unless sooner superseded or rescinded.

Suggested Improvements. Users of this pamphlet are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) to the National Guard Bureau, Office of the Joint Surgeon, ATTN: NGB-SG-IH, 1411 Jefferson Davis Highway, Arlington, VA 22202-3231.

Distribution. A.

*This regulation supersedes NG Pamphlet 385-16, dated 31 January 1994.

8 May 2006

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2172 of 2531

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Table of Contents

Chapter 1
Introduction
1-1. Purpose

1-2. References
1-3. Explanation of abbreviations and terms
1-4. Policy and Procedures
1-5. Goal
1-6. Deviation

Chapter 2
Health and Medical Aspects
2-1. Health Effects
2-2. Medical Surveillance
2-3. Air Monitoring
2-4. Wipe Sampling Protocol and Media
2-5. Personal Protection Equipment

Chapter 3
Education, Maintenance, Cleaning and Conversion
3-1. Worker Education
3-2. Range Cleaning Instructions
3-3. Cleaning Stored Contaminated Equipment
3-4. Contaminated Sand and Lead Waste
3-5. Range Rehabilitation
3-6. Conversion of Indoor Firing Ranges

Appendixes
A. References
B. Protocol for Collecting Wipe Samples
C. Sampling Strategy for Collection of Wipe Samples

Glossary

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2173 of 2531

1-1. Purpose
This pamphlet establishes the policy and procedures for rehabilitation and conversion, of National Guard IFRs.

1-2. References
Required and related publications and referenced and prescribed forms are listed in appendix A.

1-3. Explanation of abbreviations and terms
Abbreviations and special terms used in this publication are listed in the glossary.

1-4. Policy and Procedures
Indoor firing ranges can be safely rehabilitated or converted for other uses, such as a storage area, classrooms or office space, provided the following –

a. Prior to conversion active ranges must be thoroughly decontaminated and cleaned to acceptable levels. *All ranges converted prior to the publication date of this pamphlet, must be inspected and evaluated to determine lead contamination.* This will be accomplished by a certified National Guard Industrial Hygienist or a person certified to perform inspections, evaluations, and determinations of IFRs IAW with OSHA standards, other nationally accepted standards, and accepted IH practices for maintenance, cleaning, conversion, ventilation, and air sampling of IFRs.

b. The level of cleanliness is to be determined by sampling. The Occupational Safety and Health Administration's (OSHA) Technical Manual, 5th Edition, provides guidance on the methods and techniques needed to collect wipe samples (appendix B).

(1) Wipe samples must be collected and analyzed prior to and after cleaning.

(2) Post-cleaning surface wipe sample results must be less than 200 micrograms per square foot (ug/ft^2) (40 micrograms in the case of child exposure). The sampling strategy, which is the amount and location of wipe samples to be collected, is provided in appendix C.

c. Equipment/Items previously stored in the range must be decontaminated and cleaned to acceptable levels as determined by a person certified to perform inspections, evaluations, and determinations of IFRs IAW with OSHA standards, other nationally accepted standards, and accepted IH practices for maintenance, cleaning, conversion, ventilation, and air sampling of IFRs.

(1) Samples must be collected from equipment/items stored in the range. Sample selection is critical, because the number of items stored, length of storage, and level of contamination differs from range to range. The amount and location of the samples should be representative of the areas where lead dust is most likely to accumulate. The more samples collected, the better the statistical comparison of the results.

(2) Samples must be collected from the smooth surfaces of the equipment/items, as much as possible. Results of samples collected from a rough surface will be inaccurate due to the minimal surface contact of the media. Further, the likelihood of tearing the media filter is greater on rough surfaces.

(3) Samples should also be collected on items stored the longest period of time, and which have not been disturbed. Items stored closest to the bullet trap and firing line are likely to have higher concentrations of lead dust.

1-5. Goal
To ensure every IFR is free of lead dust which means to test less than 200 micrograms and to reduce the number of unsafe National Guard IFRs.

1-6. Deviation
Deviations from this guidance will require a written exception to policy from your Regional Industrial Hygiene Office. Questions and/or comments regarding this subject should be directed to your Regional Industrial Hygiene Office or Chief, National Guard Bureau, Office of the Joint Surgeon, ATTN: NGB-SG-IH, 1411 Jefferson Davis Highway, Arlington, VA 22202-3231.

Chapter 2
Health and Medical Aspects

2-1. Health Effects

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2174 of 2531

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29 Code of Federal Regulations (CFR) 1910.1025, Appendix A, identifies lead as a highly toxic metal. Elemental lead is indestructible, and common in the environment. Lead can enter the body by inhalation (breathing) or ingestion (eating). In addition, lead is a cumulative poison. It accumulates in the blood, bones, and organs, including the kidneys, brain and liver. Effects include nervous and reproductive system disorders, delays in neurological and physical development, cognitive and behavioral changes, and hypertension. Symptoms include loss of appetite, difficulty sleeping, irritability, fatigue, headache, and inability to concentrate. It can stay in the bones for decades. Worker awareness and training are important to ensure that employees can recognize the symptoms of exposure and get prompt medical attention.

2-2. Medical Surveillance

All medical surveillance required by the standard must be performed by or under the supervision of a licensed physician. Medical surveillance is triggered by the results of individual air monitoring results. Medical surveillance must be made available to all employees who are exposed in excess of the action level for more than 30 days per year. IAW 29 CFR 1910.1025, appendix C. [illegible]

2-3. Air Monitoring

Worker breathing zone air samples must be collected to ensure personnel are not overexposed to airborne lead during the cleanup phase. Daily air samples will be collected on all personnel involved in the cleanup operation. These exposure levels will be used to evaluate work practices and medical surveillance requirements.

2-4. Wipe Sampling Protocol and Media

A template measuring 10 centimeters by 10 centimeters square, approximately 4 inches square, should be used to accurately measure and mark the area before collecting wipe samples. Samples should be staggered to different areas of the range. A grid system should be utilized. Samples should not be collected all on one section of a wall, or end of the building. OSHA Technical Manual provides the necessary guidance on the technique needed to collect wipe samples (appendix B). Only distilled or deionized water will be used to saturate dry sample media. At least one field blank must be submitted with every 10 samples. The field blank must be from the same lot, and labeled as a blank.

2-5. Personal Protective Equipment

29 CFR 1910.1025 (f) (2), for housekeeping and rehabilitation the employer shall select respirators from among those approved for protection against dust, fume, and mist by the National Institute for Occupational Safety and Health (NIOSH), under the provision of 42 CFR part 84. The employer shall institute a respiratory protection program in accordance with 29 CFR 1910.134 (b), (d), (e) and (f). As a minimum, personnel conducting the decontamination of the range will be provided with the following personal protective equipment.

a. Under 29 CFR 1910.1025 (g). For employees engaged in range rehabilitation and/or range conversion, the employer shall provide at no cost to the employee, and assure that the employee uses appropriate protective work clothing and equipment such as, but not limited to:

(1) Protective coveralls with hood and shoe covers or disposable Tyvek ™ full body suit.

(2) Disposable rubber gloves; and disposable shoe coverlets (If necessary).

(3) Full-face air purifying respirator with P-100 cartridges.

b. The employer shall provide the clothing required in a clean and dry condition at least daily to employees engaged in the conversion of IFRs.

c. The employer shall provide for the cleaning, laundering, or disposal of used or contaminated protective clothing and equipment.

d. The employer shall assure that all protective clothing is removed at the completion of a work shift only in areas designated for that purpose (Change Areas or Change Rooms).

e. The employer will ensure that contaminated protective clothing that is to be cleaned, laundered, or disposed of, is placed in a closed container in the change area that seals sufficiently enough to prevent dispersion of lead dust.

f. The employer will further inform in writing any person who cleans or launders protective clothing or equipment of the potentially harmful effects of exposure to lead.

g. The employer will ensure that the containers of contaminated protective clothing and equipment are labeled as follows: CAUTION: *CLOTHING CONTAMINATED WITH LEAD. DO NOT REMOVE DUST BY BLOWING OR SHAKING. DISPOSE OF LEAD CONTAMINATED WASH WATER IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, OR FEDERAL REGULATIONS.*

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2175 of 2531

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Chapter 3
Education, Maintenance, Cleaning and Conversion

3-1. Worker Education

a. 29 CFR 1910.1025, Appendix B, requires an information and training program for all employees exposed to lead above the action level or who may suffer skin or eye irritation from lead. The program must inform the employees of the specific hazards associated with their work environment, protective measures which can be taken, the danger of lead to their bodies (including their reproductive systems), and their rights under the standard. In addition you must make readily available to all employees, including those exposed below the action level, a copy of this standard and its appendices. This training program will be repeated annually for personnel in range cleanup operations.

b. The commander/supervisor will ensure that each soldier or Army National Guard (ARNG) employee is informed of the following:

(1) The content of the standard and its appendices.

(2) The specific nature of operations that could result in exposure to lead above the action level.

(3) The purpose, proper selection, fitting, use and limitations of respirators.

(4) The purpose and a description of medical surveillance program.

(5) Eating and drinking are prohibited in lead contaminated areas.

(6) Smoking and smoking materials will not be permitted in contaminated areas.

(7) Soldiers and ARNG employees must wash their hands and other exposed skin whenever they leave the work area.

(8) The engineering controls and work practices associated with the individual's job assignment.

(9) The contents of any compliance plan in effect.

(10) Instructions to soldiers and ARNG employees that chelating agents should not routinely be used to remove lead from their bodies and should not be used at all except under the direction of a licensed physician.

3-2. Range Cleaning Instructions

a. Written procedures, such as a scope of work, or Standing Operating Procedure that complies with all federal, state and local regulations must be established prior to decontamination operations.

b. The range ventilation system will be in operation during range cleaning to ensure that a negative pressure environment is maintained. In the absence of mechanical ventilation system, all doors and windows will be sealed to eliminate fugitive emissions.

c. A High Efficiency Particulate Air (HEPA) filtered vacuum system, which is designed to collect loose surface lead dust particles, is the preferred method of cleanup. If a HEPA filtered vacuum is not available, the range can be cleaned using a wet method.

d. Prohibited methods include:

(1) Wet cleaning using high-pressure systems, since this method may embed the lead into the substratum and generate large quantities of hazardous waste.

(2) Dry sweeping is not permitted.

e. All surface areas of the range must be cleaned. In addition, areas outside of the IFR where lead can be tracked must be cleaned.

f. The preferred progression of cleaning is from top to bottom and from behind the steel bullet trap to the firing line.

(1) Clean the steel bullet trap, areas in front of and behind the bullet trap, and the steel bullet trap plate(s), after removing the sand (if applicable).

(2) Clean the ceiling, floors, lights, baffles, retrieval system, heating system(s), and ventilation duct(s).

(3) Vacuum and remove acoustical material. *Painting over this material is not recommended.*

(4) Clean the floor the last, starting at the bullet trap and ending behind the firing line.

g. When using a HEPA filtered vacuum, vacuum all surface areas until no dust or residue is visible.

h. Any general purpose cleaning solutions can be used for the wet method. However, Spic and Span™ has been found to be an effective cleaning solution by other Army organizations. Mix new solutions of cleaning solution frequently. Wet wiping will require dual containers of water; one container for wetting the applicator

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May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2176 of 2531

(mops, rags, sponge, etc.) and the other container for rinsing the applicator after the dust has been wiped from the surfaces. After wet wiping all surfaces, permit the area to dry.

i. *Properly dispose of all hazardous waste. Do not place lead contaminated waste into the sewer system or onto the ground.*

(1) When placed in containers, wastewater should be left to evaporate.

(2) Mop-heads, sponges and rags will be discarded as hazardous waste following cleanup.

j. A thorough visual inspection to detect dust should be made following cleanup and prior to collecting post surface wipe samples.

k. Wood floors should receive a coat of deck enamel or urethane; concrete floors should be sealed with deck enamel.

l. As a variety of conditions exist in ranges, unique situation may arise and specific written guidance from your Regional Industrial Hygiene Office may be required.

m. Any cleaning activities must be under the supervision by a trained and competent personnel IAW with OSHA and other nationally accepted standards and the work shall be according to current industry engineering standards under the control of the State Construction and Facilities Management Officer. Cleaning must recognize that there likely will be "background" lead presence in the readiness center totally independent of the existence of an indoor range and that the method of cleaning is less important than achieving the goal of less than 200 micrograms (40 micrograms in the case of child exposure).

3-3. Cleaning Stored Contaminated Equipment

a. Equipment contaminated (sample result is higher than 200 ug/ft^2) with lead dust must be decontaminated before it is removed from the range.

b. Equipment located near the bullet trap and firing line should be cleaned first and then removed. The cleaning method depends on the size of the equipment and the material it is comprised of, i.e. metal, wood, concrete, porous, non-porous, smooth or rough finish etc. However, either HEPA vacuum or the wet wipe method will be used. Refer to paragraph 3-2 for additional guidance.

c. Every attempt should be made to clean and reclaim items since disposing of equipment, as hazardous waste is costly and wasteful. Only as a last resort will the item be discarded as hazardous waste. Porous items, such as office partitions and carpet that were present during firing should be considered grossly contaminated and be discarded unless analysis proves otherwise. Consult your State Environmental Office for the proper hazardous waste disposal methods.

3-4. Contaminated Sand and Lead Waste

Consult your State Environmental Office for specific disposal guidance to ensure compliance with local laws and regulations.

3-5. Range Rehabilitation

This chapter applies to all IFRs that have been identified as candidates for rehabilitation. It provides further guidance for cleaning and/or sampling that might be required prior to the start of rehabilitation.

a. The portion(s) of the range to under go rehabilitation must be sampled to determine the level of lead contamination. Wipe samples will be taken per the established sampling protocol. See appendix B.

b. All personnel involved in range rehabilitation will wear a NIOSH approved respirator (P-100) and proper personal protective equipment as prescribed in paragraph 2-5 above.

c. Prior to the start of rehabilitation, the environmental office must be notified to determine the disposition of any debris containing hazardous materials (lead).

d. Supervision shall be by a person who is certified to perform inspections, evaluations, and determinations of IFRs IAW with OSHA standards, other nationally accepted standards, and accepted IH practices for maintenance, cleaning, conversion, ventilation, and air sampling of IFRs. All work shall be according to current industry engineering standards under the control of the State Construction and Facilities Management Officer.

3-6. Conversion of Indoor Firing Ranges

Prior to the start of decontamination, employers must ensure that all procedures to be used comply with Federal, State, and local regulations. To ensure that all lead contamination is eradicated, the following procedure is established.

a. The State shall follow the project approval process as delineated in NGR 420-10 (or NGR 415-5 if the use of the military construction appropriation is required).

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2177 of 2531

b. All ranges slated for conversion will be inspected and evaluated NGB Regional Industrial Hygiene Office.

c. All equipment stored in the range, if applicable, prior to the start of decontamination must be sampled, decontaminated, re-sampled and removed or turned in as lead contaminated material.

d. All acoustical tiles and/or sound proofing material (if applicable) must be removed and turned in as lead contaminated material through the environmental office.

e. The bullet trap, target retrieval system and firing line stations must be removed and turned in as lead containing material through the environmental office.

f. Light fixtures and ventilation system grills must be removed and decontaminated.

g. Ventilation system ducts need to be decontaminated or removed and replaced.

h. The exhaust fans and/or the complete ventilation air-handling unit (if applicable) must be decontaminated or removed to include roof fans.

i. Cover all openings of any component previously decontaminated prior to start of interior decontamination of the firing range.

j. Prior to start of washing, the interior of the range should be vacuumed with a HEPA filtered vacuum. The range should be washed using a cleaning solution of hot water and Spic and Span in five gallons of hot water. A progression of cleaning from top to bottom, and from back to front should be used. All surface areas of the range must be cleaned. Mix new solutions of water frequently. Washing will require dual containers of water; one container for wetting the applicators (mops, rags, sponges, etc.), and the other container for rinsing the applicators. Waste water placed into containers can be left to evaporate. *Properly dispose of all hazardous waste and do not place any lead contaminated waste into the sewer system or onto the ground.* Mop heads, sponges and rags will be discarded as hazardous waste following decontamination of the range. After completion of decontamination, and prior to taking clearance samples, the ventilation system must be run for a period of 36 hours. Wipe clearance samples will be taken from ceiling, walls and floors. The range will be considered clean if no clearance sample is greater than 200 ug/ft^2, if any sample is above 200 ug/ft^2, the range is not considered clean, the range will need to be re-washed until clearance samples are below 200 ug/ft^2.

k. The regional industrial hygienist will do quality assurance sampling as needed.

l. After obtaining clearance, the walls of the range will be coated with a sealant (Not Paint), which is smooth, wood floors will receive a coat of deck enamel or urethane, concrete floors will be sealed with deck enamel. After sealing, floors will be tiled or covered with linoleum.

m. As a variety of conditions exist in ranges, unique situations may arise and specific written guidance from the Regional Industrial Hygiene Office may be required.

n. All personnel involved in the decontamination/conversion of IFRs as a minimum will be provided with the following personal protective equipment.

(1). Full Face air purifying respirator with HEPA cartridges. The requirements outline in 29 CFR 1910.134, must be met prior to placing workers in respiratory protection.

(2). Individuals will be provided personal protective equipment as required per paragraph 2-5, this pamphlet.

o. Any conversion must be supervised by a person certified to perform inspections, evaluations, and determinations of IFRs IAW with OSHA standards, other nationally accepted standards, and accepted IH practices for maintenance, cleaning, conversion, ventilation, and air sampling of IFRs. All work shall be according to current industry engineering standards under the control of the State Construction and Facilities Management Officer. Cleaning must recognize that there likely will be "background" lead presence in the readiness center totally independent of the existence of an indoor range and that the method of cleaning is less important than achieving the goal of less than 200 micrograms (40 micrograms in the case of child exposure).

p. After conversion, lead testing shall continue on an annual basis to verify that no lead migration from the substrate is occurring.

Posted to NGB FOIA Reading Room
May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2178 of 2531

BEST AVAILABLE COPY

Appendix A
References

Section I
Required Publications

There are no entries in this section

Section II
Related Publications

ASTM E1792-03
Standard Specification for Wipe Sampling Materials for Lead in Surface Dust

AR 11-34
The Respiratory Protection Program

AR 40-5
Preventive Medicine

DODI 6055.5
Industrial Hygiene and Occupational Health

29 CFR, Part 1910
Occupational Safety and Health Administration, Department of Labor

National Institute for Occupational Safety and Health (NIOSH) 76-130
Lead Exposure and Design Considerations for Indoor Firing Ranges, Department of Health, Education and Welfare

NGR 385-15
Policy and Responsibilities for Inspection, Evaluation and Operation Army National Guard National Guard Indoor Firing Ranges (IFRs).

NGR 415-5
Army National Guard Military Construction Program Development and Execution

NGR 420-10
Construction and Facilities Management Office Operations

Technical Manual, 5th Edition
Occupational Safety and Health Administration, Department of Labor

Section III
Prescribed Forms

There are no entries in this section

Section IV
Referenced Forms

There are no entries in this section

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2179 of 2531

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Appendix B
Protocol for Collecting Wipe Samples

B-1. If multiple samples are to be collected at the work site, prepare a rough sketch of the area(s) or room(s), which are to be wipe sampled.

B-2. A new set of clean, impervious gloves should be used for each sample to avoid contamination of the media by previous samples and to prevent contact with the substance.

B-3. Wipe Samples

a. If using Ghost Wipes™, tear open the individually sealed package. Remove the moistened wipe. Unfold the wipe.

b. If using a dry media such as MCE or Whatman™ filter, moisten the filter with distilled or deionized water prior to sampling.

B-4. Place a 10 centimeter by 10 centimeter template on the area to be wiped.

B-5. Apply uniform firm pressure while wiping the area inside the template.

B-6. To insure that all portions of the partitioned area are wiped, start at the outside edge and progress toward the center making concentric squares decreasing in size.

B-7. After collecting a sample, fold the filter or wipe toward and place into a container and number it. Note the number at the sample location on the sketch.

B-8. At least one blank filter treated in the same fashion but without wiping, should be submitted to the laboratory.

Appendix C
Sampling Strategy for Collection of Wipe Samples

C-1. Prior to cleaning the ranges, three samples must be collected and analyzed for total lead dust on each surface, i.e., floor, ceiling, bullet trap, and wall to include the plenum wall, if applicable. In addition, a total of three samples should be collected from areas which have been least disturbed by airflow. Established walkways should be avoided.

C-2. Samples should be collected from different areas of the range. A grid system should be utilized. Each range surface areas should be divided evenly into 3 by 3 sections. Samples should not be collected from only one section of a wall or end of the building.

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2180 of 2531

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GLOSSARY

Section I
Abbreviations

ARNG
Army National Guard

CFR
Code of Federal Regulations

HEPA
High Efficiency Particulate Air

IFR
Indoor Firing Range

NIOSH
National Institute for Occupational Safety and Health

OSHA
Occupational Safety and Health Administration

ug/ft^2
Micrograms per square foot

Section II
Terms

Air monitoring
The sampling for and measuring of pollutants in the atmosphere.

Breathing zone
The imaginary globe of two feet radius surrounding the head.

General area
Collection of and later analysis of airborne contaminants in a given work environment. As the sampling pump and collection media are not attached to a worker, the concentrations found represent average concentrations in that area but may not representative of the actual exposure of the worker.

HEPA
Refers to high efficiency particulate air filter systems capable of capturing up to 99.97 percent of particles 0.3 microns in size or larger.

Lead-Contaminated Range
It is assumed that all IFRs, which have been fired in, are lead-contaminated.

Respirator
A device designed to provide the wearer with respiratory protection against inhalation of airborne contaminants.

Wipe Sample
The terms wipe, swipe, or smear samples are used synonymously to describe the techniques utilized for assessing lead surface contamination.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2181 of 2531

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Section III
Special Abbreviations and Terms

This section contains no entries

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2182 of 2531

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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-AVN-SI January 12, 2005

MEMORANDUM FOR: ADJUTANT GENERAL TN ARNG, ATTN.: State Safety and Occupational Health Office, P O Box 41502, Nashville, TN 37204-1502

SUBJECT: Transmittal of the Survey Reports for Clarksville Armory, Gallatin Armory, Lafayette Armory, Lebanon Armory, Springfield Armory, TN.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, 30 August 1986, Medical Service, Preventive Medicine.

c. National Guard Regulation (NGR) 385-10, 1988, Army National Guard Safety and Occupational Health Program.

d. AR 11-34, The Army Respiratory Protection Program, 15 February 1990.

e. TB MED 502, Occupational and Environmental Health Respiratory Protection Program, February 1982.

f. DA PAM 40-503, 30 October 2000, The Army Industrial Hygiene Program.

g. DA PAM 40-501, 10 December 1998, Hearing Conservation.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2001, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

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k. Title 29, Code of Federal Regulations (CFR), 2000 rev., part 1910, Occupational Safety and Health Standards.

l. Reports dated 21 October 2004 (Gallatin & Lebanon), 22 Oct 2004 (Clarksville & Springfield) and 12 November 2004 (Lafayette), Industrial Hygiene Survey, Environmental Management Solutions, Dallas, GA.

2. General.

a. At the request of the TN ARNG Safety and Occupational Health Office, an industrial Hygiene Service was put together to conduct Health Hazard Information module (HHIM) Field surveys and industrial hygiene sampling of the Clarksville Armory, Gallatin Armory, Lafayette Armory, Lebanon Armory, Springfield Armory, TN.

b. Environmental Management Solutions, 247 Mary Lane, Dallas, GA conducted the survey.

3. Findings. All Health Hazard information collected are on the survey findings of the report. (See enclosure 1)

4. Recommendations.

a. Follow all recommendations made in reference 1.l., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Conduct an air sampling survey in the areas in and around those identified with elevated lead dust levels in page 4 in each report of reference 1.l, to ensure that the lead dust present is not airborne and that employees in these areas are not exposed above the action level where applicable.

c. Control water infiltration in the armory and/or replace or repair damaged surfaces or components (ceiling and floor tiles). Building conditions that present IAQ concerns or problems not only exacerbates normally minor health issues but also tend to promote or accelerate building deterioration.

d. The recommendations given in the comment section and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-05. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-06 IHIP.

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e. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present survey, especially if this will help eliminate health hazards and reduce medical surveillance cost.

f. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

g. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

5. If additional information is needed about the industrial hygiene survey or air sample

Non-Responsive

[redacted]

CF:
NBG-AVN-SH
State Occupational Health Office, P O Box 41502, Nashville, TN 37204-1502.

Encl
as

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ENVIRONMENTAL MANAGEMENT SOLUTIONS
INDUSTRIAL HYGIENE CONSULTING

TENNESSEE ARMY NATIONAL GUARD

SPRINGFIELD ARMORY
SPRINGFIELD, TENNESSEE

247 MARY LANE, DALLAS, GEORGIA 30157
PHONE 404 425 3103 • FAX 770.234 6297

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau

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EXECUTIVE SUMMARY 1

SUBJECT 2

BACKGROUND 2

INTRODUCTION 2
SITE DESCRIPTION 2
SCOPE OF WORK 2
METHODOLOGY 2

FINDINGS AND DISCUSSION 4

LEAD WIPE SAMPLES 4
ASBESTOS SUSPECT BUILDING MATERIAL 5
NOISE SURVEY 5
ILLUMINATION SURVEY 5
BUILDING CONDITION 7
HAZARD COMMUNICATION 7
RADIATION PROTECTION PROGRAM 7
ERGONOMICS 7
PERSONAL PROTECTIVE EQUIPMENT 8

RECOMMENDATIONS 9

TECHNICAL ASSISTANCE 10

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2187 of 2531

BEST AVAILABLE COPY

EXECUTIVE SUMMARY

An initial baseline industrial hygiene survey was conducted at the Springfield Armory on 22 October 2004 as part of the Tennessee Army National Guard Occupational Health Program to identify potential health hazards in the workplace. The survey consisted of collecting lead wipe samples and bulk asbestos samples as needed, conducting a noise and illumination survey and an evaluation of the condition of the building as it related to indoor air quality. A review of the Hazard communication program, ergonomics, and personal protective equipment was also performed.

The following table summarizes the survey findings and recommendations for each topic surveyed.

TOPIC	SUMMARY OF FINDINGS	RECOMMENDATIONS
Lead Wipe Samples	0 to 416 micrograms. Maintenance and supply areas show higher than recommended levels of lead contamination.	Clean surfaces in the maintenance and supply areas, decontaminate all contaminated items, and follow good hygiene and housekeeping practices.
Asbestos Bulk Samples	No findings	No action
Noise Survey	Under 85 dBA	A noise survey should be performed on equipment used and maintained in the motor pool training and maintenance areas.
Illumination Survey	19 to 93 foot-candles	Upgrade lighting to appropriate levels.
Building Condition	Water damage from roof leaking seen in ceiling tiles	Develop a housekeeping schedule to identify, repair, and prevent any leaks or standing water.
Hazard Communication	Material Safety Data Sheets were not adequately indexed and cross-referenced	Material Safety Data Sheets should be update, indexed, and cross referenced to ensure maximum usability.
Ergonomics	Poor workstations design in some offices	Complete ergonomics survey on all personnel and offer ergonomic training or awareness to employees who spend the majority of their time working on a computer terminal
Personal Protective Equipment	No findings	Personal protective equipment provided by unit commanders.

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MEMORANDUM FOR

Tennessee Army National Guard
[redacted]
Non-Responsive
5255 Highway 76 East
Springfield, Tennessee 37172-5858

SUBJECT

Initial Baseline Industrial Hygiene Survey of the Springfield Armory performed 22 October 2004 in Springfield, Tennessee.

BACKGROUND

INTRODUCTION

At the request of [redacted] of the National Guard Bureau Region South Industrial Hygiene Office, an initial baseline industrial hygiene survey was performed at the Springfield Armory in Springfield, Tennessee. Environmental Management Solutions conducted the survey on 22 October 2004. The purpose of the survey was to perform an initial baseline industrial hygiene survey to evaluate potential health hazards present at the armory.

SITE DESCRIPTION

The facility houses the Troop L, 3/278th Calvary, all of whom are currently deployed. The single story building contains several administrative offices, two classrooms, a drill hall, and a kitchen. A motor pool training area and a maintenance repair area are present as well. Refer to Building layout in Appendix C. Soldiers perform weapons cleaning in the drill hall area and outside four to five times per year. The armory is rented out to the city six to seven times per year for private functions.

SCOPE OF WORK

The work included collecting wipe samples for lead, bulk samples for suspect asbestos containing building material, noise readings, illumination levels, and an evaluation of the ventilation system as it pertains to indoor air quality. A list of occupational health programs and procedures were verbally covered with the armory personnel.

METHODOLOGY

Lead wipe samples were collected from surfaces that showed signs of lead contamination in armories that have a renovated, inactive, or closed indoor firing range (IFR), kitchen or mess hall

Posted to NGB FOIA Reading Room
May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2189 of 2531

BEST AVAILABLE COPY

storage areas, indoor drill halls, and storage rooms with weapons vaults. The samples were collected in accordance to instructions published by Region South National Guard Bureau, which required the use of unscented baby wipes to wipe one square foot of surface. Samples were then placed in a sealed plastic bag and sent to an American Industrial Hygiene Associations (AIHA) accredited laboratory for analysis. Asbestos bulk samples and lead paint chips were collected from suspect friable and damaged building material. Each bulk sample was placed in a sealed bag and sent to an AIHA laboratory for analysis. All instruments used for assessment were factory calibrated and calibrated prior to the survey as applicable. Illumination readings were taken on work surfaces and approximately four feet from the floor.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2190 of 2531

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FINDINGS AND DISCUSSION

LEAD WIPE SAMPLES

Thirteen wipe samples were collected from areas of the kitchen, supply, drill hall, maintenance, and motor pool training areas as listed in the table below.

SAMPLE NUMBER	SAMPLE LOCATION	MICROGRAMS OF LEAD (µg) PER SQUARE FOOT
SF-01	Drill Hall, Floor near latrines	BRL
SF-02	Drill Hall, Floor Behind Supply Door	BRL
SF-03	Maintenance Area, Table	**49.0**
SF-04	Maintenance Area, Floor underneath shelving unit	**101**
SF-05	Maintenance Area, Near Roll UP Door	**39.0**
SF-06	Motor pool Training Area, Near Roll up door	BRL
SF-07	Motor pool Training area, Floor near office area	BRL
SF-08	Motor pool training area, Table in classroom area	BRL
SF-09	Supply Room, Countertop	BRL

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2191 of 2531

BEST AVAILABLE COPY

SF-010	Vault Floor	416
SF-011	Supply Floor	BRL
SF-012	Kitchen service window ledge	BRL
SF-013	Kitchen floor near stove	BRL

*Below Detection Limit

The Environmental Protection Agency standards (40 CFR 745) indicate lead in dust levels above 40 micrograms per square foot on bare and carpeted floors is considered dangerous for common areas. Lead results in the maintenance and supply areas were above regulated standards.

ASBESTOS SUSPECT BUILDING MATERIAL

Sampling for asbestos was limited to damaged material or material that could pose an exposure risk. No friable suspect material was found.

NOISE SURVEY

Area noise levels are well within the Army National Guard limit of 85 dBA and the Occupational Safety and Health Administration (OSHA) regulated limit of 90 dBA over an eight-hour period. A noise survey should be performed on equipment used and maintained in the motor pool training and maintenance areas.

ILLUMINATION SURVEY

Lighting levels throughout the armory ranged between 19 foot-candles to 93 foot-candles. Specific readings are listed in the table below.

AREA	AVERAGE FOOT-CANDLES
RTO Office	79
Storage	81

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2192 of 2531

BEST AVAILABLE COPY

Library	93
Large classroom	83
Small classroom	78
Breakroom	38
Vault	30
Supply Office	52
Supply	38
Maintenance	**19**
Drill Hall	71
Kitchen	90
Kitchen storage	65
Kitchen office	92
Orderly room	**40**
CPT Office	91
1SG	89
Recruiter's Office	52
Motor Pool	35

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2193 of 2531

BEST AVAILABLE COPY

Motor Pool Classroom	58

Readings in bold-faced type are not within the Army Design Guide (DG 415-2) minimum illumination level of 50 foot-candles for office areas and 20 foot-candles for parts storage/supply. The American National Standard Institute/Industrial Engineering Society (ANSI/IES) recommends a minimum illumination of 50 to 100 foot-candles for administrative and kitchen areas, and 20 to 50 foot-candles for storage areas. Luminance of 50 to 100 foot-candles is recommended for performance of visual tasks of medium contrast or small size such as reading, pencil handwriting, and poorly printed, or reproduced material. Depending of the type of display, background luminance of 30 to 60 foot-candles is recommended for computer work.

BUILDING CONDITION

The building was constructed in 2001. The building is in good condition and housekeeping is very good. No standing water was seen, however leaks were reported in the roof. Water damage of ceiling tiles could be seen in several areas. Personnel did not have any specific complaints about the indoor air quality. The armory has central heating and cooling units.

A general exhaust system was observed in the motor pool training and maintenance area. No emergency eyewashes, showers, or personal protective equipment was found in either area. These areas are used during drill weekends only.

HAZARD COMMUNICATION

Jimmy Rippetoe maintains the Material Safety Data Sheets (MSDSs) for the facility. The MSDSs were not appropriately indexed and cross-referenced for easy access in case of emergency.

RADIATION PROTECTION PROGRAM

There are no radioactive materials stored at this facility.

ERGONOMICS

The full time employees in the supply or office areas did not express any ergonomic concerns. However, many workstations were not set up to provide neutral postures and appropriate ergonomically correct positions. Consideration should be given to providing all full time employees that spend the majority of their working time at a computer terminal ergonomic training or awareness. Such awareness should emphasize the importance of proper posture and set-up of the workstation to fit the user.

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2194 of 2531

BEST AVAILABLE COPY

PERSONAL PROTECTIVE EQUIPMENT

Normal duties of full time employees at the armory do not require the use of personal protective equipment (PPE). Personal protective equipment for use in the motor pool training and maintenance areas was not observed for use during maintenance activities.

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2195 of 2531

BEST AVAILABLE COPY

RECOMMENDATIONS

1) All items that are contaminated with lead should be thoroughly decontaminated with a detergent and water solution. Care should be taken to wipe down tables where weapons are issued and cleaned. Kitchen areas should be thoroughly cleaned on a regular basis and especially before serving personnel.

2) Personnel should be prohibited from eating, drinking, smoking, chewing tobacco or gum, or applying cosmetics in supply areas and should be instructed to clean hands with soap and water before doing any of these. Remove all refrigerators, cups, and other eating utensils from supply areas.

3) Upgrade lighting measurements as required. Lighting can be upgraded in the following ways:

   - Replace blown or broken lighting
   - Paint walls and floors white or similar light color
   - Clean existing light fixtures
   - Rearrange furniture to make better used of available light
   - Provide supplemental or task lighting

4) Develop a housekeeping schedule to identify, repair, and prevent any leaks or standing water. Proper and immediate repairs and maintenance of the building infrastructure and interior surfaces can prevent water damage and moisture buildup which may lead to further indoor air quality issues.

5) Material Safety Data Sheets (MSDS) are required to be kept at the primary workplace facility and to be easily accessible in case of emergency. Material Safety Data Sheets for cleaning materials should be kept by the facility. Personnel responsible for these items should receive annual training in the requirements of the Hazardous Communication Program and the appropriate keeping and storage of all MSDS.

6) Complete noise dosimetry and a noise survey on all maintenance equipment and mark equipment and areas as noise hazardous, where appropriate.

7) Install a carbon monoxide monitor in the motor pool training and maintenance area to warn personnel about dangerous levels of carbon monoxide from vehicles idling in or around the area. The maintenance bay door should be left open while vehicles or running or left idling in order to provide adequate ventilation during these times.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2196 of 2531

BEST AVAILABLE COPY

8) An eyewash and shower should be acquired for the motor pool training and maintenance areas, due to the types of chemicals commonly used in this area. An eye lavage should be made accessible within 10 seconds traveling distance of a possible eye hazard. Use portable eyewashes only if a plumbed eyewash cannot be installed.

9) Personal protective equipment should be provided, used, and maintained in a sanitary and reliable condition. Ensure that unit commanders provide appropriate personal protective equipment during maintenance procedures. If damaged or defective, PPE should be replaced immediately.

10) An ergonomics survey should be completed for all supply and administrative personnel as a preventative measure to document and address any and all ergonomic concerns or problems. Provide ergonomics training and awareness to all employees who spend the majority of their time working at a computer terminal.

TECHNICAL ASSISTANCE

Non-Responsive

[redacted]

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2197 of 2531

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APPENDICES

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2198 of 2531

BEST AVAILABLE COPY

APPENDIX A

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2199 of 2531

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- Army Regulation (AR) 11 34, The Army Respiratory Protection Program, 1990.
- Army Regulation (AR) 40-5. Preventative Medicine, 15 October 1990.
- Army Regulation (AR) 385-10, The Army Safety Program, 29 Feb 2000.
- NGR 385-10, Army National Guard Safety and Occupational Health Program, 7 October 1988.
- TB MED 503, The Army Industrial Hygiene Program, February 1985.
- Title 29, Code of Federal Regulations (CFR), 1999, revision, Part 1910, Occupational Safety and Health Standards.
- TG 022, US Army Environmental Hygiene Agency (YSAEHA), Industrial Hygiene Evaluation Guide, October 1975.
- TG 141, US Army for Health Promotion and Preventative Medicine (USACHPPM) Industrial Hygiene Air Sampling Guide, November 1997.

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2200 of 2531

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APPENDIX B

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2201 of 2531

HHIMS Industrial Hygiene Survey Form

Front page

ARLOC

Installation: Spring Fletcher

Building

Room Number

Location: A A

Operation: A D O

Survey Date: 04 month 10 day 22

Evaluator: [redacted]

Macom: N G

Submacom: X X

Unit / Organization (45)

Supervisor: Mr. [redacted] Ms. [redacted] Rank [redacted]

RAC

Supervisor, or Point of Contact

Telephone Number

DSN [redacted] Commercial [redacted]

Frequency (hrs/day): 0 0 8

No. CIVs

No. MIL: 0 0

Contractors: 0 0

No. LOCs: 0 0

Lab Hoods: 0 0

Vapor Degreasers: 0 0

Spray Booths: 0 0

Open Surface Tanks: 0 0

Ventilation Units: 0 0

Controls Present (if >5, continue in comments)(25): OTH

Evaluation (25 characters max): 40-93

Unit code: F T C

Controls Required (25 characters max): 50-100 FTC

Gloves	e*	R	U
acid	[redacted]		
cold surfaces	[redacted]		
hot surfaces	[redacted]		
NBC agents	[redacted]		
oil	[redacted]		
solvents	[redacted]		
surgical gloves	[redacted]		
leather / cotton	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]

Respirator	e*	R	U
airline	[redacted]		
abrasive blasting hood	[redacted]		
disposable	[redacted]		
full face air purifying	[redacted]		
1/2 face air purifying	[redacted]		
powered air purifying	[redacted]		
1/4 face air purifying	[redacted]		
self-contained	[redacted]		
other	[redacted]	[redacted]	[redacted]

Manufacturer's Description (10 characters max)

NIOSH TC # or Foreign equivalent (10 characters max)

Eyes and Face	e*	R	U
chemical splash	[redacted]		
full face shield	[redacted]		
chem/safety impact	[redacted]		
safety impact	[redacted]		
welding helmet	[redacted]		
sunglasses	[redacted]		
welding goggles/glasses	[redacted]		
laser eye protection	[redacted]		
other	[redacted]	[redacted]	[redacted]

Hearing	e*	R	U
canal caps	[redacted]		
(>85-108 dBA steady) earplugs	[redacted]		
helmets w/ muffs	[redacted]		
muffs alone	[redacted]		
(108-118) muff/earplug comb	[redacted]		
muffs and earplugs			
(118 or >) with time limit	[redacted]		
other	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]

Body	e*	R	U
aprons	[redacted]		
cold weather clothing	[redacted]		
coveralls	[redacted]		
full body suit	[redacted]		
heat reflective			
vest/suit	[redacted]		
safety belt/harness	[redacted]		
special purp. clothing	[redacted]		
other	[redacted]	[redacted]	[redacted]

Head and Feet	e*	R	U
cold weather boots/hat	[redacted]		
hard hats	[redacted]		
impermeable boots	[redacted]		
safety shoes (conductive)	[redacted]		
safety (nonconductive)	[redacted]		
other	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]

e* = evaluator's recommendation or agreement

Reminders: ergonomics - dermatitis - physical agents - flammable storage
EYE (permanent) ____ - EYE (portable) ____ - SHW - GMV - LEV

ACO ADM DSA DSN LAB LCK
RAD ECR ESL RHS COR

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
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HHIMS Industrial Hygiene Survey Form

B page

	CAS code	PAC	EPC	Hazard Description
PONOISECO	POVDTXXXX	2	A	Computer use/video display Terminal
POFOOTHAZ	POSTRESSX	3	F	ergonomics/Physical stress.
POFLYPROJ				
POEYEHAZA				
POFLAMHAZ				
POLIFTING				
POSHARPOB				
POHOTOBJE				
POELSHOCK				
COLUBEOIL				

Social Security Number or Unique Identifier	Last Name (20 characters max)	First Name (20 characters max)	MI	Sex	Category
	[redacted] Non-Responsive	[redacted] Non-Responsive			

☐ Personnel data provided by the facility is attached to this form

Insert Privacy Act Statement

Comments

Operation described is administrative operations to include typing, filing, phone and computer use.
Some workstations were not set up to allow employees to work with neutral postures.
Some workspaces cramped with little space.
Duties of administrative personnel vary, so that micrbreaks can be taken as needed.

☐ (comments continued on attached

☐ This operation was explained to the evaluators, but was not actually observed.

There is a noise data sheet attached to this form ☐ There is a ventilation data sheet attached to this form ☐

2/8/95 CHPMBACK.XLS

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2203 of 2531

HHIMS Industrial Hygiene Survey Form

Front page

ARLOC

Installation: Springfield Armory

Building

Room Number

Location: SA

Operation: A21

Survey Date: 04 10 22 (month / day)

Evaluator: [redacted]

Macom: NG

Submacom: XX

Unit / Organization (45)

Supervisor: Mr. [redacted] Ms. [redacted] Rank [redacted]

RAC

Supervisor, or Point of Contact Telephone Number

DSN [redacted] Commercial [redacted]

Frequency (hrs/day): 008

No. CIVs

No. MIL: 00

Contractors: 00

No. LOCs: 00

Lab Hoods: 00

Vapor Degreasers: 00

Spray Booths: 00

Open Surface Tanks: 00

Ventilation Units: 00

Controls Present (if >6, continue in comments)(26)

OTH

Evaluation (25 characters max): 30-52

Unit code: F T C

Controls Required (25 characters max)

50-100 (Admin)

20-50 (Storage)

Manufacturer's Description (10 characters max)

NIOSH TC # or Foreign equivalent (10 characters max)

Gloves	e*	R	U
acid	[redacted]		
cold surfaces	[redacted]		
hot surfaces	[redacted]		
NBC agents	[redacted]		
oil	[redacted]		
solvents	[redacted]		
surgical gloves	[redacted]		
leather / cotton	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]

Respirator	e*	R	U
airline	[redacted]		
abrasive blasting hood	[redacted]		
disposable	[redacted]		
full face air purifying	[redacted]		
1/2 face air purifying	[redacted]		
powered air purifying	[redacted]		
1/4 face air purifying	[redacted]		
self-contained	[redacted]		
other	[redacted]	[redacted]	[redacted]

Eyes and Face	e*	R	U
chemical splash	[redacted]		
full face shield	[redacted]		
chem/safety impact	[redacted]		
safety impact	[redacted]		
welding helmet	[redacted]		
sunglasses	[redacted]		
welding goggles/glasses	[redacted]		
laser eye protection	[redacted]		
other	[redacted]	[redacted]	[redacted]

Hearing	e*	R	U
canal caps	[redacted]		
(>85-108 dBA steady) earplugs	[redacted]		
" helmets w/ muffs	[redacted]		
" muffs alone	[redacted]		
(108-118)muff/earplug comb	[redacted]		
muffs and earplugs			
(118 or >) with time limit	[redacted]		
other	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]

Body	e*	R	U
aprons	[redacted]		
cold weather clothing	[redacted]		
coveralls	[redacted]		
full body suit	[redacted]		
heat reflective			
vest/suit	[redacted]		
safety belt/harness	[redacted]		
special purp. clothing	[redacted]		
other	[redacted]	[redacted]	[redacted]

Head and Feet	e*	R	U
cold weather boots/hat	[redacted]		
hard hats	[redacted]		
impermeable boots	[redacted]		
safety shoes (conductive)	[redacted]		
safety (nonconductive)	[redacted]		
other	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]
other	[redacted]	[redacted]	[redacted]

e* = evaluator's recommendation or agreement

Reminders: ergonomics - dermatitis - physical agents - flammable storage

EYE (permanent) ____ - EYE (portable) ____ - SHW - GMV - LEV

ACO ADM DSA DSN LAB LCK

RAD ECR EPL PHS SPP [illegible]

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HHIMS Industrial Hygiene Survey Form

Ba 2 page

	CAS code	PAC	EPC	Hazard Description
POHOISECO	PDVDTXXXX	2	A	Computer use, video display terminal
POFOOTHAZ	POSTRESSX	3	F	Ergonomics/Physical Stress
POFLYPROJ	POLIFTING	2	A	Heavy lifting
POEYEHAZA	14391-92-1	3	A	Lead
POFLAMHAZ				
POLIFTING				
POSHARPOB				
POHOTOBJE				
POELSHOCK				
COLUBEOIL				

Social Security Number or Unique Identifier	Last Name (20 characters max)	First Name (20 characters max)	MI	Sex	Category

☐ Personnel data provided by the facility is attached to this form

Insert Privacy Act Statement

Comments

Operation described is receive, inventory, issue critical unit items to include weapons and ammunition

☐ This operation was explained to the evaluators, but was not actually observed.

☐ (comments continued on attached

There is a noise data sheet attached to this form ☐

There is a ventilation data sheet attached to this form ☐

2/8/95 CHPMBACK.XLS

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FOIA Requested Record #J-15-0085 (TN)
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Page 2205 of 2531

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2206 of 2531

Springfield Armory

Classroom

Supply Area, Vault

Classroom

Supply Area

Water Damage

Kitchen

Administrative Area

Drill Hall

Motor Pool Training Area

Motor Pool Training Area

Motor Pool Training Area

Motor Pool Training Area

Springfield Armory

Maintenance Bay

Maintenance Bay

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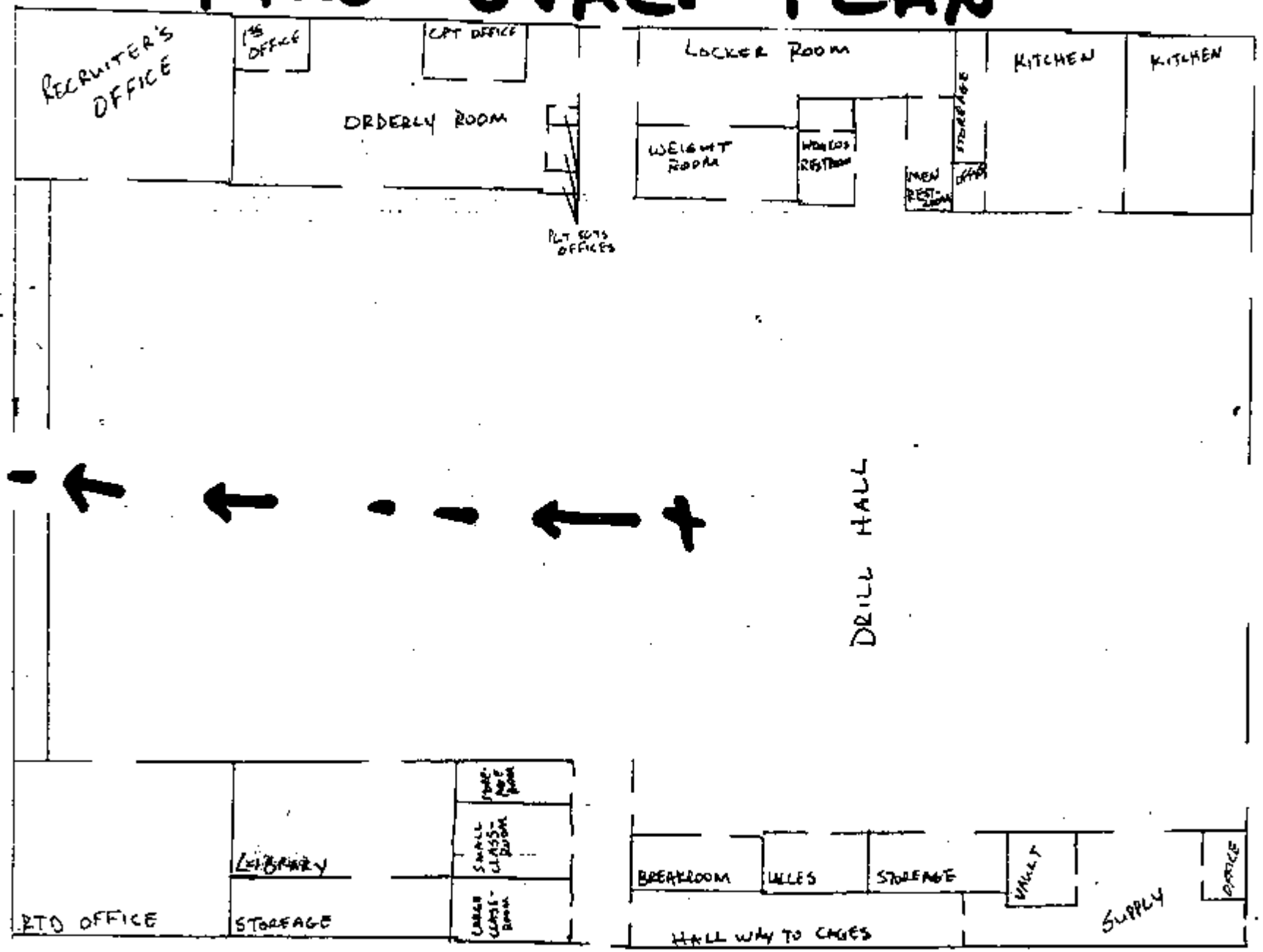
FIRE EVAC. PLAN



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FOIA Requested Record #J-15-0085 (TN)
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Page 2211 of 2531

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Analytical Environmental Services, Inc.

Date: 12/1/2004

TOTAL LEAD IN WIPE SAMPLES
N7082

CLIENT: National Guard Bureau Region-South III
Project: TN01-102004
Delivery Order: TN01-102004

Lab Order: 0410C03
Date Received: 10/27/2004 3:25
Matrix: Wipe

Laboratory ID	Client Sample ID	Results	Units	Report Limit	DF	Date Collected	Date Analyzed	Analyst
0410C03-001A	CV-01	BRL	µg/Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-002A	CV-02	37.0	µg/Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-003A	CV-03	BRL	µg/Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-004A	CV-04	170	µg/Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-005A	CV-05	104	µg/Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-006A	CV-06	71.0	µg/Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-007A	CV-07	BRL	µg/Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-008A	CV-08	98.0	µg/Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-009A	CV-09	30.0	µg/Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-010A	CV-010	100	µg/Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-011A	CV-011	70.0	µg/Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-012A	CV-012	235	µg/Total	20.0	1	10/22/2004	11/1/2004	EM
0410C03-013A	LB-01	BRL	µg/Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-014A	LB-02	285	µg/Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-015A	LB-03	BRL	µg/Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-016A	LB-04	57.1	µg/Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-017A	LB-05	62.0	µg/Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-018A	LB-06	307	µg/Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-019A	LB-07	26.0	µg/Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-020A	LB-08	23.0	µg/Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-021A	SF-01	BRL	µg/Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-022A	SF-02	BRL	µg/Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-023A	SF-03	49.0	µg/Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-024A	SF-04	101	µg/Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-025A	SF-05	39.0	µg/Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-026A	SF-06	BRL	µg/Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-027A	SF-07	BRL	µg/Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-028A	SF-08	BRL	µg/Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-029A	SF-09	BRL	µg/Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-030A	SF-010	456	µg/Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-031A	SF-011	BRL	µg/Total	20.0	1	10/21/2004	11/1/2004	EM

Qualifiers: ND - Not Detected at the Reporting Limit DF - Dilution Factor

Results are blank corrected where applicable

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2212 of 2531

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Analytical Environmental Services, Inc.

Date: [illegible]

TOTAL LEAD IN WIPE SAMPLES
N7082

CLIENT: National Guard Bureau Region-South III
Project: TN01-102004
Delivery Order: TN01-102004

Lab Order: 0410C03
Date Received: 10/27/2004 3:25
Matrix: Wipe

Laboratory ID	Client Sample ID	Results	Units	Report Limit	DF	Date Collected	Date Analyzed	Analyst
0410C03-032A	SF-012	BRL	ug. Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-033A	SF-013	BRL	ug. Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-034A	GL-01	BRL	ug. Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-035A	GL-02	49.0	ug. Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-036A	GL-03	253	ug. Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-037A	GL-04	BRL	ug. Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-038A	GL-05	132	ug. Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-039A	GL-06	88.0	ug. Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-040A	GL-07	1510	ug. Total	20.0	1	10/21/2004	11/1/2004	EM
0410C03-041A	GL-08	269	ug. Total	20.0	1	10/21/2004	11/1/2004	EM

Qualifiers: ND - Not Detected at the Reporting Limit DF - Dilution Factor

Results are blank corrected where applicable

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2213 of 2531

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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-AVN-SI July 15, 2003

MEMORANDUM FOR: The Adjutant General of Tennessee, ATTN: Non-Responsive Non-Responsive State Occupational Health Office, P O Box 41502, Nashville, TN 37204-1502.

SUBJECT: Transmittal Sweetwater Armory Survey Report.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, 30 August 1986, Medical Service, Preventive Medicine.

c. National Guard Regulation (NGR) 385-10, 1988, Army National Guard Safety and Occupational Health Program.

d. AR 11-34, The Army Respiratory Protection Program, 15 February 1990.

e. TB MED 502, Occupational and Environmental Health Respiratory Protection Program, February 1982.

f. DA PAM 40-503, 30 October 2000, The Army Industrial Hygiene Program.

g. DA PAM 40-501, 10 December 1998, Hearing Conservation.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2001, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

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k. Title 29, Code of Federal Regulations (CFR), 2000 rev., part 1910, Occupational Safety and Health Standards.

l. Report dated 20 June 2003, Industrial Hygiene Survey, Environmental Mgmt. Solutions, Atlanta, GA.

2. General.

a. At the request of the TNARNG Safety and Occupational Health Office, an Industrial Hygiene Service was put together to conduct Health Hazard Information module (HHIM) Field surveys and industrial hygiene sampling of the Sweetwater Armory, Sweetwater, TN.

b. Environmental Mgmt. Solutions, 247 Mary Lane, Dallas, GA. 30132 conducted the surveys.

3. Findings. All HHIM field survey forms and survey findings of the reports. (See enclosure 1)

4. Recommendations.

a. Follow all recommendations made in reference 1.l., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Control water infiltration in the armory and/or replace or repair damaged surfaces or components (ceiling and floor tiles). Building conditions that present IAQ concerns or problems not only exacerbates normally minor health issues but also tend to promote or accelerate building deterioration.

c. The recommendations given in the comment section of the HHIM data sheets and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-03. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-04 IHIP.

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present survey, especially if this will help eliminete health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinete with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

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NGB-AVN-SI
SUBJECT: Transmittal Sweetwater Armory Survey Report.

f. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

5. If additional information is needed about the industrial hygiene survey or air sample

Non-Responsive

[redacted]

CF:
NBG-AVN-SH

Encl
as

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ENVIRONMENTAL MANAGEMENT SOLUTIONS
INDUSTRIAL HYGIENE CONSULTING

TENNESSEE ARMY NATIONAL GUARD

SWEETWATER ARMORY
SWEETWATER, TENNESSEE

247 MARY LANE, DALLAS, GEORGIA 30157
PHONE: 770.459.4376 • FAX: 770.234.6297

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EXECUTIVE SUMMARY 1

SUBJECT 2

BACKGROUND 2

INTRODUCTION 2
SITE DESCRIPTION 2
SCOPE OF WORK 2
METHODOLOGY 2

FINDINGS AND DISCUSSION 4

LEAD WIPE SAMPLES 4
ASBESTOS SUSPECT BUILDING MATERIAL 4
NOISE SURVEY 4
ILLUMINATION SURVEY 5
BUILDING CONDITION 5
HAZARD COMMUNICATION 6
RADIATION PROTECTION PROGRAM 6
ERGONOMICS 6
PERSONAL PROTECTIVE EQUIPMENT 6

RECOMMENDATIONS 7

TECHNICAL ASSISTANCE 8

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2218 of 2531

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EXECUTIVE SUMMARY

An initial baseline industrial hygiene survey was conducted at the Sweetwater Armory on 22 May 2003 as part of the Tennessee Army National Guard Occupational Health Program to identify potential health hazards in the workplace. The survey consisted of collecting lead wipe samples and bulk asbestos samples as needed, conducting a noise and illumination survey and an evaluation of the condition of the building as it related to indoor air quality. A review of the Hazard communication program, ergonomics, and personal protective equipment was also performed.

The following table summarizes the survey findings and recommendations for each topic surveyed.

TOPIC	SUMMARY OF FINDINGS	RECOMMENDATIONS
Lead Wipe Samples	21.0 to 208 micrograms	Clean surfaces in the supply, drill hall, and motor pool areas, decontaminate all contaminated items, and follow good hygiene and housekeeping practices
Asbestos Bulk Samples	No findings	No action
Noise Survey	Under 85 dBA	No action
Illumination Survey	6 to 66 foot-candles	Upgrade lighting to appropriate levels.
Building Condition	Water damage to ceiling tiles	Clean damaged surfaces, control sources of water infiltration, and create a maintenance schedule for HVAC units
Hazard Communication	MSDS are available for chemicals used	Personnel responsible for these items should receive annual training in HAZCOM requirements
Ergonomics	Poor workstations design in some offices	Complete ergonomics survey on all personnel and offer ergonomic training or awareness to employees who spend the majority of their time working on a computer terminal
Personal Protective Equipment	No findings	No action

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MEMORANDUM FOR

Tennessee Army National Guard
Non-Responsive

SUBJECT

Initial Baseline Industrial Hygiene Survey of the Sweetwater Armory performed 22 May 2003 in Sweetwater, Tennessee.

BACKGROUND

INTRODUCTION

At the request of Non-Responsive of the National Guard Bureau Region South Industrial Hygiene Office, an initial baseline industrial hygiene survey was performed at the Sweetwater Armory in Sweetwater, Tennessee. Environmental Management Solutions conducted the survey on 22 May 2003. The purpose of the survey was to perform an initial baseline industrial hygiene survey to evaluate potential health hazards present at the armory.

SITE DESCRIPTION

The facility houses the Troop B 1st 278th ACR, which includes three full time personnel. The one story building contains several administrative offices, one classroom, a drill hall, and a kitchen. A firing range is not present at this facility. Refer to Building layout in Appendix C.

SCOPE OF WORK

The work included collecting wipe samples for lead, bulk samples for suspect asbestos containing building material, noise readings, illumination levels, and an evaluation of the ventilation system as it pertains to indoor air quality. A list of occupational health programs and procedures were verbally covered with the armory personnel.

METHODOLOGY

Lead wipe samples were collected from surfaces that showed signs of lead contamination in armories that have a renovated, inactive, or closed indoor firing range (IFR), kitchen or mess hall storage areas, indoor drill halls, and storage rooms with weapons vaults. The samples were collected

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May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2220 of 2531

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in accordance to instructions published by Region South National Guard Bureau, which required the use of unscented baby wipes to wipe one square foot of surface. Samples were then placed in a sealed plastic bag and sent to an American Industrial Hygiene Associations (AIHA) accredited laboratory for analysis. Asbestos bulk samples and lead paint chips were collected from suspect friable and damaged building material. Each bulk sample was placed in a sealed bag and sent to an AIHA laboratory for analysis. All instruments used for assessment were factory calibrated and calibrated prior to the survey as applicable. Illumination readings were taken on work surfaces and approximately four feet from the floor.

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2221 of 2531

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FINDINGS AND DISCUSSION

LEAD WIPE SAMPLES

Seven wipe samples were collected from areas of the kitchen, supply, drill hall, and motor pool areas as listed in the table below.

SAMPLE NUMBER	SAMPLE LOCATION	MICROGRAMS OF LEAD (µg) PER SQUARE FOOT
1	Kitchen	25.0
2	Drill Hall Floor	BRL
3	Drill Hall Coke Machine	**BRL**
4	Weapons Shelf	**56.0**
5	Vault Area Supply	46.0
6	Motor pool Floor	21.0
7	Motor Pool	208

*Below Reporting Limit

The Environmental Protection Agency standards (40 CFR 745) indicate lead in dust levels above 40 micrograms per square foot on bare and carpeted floors is considered dangerous for common areas. Lead results in the supply and motor pool areas were above recommended limits.

ASBESTOS SUSPECT BUILDING MATERIAL

Sampling for asbestos was limited to damaged material or material that could pose an exposure risk. No friable suspect material was found.

NOISE SURVEY

Area noise levels are well within the Army National Guard limit of 85 dBA and the Occupational Safety and Health Administration (OSHA) regulated limit of 90 dBA over an eight-hour period.

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2222 of 2531

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ILLUMINATION SURVEY

Lighting levels throughout the armory ranged between 6 foot-candles to 66 foot-candles. Specific readings are listed in the table below.

AREA	AVERAGE FOOT-CANDLES
Assembly Hall	7
Food Preparation	36
Classroom	56
Office	66
Admin	24
Office	26
Office	26
Recruiter	48
Unit Storage	6

These readings are not within the Army Design Guide (DG 415-2) minimum illumination level of 50 foot-candles for office areas and 20 foot-candles for parts storage/supply. The American National Standard Institute/Industrial Engineering Society (ANSI/IES) recommends a minimum illumination of 50 to 100 foot-candles for administrative and kitchen areas, and 20 to 50 foot-candles for storage areas. Luminance of 50 to 100 foot-candles is recommended for performance of visual tasks of medium contrast or small size such as reading, pencil handwriting, and poorly printed, or reproduced material. Depending of the type of display, background luminance of 30 to 60 foot-candles is recommended for VDT work. Some areas had lighting that was burned out.

BUILDING CONDITION

The building was constructed in 1985. Several areas of the armory have damaged ceiling or floor tiles due to water damage. Water damage could be seen in the hallway areas. The armory is cooled with a central heating, ventilating, and air conditioning (HVAC) system. The HVAC system was

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2223 of 2531

BEST AVAILABLE COPY

dirty with some debris around the system. Personnel did not have any specific complaints about the indoor air quality.

The motor pool area is used once per month. A ventilation system is not present in the area. One personal eyewash is available for use in case of emergency.

HAZARD COMMUNICATION

Material Safety Data Sheets were available and easily accessible. SPC Jeffrey Brooks updates them annually.

RADIATION PROTECTION PROGRAM

There are no radioactive materials stored at this facility.

ERGONOMICS

The full time employees in the supply or office areas did not express any ergonomic related injuries or concerns. Many workstations were not set up to provide neutral postures and appropriate ergonomically correct positions. Consideration should be given to providing all full time employees that spend the majority of their working time at a computer terminal ergonomic training or awareness. Such awareness should emphasize the importance of proper posture and set-up of the workstation to fit the user.

PERSONAL PROTECTIVE EQUIPMENT

Normal duties of full time employees at the armory do not require the use of personal protective equipment (PPE).

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2224 of 2531

7. An ergonomics survey should be completed for all supply and administrative personnel as a preventative measure to document and address any and all ergonomic concerns or problems. Provide ergonomics training and awareness to all employees who spend the majority of their time working at a computer terminal.

TECHNICAL ASSISTANCE

Non-Responsive

[redacted]

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2225 of 2531

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RECOMMENDATIONS

1. All items that are contaminated with lead should be thoroughly decontaminated with a detergent and water solution. Care should be taken to wipe down tables where weapons are issued and cleaned. Kitchen areas should be thoroughly cleaned on a regular basis and especially before serving personnel.

2. Personnel should be prohibited from eating, drinking, smoking, chewing tobacco or gum, or applying cosmetics in supply areas and should be instructed to clean hands with soap and water before doing any of these. Remove all refrigerators, cups, and other eating utensils from supply areas.

3. Upgrade lighting measurements as required. Lighting can be upgraded in the following ways:

   - Replace blown or broken lighting
   - Paint wall a light color
   - Clean existing light fixtures
   - Rearrange furniture to make better used of available light
   - Provide supplemental or task lighting

4. Develop a maintenance schedule for monitoring, inspecting and cleaning HVAC components such as outside air intakes, outside air dampers, air filters, drain pans, heating and cooling coils, the interiors of air handling units, fan motors ad belts, air humidification, controls and cooling towers. The schedule should also ensure that any leaks or standing water are identified, repaired, and prevented. Proper repairs and maintenance of the building infrastructure and interior surfaces can prevent water damage and moisture buildup which may lead to further indoor air quality issues.

5. Flush eyewash and shower weekly in accordance with ANSI Z358.1-1998, section 5.5.2. Keep a log to verify weekly flushing and performance check. This will decrease the likelihood of opportunistic pathogens. At least three minutes of weekly flushing will greatly reduce the number of organisms in the eyewash.

6. Wire all eye lavage and shower systems to an alarm to alert personnel to an emergency.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2226 of 2531

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APPENDICES

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APPENDIX A

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2228 of 2531

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- American conference of Governmental Industrial Hygieist (ACGIH), Industrial Ventilation, A Manual of Recommended Practice, 23rd Edition, 1998.American National Standards Institute (ANSI), /Illuminating Engineering Society (IES), Industrial Lighting, 1991.
- Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 1990.
- Army Regulation (AR) 40-5, Preventative Medicine, 15 October 1990.
- Army Regulation (AR) 385-10, The Army Safety Program, 29 Feb 2000.
- NGR 385-10, Army National Guard Safety and Occupational Health Program, 7 October 1988.
- TB MED 503, The Army Industrial Hygiene Program, February 1985.
- Title 29, Code of Federal Regulations (CFR), 1999, revision, Part 1910, Occupational Safety and Health Standards.
- TG 022, US Army Environmental Hygiene Agency (YSAEHA), Industrial Hygiene Evaluation Guide, October 1975.
- TG 141, US Army for Health Promotion and Preventative Medicine (USACHPPM) Industrial Hygiene Air Sampling Guide, November 1997.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2229 of 2531

HHIMS Industrial Hygi e Survey Form

Front page

ARLOC	Installation	Building	Room Number
47000	Sus[illegible]mon/		

Location	Operation	Survey Date (month / day)	Evaluator	Macom	Submacom	Unit / Organization (45)
SA	421	03 05 22	[redacted]	NG	XX	

[redacted]

RAC

Frequency (hrs/day)	No. CIVs	No. MIL	Contractors	No. LOCs
008	01	00	00	00

Lab Hoods	Vapor Degreasers	Spray Booths	Open Surface Tanks	Ventilation Units
00	00	00	00	00

Controls Present (if >6, continue in comments)(25)

OTH
OTH

Evaluation (25 characters max)	Unit code	Controls Required (25 characters max)
24-66	F - C	50-100 (Admin)
6 (Storage)		20-50 (Storage)

Manufacturer's Description (10 characters max)

NIOSH TC # or Foreign equivalent (10 characters max)

Gloves	e*	R	U
acid			
cold surfaces			
hot surfaces			
NBC agents			
oil			
solvents			
surgical gloves			
leather / cotton			
other			

Respirator	e*	R	U
airline			
abrasive blasting hood			
disposable			
full face air purifying			
1/2 face air purifying			
powered air purifying			
1/4 face air purifying			
self-contained			
other			

Eyes and Face	e*	R	U
chemical splash			
full face shield			
chem/safety impact			
safety impact			
welding helmet			
sunglasses			
welding goggles/glasses			
laser eye protection			
other			

Hearing	e*	R	U
canal caps			
(>85-108 dBA steady) earplugs			
" helmets w/ muffs			
" muffs alone			
(108-118) muff/earplug comb			
muffs and earplugs			
(118 or >) with time limit			
other			
other			

Body	e*	R	U
aprons			
cold weather clothing			
coveralls			
full body suit			
heat reflective			
vest/suit			
safety belt/harness			
special purp. clothing			
other			

Head and Feet	e*	R	U
cold weather boots/hat			
hard hats			
impermeable boots			
safety shoes (conductive)			
safety (nonconductive)			
other			
other			
other			
other			

= evaluator's recommendation or agreement

Reminders: ergonomics - dermatitis - physical agents - flammable storage
EYE (permanent) ____ - EYE (portable) ____ - SHW - GMV - LEV

ACO ADM DSA DSN LAB LCK
RAD ECB EPL PHS SPR [illegible]

Non-Responsive

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FOIA Requested Record #J-15-0085 (TN)
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HHIMS Industrial Hygiene Survey Form

Back page

	CAS code	PAC	EPC	Hazard Description
PONOISECO	DVDTXXXX	2	A	Computer use, video display terminal
POFOOTHAZ	POSTRESS	3	F	Ergonomics/Physical Stress
POFLYPROJ	POLIFTING	2	A	Heavy Lifting
POEYEHAZA	1439-92-1	3	A	Lead
POFLAMHAZ				
POLIFTING				
POSHARPOB				
POHOTOBJE				
POELSHOCK				
COLUBEOIL				

Social Security Number or Unique Identifier: [redacted]

Personnel data provided by the facility is attached to this form

Last Name (20 characters max): [redacted]

First Name (20 characters max): [redacted]

MI: D

Sex: M

Category: C I

Insert Privacy Act Statement

Comments

Operation described is receive, inventory, issue critical unit items to include weapons and ammunition

This operation was explained to the evaluators, but was not actually observed.

There is a noise data sheet attached to this form

(comments continued on attached

There is a ventilation data sheet attached to this form

2/8/95 CHPMBACK.XLS

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2231 of 2531

HHIMS Industrial Hygie Survey Form

Front page

AIRLOC: 4 7 0 0 0

Installation: [redacted]

Building:

Room Number:

Location: A A

Operation: A D 0

Survey Date: month 0 3 day 0 5 2 2

Evaluator: [redacted]

Macom: N G

Submacom: X X

RAC:

Unit / Organization (45):

[redacted] Non-Responsive

Frequency (hrs/day): 0 0 8

No. CIVs: 0 3

No. MIL: 0 0

Contractors: 0 0

No. LOCs: 0 0

Lab Hoods: 0 0

Vapor Degreasers: 0 0

Spray Booths: 0 0

Open Surface Tanks: 0 0

Ventilation Units: 0 0

Controls Present (if >6, continue in comments)(25): CTH

Evaluation (25 characters max): 24-56 — Unit code: F T C

Controls Required (25 characters max): 50-100 FTC

Gloves	e*	R	U
acid			
cold surfaces			
hot surfaces			
NBC agents			
oil			
solvents			
surgical gloves			
leather / cotton			
other			

Respirator	e*	R	U	Manufacturer's Description (10 characters max)	NIOSH TC # or Foreign equivalent (10 characters max)
airline					
abrasive blasting hood					
disposable					
full face air purifying					
1/2 face air purifying					
powered air purifying					
1/4 face air purifying					
self-contained					
other					

Eyes and Face	e*	R	U
chemical splash			
full face shield			
chem/safety impact			
safety impact			
welding helmet			
sunglasses			
welding goggles/glasses			
laser eye protection			
other			

Hearing	e*	R	U
canal caps			
(>85-108 dBA steady) earplugs			
" helmets w/ muffs			
" muffs alone			
(108-118 muff/earplug combo			
muffs and earplugs			
(118 or >) with time limit			
other			
other			

Body	e*	R	U
aprons			
cold weather clothing			
coveralls			
full body suit			
heat reflective			
vest/suit			
safety belt/harness			
special purp. clothing			
other			

Head and Feet	e*	R	U
cold weather boots/hat			
hard hats			
impermeable boots			
safety shoes (conductive)			
safety (nonconductive)			
other			
other			
other			
other			

* = evaluator's recommendation or agreement

Reminders: ergonomics - dermatitis - physical agents - flammable storage
EYE (permanent) ____ - EYE (portable) ____ - SHW - GMV - LEV

ACO ADM DSA DSN LAB LCK
RAD ECB EPL PUB CPO WEL

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2232 of 2531

HHIMS Industrial Hygiene Survey Form

Back page

	CAS code	PAC	EPC
PONOISECO			
POFOOTHAZ	POVDTXXXX	2	A
POFLYPROJ	POSTRESSX	3	F
POEYEHAZA			
POFLAMHAZ			
POLIFTING			
POSHARPOB			
POHOTOBJE			
POELSHOCK			
COLUBEOIL			

Hazard Description: Computer use/video display Terminal Ergonomics/Physical stress

Social Security Number or Unique Identifier: [redacted] Non-Responsive

Last Name (20 characters max): [redacted] Non-Responsive

First Name (20 characters max): [redacted] Non-Responsive

MI

Category: C C

☒ Personnel data provided by the facility is attached to this form

Insert Privacy Act Statement

Comments

Operation described is administrative operations to include typing, filing, phone and computer use. Some workstations were not set up to allow employees to work with neutral postures. Some workspaces cramped with little space. Duties of administrative personnel vary, so that micrbreaks can be taken as needed.

☐ This operation was explained to the evaluators, but was not actually observed.

There is a noise data sheet attached to this form ☒

☒ (comments continued on attached)

There is a ventilation data sheet attached to this form ☒

2/8/95 CHPMBACK.XLS

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2233 of 2531

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APPENDIX B

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2234 of 2531

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U. S. OIL & REFINING CO.

MATERIAL SAFETY DATA SHEET

JP-8 JET FUEL

MSDS No. 212130

Revised 2/11/2000

U. S. OIL & REFINING CO.
3001 Marshall Ave.
Tacoma, WA 98421

EMERGENCY ASSISTANCE:
COMPANY: (253) 383-1651
CHEMTREC: (800) 424-9300

IMPORTANT: Read this MSDS before handling or disposing of this product. Pass this information on to employees, customers and product users.

1. GENERAL

ProductName: JP-8 JET FUEL
Other Names: Jet Fuel, NSN# 9130-01-031-5816

Chemical Family: HYDROCARBON
Generic Name: PETROLEUM DISTILLATE FUEL
DOT Shipping Name: FUEL, AVIATION, TURBINE ENGINE, 3, UN1863, III

NFPA Hazard Rating: HEALTH: 0
FIRE: 2
REACTIVITY: 0
SPECIAL:

2. PRODUCT COMPONENTS

Component	CAS Number	Percent
HYDROCARBONS WITH A BOILING POINT RANGE OF 148°C TO 293°C	8008-20-6	100 (AP)

3. OCCUPATIONAL EXPOSURE LIMITS

Substance	Value	Time/Type	Date	Source
STODDARD SOLVENT	100 PPM	8 Hr PEL	1989	OSHA
(SEE SECTION 11)	200 PPM	15 Min STEL	1980	ACGIH

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Flammable Limits (% Vol. in air) at Normal Atmospheric Temperature and Pressure LOWER: AP 0.7 UPPER: AP 5.0

Unusual Fire and Explosion Hazards:

MODERATELY COMBUSTIBLE! THIS MATERIAL WILL RELEASE FLAMMABLE VAPORS WHICH IF EXPOSED TO AN IGNITION SOURCE CAN BURN IN THE OPEN OR BE EXPLOSIVE IN CONFINED SPACES. MISTS OR SPRAYS MAY BE FLAMMABLE AT TEMPERATURES BELOW THE NORMAL FLASH POINT.

Extinguishing Media:

DRY CHEMICAL, FOAM, CARBON DIOXIDE, HALON. WATER FOG OR WATER SPRAY ARE OF VALUE FOR COOLING, BUT MAY NOT ACHIEVE EXTINGUISHMENT.

Special Firefighting Procedures:

FOR FIRES INVOLVING THIS MATERIAL, DO NOT ENTER ANY ENCLOSED FIRE SPACE WITHOUT PROPER PROTECTIVE EQUIPMENT, INCLUDING SELF-CONTAINED BREATHING APPARATUS. COOL TANKS AND CONTAINERS EXPOSED TO FIRE WITH WATER.

6. EMPLOYEE PROTECTION

Respiratory: THIS MATERIAL IS NOT EXPECTED TO PRESENT A RESPIRATORY HAZARD BECAUSE OF ITS LOW VAPOR PRESSURE. BUT, IF EXCESSIVE MIST OR VAPORS RESULT FROM CONDITIONS OF USE, WEAR PROPER NIOSH/MSHA-APPROVED RESPIRATORY EQUIPMENT.

Ventilation: USE ADEQUATE VENTILATION TO KEEP VAPOR CONCENTRATIONS OF THIS MATERIAL BELOW THE OCCUPATIONAL EXPOSURE LIMITS.

Eye: EYE PROTECTION (CHEMICAL-TYPE GOGGLES AND/OR FACE SHIELD) SHOULD BE WORN WHENEVER THERE IS A LIKELIHOOD OF SPLASHING OR SPRAYING LIQUID. CONTACT LENSES SHOULD NOT BE WORN. EYE WASH WATER SHOULD BE PROVIDED.

Skin: AVOID PROLONGED OR REPEATED SKIN CONTACT. IF CONDITIONS OR FREQUENCY OF USE PRESENT DANGER OF EXPOSURE, CLEAN AND IMPERVIOUS PROTECTIVE CLOTHING SUCH AS GLOVES, APRON, BOOTS, AND FACIAL PROTECTION SHOULD BE WORN.

Other: USE GOOD PERSONAL HYGIENE PRACTICES. IN CASE OF SKIN CONTACT, WASH WITH MILD SOAP AND WATER OR A WATERLESS HAND CLEANER. IMMEDIATELY REMOVE SOILED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. DISCARD CONTAMINATED SHOES.

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9. PHYSICAL AND CHEMICAL DATA

Freezing Point: LT - 59°C

Specific Gravity (H_2O = 1 @ 39.2°F): 0.806 - .829

Viscosity Units, Temp. (Method): AP 1.3-3.4 CST AT 37.8° C (D-445)

Volatile Characteristics: NA

Stability: STABLE

Other Physical and Chemical Properties: SULFUR CONTENT LT 0.3 %, AROMATICS CONTENT LT 25 VOL %, OLEFINS CONTENT LT 5 VOL%.

Appearance and Odor: WATER WHITE TO LIGHT AMBER COLORED LIQUID; KEROSENE ODOR.

Conditions to Avoid: HEAT, SPARKS, AND OPEN FLAME

Materials to Avoid: REACTS WITH STRONG ACIDS AND STRONG OXIDIZING MATERIALS

Hazardous Decomposition Products: BURNING OR EXCESSIVE HEATING MAY PRODUCE CARBON MONOXIDE AND OTHER HARMFUL GASES AND VAPORS INCLUDING OXIDES AND/OR OTHER COMPOUNDS OF SULFUR.

10. SARA TITLE III

Extremely Hazardous Substances for Emergency Response and Planning:

Component	CAS Number	Percent	TPQ(lbs)	RQ(lbs)

NONE

Toxic Chemicals for Emission Reporting

Component	CAS Number	Percent (Typical)

NONE

EPA Hazard Classification:
- **Acute Health Hazard:**
- **Chronic Health Hazard:**
- **Fire Hazard:** X
- **Pressure Hazard:**
- **Reactive Hazard:**
- **Not Applicable:**

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2237 of 2531

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BREAK-FREE CLP NC, MIL-L-63460D, Amendment 5

Section I — PRODUCT IDENTITY

Mfg.: Break-Free Inc. an Armor Holdings Inc. Company 13386 International Parkway Jacksonville, FL 32218	**Trade Name:**	Break-Free CLP Liquid	**Information Phone:**	904-741-5400
	Description:	Cleaner, Lubricant, Preservative	**Date Prepared:**	May 31, 2000
	DOT Class:	Not Restricted Cargo	**Supersedes:**	April 5, 1999
	NFPA Rating:	Health=1, Fire=1, Reactivity=0	**Prepared By:**	Don Yoder

TRANSPORTATION EMERGENCY PHONE NUMBER: CHEM-TEL, INC. 1-800-255-3924 (U.S. and Canada) or 1-813-979-0626 (call collect)

Section II — HAZARDOUS INGREDIENT/IDENTITY INFORMATION

Chemical or Common Name:	CAS Numbers:	PEL:	TLV:	STEL:	% VOL
Polyalphaolefin synthetic oil	68037-01-4	5 mg/m^3 as mist	5 mg/m^3 as mist	10mg/m^3 as mist	53.6
Synthetic inhibitors and lubricant additives	Proprietary	5 mg/m^3 as mist	5 mg/m^3 as mist	Not Established	23.0
Dibasic Ester #1	Mixture	Not Established	Not Established	Not Established	3.6
Petroleum distillates, hydrotreated light	64742-47-8	100 ppm	100 ppm	525mg/m^3 (8Hr)	9.8
2-Ethylhexyl acetate	103-09-3	Not Established	Not Established	Not Established	10.0

NOTE: All SARA Title III materials have been reported. All ingredients contained in this formula are listed on the *Toxic Substances Control Act* (TSCA) chemical inventory.

Section III — PHYSICAL & CHEMICAL CHARACTERISTICS

Boiling Point:	190.5°C (375°F) Initial	**Specific Grav.:**	0.86	**Sol. In Water:**	Nil
Vapor Pres.:	NA	**Appearance:**	Light amber color	**Evaporation Rate:**	NA
Vapor Density:	NA	**Odor:**	Mild	**% Volatile:**	24.5% by volume
Pour Point:	-59.4°C (-75°F)	**VOC:**	15% by weight		

Section IV — FIRE & EXPLOSION HAZARD DATA

Flash Point: 78.9°C (174°F) PMCC **Flammability Limits:** NA **Autoignition Threshold:** NA

Extinguishing Media: Carbon Dioxide, Foam, Dry Chemical

Fire Fighting Procedures: Firefighters should wear NIOSH approved, positive pressure, self-contained breathing apparatus to avoid exposure from decomposition products. Proper eye and skin production should be used. If a spill has not ignited, use water spray to disperse vapors and keep container cool.

Unusual Fire & Explosion Hazards: After ignition, the use of water can scatter the liquid thereby possibly spreading the fire. Ignition may also produce dense black smoke.

Section V — REACTIVITY DATA

Stability: Stable **Incompatibility:** Avoid strong oxidizing agents. **Hazardous Polymerization:** Will not occur.

Conditions to avoid: Sources of ignition such as sparks, hot spots, welding, flames, and cigarettes.

Hazardous Decomposition Products: Oxides of Carbon, Sulfur, Nitrogen and PTFE powder.

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1820 ENGINE OIL 15W-40

ExxonMobil
Lubricants &
Petroleum Specialties

DATE ISSUED: 05/25/99
SUPERSEDES DATE: **********

MATERIAL SAFETY DATA SHEET

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

COMPANY: Exxon Mobil Corporation
ExxonMobil Lubricants & Petroleum
Specialties Company
3225 Gallows Road
Fairfax, VA 22037-0001

PRODUCT NAME
1820 ENGINE OIL 15W-40

PRODUCT CODE
231820

PRODUCT CATEGORY
Petroleum Lubricating Oil

MEDICAL EMERGENCY TELEPHONE NUMBER: (713) 656-3424

TRANSPORTATION EMERGENCY TELEPHONE NUMBERS
(BAYTOWN) (281) 834-3296 (CHEMTREC) 1-800-424-9300

Product Information and Technical Assistance: 1-800-443-9966

FAXED MSDSs: 1-800-298-4007 MAILED MSDSs OR OTHER ASSISTANCE: (713) 656-5949

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENTS	CAS NO. OF COMPONENTS	APPROXIMATE CONCENTRATION
Distillates (petroleum), solvent-refined heavy paraffinic	64741-88-4	Greater than 76%
Proprietary additives	Mixture	Less than 24%

SEE SECTION 8 FOR EXPOSURE LIMITS

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May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2239 of 2531

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INHALATION

Vapor pressure is very low. Vapor inhalation under ambient conditions is normally not a problem. If overcome by vapor from hot product, immediately remove from exposure and call a physician. If breathing is irregular or has stopped, start resuscitation; administer oxygen, if available. If overexposed to oil mist, remove from further exposure until excessive oil mist condition subsides.

INGESTION

If ingested, DO NOT induce vomiting; call a physician immediately.

SECTION 5: FIRE-FIGHTING MEASURES

FLASH POINT (MINIMUM)
215-C (419-F)
ASTM D 92, Cleveland Open Cup

AUTOIGNITION TEMPERATURE
Greater than 260-C (500-F)

FLAMMABLE OR EXPLOSIVE LIMITS (APPROXIMATE PERCENT BY VOLUME IN AIR)
Estimated values: Lower Flammable Limit 0.9% Upper Flammable Limit 7%

EXTINGUISHING MEDIA AND FIRE FIGHTING PROCEDURES

Foam, water spray (fog), dry chemical, carbon dioxide and vaporizing liquid type extinguishing agents may all be suitable for extinguishing fires involving this type of product, depending on size or potential size of fire and circumstances related to the situation. Plan fire protection and response strategy through consultation with local fire protection authorities or appropriate specialtists.

The following procedures for this type of product are based on the recommendations in the National Fire Protection Association's "Fire Protection Guide on Hazardous Materials", Tenth Edition (1991):

Use water spray, dry chemical, foam, or carbon dioxide to extinguish the fire. Water or foam may cause frothing. Use water to keep fire-exposed containers cool. Water spray may be used to flush spills away from exposures. Minimize breathing of gases, vapor, fumes or decomposition products. Use supplied-air breathing equipment for enclosed or confined spaces or as otherwise needed.

DECOMPOSITION PRODUCTS UNDER FIRE CONDITIONS

Fumes, smoke, carbon monoxide, sulfur oxides, phosphorus oxides, nitrogen oxides, metal oxides, aldehydes and other decomposition products, in the case of incomplete combustion.

SECTION 6: ACCIDENTAL RELEASE MEASURES

CLEAN WATER ACT / OIL POLLUTION ACT

This product may be classified as an oil under Section 311 of the Clean Water

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Posted to NGB FOIA Reading Room
May, 2018
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2240 of 2531

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buildup of explosive concentrations of vapor in air. No smoking, or use of flame or other ignition sources.

RESPIRATORY PROTECTION
Use supplied-air respiratory protection in confined or enclosed spaces, if needed.

PROTECTIVE GLOVES
Use chemical-resistant gloves, if needed, to avoid prolonged or repeated skin contact.

EYE PROTECTION
Use splash goggles or face shield when eye contact may occur.

OTHER PROTECTIVE EQUIPMENT
Use chemical-resistant apron or other impervious clothing, if needed, to avoid contaminating regular clothing, which could result in prolonged or repeated skin contact.

WORK PRACTICES / ENGINEERING CONTROLS
To prevent fire or explosion risk from static accumulation and discharge, effectively bond and/or ground product transfer system in accordance with (THE) National Fire Protection Association PUBLICATIONS.

Keep containers closed when not in use. Do not store near heat, sparks, flame or strong oxidants.

In order to prevent fire or explosion hazards, use appropriate equipment.

Information on electrical equipment appropriate for use with this product may be found in the latest edition of the National Electrical Code (NFPA-70). This document is available from the National Fire Protection Association, Batterymarch Park, Quincy, Massachusetts 02269.

PERSONAL HYGIENE
Minimize breathing vapor, mist or fumes. Avoid prolonged or repeated contact with skin. Remove contaminated clothing; launder or dry-clean before re-use. Remove contaminated shoes and thoroughly clean before re-use; discard if oil-soaked. Cleanse skin thoroughly after contact, before breaks and meals, and at end of work period. Product is readily removed from skin by waterless hand cleaners followed by washing thoroughly with soap and water.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

The following data are approximate or typical values and should not be used for precise deaign purposes.

BOILING RANGE

VAPOR PRESSURE

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Boston NGB FOIA Reading Room
May, 2018
FOIA Requested Record #J-15-0085 (TN)
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Prolonged or repeated skin contact with this product tends to remove skin oils, possibly leading to irritation and dermatitis; however, based on human experience and available toxicological data, this product is judged to be neither a "corrosive" nor an "irritant" by OSHA criteria.

Continuous contact with used motor oil has caused skin cancer in animal tests.

Product contacting the eyes may cause eye irritation.

Product has a low order of acute oral and dermal toxicity, but minute amounts aspirated into the lungs during ingestion or vomiting may cause mild to severe pulmonary injury and possibly death.

This product is judged to have an acute oral LD50 (rat) greater than 5 g/kg of body weight, and an acute dermal LD50 (rabbit) greater than 3.16 g/kg of body weight.

SECTION 12: ECOLOGICAL INFORMATION

Do not discharge this product into public waters or waterways unless authorized by a National Pollution Discharge Elimination System (NPDES) permit issued by the Environmental Protection Agency (EPA).

Environmental and Ecological data may be available for this product. Write or call ExxonMobil to obtain further information. Refer to Section 6 and Section 15 for Accidental Release information and Regulatory Reporting information.

SECTION 13: DISPOSAL CONSIDERATION

Options for disposal of this product may depend on the conditions under which it was used. To determine the proper method of disposal, refer to RCRA (40 CFR 261), as well as federal EPA and state and local regulations.

Please refer to Sections 5, 6 and 15 for additional information.

SECTION 14: TRANSPORTATION INFORMATION

TRANSPORTATION INCIDENT INFORMATION

For further information relative to spills resulting from transportation incidents, refer to latest Department of Transportation Emergency Response Guidebook for Hazardous Materials Incidents.

U.S. DOT HAZARDOUS MATERIALS SHIPPING DESCRIPTION

Posted on NCB FOIA Reading Room
May, 2018
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2242 of 2531

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Petroleum Specialties Company, in order to provide additional health and hazard classification information. The ratings recommended are based upon the criteria supplied by the developers of these rating systems, together with ExxonMobil's interpretation of the available data.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2243 of 2531

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APPENDIX C

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May, 2018

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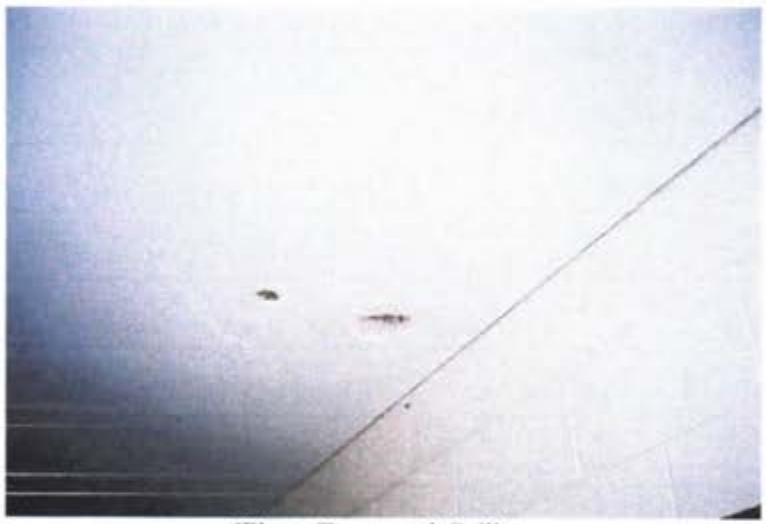
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2244 of 2531

Sweetwater Armory

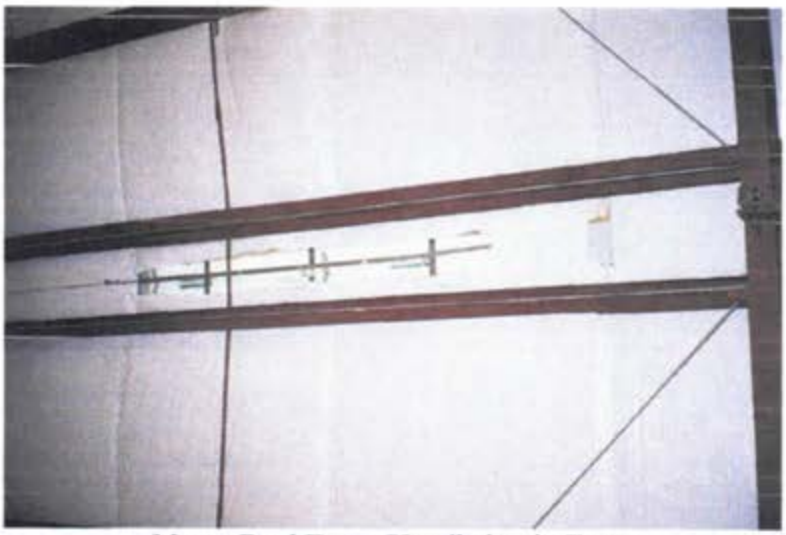


Water Damaged Ceiling

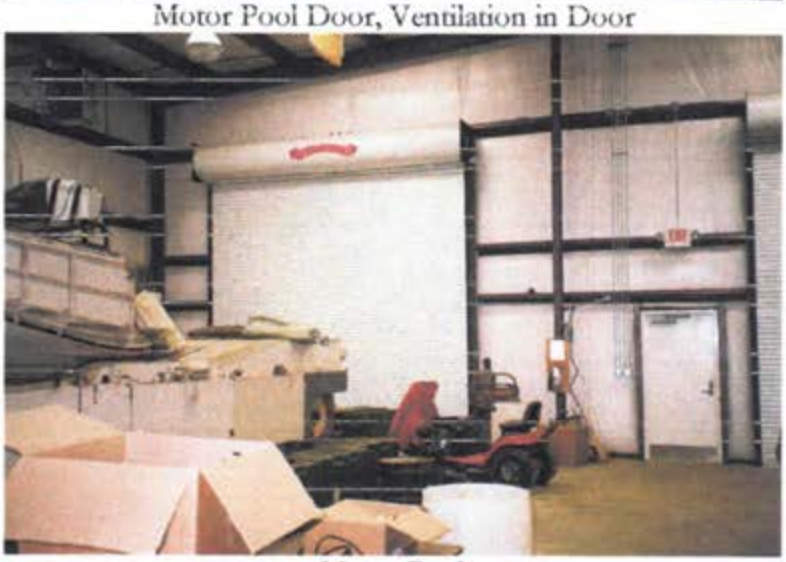
Drill Hall

Kitchen

Supply Area



Motor Pool Door, Ventilation in Door

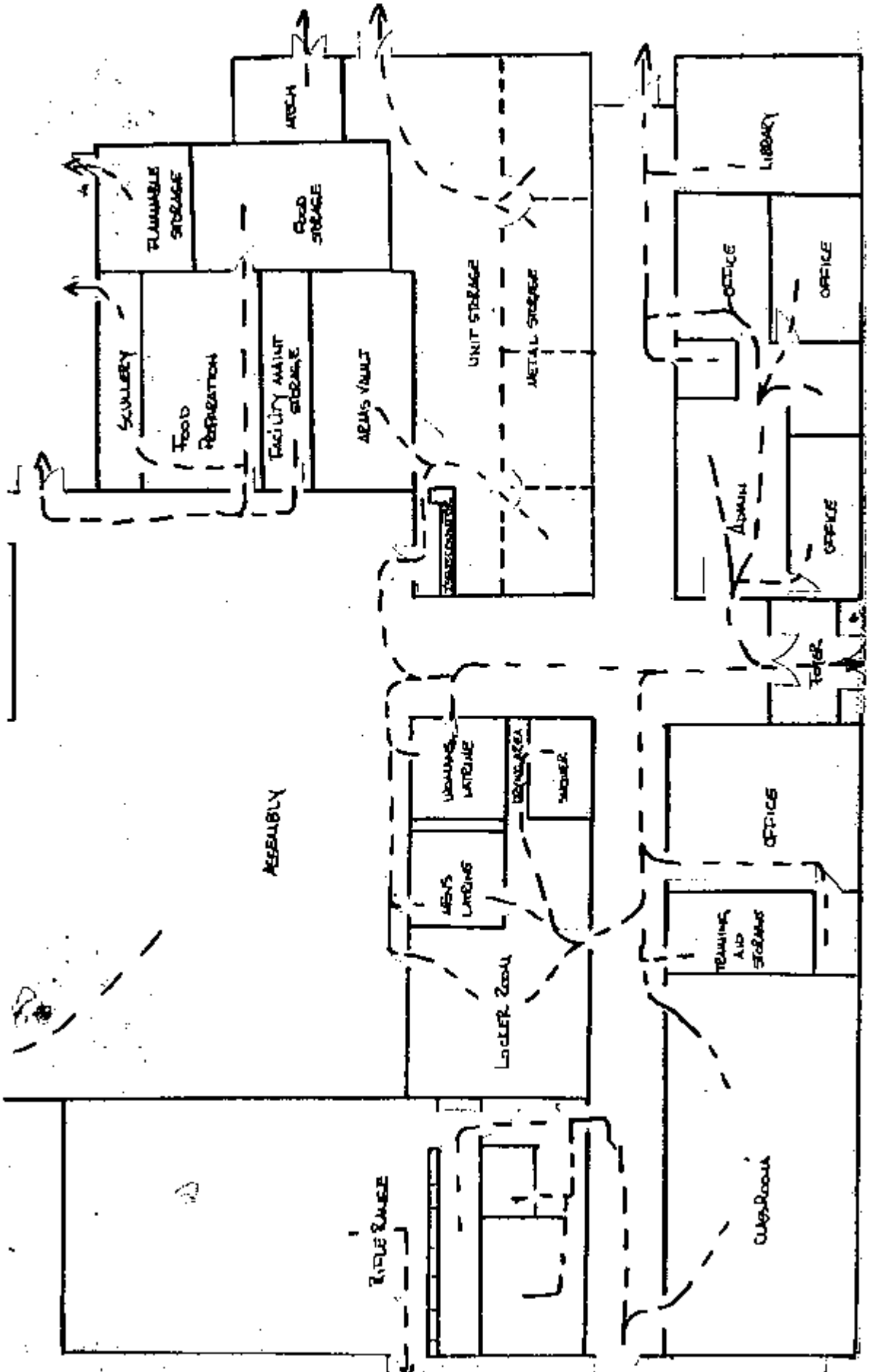


Motor Pool

Motor Pool

Heating, Ventilating, and Air-Conditioning System

Administrative Area


ARCH
FLAMMABLE STORAGE
FOOD STORAGE
SCULLERY
FOOD PREPARATION
FACILITY MAINT STORAGE
ARMS VAULT
UNIT STORAGE
METAL STORAGE
LIBRARY
OFFICE
OFFICE
ADMIN
OFFICE
TOILET
ASSEMBLY
WOMENS LATRINE
SHOWER
MENS LATRINE
LOCKER ROOM
OFFICE
TRAINING AID STORAGE
CLASSROOM
RIFLE RANGE

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APPENDIX D

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2250 of 2531

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Analytical Environmental Servs, Inc.

Date: 6/20/2003

TOTAL LEAD IN WIPE SAMPLES
N7081

CLIENT:	Environmental Management Solutions	**Lab Order:**	0306540
Project:	Sweetwater Armory	**Date Received:**	6/17/2003 9:45:0
Project No:	Sweetwater Arm	**Matrix:**	Wipe
PO No:		**Analyst:**	SSS

Laboratory ID	Client Sample ID	Results	Units	MDL	DF	Date Collected	Date Analyzed
0306540-001A	1	25.0	µg, Total	2.83	1	5/22/2003	6/19/2003
0306540-002A	2	BRL	µg, Total	2.83	1	5/22/2003	6/19/2003
0306540-003A	3	BRL	µg, Total	2.83	1	5/22/2003	6/19/2003
0306540-004A	4	56.0	µg, Total	2.83	1	5/22/2003	6/19/2003
0306540-005A	5	46.0	µg, Total	2.83	1	5/22/2003	6/19/2003
0306540-006A	6	21.0	µg, Total	2.83	1	5/22/2003	6/19/2003
0306540-007A	7	208	µg, Total	2.83	1	5/22/2003	6/19/2003

Qualifiers: MDL - Method Detection Limit
ND - Not Detected at the Reporting Limit
DF - Dilution Factor

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May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2251 of 2531

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BULK SAMPLE DATA

For use of this form see USAEHA TG 141; the proponent is MCHB-DC-LLC

Return Address *(complete address including zip code)*
Environmental Mgmt. Sltns.
247 Mary Ln
Dallas, GA 30157

Non-Responsive

Sampled Installation
Sweetwater Armory

Project Number
TN052003-01

Non-Responsive

Date Collected
22 May 2003

Date Shipped
17 June 2003

Description of Operation
Lead wipe samples of Armory

Location *(BLDG/AREA)*

Associated Complaints *(be specific)*
None

Associated Air Samples If yes, list sample numbers
☐ YES ☒ NO

Label Information

Trade Name	NSN	Manufacturer
NA	NA	NA

Address
NA

MSDS Attached
☐ YES ☒ NO

Analysis Desired
Lead

Lab Use Only	Sample No.	Constituents	Results	Remarks
	1	Kitchen		
	2	Drill Hall Floor		
	3	Drill Hall cokeman		
	4	Weapons shelf		
	5	Vault area Supply		
	6	Motorpool floor		

Comments to Lab:

Lab Use Only

Analyst *(initials)*	Reviewed By *(initials)*	Date Received	Date Reported

Procedures Performed	Comments:

CHPPM Form 8-R-E, 1 May 96 Replaces AEHA Form 8-R 1 Oct 84 which is obsolete.

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2252 of 2531

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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-AVN-SI May 18, 2001

MEMORANDUM FOR: Adjutant General TN ARNG, ATTN: State Safety Manager, P O Box 41502, Nashville, TN 37204-1502.

SUBJECT: Transmittal of Industrial Hygiene Indoor Firing Range Inspection/Evaluation Report Sweetwater Armory Hygiene Indoor Firing Range, Sweetwater, TN.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, 30 August 1986, Medical Service, Preventive Medicine.

c. National Guard Regulation (NGR) 385-10, 1988, Army National Guard Safety and Occupational Health Program.

d. AR 11-34, The Army Respiratory Protection Program, 15 February 1990.

e. TB MED 502, Occupational and Environmental Health Respiratory Protection Program, February 1982.

f. TB MED 503, 1 February 1985, The Army Industrial Hygiene Program.

g. DA PAM 40-501, 27 August 1991, Hearing Conservation (Updates TB MED 501, 15 March 1980, Hearing Conservation).

h. Guide to Occupational Exposure Values 2000, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, ACGIH, Cincinnati, Ohio.

j. USAEHA TG-141, 5 Mar. 1991, Guidelines for Air Sampling and Bulk sample Collection.

k. Title 29, Code of Federal Regulations (CFR), part 1910, Occupational Safety and Health Health Standards.

l. National Guard Regulation, NGR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and use of ARNG Indoor Firing Ranges, Draft March 2000.

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m. Army National Guard Guidelines for Housekeeping, Rehabilitation and Conversion of Indoor Firing Ranges, Draft NGB Pam 385-15.

n. OSHA Standards 29 CFR (Code of Federal Regulations), 1910.1025, Lead Standard

o. OSHA Standards 29 CFR (Code of Federal Regulations), 1926.62, Construction Standard

p. Report dated October March 23, 2001, Industrial Hygiene Survey, Tammer Sciences, Inc.

2. General.

a. At the request of LTC Bell, TN ARNG Occupational Health Office, an Industrial Hygiene Service was put together to conduct IH evaluation of the Sweetwater Armory Hygiene Indoor Firing Range, Sweetwater, TN.

b. The survey was conducted by Tammer Sciences, Inc., 3744 Lawrence Drive, Napperville, IL 60564

3. Findings. All findings are listed in the enclosed report (See ATTACHEMENT 1).

4. Recommendations.

a. Follow all recommendations made in the enclosed report.

b. At the time when the range is safe for use contact this office to evaluate it again. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY2001 IHIP.

c. Have all HHIM data entered into the HHIM computer module.

d. Contact the State Occupational Health Nurse, LTC Bell, for any medical Surveillance that may be needed.

e. To execute your responsibilities in correcting all deficiencies, coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

Non-Responsive

CF: NBG-AVN-SH
State Occupational Health Office, P O Box 41502, Nashville, TN 37204-1502.
ENCL.
as

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Indoor Firing Range Inspection/Evaluation Survey Report

For

Tennessee Army National Guard
(TNANG)

At

Sweetwater Armory Indoor Firing Range
Sweetwater, Tennessee

Prepared by:

Tammer Sciences, Inc.
3744 Lawrence Drive
Naperville, IL 60564

For
National Guard Bureau
Army National Guard
Region South Industrial Hygiene Office
Airport Plaza Suite 1530
510 Plaza Drive
College Park, GA 30349

March 23, 2001

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May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2255 of 2531

BEST AVAILABLE COPY

Table of Contents

I. Executive Summary ..... page 1

II. Findings and Recommendations Summary ..... page 2

III. Background ..... page 4

a. Introduction
b. Site Description
c. Scope of Work
d. Health effects and hazard determination
e. Methodology and Assessment Criteria

IV. Findings and Recommendations ..... page 6

a. Building envelope
b. Range lighting
c. Bullet traps
d. Targets and target carriers
e. Range use
f. Range maintenance
g. Personal protective equipment
h. Posting of signs
i. Range sop
j. Record keeping
k. Ventilation
l. Air sampling

Appendices

A. References

B. Risk Assessment Codes (RAC) Table

C. IFR Checklist and Photographs

D. Range Layout Drawing and Ventilation Measurements

E. Air Sampling Results and Laboratory Sample Analysis Report

F. Air Sampling Notification Letters

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I. EXECUTIVE SUMMARY

At the request of the Tennessee Army National Guard (TNARNG), field personnel representing the National Guard Bureau, Region South Industrial Hygiene Office, conducted an inspection/evaluation of the Sweetwater Armory indoor firing range (IFR) located in Sweetwater, Tennessee on 6 December 2000. This survey was conducted as part of the TNARNG occupational safety and health program to evaluate potential health hazards associated with air contaminants generated during firing. The survey consisted of conducting a physical inspection of the range, collecting air samples, evaluating the ventilation system, measuring the lighting levels, and reviewing the range operating procedures

Four personal samples and two area air samples were collected during a simulated 32 minute weapons firing qualification test. All personal sample results were below the Army National Guard recommended limit of 0.03 mg/m^3. Further, the equivalent eight-hour time weighted average were below the regulated Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (PEL) of 0.05 mg/m^3. Area air sampling results were well below the recommended limit of 0.03 mg/m^3.

The average air velocities in all the firing lanes exceeded the recommended range of 50 to 75 feet per minute (fpm). However, the average velocities measured in the standing and kneeling position in lane 4 were below the minimum 50 fpm. Smoke testing showed turbulence at the firing line. In addition to air sampling and ventilation measurements, illumination readings in critical areas were below the recommended levels. Detailed findings and recommendations regarding this range can be found in the following table and report.

In conclusion and based on the findings of this inspection/evaluation, the Sweetwater firing range is classified as a limited use based on deficiencies in ventilation, lighting levels, target carrier, and building envelope. Considerations should be given to implementing the recommendations listed herein.

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2257 of 2531

BEST AVAILABLE COPY

II. FINDINGS and RECOMMENDATIONS SUMMARY

Findings	Recommendations	RAC
This range has been classified as limited use due to deficiencies in the ventilation system and air sampling result.	Further use of this range is limited until deficiencies in the ventilation system have been corrected, re-inspected, and approved, and further air sampling is performed.	RAC 2
Building envelope		
Firing lanes are less than four feet wide	Repaint firing lines so that each measures the required four feet	RAC 4
There is one open floor drain in the area	The floor drain should be immediately sealed to prevent toxic dusts from seeping into the sewer system.	RAC 2
Ceiling tiles are sagging and falling out. Water infiltration is apparent in the range	Consult facilities maintenance to control water damage to the building	RAC 2
Access doors are not weather-stripped.	Access doors should be weather-stripped and the locks should be fixed so that the door closes and locks properly.	RAC 2
Range lighting		
Range lighting is below the recommended 100 FC at the firing line and 30 FC in all other areas.	Upgrade lighting to meet these requirements.	RAC 3
Emergency and exit lighting is not provided n working order	Provide appropriate emergency and exit lighting for use n emergencies	RAC 3
Targets and target carriers		
Target retrieval systems were not operable in Lane 2	A target retrieval system is required to be operable in all lanes.	RAC 3
Range use		
Boxes, storage lockers, and hearing protection were found stored in the plenum.	No items should be stored in the firing range at any time. Stored should be decontaminated and removed.	RAC 2
Range access is accomplished through the plenum only	Entry of individuals into the plenum for observation of firing should be prohibited	RAC 2
Firers are allowed to walk downrange to clean up debris	A regular maintenance program should be implemented so that individuals are walking in regularly cleaned areas.	RAC 2
Range Maintenance		
The indoor firing range has not been cleaned.	The indoor firing range should be cleaned regularly	RAC 2
Dry sweeping is used to clean up spent shells	A High Efficiency Particulate Air filtered vacuum or wet method should be used to clean the range	RAC 2
A range custodian has not yet been appointed	A range custodian should be appointed to the range who will be responsible for cleaning the range and discarding debris	RAC 3
Posting of signs		
All appropriate warning signs were not posted in the range.	Post appropriate signs in the vicinity of the range and on the entrance door.	RAC 2
Range SOP		
Sweetwater Armory does not have an approved standing operation procedure	Develop and implement a standing operation procedure	RAC 2
Recordkeeping		
No records of range training, maintenance, or cleaning are maintained. All appropriate records regarding visitors is not logged.	Maintain appropriate records regarding range operations and procedures	RAC 2
A range custodian has not yet been appointed	A range custodian should be appointed to the range who will be responsible for cleaning the range and discarding debris	RAC 3

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2258 of 2531

BEST AVAILABLE COPY

Findings	Recommendations	RAC
	Ventilation	
Supply and exhaust fans are not interlocked with range lighting.	Interlock supply and exhaust fans with range lighting.	RAC 3
Ventilation flow rates were above the recommended 50 -75 fpm.	Holes in the plenum wall should be one inch in diameter and extended over the entire surface of the plenum wall.	RAC 2
Flow rates at the plenum wall were less than the required 400 to 600 fpm	Holes in the plenum wall should be one inch in diameter and extended over the entire surface of the plenum wall.	RAC 2
More than 10 to 15% of the plenum wall is open.	Holes in the plenum wall should be one inch in diameter and extended over the entire surface of the plenum wall.	RAC 2

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2259 of 2531

BEST AVAILABLE COPY

III. BACKGROUND

a.) Introduction: At the request of Non-Responsive of the National Guard Bureau Region South Industrial Hygiene Office, an inspection/evaluation survey was performed at the Sweetwater Indoor Firing Range at the Sweetwater Armory in Tennessee. Non-Responsive Non-Responsive contract industrial hygienist, conducted the survey on 6 December 2000. The purpose of the survey was to evaluate range characteristics, ventilation, and quantify employee exposure to lead dust.

b.) Site Description: The Sweetwater Indoor Firing Range measures approximately 65 feet long, 23 feet wide, and 11 feet high and is used for weapons firing and qualification. The range has five firing lanes and an escalator type bullet trap. An exhaust fan, which is rated at 13,800 cubic feet per minute draws air through the bullet trap and exhausts it to the rear of the building. 100 percent outside air is supplied through a plenum that extends across the back wall.

c.) Scope of Work: The work consisted of a physical inspection of the range and an evaluation of the building envelope, range lighting levels, bullet trap condition, targets and target carriers, the use of personal protective equipment, posting of signs, range standard operating procedures (SOP), record keeping, the ventilation system, range use and maintenance. In addition personal and area air samples were collected during firing to evaluate the airborne exposures to the range users. A range inspection checklist found in National Guard Regulation 385-15, which addresses Indoor Firing Range use and maintenance was completed for the range. Smoke candles were utilized to observe airflow patterns in the range. Air velocities were also measured at the firing line. Air sampling and ventilation measurements were performed to quantify performance of the range and its effectiveness in reducing employee exposure to lead dust.

d.) Health Effects and Hazard Determination: The most significant hazard present to employees and users of the indoor firing range is lead dust. Shooters using ammunition with lead primers or bullets manufactured with lead are potentially exposed to lead fumes and dust during the firing process. Furthermore, the lead found in the primer, the melting of the bullet base by hot powder gasses, the shaving and abrasion of the bullet during firing, and fragmentation of the bullet at the point of impact are all potential sources for lead. Exposure to lead may also occur during cleaning of the range, guns, or bullet trap where lead dust is deposited.

Lead affects the nervous, circulatory, digestive, excretory, and reproductive systems of both men and women. If the amount of lead absorbed and stored in the body exceeds the body's ability to expel it, lead can accumulate in the body affecting the blood, heart, and immune systems. Pregnant women overexposed to lead are more prone to spontaneous abortions or may give birth to babies with a low birth weight and slowed postnatal neurological development. Results of overexposure in children are slowed cognitive development and reduced growth.

e.) Methodology and Assessment Criteria: Personal air sampling was conducted during a simulated weapons firing qualification test, which lasted over a thirty-two minute period. Area air samples were collected during the firing and one and half hour to two hours after the firing ended. Gilian air sampling pumps, Model Number GilAir5, Serial Numbers 13248, 13249, 13250, 13251, 13252, 13521, 13522, 13523, 13524, 13525 were used to collect the personal and area air samples. Each pump was calibrated prior to sampling and at the end of each sampling

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2260 of 2531

BEST AVAILABLE COPY

period using a pre-calibrated rotameter, which was calibrated against a bubble meter. The sampling flow rate was set at approximately 2 liters per minute (lpm). Samples were sent to NATLSCO laboratory, which is accredited by the American Industrial Hygiene Association (AIHA), for analysis.

An Alnor CompuFlow Air Velocity Meter, Model Number 8570, Serial Number 99097037, was used to measure air velocities at the firing line. A total of nine velocity readings were taken at each firing lane. Three measurements were taken at each of three positions; standing, kneeling, and prone positions for a total of nine readings. Details of locations where ventilation measurements were made can be found in Appendix D.

Lighting measurements were taken at the firing line, target line, and intermediate areas to determine luminance levels in these areas. Approximately fifteen to twenty readings were taken throughout the range using a Minolta Light Meter Model Number TL-1, Serial Number 90480727.

Air sampling, ventilation and illumination readings were compared to the NGR 385-15 Policy Responsibilities, and Procedures for Inspection/Evaluation and use of ARNG Indoor Firing Ranges.

Risk Assessment Codes (RACs) are included in this report to quantify the risk of particular operations to employees and to establish funding priorities for corrective actions. RACs are assigned with regard to hazard severity and mishap probability. The type, length, and route of exposure are taken into consideration, as are the medical effects that would occur with such exposures. RAC criteria can be found in Appendix B.

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2261 of 2531

BEST AVAILABLE COPY

IV. FINDINGS, DISCUSSION, AND RECOMMENDATIONS

a. Building Envelope. This indoor firing range measures 41 feet from the firing line to the bullet trap, 23 feet wide, and 11 feet high. Each firing lane is the appropriate width and all pipes, conduits, and projecting surfaces are adequately baffled. There is one open floor drain in the range. Ceiling tiles are sagging and falling out and do not provide adequate ballistic security. Water leakage is noticeable in the range. The two access doors to the range are not adequately weather-stripped.

Recommendations:

1. Each firing lane should measure at least four feet wide. Repaint lanes so that each is the required four feet. [NGR 385-15 1-17a(1)(a)] **(RAC 4)**

2. There should be no open floor drains in the area, which allows lead, and other toxic dusts to seep into the sewer system. Immediately close up all drains in the area. [NGR 385-15 1-17a(1)(b)] **(RAC 2)**

3. Consult Facility Maintenance to adequately repair leaking and damaged surfaces and to prevent further water infiltration in to the range. [DG 415-1, App. A, 3-1d, e-1] **(RAC 2)**

4. Weather-strip all access doors to the range to prevent leakage of lead dust and debris into outlying areas. [NGR 385-15 2-2a(2)(b)] **(RAC 2)**

b. Range Lighting. Range lighting is relatively uniform but causes some shadows throughout the range. Lighting measures an average 60 footcandles (FC) at the targets and 24.4 FC in all other areas. Baffles adequately protect all lighting fixtures. Emergency lighting is not provided and exit lighting did not operate when tested.

Recommendation:

1. Increase lighting to the recommended 100 FC at the targets and 30 FC in all other areas. [NGR 385-15, 1-17c(1)(d)] **(RAC 3)**

2. Emergency and exit lighting should be provided in good working condition for use in emergencies. [NGR 385-15, 1-17c(1)(e,f)] **(RAC 3)**Increase lighting to the recommended 100 FC at the targets and 30 FC in all other areas. [NGR 385-15, 1-17c(1)(d)] **(RAC 3)**

c. Bullet Traps. An escalator type bullet trap is permanently installed and is designed for .22 caliber use, which is all that is permitted for firing on this range. The bullet trap measures ¼ " thick and adequately prevents ricochets. The bullet trap is not bowed, punctured, or pitted, however, some of the plates are out of alignment.

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2262 of 2531

BEST AVAILABLE COPY

Recommendations:

1. All plates in the bullet trap should be in proper alignment to adequately prevent ricochets and direct projectiles in the same direction they are traveling. [NGR 385-15 1-17d(1)(d)] **(RAC 3)**

2. The bullet trap should be adequately maintained. Rust or paint chips may cause ricochets. A thin coating of oil should be applied every 3 months for moderate firing, sooner if heavy firing occurs (10W30 or 3 in 1). **DO NOT APPLY GREASE. (RAC 3)**

3. Bullet collection bins should not be allowed to get over ¾ full. Contact the TNARNG State Environmental Office prior to emptying for disposal instructions. **(RAC 3)**

d. Targets and Target Carriers. Target retrieval systems were not provided in each lane. Lane 2 has no retrieval system. Cardboard targets are used for personnel during firing procedures.

Recommendation: The target retrieval should be operable in all lanes. A firing lane without an appropriate retrieval system should not be used for firing. [NGR 385-15 1-17c(1)(a)] **(RAC 3)**.

e. Range Use. The range is used for firing purposes only. Boxes, storage lockers for keys and hearing protection are stored in the plenum. Wrestlers are allowed to utilize this area as a change room. Access to the range can only be accomplished through the plenum. The plenum is also used as an observation area. Firers in the range are allowed to walk downrange to clean up debris. A fire extinguisher is provided in the range.

Recommendations:

1. No equipment or furniture should be maintained in the range, plenum area or behind the bullet trap. [NGR 385-15 1-17d] **(RAC 2)**

2. No additional clothing or equipment should be brought into this range. [NGR 385-15 1-19h] **(RAC 2)**

3. Entry of individuals for observation should be prohibited during weapons firing. Allowing people into the plenum will cause turbulence of the ventilation system and may cause it to operate less adequately. [NGR 385-15 1-19a] **(RAC 2)**

4. Individuals should only be allowed to walk downrange in regularly cleaned areas as needed to pick up brass. A regular maintenance program should be implemented if firers will be allowed to walk downrange to collect brass. [NGR 385-15 1-19f] **(RAC 3)**

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2263 of 2531

BEST AVAILABLE COPY

f. Range Maintenance. This indoor firing range has not been cleaned. Dry brooms are used to clean up spent shells. A range custodian has not been appointed to the range.

Recommendations:

1. The indoor firing range should be cleaned with the ventilation system operating to prevent dust and debris from migrating into other work areas and to minimize exposure to the cleaners. Floor areas behind the firing line and 15 feet downrange should be cleaned after firing or at least every three months if the range is not used as often. [NIOSH 76-130, p.24, II, 1] **(RAC 2)**

2. Dry sweeping and cleaning bullet traps by pouring or shoveling bullet debris into waste buckets causes settled lead dust to become airborne and inhaled by the workers. **Dry sweeping of indoor firing ranges is prohibited.** A High Efficiency Particulate Air (HEPA) filtered vacuum system is recommended for lead dust and particle cleanup only (no bullet casings). If a HEPA vacuum cannot be acquired, a wet method should be used which includes a solution of detergent and hot water. Two containers should be used; one to wet the area, and the other to rinse the applicator after the dust has been wiped from the surface. Water should be changed often to prevent reapplication of contaminated water. Wastewater should be left to evaporate and the residue and any applicators should be disposed under guidance from the TN ARNG Environmental Office. [29 CFR 1910.1025(h)(ii), NIOSH 76-130, P.24, II, 2] **(RAC 2)**

3. One person, preferably the range custodian, should be responsible for cleaning the range and discarding debris. The range should be cleaned **ONLY** with a HEPA vacuum system or utilizing a wet method. [29 CFR 1910.1025(h)(ii)] **(RAC 2)**

g. Personal Protective Equipment (PPE). Personnel were observed wearing appropriate hearing and eye protection.

Recommendation: All personnel should wear ANSI approved hearing and eye protection. Additional eye and hearing protection should be available for those users that do not have their own. [NGR 385-15, 2-5a, 2-5 b. 29 CFR 1910.133 (a-b), 29 CFR 1910.95 a]. **(RAC 2)**

h. Posting of Signs. Warning signs are posted and instruct users about the regulations and requirements of the range. Warnings include only those indicating the type of ammunition to be used and the need for hearing protection. The entrance door to the range only requires hearing protection. No illuminated warning sign is interlocked with the range ventilation switch to alert individuals that the range is use. Firing lanes are not numbered.

Recommendations.

1. The following signs should be posted in or in the vicinity of the range and on the access door to the bullet trap. [NGR 385-15 3-6a,b] **(RAC 2)**:

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2264 of 2531

BEST AVAILABLE COPY

a. Eating, drinking, and Smoking are Prohibited
b. Dry Sweeping is Prohibited
c. Wash Hands and Face Immediately Following Firing
d. The Following Ammunition is Authorized for use on this Range
e. Hearing Protection Must Be Properly Worn During Firing
f. Proper Safety Glasses/Goggles Must Be Worn During Firing
g. No Furniture or Storage of Items Permitted in the Range

2. The Following Signs must be posted on the entrance door to the range and to the access door of the bullet trap:

a. Noise Hazardous Area
b. Danger Lead Hazard Area
c. Pregnant Females are Not Permitted in this Area

3. An illuminated sign should be interlocked with the range ventilation switch and located outside of the firing range to alert individuals outside when the range is in use. [NGR 385-15 2-6c] **(RAC 4).**

4. Each firing line should be clearly numbered at the firing line and bullet trap. [NGR 385-15 1-21C] **(RAC 4)**

i. Range Standing Operation Procedure (SOP). A range SOP with all requirements and approved by the State Safety Office is not available for this facility.

Recommendations:

A Range Standing Operation Procedure should be written for this facility and should include the following **(RAC 2)**:

1. Requirements for establishment and maintenance of a visitor's log indicating date, age, and ammunition fired
2. Requirements for safety briefing for all individuals before entrance to the range given by a designated range safety officer
3. Work practices
4. Instructive guidance
5. Personnel responsibilities for performing, supervising, reviewing, and updating the SOP
6. Authorized ammunition
7. Posting of signs
8. Cleaning and maintenance requirements
9. PPE requirements for maintenance, firing, and cleaning of the range.

j. Recordkeeping. Records kept by the range are a visitor's log with name and age of firer, organization and sign in and sign out times. The type of ammunition used is not documented.

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2265 of 2531

BEST AVAILABLE COPY

Copies of initial and previous inspections and any air-sampling data are not available. An OSHA compliance program is not in place. A range custodian has been appointed to the range.

Recommendations.

1. Visitor's log must be maintained that contains the name and age of firer, organization, sign in and out time, and type of ammunition, and number of rounds fired. [NGR 385-15 1-16c] **(RAC 2)**
2. A copy of this and any other inspections should be maintained. [NGR 385-15 3-6] **(RAC 2)**
3. An OSHA compliance program must be established and maintained to document how engineering (i.e. ventilation) and work practice controls will be put in place to reduce exposure to or below the permissible exposure limit. The written plan should include a description of the operation, ammunition and weapons used, existing controls, groups using the firing range, employee job responsibilities, operating procedures and maintenance practices. A record of previous inspections and air sampling data must also be retained. [29 CFR 1910.1025(c)(3)(i-ii)]. **(RAC 2)**
4. All individuals utilizing the range must be provided with a copy of the SOP or have been briefed on the unit's requirements and must sign an agreement to follow the rules. [NGR 385-15 1-15h] **(RAC 2)**
5. State maintenance officers and custodians must be fully trained on an annual basis on the health effects from exposure to lead dust and the appropriate precautions that must be taken. Records verifying this training must be kept by the range custodian. Each employee who works in a place in which there is a potential exposure to airborne lead at any level shall be informed of the Content of Appendix A Substance Data Sheet for Occupational Exposure to Lead, and Appendix B Employee Standard Summary of OSHA regulation 1910.1025. Initial training should be performed at least 180 days from date of initial job assignment and annually thereafter. [29 CFR 1910.1025(l)(1)(I-iv), 29 CFR 1910.1200(h)] **(RAC 2)**
6. A range safety officer and custodian should be designated in writing. [NGR 385-15 1-17d] **(RAC 2)**

k. Ventilation. The range is equipped with an operational ventilation system, with 100% of the make-up air exhausted behind the bullet trap. Supply and exhaust fans are not interlocked with range lighting. Overall average velocity readings in each lane were above the required range of 50 to 75 feet per minute (fpm). Average velocities ranged from 78 to 128 fpm. Average velocities in the standing and kneeling positions in Lane 4 measured below 50 fpm. Lanes 2, 3, 4, and 5 exhibited large flow rates in the prone position. Refer to Table D-1 in Appendix D. The exhaust fan is rated for 13,800 CFM, which when divided by the cross sectional area of the range would result in a calculated average velocity of 55 fpm. The overall average velocity as measured in all positions at all lanes is 111 fpm. The discrepancy between the measured velocity and the rated velocity could be a result of an incorrectly reported fan rating.

The plenum wall extends across the entire back wall and entry into the range must occur through the plenum. Air entering the plenum through the air intake vent exceeds the recommended 600 fpm. Velocity readings ranged between 800 and 1600 fpm. Air exiting the holes in the plenum wall has a velocity of 250 to 550 fpm. More than 10-15% of the plenum wall is open. Smoke

Posted to NGB FOIA Reading Room
May, 2018
BEST AVAILABLE COPY
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2266 of 2531

BEST AVAILABLE COPY

tests revealed turbulence in the right three lanes. The range air temperature was below 65 degrees Fahrenheit.
Results of ventilation and smoke tests indicate that adequate flow rates are being provided by the fan but are not being evenly and uniformly distributed especially in Lane 4.

Recommendations:

1. Interlock supply and exhaust fans with range lighting so that the ventilation system operates at all times during occupancy of the range. [CEIND 110-1-18, 3-4a] **(RAC 3)**

2. The plenum wall should be retrofitted so that the holes are one inch in diameter, and evenly distributed across the surface of the plenum wall and centered in a four-inch square area. The plenum wall should also be approximately 15 feet behind the firing line to allow the air enough time to straighten out over the entire area. The airflow must measure at least 50 fpm at all positions in each firing lane. **(RAC 2)**

3. Range temperature should remain between 65 degrees and 80 degrees Fahrenheit. [NGR 385-15 1-17b(1)(n)] **(RAC 3)**

l. Air Sampling. Area and personal air sampling was conducted to simulate weapons qualifications. Five personal samples were collected from personnel firing for about 32 minutes. Two area samples were also collected simultaneously; one inside the range behind the firing line, and the other outside. The firing was restricted to a single qualification time period. This 32-minute qualification period is representative of the expected exposure for personnel using the range. Personal sampling results ranged from 0.016 to 0.027 mg/m^3 for the 32 minute sampling period. These results did not exceed the Army National Guard Occupational Exposure Limit of 0.03 mg/m^3. Assuming no exposure for the remainder of an eight-hour period, the equivalent 8-hour time weighted average for the five personal samples ranged from 0.001 to 0.002 mg/m^3. These equivalent results are lower than the OSHA PEL, NIOSH REL, and ACGIH TLV, on an eight-hour time weighted average basis. Area air sampling results were less than 0.004 mg/m^3 for the two-hour sampling period.

Although air-sampling results were below the ANG recommended limit of 0.03 mg/m^3, reducing the air turbulence at the firing line and stream lining the air flow is recommended. According to National Guard regulations, Guardsmen exposed to hazards in the range less than thirty days per year are permitted to use the range up to five hours per day. Guardsmen utilizing the range for over thirty days per year and all non-military personnel are limited to three hours per day. Range users under 17 are limited to one-hour use per day.

Recommendations: A record must be maintained for time spent on the range for all personnel using limited use firing ranges as recorded by the range custodian. [NGR 385-15 1-15 b] **(RAC 2)**

m. Range Status. This range has been classified as restricted use due to building envelope, range lighting, target carrier, and ventilation deficiencies.

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Released by National Guard Bureau
Page 2267 of 2531

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Recommendation: Further use of this range is restricted until deficiencies in the building envelope, range lighting, target carrier, and ventilation system are corrected; re-inspected, and approved. **(RAC 2)**

Non-Responsive

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2268 of 2531

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APPENDIX A

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REFERENCES

1. American Conference of Governmental Industrial Hygienists (ACGIH), Industrial Ventilation, A Manual of Recommended Practice, 23rd Edition, 1998.

2. American Conference of Governmental Industrial Hygienists (ACGIH), Threshold Limit Values for Chemical Substances and Physical Agents and Biological Indices for 2000.

3. Army Regulations - AR 40-5, Preventative Medicine, 15 October 1990.

4. Army Regulations - AR 385-10, The Army Safety Program, 23 May 1988.

5. National Safety Council, Fundamentals of Industrial Hygiene, 4th edition, 1996.

6. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, 29 December 1989.

7. National Guard Regulation (NGR) 385-15 Policy Responsibilities, and Procedures for Inspection/Evaluation and use of ARNG Indoor Firing Ranges, 18 September 2000..

8. National Guard Pamphlet (NG PAM) 385-16, Guidelines for Converting Firing Ranges to Other Uses, 31 January 1994.

9. National Institute for Occupational Safety and Health, Pocket Guide to Chemical Exposures, 2000.

10. TB MED 503, The Army Industrial Hygiene Program, February 1985.

11. TB MED 502, Occupational Safety and Health Respiratory Protection Program..

12. Title 29 Code of Federal Regulations (CFR) 1910.1025, Lead.

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APPENDIX B

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C. Determine the HHSC by totaling the points assessed and using the following guide:

Total Points (sum of A and B, above)	HHSC
13-16	I
9-12	II
5-8	III
0-4	IV

STEP 2. Using the following guides to assess points, determine the mishap probability category (MPC) for health hazards. The probability of mishap reflects the duration of exposure and the number of exposed personnel.

A. Duration of Exposure Points Assessed

		Length of Exposure		
		1-8 hr/wk	>8 hr/wk not continuous	continuous
Type of Exposure	Irregular, intermittent	1-2	4-6	-
	Regular, periodic	2-3	5-7	8

B. Number of Exposed Personnel Points Assessed

Number of Exposed Personnel	Points
<5	1-2
5 to 9	3-4
to 49	5-6
>49	7-8

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DERIVING RISK ASSESSMENT CODES (RACs) FOR HEALTH HAZARDS (Ref: DOD Instruction 6055.1)

STEP 1. Using the following procedures to assess points, determine the health hazard severity category (HHSC). The HHSC reflects the magnitude of exposure to a physical, chemical, or biological agent and the medical effects of exposure.

A. Exposure Points Assessed

		Exposure Conditions			
		<CT	Occasionally - >CT Always - <STD	>CT =STD	>STD
AER	NO	0	3	5	7
POSSIBLE?	YES	1-2	4	6	8

AER = Alternate exposure route, such as skin absorption, ingestion
CT = DoD component threshold that triggers surveillance actions, such as microWatts/cm^2, dB, parts per million
STD = DoD exposure limit, such as Threshold Limit Value and Permissible Exposure Limit

B. Medical Effects Points Assessed

Condition	Points
No medical effect, such as nuisance noise and nuisance odor	0
Temporary reversible illness requiring supportive treatment, such as eye irritation and sore throat	1-2
Temporary reversible illness with a variable but limited period of disability such as metal fume fever	3-4
Permanent, nonsevere illness or loss of capacity, such as permanent hearing loss	5-6
Permanent, severe, disabling, irreversible illness or death, such as asbestosis and lung cancer	7-8

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C. Determine the MPC for health hazards by totaling the points assessed and using the following guide:

Total Points (sum of A and B, above)	MPC
14-16	A
10-13	B
5-9	C
<5	D

STEP 3. Determine the RAC for health hazards by using the following matrix to measure health hazard severity and mishap probability factors.

		MISHAP PROBABILITY			
		A	B	C	D
HAZARD SEVERITY	I	1	1	2	3
	II	1	2	3	4
	III	2	3	4	5
	IV	3	4	5	5

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APPENDIX C

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1990

FIGURE 1-2

INDOOR FIRING RANGE INSPECTION CHECKLIST

See paragraphs 1-23 through 1-25 of this regulation for inspection requirements. For the range to be considered safe each of the following statements shall be true and air-sampling results shall be below the standard for Lead. The information in parentheses after each statement denotes the location of the requirement in this or other regulations.

Location of the Range Sweetwater Armory Date 6 Dec 00

Range Custodian [redacted]

Non-Responsive

Part 1, Physical Safety Inspection

A. Building Envelope

No 1. Each firing lane is at least 4 feet wide. [1-17a(1)(a)]

See diagram

ok 2. Pipes, conduits, and other projecting surfaces are baffled or covered by a material that shall protect these items and prevent ricochets. [1-17a(1)(b)]

Heater is forward of firing line

✓ 3. No windows or doors are located in front of the firing line. (Except access door to the back of the bullet trap) [1-17a(1)(d)]

No 4. There are no open floor drains in the range. [1-17a(2)(c)]

are open floor drains

✓ 5. There is no carpet, drapes or other fiber-like material in the range. [1-17a(2)(d)]

✓ 6. Pipes, conduits and walls are sealed to prevent leakage of Lead dust from the range into other areas. [1-17a(2)(b)]

No 7. The interior surfaces or the range floor, walls, and ceiling have no protruding edges or devices. [DG 415-1, App A, 3-1d]

ceiling sagging, tiles falling out. water leakage into range

No 8. The roof provides ballistic security. [DG 415-1, App. A, 3-1e(1)]

ceiling tiles sagging

✓ 9. The walls provide ballistic security. (DG 415-1, App. A, 3-1f(1))

ok 10. Interior mortar joints are flush with the interior surface. (DG 415-1, App. A, 3-1f(2))

acoustic tiling not flush w/ cement wall

✓ 11. The plenum wall is adequately supported and thick enough to avoid flexing. (DG 415-1, App. A, 3-1f(4))

No 12. The entrance door to the range is weather-stripped unless the door acts as passive make-up air intake. (DG 415-1, App. A, 3-1h)

Two access doors, neither is weather stripped

cardboard boxes, debris stored in plenum

Sweetwater

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Released by National Guard Bureau
Page 2276 of 2531

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B. Range Lighting

No 1. Lighting is uniform, non-glaring and does not cause shadows. [1-17c(1)(a)]
shadows prior to baffles

See diagram 2. Illumination is at least 100 foot candles on the targets and 30 foot candles in all other areas. [1-17c(1)(b)]

✓ 3. All lighting is protected by baffles and placed so that the shooter has an unobstructed view down range. [1-17c(1)(c)]

✓ 4. Downrange lighting begins approximately ~~18~~ 20 feet from the firing line and ends approximately ~~8~~ 13 feet from the target line. [1-17c(1)(d)]

No 5. Emergency lights are provided behind the firing line and are in working condition. [1-17c(1)(e)]

✓ 6. Exit lights are provided and working as required. [1-17c(1)(f)]
Not working when tested

NA 7. Lighting of at least 30 foot-candles is provided behind the bullet trap for maintenance (if applicable). [1-17c(1)(g)]

✓ 8. No known electrical hazards exist in the range. [1-17c(2)(c)]

C. Bullet traps - escalator

✓ 1. A bullet trap is permanently installed in the range. [1-17d(1)(a)]

✓ 2. Bullet traps are of a commercial design, which is in compliance with the requirements of CEHND 1110-1-18, NGB-ARI, NG PAM 385-16, Chapter 4 and this regulation. [1-17d(1)(b)]

✓ 3. The thickness of inclined plate/sand trap type bullet trap shall be adequate to attenuate the maximum caliber of ammunition authorized to be fired on the range. [1-17d(1)(c)] 1/4"

✓ 4. All plate/sand trap type bullet traps are designed to prevent ricochets by directing the projectiles in the same direction they are traveling. [1-17d(1)(d)]

NA 5. Sandpits in plate/sand trap type backstops extend to a point directly below the leading edge of the sloped plate. [1-17d(1)(e)]

NA 6. Forward edges in a louver or venetian blind type bullet trap are maintained in a knife edge condition to prevent ricochets. [1-17d(1)(f)]

✓ 7. Steel bullet traps are not bowed, punctured or severely pitted. [1-17d(2)(a)]

No 8. Plates in the bullet trap are flush with the other plates. Mold seams are ground smooth. [1-17d(2)(b)] some out of alignment

D. Targets and target carriers

No 1. A target retrieval system is operable in all lanes. [1-17e(1)(a)]
(Any one firing lane without a retrieval system shall not be used for firing)
Lane 2 No ret. eval

✓ 2. The target retrieval system is constructed in such a manner as to minimize flat surfaces exposed to the firing line. [1-17e(1)(a)]

No 3. Only paper targets are used in the range. [1-17e(1)(b)]
Cardboard (?)

Sweetwater 2 of 6

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2277 of 2531

Military at most 1/year
Police Dpt. 5-6/year

E. Range use

✓ 1. The range is not used for any purpose other than firing. [1-16a]

No 2. No equipment or furniture is stored or maintained in the range, plenum area or behind the bullet trap. [1-17d] boxes, storage lockers for keys & hearing protection in plenum

✓ 3. No additional clothing or equipment is brought into the range. [1-19h] wrestler's change clothes

No 4. Personnel are *not* permitted in the plenum area during firing even if designed for observation. [1-19a] access range through plenum

____ 5. Individuals other than maintenance and inspection personnel are not allowed to walk downrange. (Except in regularly cleaned area as needed to pick up brass) [1-19f] only sweep casings

No 6. All areas directly in front of the plenum walls are kept clear at all times. [1-19c] storage in plenum

✓ 7. Pellets, BBs, magnum and armor piercing rounds are not used in the range. [1-19g] 40 cal .22 9 mm

NA 8. The ventilation system is in operation at all times during firing or cleaning. [1-18c]

No 9. A hand-held ABC-type fire extinguisher is located in a recessed cabinet near the entrance door, inside of the firing range. [DG 415-1, App. A, 4-5] in plenum B.C only

F. Range maintenance

____ 1. Dry sweeping does not occur in the range. [1-19e] push broom or dry broom for casings

____ 2. No brooms are located in the range. [1-19e]

____ 3. A range custodian is appointed for the range who is fully trained and aware of his/her responsibilities. [1-13c]

G. Personnel protective equipment

✓ 1. All personnel in the range during firing wear ANSI approved eye protection. [1-20a]

✓ 2. All personnel in the range during firing wear ANSI approved hearing protection. [1-20b]

H. Posting of signs

____ 1. The following signs are posted in or in the vicinity of the range: [1-21a]

- ✓ a. Eating, Drinking and Smoking are *Prohibited*
- ____ b. Dry Sweeping is *Prohibited*
- ____ c. Wash Hands and Face Immediately Following Firing Hands only
- ✓ d. The Following Ammunition is authorized for use on this Range: ____
- ✓ e. Hearing Protection *shall be* Properly worn during firing Hearing protection Req
- ✓ f. Proper Safety Glasses/Goggles *shall be* worn during firing Eye protection Req
- ____ g. No Furniture or Storage of Items Permitted in the Range

____ 2. The following signs are posted on the entrance door to the range: [1-21b]

- ✓ a. Noise Hazardous Area
- ____ b. Danger Lead Hazard Area Not on door leading outside
- ____ c. Pregnant women are *not* permitted in this Area

No 3. An illuminated warning sign, which is interlocked with the range ventilation switch, is located outside of the firing range to alert individuals that the range is in use. [1-21c]

No 4. Each firing lane is numbered at the firing line and at the bullet trap visible to all shooters. [1-21c] Neither

NA 5. A warning sign is posted outside of the access door to the bullet trap, which warns personnel not to enter. [1-21e]

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May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2278 of 2531

I. Range SOP Sat Sensitive – Contractor SOP

_____ 1. The indoor firing range has a written SOP, which is approved by the State Safety and Occupational Health Office. [1-10e]

_____ 2. The range SOP includes as a minimum the following: [1-22b]

_____ a. The requirement for establishment and maintenance of a log of visitors for the indoor firing range.

_____ b. The requirement for and contents of a mandatory safety briefing for all individuals prior to entering the range to be given by a designated competent range safety officer.

_____ c. Work practices including required, recommended, permissible and banned practices as specified by this regulation.

_____ d. Instructive guidance for all range procedures.

_____ e. Personnel responsibilities for performing the procedures, for supervising them, and reviewing and updating the SOP.

_____ f. Authorized ammunition for the range.

_____ g. The requirement for posting of signs IAW section 1-21 of this regulation.

_____ h. Cleaning and maintenance requirements.

_____ i. Personal protective equipment requirements for maintenance, firing and cleaning.

J. Recordkeeping NA

_____ 1. A visitors log is maintained which includes the following information for all visitors/shooters: [1-14c]

_____ a. Name and age of shooter.

_____ b. Organization (if civilian, include address and phone number).

_____ c. Sign in and sign out times.

_____ d. Type of ammunition used and number of rounds fired.

_____ 2. Copies of initial and other previous inspections are available. [1-24a] Unknown

_____ 3. The initial inspection report includes air-sampling data. [1-24b]

_____ 4. An OSHA compliance program is in place, which covers the required aspects. [1-30a]

_____ 5. All individuals using the indoor firing range have been provided with a copy of the range SOP or been briefed on the requirements of the SOP, and have signed an agreement to follow the rules stated therein. [1-13h]

_____ 6. State maintenance officers/custodians have documentation to show that they have been educated to the health effects from exposure to Lead dust. [29 CFR 1910.1200 and 29 CFR 1910.1025]

_____ 7. Range safety officer(s) is/are designated. [1-13c]

K. New and Renovated Ranges

_____ 1. No doors are installed in the plenum wall.

_____ 2. Plenum area is at least 4 feet deep.

_____ 3. An access door is installed behind the bullet trap.

_____ 4. Only escalator or rubber bullet traps are installed.

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2279 of 2531

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INDOOR FIRING RANGE INSPECTION CHECKLIST

Part 2, Ventilation Inspection

A. Existing Ranges

✓ 1. The range has an operational mechanical ventilation system. [1-17b(1)(a)]

OK 2. The minimum ventilation rate at the firing line in each firing lane is 50 fpm at all levels. [1-17b(1)(b)] See diagram

✓ 3. 100% of air is exhausted at or behind the bullet trap. [1-17b(1)(c)]

✓ 4. Make-up air is introduced into the range behind the shooters. [1-17b(1)(d)]

No 5. Air that is introduced through vents into the plenum does not exceed a velocity of 600 fpm. [1-17b(1)(e)]
800-1600

NO 6. Air exiting through holes in the plenum wall has a velocity between 400 and 600 fpm. [1-17b(1)(f)]
250-350 450-550 (bottom)

✓ 7. The ventilation system is so constructed that air exhausted from the indoor firing range does not enter into another part of the building or any other air supply system. [1-17b(1)(g)]

✓ 8. The exhaust exceeds the make-up air by approximately 10% to form a negative air pressure in the range in relation to adjoining areas. [1-17b(1)(h)]

NA 9. If air is recirculated in the range, it is installed with a HEPA filter with a reliable back-up filter. [29 CFR 1910.1025(e)(4)(ii)]

NA 10. If air is recirculated in the range, controls to monitor the concentration of Lead and Carbon Monoxide levels are installed and programmed to bypass the recirculation system automatically if the filter system fails.
[29 CFR 1910.1025(e)(4)(ii)]

✓ 11. The fan(s) in the ventilation system is a single speed fan only. [DG 415-1, App. A, 3-2a]

No 12. A smoke test of the range shows laminar air flow and no turbulence in the range. (See NG PAM 385-16, Appendix E for troubleshooting guidance) [1-18b(1)(k)]
See diagram

✓ 13. In non-powered systems, the supply air louvers and exhaust fan are electrically interlocked. [1-17b(1)(l)]

NA 14. In power systems, the supply and exhaust fans are electrically interlocked. The make-up air fan should start slightly after the exhaust fan. [1-17b(1)(m)]

✓ 15. Range air temperature is between 65 degrees and 80 degrees Fahrenheit. [1-17b(1)(n)]
Heaters forward of firing line

B. New and Renovated Ranges

____ 1. A manometer is installed leading into the exhaust fan, which is capable of measuring at least 20 inches of static pressure.

____ 2. Supply and exhaust fans are electrically interlocked with the downrange lighting.

____ 3. The face velocity on supplied make-up and exhaust ducts does not exceed 2000 cfm per square foot of duct space.

____ 4. Passive supply systems have opposing blade louvers.

____ 5. Turning vanes are installed in all duct elbows, which have between 60° and 90° angles.

Sweetwater
SSA 6

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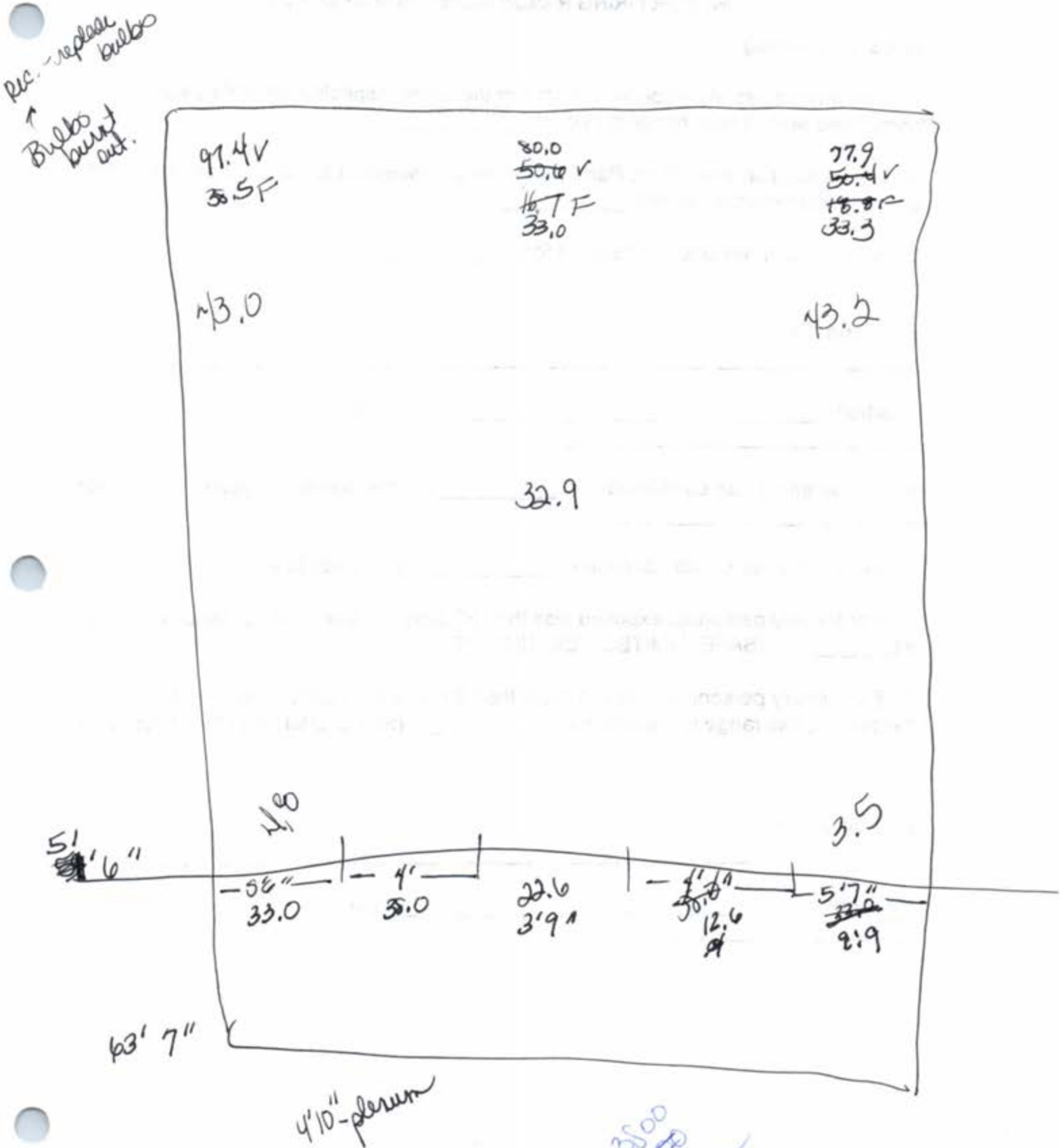
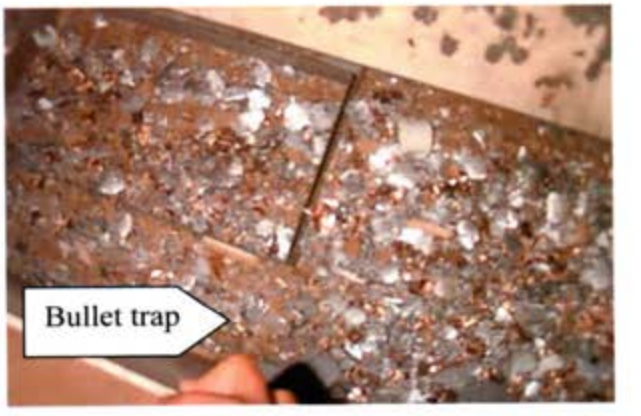
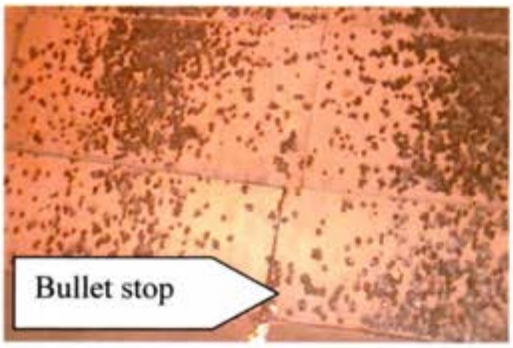
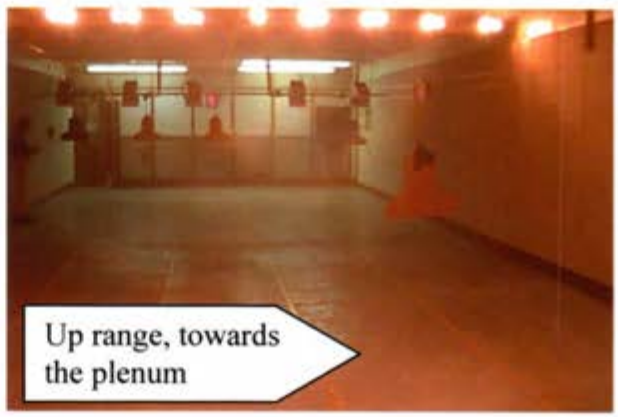
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2280 of 2531


Rec. - replace bulbs
Bulbs burnt out.
97.4 V
38.5 F
80.0
~~50.6~~ V
~~16.7~~ F
33.0
77.9
~~50.4~~ V
~~18.8~~ F
33.3
43.0
43.2
32.9
4.80
3.5
5' 6"
5'6"
33.0
4'
35.0
22.6
3'9"
~~4'0"~~
12.6
5'7"
~~33.0~~
2'9
63' 7"
4'10" - plenum
Need 13800 fpm

Sweetwater Indoor Firing Range




Bullet stop


Up range, towards
the plenum

Inside the
plenum

CAUTION
NO
SMOKING
Signs
posted on
entrance

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APPENDIX D

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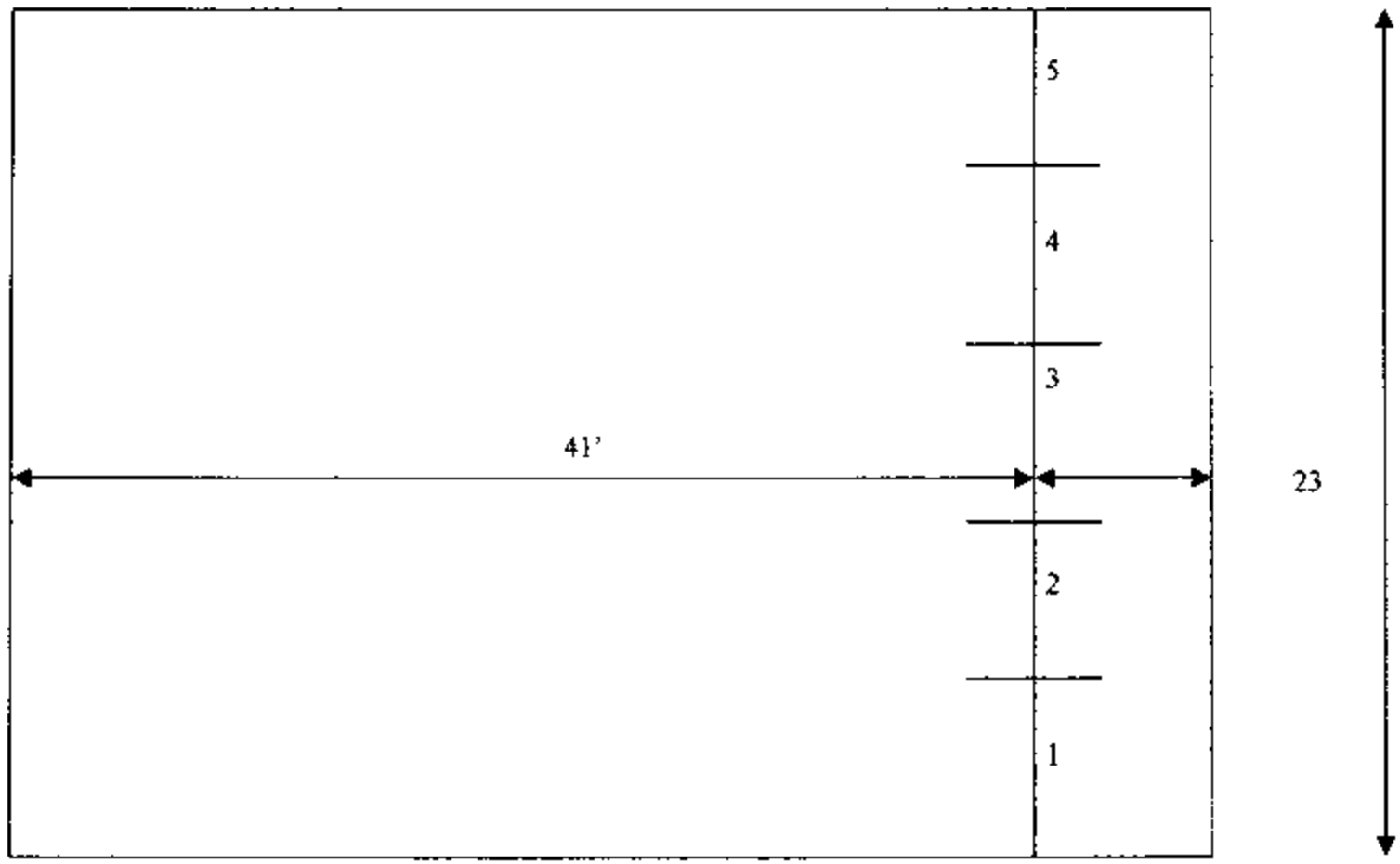

Figure D-1: Firing Range Dimensions and Lane Configuration

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2285 of 2531
Posted to NGB FOIA Reading Room
May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2286 of 2531

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Table D-1
Ventilation Measurements
Indoor Firing Range Lanes

Lane 1			Average FPM	Lane 2			Average FPM	Lane 3			Average FPM	Lane 4			Average FPM	Lane 5			Average FPM
81	107	130	106	50	71	80	67	58	79	75	71	23	14	9	15	35	21	144	67
110	85	162	119	69	101	76	82	88	107	91	95	26	22	23	24	7	72	165	81
196	128	153	159	200	254	219	224	206	224	216	215	179	206	204	196	192	112	140	148
128 FPM				124 FPM				127 FPM				78 FPM				99 FPM			

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APPENDIX E

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Page 2288 of 2531

Table E-1
Personal and Area Air Sampling Results for Lead and Total Dust
Sweetwater Indoor Firing Range
Sweetwater, TN
06 DEC 2000

Sample # Type	Contaminant	Sampling Time in Minutes	Result mg/m^3	OSHA PEL-TWA	NIOSH REL-TWA	ACGIH TLV-TWA	ANG OEL
SW1	Lead in Air	166	<0.003	0.05	0.09	0.05	0.03
Area	Total Dust		<0.3	15	15	15	15
SW2	Lead in Air	166	0.0036	0.05	0.09	0.05	0.03
Area	Total Dust		<0.3	15	15	15	15
SW3	Lead in Air	32	<0.016	0.05	0.09	0.05	0.03
Personal	Total Dust		2.5	15	15	15	15
SW4	Lead in Air	31	0.019	0.05	0.09	0.05	0.03
Personal	Total Dust		<1.6	15	15	15	15
SW5	Lead in Air	32	<0.016	0.05	0.09	0.05	0.03
Personal	Total Dust		<1.6	15	15	15	15
SW6	Lead in Air	32	0.027	0.05	0.09	0.05	0.03
Personal	Total Dust		<1.6	15	15	15	15
SWB	Lead in Air	N/A	<1.0 microgram				
Field Blank	Total Dust		<100 microgram				

Notes:
mg/m^3 = Milligrams per cubic meter
OSHA PEL = Occupational Safety and Health Administration Permissible Exposure Limit (1989 PEL Values)
NIOSH REL = National Institute of Occupational Safety and Health Recommended Exposure Level
ACGIH TLV = American Conference of Governmental Industrial Hygienists Threshold Limit Value
ANG-OEL =National Guard Bureau Occupational Exposure Limit
TWA = Time Weighted Average, [C] means a Ceiling Value
STEL = Short Term Exposure Limit
LFC Lowest Feasible Concentration
All Limits are in milligram per meter cube

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REPORT DATE DEC 27, 2000
SAMPLES REC'D DEC 19, 2000
REQUEST NUMBER 358464

TO: Non-Responsive [redacted]

MPLE	AIR VOLUME / ANALYSIS REQUESTED	MEDIA TYPE / RESULTS	
	64 Liters	37mm 0.8 Micron Matched Mixed Cellulose Ester Filter	
		micrograms	mg/m3
	LEAD IN AIR	< 1.0	< 0.016
	TOTAL DUST	< 100	< 1.6
	64 Liters	37mm 0.8 Micron Matched Mixed Cellulose Ester Filter	
		micrograms	mg/m3
	LEAD IN AIR	1.7	0.027
	TOTAL DUST	< 100	< 1.6
		37mm 0.8 Micron Matched Mixed Cellulose Ester Filter	
		micrograms	
	LEAD IN AIR (BLANK)	< 1.0	
		SUBTRACTED	
	TOTAL DUST (BLANK)	< 100	
		AVERAGED AND SUBTRACTED.	

NTS:

RESENT, DE MEANS DESORPTION EFFICIENCY

ctfully submitted,

Non-Responsive [redacted]

[redacted] DUSTRIAL HYGIENE ASSOCIATION

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ATLSCO
ww.natlsco.com
)RATORY, K-2
per Drive
Grove, IL 60049-0075
(847) 320-2488
8 320-4331
Free (888) 576-7522

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Sweetwater

REPORT DATE DEC 27, 2000
SAMPLES REC'D DEC 19, 2000
REQUEST NUMBER 358464
PAGE NUMBER 18 OF 21

TO: Non-Responsive

1-SWB

MPLE	AIR VOLUME / ANALYSIS REQUESTED	MEDIA TYPE / RESULTS	
	332 Liters	37mm 0.8 Micron Matched Mixed Cellulose Ester Filter	
		micrograms	mg/m3
	LEAD IN AIR	< 1.0	< 0.003
	TOTAL DUST	< 100	< 0.3
	332 Liters	37mm 0.8 Micron Matched Mixed Cellulose Ester Filter	
		micrograms	mg/m3
	LEAD IN AIR	1.2	0.0036
	TOTAL DUST	< 100	< 0.3
	64 Liters	37mm 0.8 Micron Matched Mixed Cellulose Ester Filter	
		micrograms	mg/m3
	LEAD IN AIR	< 1.0	< 0.016
	TOTAL DUST	160	2.5
	62.4 Liters	37mm 0.8 Micron Matched Mixed Cellulose Ester Filter	
		micrograms	mg/m3
	LEAD IN AIR	1.2	0.019
	TOTAL DUST	< 100	< 1.6

NTS:

ESENT, DE MEANS DESORPTION EFFICIENCY

ctfully submitted,

Non-Responsive

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REPORT DATE DEC 27, 2000
SAMPLES REC'D DEC 19, 2000
REQUEST NUMBER 358459
PAGE NUMBER 20 OF 21

TO: Non-Responsive [redacted]

LD *	ANALYSIS REQUESTED	METHODOLOGY	CAS #
	LEAD IN AIR MMW	OSHA ID-121/OSHA ID-125G ATOMIC ABSORPTION/INDUCTIVELY COUPLED PLASMA	7439-92-1
	TOTAL DUST MMW	NIOSH 0500 WEIGHT GAIN	

ENTS:

ENTRATION CALCULATED USING AIR VOLUMES SUPPLIED BY CLIENT
) IS THE REPORTING LIMIT IN MICROGRAMS

ctfully submitted,

Non-Responsive [redacted]

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APPENDIX F

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INDUSTRIAL HYGIENE
SAMPLING RESULT NOTIFICATION SHEET

DATA REQUIRED BY THE PRIVACY ACT

AUTHORITY: Sections 133, 1071 87, 3012, 5031, and 8012, title 10, United States Code, Executive Order 9397 and AR 40 5.

PRINCIPAL PURPOSE: The Social Security Number of the individual is required to identify, record, and retrieve occupational medical surveillance records.

ROUTINE USE: The primary use of this information is to provide, plan, and coordinate occupational health medical surveillance and care.

DISCLOSURE: In the case of military personnel and Federal employees, the requested information is mandatory because of the need to document all occupational injuries and illnesses in view of future rights and benefits. If the requested information is not furnished comprehensive medical surveillance may not be possible, but AUTHORIZED CARE WILL NOT BE DENIED.

NAME:	SOCIAL SECURITY NO.:	OPERATION:	BLDG:	DIRECTORATE/COLLOCATED ACTV:
Non-Responsive		Weapons Firing	Sweetwater Indoor Firing Range	

Air sampling took place on December 6, 2000 to determine workplace exposure to:

SUBSTANCE	PERMISSIBLE EXPOSURE LIMIT	YOUR RESULTS	EXP CATEGORY (See Below)
1. Lead	0.050 mg/m3 (OSHA)	<0.001 mg/m3	1
2.			
3.			
4.			
5.			
6.			

EXPOSURE CATEGORY

1. Airborne levels are below permissible limits: no work changes necessary.
2. Airborne levels are close to permissible limits: additional sampling necessary; temporary use of respiratory protection during this operation.
3. Airborne levels are above permissible limits and the following actions are indicated (where feasible) to prevent overexposure:
   a. Ventilation system improvements required (general and/or local exhaust).
   b. Engineering controls required.
   c. Employee work practices need improvement.
   d. Improve housekeeping.
   e. Personal protective equipment mandatory until exposure is below permissible limits.

COMMENTS:

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INDUSTRIAL HYGIENE
SAMPLING RESULT NOTIFICATION SHEET

DATA REQUIRED BY THE PRIVACY ACT

AUTHORITY: Sections 133, 1071 87, 3012, 5031, and 8012, title 10, United States Code, Executive Order 9397 and AR 40 5.

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DISCLOSURE: In the case of military personnel and Federal employees, the requested information is mandatory because of the need to document all occupational injuries and illnesses in view of future rights and benefits. If the requested information is not furnished comprehensive medical surveillance may not be possible, but AUTHORIZED CARE WILL NOT BE DENIED.

NAME:	SOCIAL SECURITY NO:	OPERATION:	BLDG:	DIRECTORATE/COLLOCATED ACTV:
[redacted]		Weapons Firing	Sweetwater Indoor Firing Range	

Non-Responsive

Air sa[redacted]mine workplace exposure to:

SUBSTANCE	PERMISSIBLE EXPOSURE LIMIT	YOUR RESULTS	EXP CATEGORY (See Below)
1. Lead	0.050 mg/m3 (OSHA)	0.001 mg/m3	1
2.			
3.			
4.			
5.			
6.			

EXPOSURE CATEGORY

1. Airborne levels are below permissible limits: no work changes necessary.
2. Airborne levels are close to permissible limits: additional sampling necessary; temporary use of respiratory protection during this operation.
3. Airborne levels are above permissible limits and the following actions are indicated (where feasible) to prevent overexposure:
   a. Ventilation system improvements required (general and/or local exhaust).
   b. Engineering controls required.
   c. Employee work practices need improvement.
   d. Improve housekeeping.
   e. Personal protective equipment mandatory until exposure is below permissible limits.

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INDUSTRIAL HYGIENE
SAMPLING RESULT NOTIFICATION SHEET

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DISCLOSURE: In the case of military personnel and Federal employees, the requested information is mandatory because of the need to document all occupational injuries and illnesses in view of future rights and benefits. If the requested information is not furnished comprehensive medical surveillance may not be possible, but AUTHORIZED CARE WILL NOT BE DENIED.

NAME:	OPERATION:	BLDG:	DIRECTORATE/COLLOCATED ACTV:
Non-Responsive	Weapons Firing	Sweetwater	Indoor Firing Range

Air sampling took place on December 6, 2000 to determine workplace exposure to:

SUBSTANCE	PERMISSIBLE EXPOSURE LIMIT	YOUR RESULTS	EXP CATEGORY (See Below)
1. Lead	0.050 mg/m3 (OSHA)	<0.001 mg/m3	1
2.			
3.			
4.			
5.			
6.			

EXPOSURE CATEGORY

1. Airborne levels are below permissible limits: no work changes necessary.
2. Airborne levels are close to permissible limits: additional sampling necessary; temporary use of respiratory protection during this operation.
3. Airborne levels are above permissible limits and the following actions are indicated (where feasible) to prevent overexposure:
   a. Ventilation system improvements required (general and/or local exhaust).
   b. Engineering controls required.
   c. Employee work practices need improvement.
   d. Improve housekeeping.
   e. Personal protective equipment mandatory until exposure is below permissible limits.

COMMENTS:

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INDUSTRIAL HYGIENE
SAMPLING RESULT NOTIFICATION SHEET

DATA REQUIRED BY THE PRIVACY ACT

AUTHORITY: Sections 133, 1071 87, 3012, 5031, and 8012, title 10, United States Code, Executive Order 9397 and AR 40 5.

PRINCIPAL PURPOSE: The Social Security Number of the individual is required to identify, record, and retrieve occupational medical surveillance records.

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DISCLOSURE: In the case of military personnel and Federal employees, the requested information is mandatory because of the need to document all occupational injuries and illnesses in view of future rights and benefits. If the requested information is not furnished comprehensive medical surveillance may not be possible, but AUTHORIZED CARE WILL NOT BE DENIED.

NAME:	SOCIAL SECURITY NO.:	OPERATION:	BLDG:	DIRECTORATE/COLLOCATED ACTV:
Non-Responsive [redacted]		pons Firing	Sweetwa	ter Indoor Firing Range

Air sampling took place on December 6, 2000 to determine workplace exposure to:

SUBSTANCE	PERMISSIBLE EXPOSURE LIMIT	YOUR RESULTS	EXP CATEGORY (See Below)
1. Lead	0.050 mg/m3 (OSHA)	0.002 mg/m3	1
2.			
3.			
4.			
5.			
6.			

EXPOSURE CATEGORY

1. Airborne levels are below permissible limits; no work changes necessary.
2. Airborne levels are close to permissible limits; additional sampling necessary; temporary use of respiratory protection during this operation.
3. Airborne levels are above permissible limits and the following actions are indicated (where feasible) to prevent overexposure:
   a. Ventilation system improvements required (general and/or local exhaust).
   b. Engineering controls required.
   c. Employee work practices need improvement.
   d. Improve housekeeping.
   e. Personal protective equipment mandatory until exposure is below permissible limits.

COMMENTS:

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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-ARS-IHSE (40-5f)

July 28, 2008

MEMORANDUM FOR: Adjutant General TN ARNG, ATTN.: Non-Responsive OHN, State Occupational Health Office, P. O. BOX 410502, Nashville, TN 37204

THRU: Non-Responsive Deputy State Surgeon, Tennessee National Guard, HQS, TNARNG STARC, Attn: AGTN-DCSPER-DSS, P.O. Box 41502, Houston Barracks, Nashville, Tennessee 37204-1501

SUBJECT: IAQ Report and IH Baseline report of the visit to TN ARNG Tullahoma Armory, Tullahoma, TN.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, 22 July 2005, Medical Service, Preventive Medicine.

c. National Guard Regulation (NGR) 385-10, 29 February 2000, Army National Guard Safety and Occupational Health Program.

d. AR 11-34, The Army Respiratory Protection Program, 15 February 1990.

e. TB MED 502, Occupational and Environmental Health Respiratory Protection Program, February 1982.

f. DA PAM 40-501, 30 October 2000, The Army Industrial Hygiene Program. (Updates TB MED 503, 1 February 1985, The Army Industrial Hygiene Program).

g. DA PAM 40-501, 27 August 1991, Hearing Conservation (Updates TB MED 501, 15 March 1980, Hearing Conservation).

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2001, American Conference of Governmental Industrial Hygienists(ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 25th Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

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SUBJECT: IAQ Report and IH Baseline report of the visit to TN ARNG Tullahoma Armory, Tullahoma, TN.

k. Title 29, Code of Federal Regulations (CFR), 2001 rev., part 1910, Occupational Safety and Health Standards..

l. Report dated July 25, 2008, Indor Air Quality Survey, Non-Responsive [redacted] ar Industrial Hygiene Consulting.

2. General:

a. At the request of the TN ARNG Occupational Health Office, an Industrial Hygiene Visit was conducted June 15-16, 2007 to the TN ARNG Tullahoma Armory, Tullahoma. The purpose of this memorandum is to forward the IAQ report of the visit.

b. The survey was conducted by Non-Responsive [redacted] Tamar Industrial Hygiene Consulting, Naperville, IL.

3. Findings. All field survey forms and survey findings of the report are enclosed. (See ENCL. 1)

4. Recommendations.

a. Follow all recommendations made in reference 1. l., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Give higer priority to those recommendations identified in page 2 of the enclosed report.

c. Include a follow up visit in the Industrial Hygiene Implementation Plan (IHIP) for FY09.

d. Request your State Maintenance Office (SMO) make the Facility Maintenance Office (FMO) aware of the limitations of the heating and air conditioning ventilation systems its components and the need for scheduled maintenance. Giving special attention to minor repairs to prevent the present situation as documented by the report's photos.

5. Non-Responsive [redacted]

CF: NGB-ARS-IHSE
Safety and Occupational Health Manager, Tennessee State Safety and Occupational Health Manager, 3041 Sidco Drive, Nashville, TN 37204-1504

ENCL.
as

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Industrial Hygiene Baseline Survey
And Indoor Air Quality Report
For
Tennessee Army National Guard
(TNARNG)

At
Tullahoma Armory
1202 East Carroll Street
Tullahoma, TN 37388

Prepared by:
Department of the Army and the Air Force
National Guard Bureau
Regional Industrial Hygiene Office
Region South
Airport Plaza Suite 1530
510 Plaza Drive
College Park, GA 30349

July 25, 2008

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Table of Contents

Executive Summary ..... Page 1

Subject ..... Page 2

Background ..... Page 2
- Introduction
- Site Description
- Scope of Work
- Methodology

Findings & Discussion

- Asbestos Area Air Samples ..... Page 4
- Insecticide (Pyrethroid) Area Air Samples ..... Page 4
- Total Volatile Organic Compounds Area Air Samples ..... Page 4
- Viable Microbiological (Mold) Air Samples ..... Page 5
- Non-viable Microbiological (Mold) Air Samples ..... Page 6
- Lead Wipe Samples ..... Page 7
- Noise Survey ..... Page 8
- Illumination Survey ..... Page 9
- Heating Ventilating and Air Conditioning (HVAC) ..... Page 9
- Recommendations ..... Page 10

Appendices

A. Microbiological Terminology and Description.
B. Laboratory Analytical Results and Chain of Custody.
C. Microbiological Laboratory Sample Results.
D. Copy of Insecticide MSDS.
E. Floor Layout.
F. Photographs.

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I. EXECUTIVE SUMMARY

An initial baseline industrial hygiene survey was conducted at the Tullahoma Armory during the week of 14 April 2008 as part of the Tennessee Army National Guard Occupational Health Program to identify potential health hazards in the workplace. The survey consisted of collecting lead wipe samples and asbestos samples, conducting an illumination survey, a noise survey, and an evaluation of the Heating Ventilation and Air Conditioning System (HVAC) as it relates to indoor air quality. In addition to the base line sampling, area air samples for insecticides and total organic compounds were collected from select parts of the armory. Furthermore, viable and non-viable microbiological air samples were collected as part of the indoor air quality survey which was conducted during the week of 11 June 2008. This survey was requested by the Tennessee Army National Guard in response to employee concerns about allergies and rashes and the quality of the indoor air in general within the Armory.

Topic	Summary of Findings	Recommendations
Armory Lead Wipe Samples	<5 to 1600 microgram per square foot.	Clean and decontaminate areas per NGB guidelines.
Asbestos Air Samples	<0.003 fibers per cubic centimeter	No action.
Total Organic Compounds Air Samples	3.4 part per million (ppm) in Room 102 < 1 part per million in all other occupied areas.	Ventilation
Insecticides Air Sample	<0.15 microgram per cubic meter of air	No action.
Viable Microbiological Air Samples.	35 to 931 colony forming units per cubic meter of air (CFU/M^3) Indoors. Outdoors 1,578 CFU/M^3	Repair all water leaks and replace or disinfect all water damaged building materials.
Non-viable microbiological Air Samples	134 spores per cubic meter (Spores/M^3) to 1,481 Spores/M^3. The outdoors sample result was 7858 Spores/M^3.	No action.
Noise Survey	No excessive noise source was identified.	No action.
Illumination Survey	1 to 150 footcandles	No action.
HVAC/IAQ	Armory does not have a ventilation system to continuously ventilate office area.	Consider Installing a ventilation system.

Air sampling results did not show any elevated airborne levels of the sampled contaminants which included asbestos, insecticides, volatile organics, and airborne mold. However, lack of ventilation within the armory could result in elevated concentration of contaminants in some areas and contribute to occupants discomfort and symptoms. Providing continuous ventilation would maintain contaminant levels at a minimum and will minimize occupants concerns. Visible water stains were observed in the supply room. Water damaged building materials can contribute to the sources of microbiological contaminants. Given the right conditions these sources can proliferate resulting in an increased level of fungi causing occupants discomfort and allergic reactions by susceptible individuals. In summary, consideration should be given to providing ventilation as per the ASHRAE recommendations, repairing all water leaks immediately and replacing all water damaged building materials.

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FOIA Requested Record #J-15-0085 (TN)
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Page 2301 of 2531

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SUBJECT: Industrial Hygiene Initial Baseline and Indoor air quality Survey for the Tullahoma Armory in Tullahoma, Tennessee on April 16-18 and June 12, 2008

BACKGROUND:

Introduction At the request of Non-Responsive of the National Guard Bureau Region South Industrial Hygiene Office, an initial baseline industrial hygiene survey was performed at the Tullahoma Armory in Tullahoma, Tennessee. Non-Responsive, contract Industrial Hygienists, Tammer Sciences, Inc. conducted the survey during the week of April 14 2008. In addition to the baseline survey, an indoor air quality survey was also conducted in conjunction to the baseline survey. The purpose of this survey was to identify potential health hazards present at the armory and to address employee concerns with regards to allergies and indoor air quality in general. Some of the armory employees have complained of allergy symptoms and skin rashes while working at the armory. An initial meeting was held on 25 March, 2008 to discuss employee concerns and develop a sampling strategy to address the employee's primary concerns with regards to allergies and rashes. Additional sampling for microbiological or mold sampling was conducted on 12 June, 2008.

This survey was conducted in the interest of assisting in preventing employee illness and in meeting legal obligation where applicable. Based on information provided, reasonable effort was made to conduct a comprehensive survey covering the parameters considered. Results and recommendations are based on samples taken and conditions observed during the survey. Changes in operating conditions, materials used, and work practices can alter the quality of air and the outcome of this type of survey.

Site Description The Tullahoma Armory houses the 1175th and 30th troop command in a one story building which consists of an administrative office area, a kitchen, a drill hall, a supply room, a classroom, and storage. The armory was built in the 1940's and has undergone a major renovation during 2003 and 2004. All office areas and the indoor firing range were completely rebuilt. Approximately 13 full time employees work at this armory. A copy of the floor layout and photos are included in Appendix E and F, respectively.

Scope of Work The work included collecting air samples for asbestos, total organic compounds, pesticides, and wipe samples for lead. Microbiological samples for viable and non-viable mold were also collected. Illumination levels throughout the armory were recorded, and an evaluation of the ventilation system as it pertains to indoor air quality was conducted. No excessive noise sources were identified in the armory and noise readings were not collected.

Methodology Lead wipe samples were collected from surfaces in accordance to instructions published by Region South National Guard Bureau, which required the use of unscented baby wipes to wipe one square foot of surface. Samples were then placed in a sealed plastic bag and sent for analysis to DATACHEM laboratories which is an American Industrial Hygiene Association (AIHA) accredited laboratory. Asbestos area air samples were collected from areas in the armory where suspect building materials may have been present. Area air samples for pyrethroid insecticide were also collected using SKC pumps, Model 224-44XR. Area air samples, which were taken at a height of approximately five feet, were collected to

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FOIA Requested Record #J-15-0085 (TN)
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Page 2302 of 2531

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assess the background levels and compare levels to various areas within the armory. Each Pump was calibrated with a pre-calibrated rotameter before and after each sample was taken. 3M brand passive badges were also used to collect area air samples for total volatile hydrocarbons.

NIOSH (National Institute of Occupational Safety and Health) and/or OSHA recommended methods were used for sampling media and flow rates. Samples were capped and sent for analysis to DATACHEM laboratory. All samples were analyzed in accordance with OSHA or NIOSH methods.

Air samples for the viable fungi were obtained using a single stage factory calibrated Andersen Viable Particle Sampler. This instrument is a cascade impactor, which, in conjunction with a vacuum pump, permits the retention of bio aerosol viable particles on a collection medium. Collection plates were obtained from Federal Occupational Health (FOH) microbiology laboratory, and consisted of a Petri dish filled with agar malt extract for fungi. Prior to taking each sample, the single stage was thoroughly wiped with 70% isopropanol, and then air dried. The collection plate was then placed into the stage, which was subsequently capped and connected to the vacuum pump. Each sample was collected over a three minute period at a flow rate of 28.3 liters per minute (l/min). After sampling, each petri dish was removed, capped, and taped.

Non-viable samples were obtained by drawing a sample of air through a Zefon cassette that is designed to trap any particles on the media. Each sample was collected over a ten minute period. Each cassette was then capped and placed in a sampling bag. All samples were express mailed (next day delivery) on the same day of the survey to the FOH microbiology laboratory for analysis. Identification of fungi was based on colony morphology, spore shape and size, and spore formation.

Illumination readings were collected using an Extec light meter Serial 38363. Illumination readings were taken on work surfaces such as desks or approximately four feet from the floor.

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FOIA Requested Record #J-15-0085 (TN)
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Page 2303 of 2531

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FINDINGS and DISCUSSION:

The Point of Contact during the survey was Non-Responsive [redacted]

Asbestos Area Air Samples: Two area air samples were collected from the room 102, the 1175th family readiness office and from the supply room 106. Room 102 has been completely renovated and did not contain any suspect asbestos building material while room 106 or the supply room has not been renovated. Sampling results showed no detectable fibers on both filter media.

Sample Number	Sample Location	Fibers per cubic centimeter (f/cc)
TAASB01	Room 102	<0.004
TAASB02	Room 106, Supply	<0.004
TAASBlank	Field Blank	N/A

These results indicate no elevated levels of fibers in the supply room. The Occupational Safety and Health Administration (OSHA) Permissible Exposure Level (PEL) for asbestos is 0.1 fiber per cubic centimeter (f/cc) as an eight (8)-hour time-weighted average (TWA). The laboratory analysis report and chin of custody are included in Appendix B.

Insecticide (Pyrethroid) Area Air Samples: Three area air samples were collected form select representative office areas within the Armory. Information on the insecticide was obtained form the pest control contractor. The Material Safety Data Sheet is included in Appendix D. The insecticide used if a pyrethroid type which is a naturally occurring mixture of chemicals found in certain chrysanthemum flowers. Locations were selected to represent populated areas.

Sample Number	Sample Location	Parts per million (ug/m3)
PYR001	Room 113 Administrative area	0.15
PYR002	Room 115 Orderly Office	0.13
PYR003	Room 109 Troop Command	0.15
TAAS Blank	Field Blank	N/A

All results were less than the analytical method detection limit of 0.05 microgram per sample. There is no established occupational exposure limit established for pyrethrins. The product Material Safety Data Sheet (MSDS) recommends an occupational exposure limit of 40 ug/m^3 as an 8-hour Time Weighted Average (TWA). These results indicate no residue of airborne pyrethroid in the sampled areas within the armory. The laboratory analysis report and chain of custody are included in Appendix B.

Total Volatile Organic Compounds Area Air Samples: Ten representative areas were selected to monitor for volatile organic compounds (VOC) to include all occupied offices. VOCs are emitted as gases from certain solids or liquids which include a variety of chemicals

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FOIA Requested Record #J-15-0085 (TN)
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Page 2304 of 2531

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such as paints, cleaning solvents, insecticides, office equipment such as copiers and printers, correction fluids and carbonless copy paper, graphics and craft materials including glues and adhesives, permanent markers, and photographic solutions. According to The US Environmental Protection Agency (EPA) concentrations of many VOCs are consistently higher indoors (up to ten times higher) than outdoors. Currently there is no standard exposure limit for VOC.

The Table below lists all results and total sampling time. The laboratory analysis report and chin of custody are included in Appendix B.

Sample Number	Sample Location	Total Sampling Time (Minutes)	Parts per million (ppm)
2044	Room 102	369	3.4
2045	Recruiting Room 100	423	<0.21
2047	Supply Room 106	414	<0.21
2052	Administrative Area Room 113	367	0.31
2076	Supply Room 107	395	0.34
2162	Troop Command Room 109	362	0.25
2185	Administrative Room 105	292	<0.3
2212	Classroom 108	366	0.87
2214	Orderly Room 115	409	<0.22
2223	Drill Hall	371	0.38

Sampling results showed VOC levels were less than 1 part per million in all areas except Room 102 the 1175th Family Readiness. The VOC level in Room 102 was 3.4 ppm which is higher than the remainder of the Armory but well below any level of concern. One explanation for this level is the open boxes found in the room and the lack of ventilation. Refer to photos. Any products containing volatile organics such as fragrances, cleaners, disinfectants etc will contribute to he levels of organics in the air. Also the lack of ventilation will contribute to concentrated levels. That explains the difference in concentration between room 102 and the rest of the sampled areas.

The American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) document Standard 62 Ventilation for Acceptable Indoor Air Quality, recommends a minimum of 20 cubic feet per minute (CFM) outside makeup air per person to be delivered to the occupied space at all times during normal occupancy. This ventilation requirement establishes a standard for acceptable office environment ventilation. The purpose of this standard is to provide continuous ventilation or air movements throughout the occupied space in order to maintain the typical contaminants found in the indoor office environment to minimum. The armory does not have a forced ventilation system.

Viable Microbiological (Mold) Air Samples: Microbiological air sampling results for viable fungi indoors ranged from 35 to 931 colony forming units per cubic meter of air (CFU/M^3). The outdoor sample result was 1,578 CFU/M^3. Refer to the table below for a listing of results and Appendix C for a complete listing of laboratory results.

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FOIA Requested Record #J-15-0085 (TN)
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Page 2305 of 2531

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At the present time, there are no Occupational Safety and Health Administration (OSHA) standards or widely accepted recommended guideline levels for acceptable indoor levels of microbiological organisms. Selective comparison analysis has been used in microbiological surveys to assess microbial contamination. Such analysis compares results from suspect contaminated areas to the results obtained outdoors or in a non-suspect, complaint-free area, provided no opportunistic or toxigenic fungi are identified.

Sample Number	Sampling Location/Area	Total Viable Fungi (CFU/M^3)	Major Species Identified
001	Room 103, Orderly Room, 1175th Readiness NCO, Training NCO 1175th (rear) unit NCO	931	*Cladosporium*
002	Room 105, 30th Troop Command S1	35	*Cladosporium*
003	Room 113, 30th Troop Command S3	153	*Cladosporium*
004	Outside , non-complaint area	141	*Epicoccum*
005	Room 109, 30th Troop Command S4	294	*Cladosporium*
006	Room 103	506	*Cladosporium*
007	Room 105	35	*Cladosporium*
008	Room 113	718	*Cladosporium*
009	Outside, non complaint	1578	*Cladosporium*
010	Room 109	106	*Cladosporium*

The results of this survey showed that the viable fungal levels indoors were less than outdoors and the levels in Room 103 is higher than all other areas within the Armory. Furthermore, the majority of species identified in all samples including the outdoors consisted of *cladosporium*. These results indicate no growth source or sources are contributing to the levels indoors. However, the lack of ventilation in offices is contributing to the higher levels in some offices such as 103 and 113 when compared to other areas. Furthermore, visible water damage was observed in the supply room. This water damage must be repaired as soon as possible. Water leaks must be repaired immediately and water damaged building material must be replaced and/or cleaned and disinfected as soon as possible to prevent sources of mold and mildew. Given the right conditions these sources can proliferate resulting in an increased level of fungi causing occupants discomfort and allergic reactions by susceptible individuals.

Non-viable Microbiological (Mold) Air Samples: Air samples for non-viable spores indoors ranged from 134 spores per cubic meter ($Spores/M^3$) to 1,481 $Spores/M^3$. The outdoors sample result was 7858 $Spores/M^3$.

Similar to the viable fungi results, non-viable fungal levels indoors were also lower than outdoors and the major species identified in the indoor and outdoor samples were similar and consisted of the *Cladosporium* type. These results indicate no fungal growth source within the areas sampled. However, the levels in Room 103 were higher than the remainder of the indoor samples. This again is contributed to the lack of ventilation within the occupied offices.

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FOIA Requested Record #J-15-0085 (TN)
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Page 2306 of 2531

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Sample Number	Sampling Location/Area	Total Viable Fungi (CFU/M^3)	Major Species Identified
NV-00A	Room 103	1481	*Cladosporium*
NV-00B	Room 105	134	*Cladosporium*
NV-00C	Room 113	593	*Cladosporium*
NV-00D	Outside, noncompliant	7858	*Cladosporium*
NV-00E	Room 109	674	*Cladosporium*
NV-Blank			

The laboratory analysis report and chin of custody are included in Appendix C.

Lead Wipe Samples: Forty six wipe samples were collected from various areas of the armory as listed in the table below.

Sample Number	Sample Location	Micrograms of lead (ug) per square foot
TA-01	Storage Area, Wall adjacent to converted IFR	<5
TA-02	Storage Area, Wall adjacent to converted IFR	<5
TA-03	Storage Area, Floor adjacent to converted IFR	410
TA-04	Storage Area, Mat on Floor adjacent to converted	23
TA-05	105B 5ft. On Wall	<5
TA-06	105B 2ft on Wall	<5
TA-07	105B Side Wall, 5 ft.	<5
TA-08	105B Floor under Desk	<5
TA-09	105C Back Wall, 2 ft.	<5
TA-10	105C Back Wall, 4 ft.	<5
TA-11	105C Side Wall, 3 ft.	<5
TA-12	105C Floor Under Chair	<5
TA-13	105 Wall, 3Ft	<5
TA-14	105, Wall, 6ft	<5
TA-15	105, Wall, 6ft	<5
TA-16	105, Behind Chair, 2ft	<5
TA-17	105, Top of Desk	<5
TA-18	105, Top of Mail Slots	8.0
TA-19	105, Under Typewriter	<5
TA-20	Conference Room, Wall, 2ft	<5
TA-21	Conference Room Wall, 6ft	<5
TA-22	Conference Room, Wall 2ft, Left of Projector	<5
TA-23	Conference Room, Floor middle of back wall	<5
TA-24	Conference Room, Back Wall, 5ft	<5
TA-25	Conference Room, Back Wall Behind Lectern, 1 ft.	<5
TA-26	Conference Room, Mid Wall, 5ft	<5

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FOIA Requested Record #J-15-0085 (TN)
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Page 2307 of 2531

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Sample Number	Sample Location	Micrograms of lead (ug) per square foot
TA-27	Conference Room, Wall under wino, 3ft	<5
TA-28	Conference Room, Floor Behind Door	<5
TA-29	Room 106, Supply Room Top of Locker	51
TA-30	Room 106, Shelf of rack, back corner	78
TA-31	Room 106, Desk	32
TA-32	Room 106, Back Floor	67
TA-33	Room 106, Floor near toolbox and locker	480
TA-34	Room 106, Weapon's Rack, Vault	61
TA-35	Room 106 Floor, Vault	1600
TA-36	Room 106, Shelf, Vault	47
TA-37	Room 106, Weapons Rack, Vault	120
TA-38	Room 106, Safe, Vault	140
TA-39	Room 106, Floor, Vault	600
TA-40	Room 106, Top of Desk, Supply Area	6.5
TA-41	Room 106, Floor, Supply	29
TA-42	Room 106, Top of AC unit, Supply	6.1
TA-43	Room 108, Classroom, Floor	<5
TA-44	Room 108, Table	25
TA-45	Drill Hall Floor	35
TA-46	Drill Hall Floor	13

The US Environmental Protection Agency (EPA), under a new standard issued in 2000, considers lead dust as a hazard if levels are greater than 40 micrograms of lead in dust per square foot on floors: 250 micrograms of lead in dust per square foot on interior window sills and 400 parts per million (ppm) of lead in bare soil in children's play areas or 1200 ppm average for bare soil in the rest of the yard. This standard is a major effort by the EPA to identify dangerous levels of lead in paint, dust and soil in order to protect children from lead poisoning. The National Guard Bureau recommends a limit of 200 micrograms per square foot for surface contamination. Elevated levels (greater than the NGB recommended 200 ug/ft^2) were found in the supply room and storage area. These areas should be cleaned as per NGB guidelines. The source of the lead contamination is most likely form weapons cleaning within supply and the vault. The laboratory report and chain of custody forms are attached in Appendices H.

Noise Survey: Based on observations during the walkthrough baseline survey, no sources of excessive noise were identified and therefore no area noise readings were collected. Noise levels are likely to be well below the Occupational Safety and Health Administration (OSHA) regulated limit of 90 dBA and the Army recommended limit of 85 dBA.

Illumination Survey Lighting levels throughout the Armory ranged between 1 foot-candle to 149 foot-candles. Illumination levels are noted on the floor layout in Appendix A. Illumination ranges for each area are listed in the Table below:

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2308 of 2531

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Sample Location	Foot Candles
Room 102A	46.8
102 1175th Trans Co	83.7
Room 103	80.7
Storage Room	None
Room 105	40.6
105A Chief Birdsong	38.5
105B MSG Blaylock	30.7
105C, Conference Room	55.6
Supply Room 106	18.1
Supply Room 106, 1175th Arms Vault	1.5
130th Supply Room 107	33.8
Classroom Room 108	112
Room 109	93
Room 110	73.1
Women's Bathroom	123.7
Boiler Room	3.8
Non-Responsive [redacted]	68.4
	62.1
	71.4
	148.8
	57.5
	46.1
	98.3
	105.4
115 HHD Orderly Room	113.4
Recruiting	148

The Army Design Guide (DG415-2) minimum illumination level for office areas is of 50 foot-candles and 20 foot-candles for parts storage/supply. The American National Standard Institute (ANSI) recommends a minimum illumination level of 50 to 100 foot-candles for office work, 20 to 50 for general lighting. Luminance depends on various factors including the task to be performed, the age of the individual, and the surroundings. Luminance of 50 to 100 foot-candles is recommended for performance of visual tasks of medium contrast or small size such as reading pencil handwriting and poorly printed or reproduced material. Depending on the type of display, background luminance of 30 to 60 foot-candles is recommended for Video Display Terminal (VDT) or computer monitor work. Task lighting is recommended for office areas when working with VDTs. The task lighting allows the general background levels to be lowered for work on the display monitor while the task lighting concentrates the lights on printed documents on the immediate desk area. Replacing light bulbs with higher wattage will increase lighting levels. Replacing burnt out light bulbs and cleaning the light fixture should improve the lighting levels.

Heating Ventilating and Air Conditioning (HVAC) The Heating Ventilating and Air-Conditioning (HVAC) System for the Armory consisted of circulating hot water system and individual office air conditioners. The American Society of Heating, Refrigerating and Air

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Page 2309 of 2531

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Conditioning Engineers (ASHRAE) document Standard 62 Ventilation for Acceptable Indoor Air Quality, recommends a minimum of 20 cubic feet per minute (CFM) outside makeup air per person to be delivered to the occupied space during normal occupancy.

In summary and based on these sampling results, no levels of concerns were found in all of the air samples collected. The airborne sampling survey for asbestos, volatile organic compounds, insecticides, viable and non-viable microbiological (mold) did not reveal any sources or contamination within the building. Even though the airborne levels are of no concern, consideration should be given to providing ventilation in accordance to ASHRAE recommendations during all times of occupancy.

Recommendations:

1. Consider providing ventilation in accordance to The American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) document Standard 62 Ventilation for Acceptable Indoor Air Quality.

2. All water leaks should be fixed immediately and water damaged building materials should be replaced. Contaminated surfaces should be cleaned with a solution of 10% Clorox in water.

3. Clean and decontaminate the areas in the supply and storage room in accordance to the National Guard Bureau procedures for safe lead cleaning and decontamination.

Technical Assistance: For technical assistance regarding information found in this report or the

Non-Responsive

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Page 2310 of 2531

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Appendix A

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The following is a description of some common fungal species found in indoor environments.

1. *Alternaria*. A common allergen often found in carpets, textiles, and horizontal surfaces in building interiors such as window frames. It has been associated with hypersensitivity pneumonitis and extrinsic asthma
2. *Aspergillus flavus*. An allergenic fungus. Its presence is associated with reports of asthma and can be found in water damage carpets. Some strains are capable of producing mycotoxins in the aflatoxin group. Aflatoxins are known animal carcinogens and are poisonous to humans by ingestions.
3. *Aspergillus niger*. Musty odor. Commonly found in the environment on textiles, in soil, grains, fruits, and vegetable. Reported to cause skin and pulmonary infections. Common cause of fungal related ear infections.
4. *Aspergillus sp.* Reported to cause ear and eye infections and many species produce mycotoxins, which may be associated with disease in humans and other animals. Common cause of extrinsic asthma.
5. *Basidiomycetes*. Fungal spores from mushrooms. Many mushroom spores are reported to be allergenic.
6. *Cladosporium*. A common allergen commonly identified as an outdoor fungus. Commonly found on the surface of fiberglass duct liner in the interior of supply ducts. Found on dead plants, woody plants, food, straw, soil, paint, and textiles. Common cause of extrinsic asthma.
7. *Epicoccum*. A common allergen found implants, soil, grains, textiles, and paper products.
8. *Paecilomyces*. Commonly found in soil and dust. Allergenic with some species reported to cause pneumonia.
9. *Penicillium*. Often found in aerosol samples, this type is commonly found in soil food, cellulose, grains, paint, and compost piles. It may cause hypersensitivity pneumonitis, extrinsic asthma, and is reported to allergenic to the skin. It can be commonly found in carpet, wallpaper, and interior fiberglass duct insulation.

For further readings on issues relating to microbiological contamination and indoor air quality please refer to:

-
-
- http://www.doctorfungus.org/

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FOIA Requested Record #J-15-0085 (TN)
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Page 2312 of 2531

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Appendix B

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DATA CHEM LABORATORIES, INC.

ANALYTICAL REPORT

Report Date JUN 05 2008

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Incomplete

Non-Responsive [redacted]

Client Project ID: **Tammer Sciences 051308**
DCL Workorder: **8134036**
DCL Project Manager: Non-Responsive

Analytical Results

Sample ID: **2044** Media: 3M 3500 ORGANIC POVM Collected: 4/16/2008
Lab ID: 8134036001 Sampling Location: Tullahoma Armory Received: 4/23/2008

Method: NIOSH 1550 Sampling Parameter: Exposure 369 Minutes Analyzed: 5/14/2008

Analyte	mg/sample	mg/m³	ppm	RL (mg/sample)
Total Hydrocarbons	0.14	12	3.4	0.010

Sample ID: **2046** Media: 3M 3500 ORGANIC POVM Collected: 4/17/2008
Lab ID: 8134036002 Sampling Location: Tullahoma Armory Received: 4/23/2008

Method: NIOSH 1550 Sampling Parameter: Exposure 423 Minutes Analyzed: 5/14/2008

Analyte	mg/sample	mg/m³	ppm	RL (mg/sample)
Total Hydrocarbons	<0.010	<0.74	<0.21	0.010

Sample ID: **2047** Media: 3M 3500 ORGANIC POVM Collected: 4/17/2008
Lab ID: 8134036003 Sampling Location: Tullahoma Armory Received: 4/23/2008

Method: NIOSH 1550 Sampling Parameter: Exposure 414 Minutes Analyzed: 5/14/2008

Analyte	mg/sample	mg/m³	ppm	RL (mg/sample)
Total Hydrocarbons	<0.010	<0.76	<0.21	0.010

Sample ID: **2052** Media: 3M 3500 ORGANIC POVM Collected: 4/16/2008
Lab ID: 8134036004 Sampling Location: Tullahoma Armory Received: 4/23/2008

Method: NIOSH 1550 Sampling Parameter: Exposure 367 Minutes Analyzed: 5/14/2008

Analyte	mg/sample	mg/m³	ppm	RL (mg/sample)
Total Hydrocarbons	0.013	1.1	0.31	0.010

Sample ID: **2075** Media: 3M 3500 ORGANIC POVM Collected: 4/17/2008
Lab ID: 8134036005 Sampling Location: Tullahoma Armory Received: 4/23/2008

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Page 2314 of 2531

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DATA CHEM LABORATORIES INC.

ANALYTICAL REPORT

Client Project ID: **Tammer Sciences 051308**
DCL Workorder: [redacted]
DCL Project Manager: Non-Responsive

Analytical Results

Sample ID: **2076** | Media: 3M 3500 ORGANIC POVM | Collected: 4/17/2008
Lab ID: 8134036008 | Sampling Location: Tullahoma Armory | Received: 4/23/2008
Method: NIOSH 1550 | Sampling Parameter: Exposure 395 Minutes | Analyzed: 5/14/2008

Analyte	mg/sample	mg/m³	ppm	RL (mg/sample)
Total Hydrocarbons	**0.016**	**1.2**	**0.34**	0.010

Sample ID: **2162** | Media: 3M 3500 ORGANIC POVM | Collected: 4/16/2008
Lab ID: 8134036006 | Sampling Location: Tullahoma Armory | Received: 4/23/2008
Method: NIOSH 1550 | Sampling Parameter: Exposure 362 Minutes | Analyzed: 5/14/2008

Analyte	mg/sample	mg/m³	ppm	RL (mg/sample)
Total Hydrocarbons	**0.010**	**0.86**	**0.25**	0.010

Sample ID: **2186** | Media: 3M 3500 ORGANIC POVM | Collected: 4/16/2008
Lab ID: 8134036007 | Sampling Location: Tullahoma Armory | Received: 4/23/2008
Method: NIOSH 1550 | Sampling Parameter: Exposure 292 Minutes | Analyzed: 5/14/2008

Analyte	mg/sample	mg/m³	ppm	RL (mg/sample)
Total Hydrocarbons	<0.010	<1.1	<0.30	0.010

Sample ID: **2212** | Media: 3M 3500 ORGANIC POVM | Collected: 4/16/2008
Lab ID: 8134036008 | Sampling Location: Tullahoma Armory | Received: 4/23/2008
Method: NIOSH 1550 | Sampling Parameter: Exposure 366 Minutes | Analyzed: 5/14/2008

Analyte	mg/sample	mg/m³	ppm	RL (mg/sample)
Total Hydrocarbons	**0.036**	**3.1**	**0.87**	0.010

Sample ID: **2214** | Media: 3M 3500 ORGANIC POVM | Collected: 4/17/2008
Lab ID: 8134036009 | Sampling Location: Tullahoma Armory | Received: 4/23/2008
Method: NIOSH 1550 | Sampling Parameter: Exposure 409 Minutes | Analyzed: 5/14/2008

Analyte	mg/sample	mg/m³	ppm	RL (mg/sample)
Total Hydrocarbons	<0.010	<0.76	<0.22	0.010

Sample ID: **2223** | Media: 3M 3500 ORGANIC POVM | Collected: 4/16/2008
Lab ID: 8134036010 | Sampling Location: Tullahoma Armory | Received: 4/23/2008

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Page 2315 of 2531

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DATA CHEM LABORATORIES, INC.

ANALYTICAL REPORT

Client Project ID: **Tammer Sciences 051308**
DCL Workorder: [redacted]
DCL Project Manager: Non-Responsive

Analytical Results

Sample ID: **2223** | Media: 3M 3500 ORGANIC FOVM | Collected: 4/16/2008
Lab ID: 8134036010 | Sampling Location: Tullahoma Armory | Received: 4/23/2008

Method: NIOSH 1550 | Sampling Parameter: Exposure 371 Minutes | Analyzed: 5/14/2008

Analyte	mg/sample	mg/m³	ppm	RL (mg/sample)
Total Hydrocarbons	0.016	1.4	0.38	0.010

Sample ID: **TA-01** | Media: Wipe | Collected: 4/16/2008
Lab ID: 8134036011 | Sampling Location: Tullahoma Armory | Received: 4/23/2008

Method: NIOSH 7082 | Prepared: 5/15/2008 | Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	<5.0	5.0

Sample ID: **TA-02** | Media: Wipe | Collected: 4/16/2008
Lab ID: 8134036012 | Sampling Location: Tullahoma Armory | Received: 4/23/2008

Method: NIOSH 7082 | Prepared: 5/15/2008 | Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	<5.0	5.0

Sample ID: **TA-03** | Media: Wipe | Collected: 4/16/2008
Lab ID: 8134036013 | Sampling Location: Tullahoma Armory | Received: 4/23/2008

Method: NIOSH 7082 | Prepared: 5/15/2008 | Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	410	5.0

Sample ID: **TA-04** | Media: Wipe | Collected: 4/16/2008
Lab ID: 8134036014 | Sampling Location: Tullahoma Armory | Received: 4/23/2008

Method: NIOSH 7082 | Prepared: 5/15/2008 | Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	23	5.0

Sample ID: **TA-05** | Media: Wipe | Collected: 4/16/2008
Lab ID: 8134036015 | Sampling Location: Tullahoma Armory | Received: 4/23/2008

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Page 2316 of 2531

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ANALYTICAL REPORT

Client Project ID: Tammer Sciences 051308
DCL Workorder: 8134036
DCL Project Manager: Non-Responsive

Analytical Results

Sample ID: TA-05
Lab ID: 8134036015
Media: Wipe
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008

Method: NIOSH 7082
Prepared: 5/15/2008
Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	<5.0	5.0

Sample ID: TA-06
Lab ID: 8134036016
Media: Wipe
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008

Method: NIOSH 7082
Prepared: 5/15/2008
Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	<5.0	5.0

Sample ID: TA-07
Lab ID: 8134036017
Media: Wipe
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008

Method: NIOSH 7082
Prepared: 5/15/2008
Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	<5.0	5.0

Sample ID: TA-08
Lab ID: 8134036018
Media: Wipe
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008

Method: NIOSH 7082
Prepared: 5/15/2008
Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	<5.0	5.0

Sample ID: TA-09
Lab ID: 8134036019
Media: Wipe
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008

Method: NIOSH 7082
Prepared: 5/15/2008
Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	<5.0	5.0

Sample ID: TA-10
Lab ID: 8134036020
Media: Wipe
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008

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Page 2317 of 2531

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ANALYTICAL REPORT

Client Project ID: **Tammer Sciences 051308**
DCL Workorder: [redacted]
DCL Project Manager: [redacted]

Analytical Results

Sample ID: TA-10 | Media: Wipe | Collected: 4/16/2008
Lab ID: 8134036020 | Sampling Location: Tullahoma Armory | Received: 4/23/2008

Method: NIOSH 7082 | Prepared: 5/15/2008 | Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	<5.0	5.0

Sample ID: TA-11 | Media: Wipe | Collected: 4/16/2008
Lab ID: 8134036021 | Sampling Location: Tullahoma Armory | Received: 4/23/2008

Method: NIOSH 7082 | Prepared: 5/15/2008 | Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	<5.0	5.0

Sample ID: TA-12 | Media: Wipe | Collected: 4/16/2008
Lab ID: 8134036022 | Sampling Location: Tullahoma Armory | Received: 4/23/2008

Method: NIOSH 7082 | Prepared: 5/15/2008 | Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	<5.0	5.0

Sample ID: TA-13 | Media: Wipe | Collected: 4/16/2008
Lab ID: 8134036023 | Sampling Location: Tullahoma Armory | Received: 4/23/2008

Method: NIOSH 7082 | Prepared: 5/15/2008 | Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	<5.0	5.0

Sample ID: TA-14 | Media: Wipe | Collected: 4/16/2008
Lab ID: 8134036024 | Sampling Location: Tullahoma Armory | Received: 4/23/2008

Method: NIOSH 7082 | Prepared: 5/15/2008 | Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	<5.0	5.0

Sample ID: TA-16 | Media: Wipe | Collected: 4/16/2008
Lab ID: 8134036025 | Sampling Location: Tullahoma Armory | Received: 4/23/2008

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Page 2318 of 2531

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DATA CHEM LABORATORIES, INC.

ANALYTICAL REPORT

Client Project ID: **Tammer Sciences 051308**
DCL Workorder: **8134036**
DCL Project Manager: Non-Responsive

Analytical Results

Sample ID: **TA-15** | Media: Wipe | Collected: 4/16/2008
Lab ID: 8134036025 | Sampling Location: Tullahoma Armory | Received: 4/23/2008
Method: NIOSH 7082 | Prepared: 5/15/2008 | Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	<5.0	5.0

Sample ID: **TA-16** | Media: Wipe | Collected: 4/16/2008
Lab ID: 8134036026 | Sampling Location: Tullahoma Armory | Received: 4/23/2008
Method: NIOSH 7082 | Prepared: 5/15/2008 | Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	<5.0	5.0

Sample ID: **TA-17** | Media: Wipe | Collected: 4/16/2008
Lab ID: 8134036027 | Sampling Location: Tullahoma Armory | Received: 4/23/2008
Method: NIOSH 7082 | Prepared: 5/15/2008 | Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	<5.0	5.0

Sample ID: **TA-18** | Media: Wipe | Collected: 4/16/2008
Lab ID: 8134036028 | Sampling Location: Tullahoma Armory | Received: 4/23/2008
Method: NIOSH 7082 | Prepared: 5/15/2008 | Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	8.0	5.0

Sample ID: **TA-19** | Media: Wipe | Collected: 4/16/2008
Lab ID: 8134036029 | Sampling Location: Tullahoma Armory | Received: 4/23/2008
Method: NIOSH 7082 | Prepared: 5/15/2008 | Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	<5.0	5.0

Sample ID: **TA-20** | Media: Wipe | Collected: 4/16/2008
Lab ID: 8134036030 | Sampling Location: Tullahoma Armory | Received: 4/23/2008

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Page 2319 of 2531

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DATA CHEM LABORATORIES, INC.

ANALYTICAL REPORT

Client Project ID: Tammer Sciences 051308
DCL Workorder: 8134036
DCL Project Manager: Non-Responsive [redacted]

Analytical Results

Sample ID: TA-20
Lab ID: 8134036030
Media: Wipe
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008
Method: NIOSH 7082
Prepared: 5/15/2008
Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	<5.0	5.0

Sample ID: TA-21
Lab ID: 8134036031
Media: Wipe
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008
Method: NIOSH 7082
Prepared: 5/15/2008
Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	<5.0	5.0

Sample ID: TA-22
Lab ID: 8134036032
Media: Wipe
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008
Method: NIOSH 7082
Prepared: 5/15/2008
Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	<5.0	5.0

Sample ID: TA-23
Lab ID: 8134036033
Media: Wipe
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008
Method: NIOSH 7082
Prepared: 5/15/2008
Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	<5.0	5.0

Sample ID: TA-24
Lab ID: 8134036034
Media: Wipe
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008
Method: NIOSH 7082
Prepared: 5/15/2008
Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	<5.0	5.0

Sample ID: TA-25
Lab ID: 8134036035
Media: Wipe
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008

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Page 2320 of 2531

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DATA CHEM LABORATORIES, INC.

ANALYTICAL REPORT

Client Project ID: Tammer Sciences 051308
DCL Workorder: 8134036
DCL Project Manager: [redacted]

Analytical Results

Sample ID: TA-25
Lab ID: 8134036035
Media: Wipe
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008
Method: NIOSH 7082
Prepared: 5/15/2008
Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	<5.0	5.0

Sample ID: TA-26
Lab ID: 8134036036
Media: Wipe
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008
Method: NIOSH 7082
Prepared: 5/15/2008
Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	<5.0	5.0

Sample ID: TA-27
Lab ID: 8134036037
Media: Wipe
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008
Method: NIOSH 7082
Prepared: 5/15/2008
Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	<5.0	5.0

Sample ID: TA-28
Lab ID: 8134036038
Media: Wipe
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008
Method: NIOSH 7082
Prepared: 5/15/2008
Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	<5.0	5.0

Sample ID: TA-29
Lab ID: 8134036039
Media: Wipe
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008
Method: NIOSH 7082
Prepared: 5/15/2008
Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	51	5.0

Sample ID: TA-30
Lab ID: 8134036040
Media: Wipe
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008

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Page 2321 of 2531

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DATA CHEM LABORATORIES, INC.

ANALYTICAL REPORT

Client Project ID: **Tammer Sciences 051308**
DCL Workorder: **8134036**
DCL Project Manager: Non-Responsive

Analytical Results

Sample ID: TA-30
Lab ID: 8134036040
Media: Wipe
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008
Method: NIOSH 7082
Prepared: 5/15/2008
Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	78	5.0

Sample ID: TA-31
Lab ID: 8134036041
Media: Wipe
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008
Method: NIOSH 7082
Prepared: 5/15/2008
Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	32	5.0

Sample ID: TA-32
Lab ID: 8134036042
Media: Wipe
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008
Method: NIOSH 7082
Prepared: 5/15/2008
Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	67	5.0

Sample ID: TA-33
Lab ID: 8134036043
Media: Wipe
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008
Method: NIOSH 7082
Prepared: 5/15/2008
Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	480	5.0

Sample ID: TA-34
Lab ID: 8134036044
Media: Wipe
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008
Method: NIOSH 7082
Prepared: 5/15/2008
Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	61	5.0

Sample ID: TA-35
Lab ID: 8134036045
Media: Wipe
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008

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Released by National Guard Bureau
Page 2322 of 2531

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DATA CHEM LABORATORIES, INC.

ANALYTICAL REPORT

Client Project ID: Tammer Sciences 051308
DCL Workorder: 8134038
DCL Project Manager: Non-Responsive [redacted]

Analytical Results

Sample ID: TA-35
Lab ID: 8134036045
Media: Wipe
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008
Method: NIOSH 7082
Prepared: 5/15/2008
Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	1600	25

Sample ID: TA-36
Lab ID: 8134036046
Media: Wipe
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008
Method: NIOSH 7082
Prepared: 5/15/2008
Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	47	5.0

Sample ID: TA-37
Lab ID: 8134036047
Media: Wipe
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008
Method: NIOSH 7082
Prepared: 5/15/2008
Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	120	5.0

Sample ID: TA-38
Lab ID: 8134036048
Media: Wipe
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008
Method: NIOSH 7082
Prepared: 5/15/2008
Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	140	5.0

Sample ID: TA-39
Lab ID: 8134036049
Media: Wipe
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008
Method: NIOSH 7082
Prepared: 5/15/2008
Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	600	10

Sample ID: TA-40
Lab ID: 8134036050
Media: Wipe
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008

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Page 2323 of 2531

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ANALYTICAL REPORT

Client Project ID: **Tammer Sciences 061308**
DCL Workorder: **8134036**
DCL Project Manager: Non-Responsive [redacted]

Analytical Results

Sample ID: **TA-40**
Lab ID: 8134036050
Media: Wipe
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008
Method: NIOSH 7082
Prepared: 5/15/2008
Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	**6.5**	5.0

Sample ID: **TA-41**
Lab ID: 8134036051
Media: Wipe
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008
Method: NIOSH 7082
Prepared: 5/15/2008
Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	**29**	5.0

Sample ID: **TA-42**
Lab ID: 8134036052
Media: Wipe
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008
Method: NIOSH 7082
Prepared: 5/15/2008
Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	**6.1**	5.0

Sample ID: **TA-43**
Lab ID: 8134036053
Media: Wipe
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008
Method: NIOSH 7082
Prepared: 5/15/2008
Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	<5.0	5.0

Sample ID: **TA-44**
Lab ID: 8134036054
Media: Wipe
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008
Method: NIOSH 7082
Prepared: 5/15/2008
Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	**25**	5.0

Sample ID: **TA-45**
Lab ID: 8134036055
Media: Wipe
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008

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Page 2324 of 2531

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ANALYTICAL REPORT

Client Project ID: Tammer Sciences 051308
DCL Workorder: 8134036
DCL Project Manager: Non-Responsive [redacted]

Analytical Results

Sample ID: TA-45
Lab ID: 8134036055
Media: Wipe
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008

Method: NIOSH 7082
Prepared: 5/15/2008
Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	35	5.0

Sample ID: TA-46
Lab ID: 8134036056
Media: Wipe
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008

Method: NIOSH 7082
Prepared: 5/15/2008
Analyzed: 5/16/2008

Analyte	ug/sample	RL (ug/sample)
Lead	13	5.0

Sample ID: TA-ASB-01
Lab ID: 8134036057
Media: SKC 225-312A, MCE, 0.8 µm, PCM analysis
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008

Method: NIOSH 7400
Analyzed: 6/5/2008

Analyte	Fibers/Filter	Fibers/cc	RL (Fibers/Filter)
Total Fibers	<2800	NA	2800

Sample ID: TA-ASB-02
Lab ID: 8134036058
Media: SKC 225-312A, MCE, 0.8 µm, PCM analysis
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008

Method: NIOSH 7400
Analyzed: 6/5/2008

Analyte	Fibers/Filter	Fibers/cc	RL (Fibers/Filter)
Total Fibers	<2800	NA	2800

Sample ID: TA-ASB-Blank
Lab ID: 8134036059
Media: SKC 225-312A, MCE, 0.8 µm, PCM analysis
Sampling Location: Tullahoma Armory
Collected: 4/16/2008
Received: 4/23/2008

Method: NIOSH 7400
Analyzed: 6/5/2008

Analyte	Fibers/Filter	Fibers/cc	RL (Fibers/Filter)
Total Fibers	<2800	NA	2800

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Page 2325 of 2531

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DATA CHEM LABORATORIES, INC.

ANALYTICAL REPORT

Client Project ID: Tammer Sciences 051308
DCL Workorder: 8134036
DCL Project Manager: Non-Responsive [redacted]

Analytical Results

Sample ID: TA PYR 001
Lab ID: 8134036060
Media: SKC 226-58, Sorbent Tube, XAD-2 OVS, Quartz Filter
Received: 4/23/2008

Method: NIOSH 7400

Analyte

*Results Pending

Sample ID: TA PYR 002
Lab ID: 8134036061
Media: SKC 226-58, Sorbent Tube, XAD-2 OVS, Quartz Filter
Received: 4/23/2008

Method: NIOSH 7400

Analyte

*Results Pending

Sample ID: TA PYR 003
Lab ID: 8134036062
Media: SKC 226-58, Sorbent Tube, XAD-2 OVS, Quartz Filter
Received: 4/23/2008

Method: NIOSH 7400

Analyte

*Results Pending

Sample ID: TA PYR Blank
Lab ID: 8134036063
Media: SKC 226-58, Sorbent Tube, XAD-2 OVS, Quartz Filter
Received: 4/23/2008

Method: NIOSH 7400

Analyte

*Results Pending

Sample Comments

8134036045	Sample required a 5 fold dilution due to high concentration, the reporting limit is adjusted accordingly.
8134036049	The sample required a 2 fold dilution due to high concentration, the reporting limit is adjusted accordingly.

Workorder Comments

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Page 2326 of 2531

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DATA CHEM LABORATORIES, INC.

ANALYTICAL REPORT

Client Project ID: **Tammer Sciences 051308**
DCL Workorder: 8134036
DCL Project Manager: Non-Responsive

Analytical Results

8134036 "Total Hydrocarbons" is the sum of all peaks in the chromatogram min[redacted]t peak and was quantitated against n-hexane.

Report Authorization

Method: NIOSH 1550

Young Hee Yoon	Michelle Paradise
Analyst	Peer Review

Method: NIOSH 7082

Rosemary Hanks	Joanna C. Sanchez
Analyst	Peer Review

Method: NIOSH 7400

Peter P. Steen	Paul M. Megerdichian
Analyst	Peer Review

Incomplete Report Comments

This report is only a partial report and does not include results for the following scheduled analyses:

NIOSH 7400

Definitions

LOD = Limit of Detection = MDL = Method Detection Limit, A statistical estimate of method/media/instrument sensitivity.
LOQ = Limit of Quantitation = RL = Reporting Limit, A verified value of method/media/instrument sensitivity.
ND = Not Detected, Testing result not detected above the LOD or LOQ.
** No result could be reported, see sample comments for details.
< This testing result is less than the numerical value.
() This testing result is between the LOD and LOQ and has higher analytical uncertainty than values at or above the LOQ.

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of DataChem Laboratories, Inc.

DataChem Laboratories, Inc. is accredited by AIHA for specific fields of testing as documented in its current scope of accreditation (ID#101574) which is available on request by contacting your project manager or view on the internet at http://www.aiha.org. The quality systems implemented in the laboratory apply to all methods performed by DataChem regardless of this current scope of accreditation which does not include performance based methods, modified methods, and methods applied to matrices not listed

DataChem Laboratories, Inc. provides professional analytical services for all samples submitted. DataChem Laboratories, Inc. is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

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Page 2327 of 2531

21284/1115/14 Pg 1 of 7

DATA CHEM LABORATORIES, INC.

8134036

ANALYTICAL REQUEST FORM

1. ☒ REGULAR Status 8134036

☐ RUSH Status Requested - ADDITIONAL CHARGE
RESULTS REQUIRED BY _____ DATE
CONTACT DATACHEM LABS PRIOR TO SENDING SAMPLES

2. Date 4/21/08 Purchase Order No.

3. Company Name Tammer Sciences Inc.
Address 3744 Lawrence Drive
Napaville, IL 60564
Person to [redacted] Non-Responsive
Telephon
Fax Telep
E-mail Ad
Billing Ad
Begin
610
College Park, GA 30349

4. Quote No.
DCL Project Manager

5. Sample Collection
Sampling Site Tullahoma Armory
Industrial Process
Date of Collection 4/16 - 4/17
Time Collected
Date of Shipment 4/21/08
Chain of Custody No.
How did you first learn about DataChem?

7. REQUEST FOR ANALYSES

Laboratory Use Only	Client Sample Number	Matrix*	Sample Time	ANALYSES REQUESTED - Use method number if known	Units**
	2044	FDM	369 min.	Organic Vapors	ppm
	2045	3M 3500	423 min.		
	2047		414 min.		
	2052		367 min.		
	2076		395 min.		
	2162		362 min.		
	2185		292 min.		
	2212		366 min.		
	2214		409 min.		
	2223		371 min.		

* Specify: Solid sorbent tube, e.g. Charcoal; Filter type; Impinger solution; Bulk sample; Blood; Urine; Tissue; Soil; Water; Other
** 1. µg/sample 2. mg/m³ 3. ppm 4. % 5. µg/m³ 6. ____ (other) Please indicate one or more units in the column entitled Units**

Comments Samples 2044 - 2223 Sample Time so written for Sample Volume.
- Please include copy of sample sheets with sample results.

Possible Contamination and/or Chemical Hazards

7. Chain of Custody (Optional)

Relinquished by	[redacted] Non-Responsive	Time	
Received by		Time	4/23/08 0955
Relinquished by		Time	
Received by		Time	

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ANALYTICAL REQUEST FORM

1. ☐ REGULAR Status

☐ RUSH Status Requested - ADDITIONAL CHARGE
RESULTS REQUIRED BY _____ DATE
CONTACT DATACHEM LABS PRIOR TO SENDING SAMPLES

2. Date _____ Purchase Order No. _____
3. Company Name _____
Address _____
Person to Contact _____
Telephone ( ) _____
Fax Telephone ( ) _____
E-mail Address _____
Billing Address (if different from above)

4. Quote No. _____
DCL Project Manager _____
5. Sample Collection
Sampling Site _____
Industrial Process _____
Date of Collection _____
Time Collected _____
Date of Shipment _____
Chain of Custody No. _____
6. How did you first learn about DataChem?

7. REQUEST FOR ANALYSES

Laboratory Use Only	Client Sample Number	Matrix*	Sample Volume	ANALYSES REQUESTED - Use method number if known	Units**
	TA-01	Wipe	NA	Lead	µg/sample
	TA-02				
	TA-03				
	TA-04				
	TA-05				
	TA-06				
	TA-07				
	TA-08				
	TA-09				
	TA-10				
	TA-11				
	TA-12				
	TA-13				
	TA-14				

* Specify: Solid sorbent tube, e.g. Charcoal; Filter type; Impinger solution; Bulk sample; Blood; Urine; Tissue; Soil; Water; Other
** 1. µg/sample 2. mg/m³ 3. ppm 4. % 5. µg/m³ 6.____ (other) Please indicate one or more units in the column entitled Units**

Comments _____

Possible Contamination and/or Chemical Hazards _____

7. Chain of Custody (Optional)

Relinquished by		Date/Time	
Received by		Date/Time	4/23/08 0955
Relinquished by		Date/Time	
Received by		Date/Time	

Non-Responsive

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Page 2329 of 2531

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DATA CHEM LABORATORIES, INC.

ANALYTICAL REQUEST FORM

1. ☐ REGULAR Status

☐ RUSH Status Requested - ADDITIONAL CHARGE
RESULTS REQUIRED BY _____ DATE
CONTACT DATACHEM LABS PRIOR TO SENDING SAMPLES

2. Date _____ Purchase Order No. _____
3. Company Name _____
Address _____
Person to Contact _____
Telephone ( ) _____
Fax Telephone ( ) _____
E-mail Address _____
Billing Address (if different from above) _____

4. Quote No. _____
DCL Project Manager _____
5. Sample Collection
Sampling Site _____
Industrial Process _____
Date of Collection _____
Time Collected _____
Date of Shipment _____
Chain of Custody No. _____
6. How did you first learn about DataChem? _____

7. REQUEST FOR ANALYSES

Laboratory Use Only	Client Sample Number	Matrix*	Sample Volume	ANALYSES REQUESTED - Use method number if known	Units**
	TA-15	Wipe	N/A	lead	µg/sample
	TA-16				
	TA-17				
	TA-18				
	TA-19				
	TA-20				
	TA-21				
	TA-22				
	TA-23				
	TA-24				
	TA-25				
	TA-26				
	TA-27				
	TA-28				

* Specify: Solid sorbent tube, e.g. Charcoal; Filter type; Impinger solution; Bulk sample; Blood; Urine; Tissue; Soil; Water; Other
** 1. µg/sample 2. mg/m³ 3. ppm 4. % 5. µg/m³ 6. _____ (other) Please indicate one or more units in the column entitled Units**

Comments _____

Possible Contamination and/or Chemical Hazards _____

7. Chain of Custody (Optional)

Relinquished by _____
Received by _____ 4/23/08 0955
Relinquished by _____
Received by _____ Date/Time _____

Non-Responsive

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
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Page 2330 of 2531

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DATA CHEM LABORATORIES, INC.

ANALYTICAL REQUEST FORM

1. ☐ REGULAR Status

☐ RUSH Status Requested - ADDITIONAL CHARGE
RESULTS REQUIRED BY _____ DATE
CONTACT DATACHEM LABS PRIOR TO SENDING SAMPLES

2. Date _____ Purchase Order No. _____
3. Company Name _____
Address _____
Person to Contact _____
Telephone ( ) _____
Fax Telephone ( ) _____
E-mail Address _____
Billing Address (if different from above) _____

4. Quote No. _____
DCL Project Manager _____
5. Sample Collection
Sampling Site _____
Industrial Process _____
Date of Collection _____
Time Collected _____
Date of Shipment _____
Chain of Custody No. _____
6. How did you first learn about DataChem? _____

7. REQUEST FOR ANALYSES

Laboratory Use Only	Client Sample Number	Matrix*	Sample Volume	ANALYSES REQUESTED - Use method number if known	Units**
	TA-29	Wipe	N/A	Lead	µg/sample
	TA-30				
	TA-31				
	TA-32				
	TA-33				
	TA-34				
	TA-35				
	TA-36				
	TA-37				
	TA-38				
	TA-39				
	TA-40				
	TA-41				
	TA-42				

* Specify: Solid sorbent tube, e.g. Charcoal; Filter type; Impinger solution; Bulk sample; Blood; Urine; Tissue; Soil; Water; Other
** 1. µg/sample 2. mg/m³ 3. ppm 4. % 5. µg/m³ 6. _____ (other) Please indicate one or more units in the column entitled Units**

Comments _____

Possible Contamination and/or Chemical Hazards _____

7. Chain of Custody (Optional)

Non-Responsive

Relinquished by		Date/Time	
Received by		Date/Time	4/23/08 0955
Relinquished by		Date/Time	
Received by		Date/Time	

960 West LeVoy Drive / Salt Lake City, UT 84123 800-356-9135 or 801-268-7700 / FAX: 801-268-9992
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2331 of 2531

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ANALYTICAL REQUEST FORM

1. ☐ REGULAR Status

☐ RUSH Status Requested - ADDITIONAL CHARGE
RESULTS REQUIRED BY _____ DATE
CONTACT DATACHEM LABS PRIOR TO SENDING SAMPLES

2. Date _____ Purchase Order No. _____
3. Company Name _____
Address _____
Person to Contact _____
Telephone ( ) _____
Fax Telephone ( ) _____
E-mail Address _____
Billing Address (if different from above) _____

4. Quote No. _____
DCL Project Manager _____
5. Sample Collection
Sampling Site _____
Industrial Process _____
Date of Collection _____
Time Collected _____
Date of Shipment _____
Chain of Custody No. _____
6. How did you first learn about DataChem? _____

7. REQUEST FOR ANALYSES

Laboratory Use Only	Client Sample Number	Matrix*	Sample Volume	ANALYSES REQUESTED - Use method number if known	Units**
	TA-43	Wipe	N/A	Lead	µg/sample
	TA-44	↓	↓	↓	↓
	TA-45	↓	↓	↓	↓
	TA-46	↓	↓	↓	↓

* Specify: Solid sorbent tube, e.g. Charcoal; Filter type; Impinger solution; Bulk sample; Blood; Urine; Tissue; Soil; Water; Other
** 1. µg/sample 2. mg/m³ 3. ppm 4. % 5. µg/m³ 6. _____ (other) Please indicate one or more units in the column entitled Units**

Comments _____

Possible Contamination and/or Chemical Hazards _____

7. Chain of Custody (Optional)

Relinquished by	Non-Responsive	Date/Time
Received by		Date/Time 4/23/08 0955
Relinquished by		Date/Time
Received by		Date/Time

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2332 of 2531

2008-05-13-8134036-06

21204/1115/~~44~~4 7 of 7

DATA CHEM LABORATORIES, INC.

ANALYTICAL REQUEST FORM

1. ☐ REGULAR Status

☐ RUSH Status Requested - ADDITIONAL CHARGE
RESULTS REQUIRED BY _____ DATE
CONTACT DATACHEM LABS PRIOR TO SENDING SAMPLES

2. Date _____ Purchase Order No. _____
3. Company Name _____
Address _____
Person to Contact _____
Telephone ( ) _____
Fax Telephone ( ) _____
E-mail Address _____
Billing Address (if different from above) _____

4. Quote No. _____
DCL Project Manager _____
5. Sample Collection
Sampling Site _____
Industrial Process _____
Date of Collection _____
Time Collected _____
Date of Shipment _____
Chain of Custody No. _____
6. How did you first learn about DataChem? _____

7. REQUEST FOR ANALYSES

Laboratory Use Only	Client Sample Number	Matrix*	Sample Volume	ANALYSES REQUESTED - Use method number if known	Units**
	TA-ASB-Ø1	NCE		Asbesto S/Fibugloss	f/cc
	TA-ASB-Ø2	↓		↓	↓
	TA-ASB-BLANK	↓		↓	↓
	TA PYR 001	XAD-2			
	TA PYR 002	↓			
	TA PYR 003	↓			
	TA PYR BLANK	↓			

* Specify: Solid sorbent tube, e.g. Charcoal; Filter type; Impinger solution; Bulk sample; Blood; Urine; Tissue; Soil; Water; Other
** 1. µg/sample 2. mg/m³ 3. ppm 4. % 5. µg/m³ 6. ____ (other) Please indicate one or more units in the column entitled Units**

Comments _____

Possible Contamination and/or Chemical Hazards _____

7. Chain of Custody (Optional)

Relinquished by	Non-Responsive [redacted]	Date/Time	
Received by		Date/Time	4/23/08 0955
Relinquished by		Date/Time	
Received by		Date/Time	

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DATA CHEM LABORATORIES, INC.

JUL 15 2008

July 14, 2008

USPHS/FOH
Attention: Non-Responsive
536 South [redacted]
Chicago, I[redacted]

REFERENCE DATA:

Requested Analysis:	**Pesticide Screen**	
DataChem Reference	08I-0804-01	
Sample Type:	OVS-2 air sampling tube	
Date Received:	April 23, 2008	
Sample Numbers:	DataChem Number	Field Number
	08I04556	TA PYR 001
	08I04557	TA PYR 002
	08I04558	TA PYR 003
	08I04559	TA PYR BLANK

OBJECTIVE:

Identify lambda-cyhalothrin on OVS-2 air sampling tubes.

ANALYTICAL PROCEDURE:

The A section (front + quartz fiber filter) and B section (back) of each sample tube was transferred to a 4 mL vial and desorbed with two milliliters of a solution of ten percent acetone in toluene containing 4.0 ug/mL of the internal standard 4,4'-dibromooctafluorobiphenyl. A 0.5 mL aliquot of a diazomethane derivative solution was also added. The vials were tumbled for thirty minutes. The desorbates were transferred to concentrator tubes and evaporatively reduced to a volume of ~300 uL. The concentrated desorbates were transferred to GC vials and analyzed by GC/MS under the conditions described below.

GC/MS CONDITIONS:

Instrument: Hewlett-Packard Model 5890 chromatographic mainframe with autosampler coupled to a Hewlett-Packard Model 5972 mass selective detector.
GC Column: 28m x 0.32 mm i.d. x 0.5 µm film thickness; DB-5ms capillary column.
Oven Conditions: 90°C for 2.0 minutes, heat to 310 °C at a rate of 10 °C per minute, hold for 12.5 min.
Transfer line temperature: 285 °C.
Injection Volume: 2 µL, splitless injection at 225 °C.

960 West LeVoy Drive Salt Lake City, UT 84123
800-356-9135 801-266-7700 Fax: 801-268-9992 www.datachem.com

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2334 of 2531

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RESULTS:

Lambda-cyhalothrin was not detected in the samples. The limit of detection for lambda-cyhalothrin is 0.05 ug/smple.

Non-Responsive

[redacted]

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800-356-9135 801-266-7700 Fax: 801-268-9992 www.datachem.com

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FOIA Requested Record #J-15-0085 (TN)
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Page 2335 of 2531

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21284/1115/44 7 of 7

ANALYTICAL REQUEST FORM

DATA CHEM LABORATORIES, INC.

1. ☐ REGULAR Status

☐ RUSH Status Requested - ADDITIONAL CHARGE
RESULTS REQUIRED BY _____
DATE
CONTACT DATACHEM LABS PRIOR TO SENDING SAMPLES

2. Date _____ Purchase Order No. _____
3. Company Name USPHS/FOH
Address 536 South Clark St.
Chicago IL 60605
Person to Contact [redacted]
Telephone ( ) [redacted]
Fax Telephone ( ) _____
E-mail Address _____
Billing Address (if different from above)

4. Quote No. _____
DCL Project Manager _____
5. Sample Collection
Sampling Site _____
Industrial Process _____
Date of Collection _____
Time Collected _____
Date of Shipment _____
Chain of Custody No. _____
6. How did you first learn about DataChem?

Non-Responsive

7. REQUEST FOR ANALYSES

Laboratory Use Only	Client Sample Number	Matrix*	Sample Volume	ANALYSES REQUESTED - use method number if known	Units**
	TA-ASB-01	NOE		Asbesto & Fiberglass	f/cc
	TA-ASB-02	↓		↓	↓
	TA-ASB-BLANK	↓		↓	↓
[illegible]	TA PYR 001	XAD-2		γ-cyhalothrin	
[illegible]	TA PYR 002	↓		↓	
[illegible]	TA PYR 003	↓		↓	
[illegible]	TA PYR BLANK	↓		↓	

* Specify: Solid sorbent tube, e.g. Charcoal; Filter type; Impinger solution; Bulk sample; Blood; Urine; Tissue; Soil; Water; Other
** 1. µg/sample 2. mg/m³ 3. ppm 4. % 5. µg/m³ 6. _____ (other) Please indicate one or more units in the column entitled Units**
Comments _____

Possible Contamination and/or Chemical Hazards _____

7. Chain of Custody (Optional)

Relinquished by		Date/Time
Received by		Date/Time 4/23/08 0955
Relinquished by		Date/Time
Received by		Date/Time

Non-Responsive

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FOIA Requested Record #J-15-0085 (TN)
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Page 2336 of 2531

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Appendix C

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
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USPHS FOH ENVIRONMENTAL MICROBIOLOGY LABORATORY
PHILADELPHIA, PA LABORATORY REPORT #ARNG-08-2R

Client agency: US Army National Guard, Atlanta, GA
Agreement #/Scope of Work #/Project #: A121804 / S122578 /P134248
Sampling date: 6/12/08
Date of inoculation: 6/12/08
General location: Armory, Tullahoma, TN
Sampling technique: Air (Andersen N-6 sampler) sampling
Medium used: Malt extract agar (MEA) for fungi
Samples submitted by: Non-Responsive
Date characterization completed: 6/19/08

Air samples on MEA plates

Sample ID	Sampling Location	Air Volume (L)	Fungi on MEA @ 25°C
001	Room 103, Orderly Room, 1175th Readiness NCO, Training NCO 1175th (rear) unit NCO	84.9	1. *Cladosporium* (57*) 2. *Alternaria* (4) 3. *Epicoccum* (1) 4. *Penicillium* (1) 5. Ascomycetes (2) 6. Basidiomycetes (7) CFU/m^3 = 931**
002	Room 105, 30th Troop Command S-1	84.9	1. *Cladosporium* (2) 2. Ascomycetes (1) CFU/m^3 = 35
003	Room 113, 30th Troop Command S-3	84.9	1. *Cladosporium* (10) 2. *Aspergillus sp.* (1) 3. *Penicillium* (1) 4. Basidiomycetes (1) CFU/m^3 = 153
004	Outside, non-complaint area	84.9	1. *Epicoccum* (4) 2. *Alternaria* (3) 3. *Cladosporium* (3) 4. *Paecilomyces* (1) 5. Basidiomycetes (1) CFU/m^3 = 141
005	Room 109, 30th Troop Command S-4	84.9	1. *Cladosporium* (14) 2. *Aspergillus sp.* (1) 3. Ascomycetes (1) 4. Basidiomycetes (8) CFU/m^3 = 294

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2338 of 2531

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Sample ID	Sampling Location	Air Volume (L)	Fungi on MEA @ 25°C
006	Room 103	84.9	1. *Cladosporium* (26) 2. *Epicoccum* (2) 3. *Aspergillus sp.* (1) 4. Ascomycetes (2) 5. Basidiomycetes (9) 6. yeast (1) CFU/m^3 = 506
007	Room 105	84.9	1. *Cladosporium* (1) 2. *Epicoccum* (1) 3. Ascomycetes (1) CFU/m^3 = 35
008	Room 113	84.9	1. *Cladosporium* (38) 2. *Aureobasidium* (8) 3. *Neurospora* (4) 4. *Epicoccum* (3) 5. *Alternaria* (2) 6. Basidiomycetes (2) CFU/m^3 = 718
009	Outside, non-complaint	84.9	1. *Cladosporium* (97) 2. *Alternaria* (4) 3. *Epicoccum* (4) 4. *Neurospora* (3) 5. *Aspergillus niger* (1) 6. *Penicillium* (1) 7. Basidiomycetes (4) CFU/m^3 = 1,578
010	Room 109	84.9	1. *Cladosporium* (5) 2. *Epicoccum* (2) 3. *Aspergillus sp.* (1) 4. Basidiomycetes (1) CFU/m^3 = 106

* Colony counts.

** Corrected particle counts were used for calculation of colony forming unit per cubic meter of air.

Characterization completed by: _____ Non-Responsive [redacted]

Quality control checked by: _____ (in [redacted]

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2339 of 2531

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EMLab P&K
3800 Watt Ave., Suite 145, Sacramento, CA 95821
(650) 829-5800 Fax (650) 829-5852 www.emlab.com

Client: U.S. Public Health Service
C/O: Non-Responsive
Re: AT21804/ST22578/PT434248; Mold Sampling

Date of Sampling: 06-12-2008
Date of Receipt: 06-16-2008
Date of Report: 06-18-2008

SPORE TRAP REPORT: NON-VIABLE METHODOLOGY

Location:	NV-00A: Room 103			NV-00B: Room 105			NV-00C: Room 113		
Comments (see below)	None			None			A		
Lab ID-Version‡:	1906961-1			1906962-1			1906963-1		
	raw ct.	% read	spores/m3	raw ct.	% read	spores/m3	raw ct.	% read	spores/m3
Alternaria	6	100	40	2	100	13	17	100	113
Arthrinium									
Ascospores*	13	25	347	1	25	27	4	25	107
Aureobasidium									
Basidiospores*	5	25	133						
Bipolaris/Drechslera group									
Botrytis									
Chaetomium							1	100	7
Cladosporium	27	25	720	1	25	27	19	62.5	187
Curvularia									
Epicoccum									
Fusarium									
Myrothecium									
Nigrospora	1	100	7						
Oidium									
Other brown	1	100	7	1	100	7	2	100	13
Other colorless									
Penicillium/Aspergillus types†	4	25	107	1	25	27			
Pithomyces									
Rusts*	1	100	7	2	100	13	2	100	13
Smuts*, Periconia, Myxomycetes*	17	100	113	3	100	20	23	100	153
Stachybotrys									
Stemphylium									
Torula									
Ulocladium									
Zygomycetes									
Background debris (1-4+)††	3+			2+			3+		
Sample volume (liters)	150			150			150		
TOTAL SPORE/m3			1,481			134			593

Comments: A) 16 of the raw count *Cladosporium* spores were present as a single clump.

* Most of these spore types are not seen with culturable methods (Andersen sampling), although some may appear as non-sporulating fungi. Most of the basidiospores are "mushroom" spores while the rusts and smuts are plant pathogens.
† The spores of *Aspergillus* and *Penicillium* (and others such as *Acremonium*, *Paecilomyces*) are small and round with very few distinguishing characteristics. They cannot be differentiated by non-viable sampling methods. Also, some species with very small spores are easily missed, and may be undercounted.
††Background debris indicates the amount of non-biological particulate matter present on the trace (dust in the air) and the resulting visibility for the analyst. It is rated from 1+ (low) to 4+ (high). Counts from areas with 4+ background debris should be regarded as minimal counts and may be higher then reported. It is important to account for samples volumes when evaluating dust levels.
The Limit of Detection is the product of a raw count of 1 and 100 divided by the percent read. The analytical sensitivity (counts/m3) is the product of the Limit of Detection and 1000 divided by the sample volume.
‡ A "Version" greater than 1 indicates amended data.

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FOIA Requested Record #J-15-0085 (TN)
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Page 2340 of 2531

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EMLab P&K
3800 Watt Ave., Suite 145, Sacramento, CA 95821
(650) 829-5800 Fax (650) 829-5852 www.emlab.com

Client: U.S. Public Health Service
C/O Non-Responsive
Re: [redacted]248; Mold Sampling

Date of Sampling: 06-12-2008
Date of Receipt: 06-16-2008
Date of Report: 06-18-2008

SPORE TRAP REPORT: NON-VIABLE METHODOLOGY

Location:	NV-00D: Outside			NV-00E: Room 109			NV Blank: Blank		
Comments (see below)	None			None			None		
Lab ID-Version‡:	1906964-1			1906965-1			1906966-1		
	raw ct.	% read	spores/m3	raw ct.	% read	spores/m3	raw ct.	% read	spores/m3
Alternaria	13	100	87	1	100	7			
Arthrinium									
Ascospores*	90	25	2,400	2	25	53			
Aureobasidium									
Basidiospores*	71	25	1,890	7	25	187			
Bipolaris/Drechslera group									
Botrytis									
Chaetomium	1	100	7						
Cladosporium	96	25	2,560	10	25	267			
Curvularia									
Epicoccum									
Fusarium									
Myrothecium									
Nigrospora									
Oidium	1	100	7						
Other brown	1	100	7						
Other colorless									
Penicillium/Aspergillus types†	23	25	613	2	25	53			
Pithomyces									
Rusts*	3	100	20						
Smuts*, Periconia, Myxomycetes*	40	100	267	16	100	107			
Stachybotrys									
Stemphylium									
Torula									
Ulocladium									
Zygomycetes									
Background debris (1-4+)††	2+			3+			None		
Sample volume (liters)	150			150			0		
TOTAL SPORE/m3			7,858			674			N/A

Comments:

* Most of these spore types are not seen with culturable methods (Andersen sampling), although some may appear as non-sporulating fungi. Most of the basidiospores are "mushroom" spores while the rusts and smuts are plant pathogens.
† The spores of *Aspergillus* and *Penicillium* (and others such as *Acremonium*, *Paecilomyces*) are small and round with very few distinguishing characteristics. They cannot be differentiated by non-viable sampling methods. Also, some species with very small spores are easily missed, and may be undercounted.
††Background debris indicates the amount of non-biological particulate matter present on the trace (dust in the air) and the resulting visibility for the analyst. It is rated from 1+ (low) to 4+ (high). Counts from areas with 4+ background debris should be regarded as minimal counts and may be higher then reported. It is important to account for samples volumes when evaluating dust levels.
The Limit of Detection is the product of a raw count of 1 and 100 divided by the percent read. The analytical sensitivity (counts/m3) is the product of the Limit of Detection and 1000 divided by the sample volume.
‡ A "Version" greater than 1 indicates amended data.

EMLab ID: 433420, Page 2 of 2

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Page 2341 of 2531

US PUBLIC HEALTH SERVICE, FEDERAL OCCUPATIONAL HEALTH CHAIN-OF-CUSTODY / FIELD DATA SHEET

Environmental Microbiology Laboratory
50 S[redacted]
Phila[redacted]
Tel: ([redacted]
Attn: [redacted]
Name[redacted]
Addr[redacted]
Phon[redacted]
Emal[redacted]

Non-Responsive

PROJECT REFERENCE

Agreement No.:	A 121804
Statement of Work No.:	S 122578
Project No:	P 134248
Agency Na[redacted]	
Loc[redacted] (City, [redacted]	

Non-Responsive

For Lab Use Only — Conditions on Receipt with Name & Date
Project /Report #:
Due Date:
Samples Received Chilled? YES NO (circle one)

Water Sample Codes
Container Types: P-Plastic, G-Glass, V-VOC
Preservatives: A-None, B-H_2SO_4, C-HNO_3, D-NaOH

Turn Around Time Codes
STD- Standard
R- Rush@
2D- Two Day Rush*
ND- Next Day Rush*@
SD- Same Day Rush*@
WH- Weekend/Holiday*

Analysis Requested

ID #	Type[1]	Media[2]	Collected Date	Collected Time	Sample Location / Description	Air Flow (LPM)	Air Time (Min.)	Air Volume (Liters)	Wipe Area (in²)	Water Volume (Liters)	Water Code[3]	Turn Around Time[4]	Lab ID #
001	8	5	6/12/08	11:08	Room 103 Orderly Room - 1175th Readiness NCO, Training NCO 1175th (Rear) Unit NCO	28.3	3	84.9				STD	
002			6/12/08	11:18	Room 105 30th Troop Command S-1	28.3	3	84.9					
003			6/12/08	11:28	Room 113 30th Troop Command S-3	28.3	3	84.9					
004				11:40	outside/Non-complaint area	28.3	3	84.9					
005				11:58	Room 109 30th Troop Command S-4	28.3	3	84.9					
006				2:10	Room 103	28.3	3	84.9					
007				2:53	Room 105	28.3	3	84.9					
008				3:01	Room 113	28.3	3	84.9					

Sample Type Codes: Air 2-Water 3-Paint 4-Soil 5-Dust Bulk 7-Wipe 8-Contact Plate Tape 10-Spore Trap (Zefon & others) -Other

Sample Media Codes: 1-Charcoal 2-XAD 3-Matched Weight 4-Preweighted 5-MEA 6-CCA 7-R2A/TSA 8-Air-O-Cell Cassette 9-MCE Cassette (0.45) 10-MCE Cassette (0.8) 11-MCE Filter 12-Oth[redacted]

Non-Responsive

Date & Time	Received By	Date & Time
6/12/08 3:52p		

COMMENTS:

[1] Applied to non-viable microbiological samples only. @ Applied to asbestos samples, SD: 2-hour PLM/PCM, 6-hour TEM; ND: 24-hour; R: 3-5 business days.

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Page 2342 of 2531

CHAIN OF CUSTODY

EMLab P&K

www.EMLabPK.com
Cherry Hill, NJ: 1936 Olney Avenue, Cherry Hill, NJ 08003 • (866) 871-1984
Phoenix, AZ: 1501 West Knudsen Drive, Phoenix, AZ 85027 • (800) 651-4802
San Bruno, CA: 1150 Bayhill Drive, #100, San Bruno, CA 94066 • (866) 888-6653
San Diego, CA: 5473 Kearny Villa Road, #130, San Diego, CA 92123 • (866) 465-6653

LEVEL	WEATHER	Fog	Rain	Snow	Wind	Clear
	None					
	Light					
	Moderate					
	Heavy					

CONTACT INFORMATION

[redacted] Non-Responsive

[redacted] Non-Responsive 368

OV

TD - Standard (DEFAULT)
ND - Next Business Day
SD - Same Business Day Rush
WH - Weekend/Holiday

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

REQUESTED SERVICES (✓ Boxes)

Non-Culturable: Spore Trap — Fungi - Spore Trap Analysis; Spore Trap Analysis - Other particles. Tape, Swab, Bulk — Direct Microscopic Exam (Qualitative); Quantitative Spore Count Direct Exam.

Culturable: BioCassette™, Andersen, SAS, Swab, Water, Bulk, Dust, Soil, Contact Plate — 1-Media Surface Fungi (Genus ID + Asp. spp.); 2-Media Surface Fungi (Genus ID + Asp. spp.); 3-Media Surface Fungi (Genus ID + Asp. spp.); Culturable Air Fungi (Genus ID + Asp. spp.); Gram Stain and Counts (Culturable Air and Surface Bacteria); *Legionella* culture; Total Coliform, *E.coli* (Presence/Absence); Membrane Filtration (Please specify organism); MPN Bacteria (Please specify organism); QuantiTray - Sewage Screen.

Other Requests: Asbestos Analysis - PCM Airborne Fiber Count (NIOSH 7400); Asbestos Analysis - PLM (EPA method 600/R-93-116); PCR (please specify test).

Sample ID	Location	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
NV-00A	Room 103	ST	STD	150 L	1:00
NV-00B	Room 105	ǀ	ǀ	ǀ	1:12
NV-00C	Room 113	ǀ	ǀ	ǀ	1:24
NV-00D	Outside	ǀ	ǀ	ǀ	1:36
NV-00E	Room 109	⊥	⊥	⊥	1:52

SAMPLE TYPE CODES

BC - BioCassette™	CP - Contact Plate	T - Tape	D - Dust
A1S - Andersen	ST - Spore Trap: Zefon, Allergenco, Burkard...	SW - Swab	W - Water
SAS - Surface Air Sampler		B - Bulk	SO - Soil
O - Other:			

RELINQUISHED BY	DATE & TIME	RECEIVED BY	DATE & TIME
[redacted] Non-Responsive	6/12/08 3:16p		

By submitting this Chain of Custody, you agree to be bound by the terms and conditions set forth at www.emlabpk.com/terms.html
Copyright © 2002-2007 EMLab P&K

Doc. # 200176 Rev: 22 Revised: 9/17/07 Page 1 of 1, Pres.

C-6

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2344 of 2531

US PUBLIC HEALTH SERVICE, FEDERAL OCCUPATIONAL HEALTH CHAIN-OF-CUSTODY / FIELD DATA SHEET

[redacted] Non-Responsive

Name:
Address:
Phone/Fax:
Email:

PROJECT REFERENCE	
Agreement No.:	A
Statement of Work No.:	S
Project No:	P
Agency/Project Name:	
Location (City, State):	

For Lab Use Only — Conditions on Receipt with Name & Date
Project /Report #:
Due Date:
Samples Received Chilled? YES NO (circle one)

Water Sample Records
Container Types: P-Plastic, G-Glass, V-VOC
Preservatives: A-None, B-H_2SO_4, C-HNO_3, D-NaOH

Turnaround Time Codes
STD- Standard
R- Rush[@]
2D- Two Day Rush*
ND- Next Day Rush*[@]
SD- Same Day Rush*[@]
WH- Weekend/Holiday*

Analysis Requested

Sample ID #	Type[1]	Media[2]	Collected Date	Collected Time	Sample Location / Description	Air Flow (LPM)	Air Time (Min.)	Air Volume (Liters)	Wipe Area (in²)	Water Volume (Liters)	Code[3]	Turn Around Time[4]	Lab ID #	Analysis Requested
009	8	5	6/24/05		Outside/Non-complaint	28.3	3	84.9						
010	1	1	1		Room 109	28.3	3	84.9						

Sample Type Codes: Air 2-Water 3-Paint 4-Soil 5-Dust Bulk 7-Wipe 8-Contact Plate Tape 10-Spore Trap (Zefon & others) Other

Sample Media Codes: 1-Charcoal 2-XAD 3-Matched Weight 4-Preweighted 5-MEA 6-CGA 7-R2A/TSA 8-Air-O-Cell Cassette 9-MCE Cassette (0.45) 10-MCE Cassette (0.8) 11-MCE Filter 12-Other

Relinquished By	Date/Time	Received By	Date/Time

COMMENTS:

*Applied to non-viable microbiological samples only. @ Applied to asbestos samples, SD: 2-hour PLM/PCM, 6-hour TEM; ND: 24-hour; R: 3-5 business days.

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Appendix D

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syngenta

MATERIAL SAFETY DATA SHEET

Syngenta Crop Protection, Inc.
Post Office Box 18300
Greensboro, NC 27419

In Case of Emergency, Call
1-800-888-8372

1. PRODUCT IDENTIFICATION

Product Name:	DEMAND CS	Product No.:	A12690A
EPA Signal Word:	Caution		
Active Ingredient(%):	Lambda-Cyhalothrin Technical (9.7%)	CAS No.:	91464-08-6
Chemical Name:	[1a(S*),3a(Z)]-cyano(3-phenoxyphenyl)methyl 3-(2-chloro-3,3,3-trifluoro-1-propenyl)-2,2-dimethylcyclopropanecarboxylate		
Chemical Class:	A pyrethroid insecticide		

EPA Registration Number(s): 100-1066 Section(s) Revised: 1, 4, 10, 16

2. COMPOSITION/INFORMATION ON INGREDIENTS

Material	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen
Petroleum Solvent	Not Established	Not Established	100 mg/cm³ (19 ppm)*	No
Xylene	100 ppm TWA	100 ppm TWA; 150 ppm STEL	Not Established	IARC, 3
Cumene	50 ppm TWA (Skin)	50 ppm TWA	Not Established	No
1,2,4-Trimethylbenzene	25 ppm TWA	25 ppm TWA	Not Established	No
Lambda-Cyhalothrin Technical (9.7%)	Not Established	Not Established	0.04 mg/m³ TWA (Skin)***	No

* recommended by manufacturer

*** Syngenta Occupational Exposure Standard (OES)

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications

3. HAZARDS IDENTIFICATION

Symptoms of Acute Exposure

Harmful if inhaled or swallowed. Dust, mist or vapor irritating to eyes and respiratory tract. May cause skin irritation. May cause temporary itching, tingling, burning or numbness of exposed skin, called paresthesia.

Hazardous Decomposition Products

Can decompose at high temperatures forming toxic gases.

Physical Properties

Appearance: Off-white liquid

Odor: Slight odor/typical aromatic solvent

Unusual Fire, Explosion and Reactivity Hazards

During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

4. FIRST AID MEASURES

Have the product container, label or Material Safety Data Sheet with you when calling Syngenta (800-888-8372), a poison control center or doctor, or going for treatment

Ingestion: If swallowed: Call Syngenta (800-888-8372), a poison control center or doctor immediately for treatment

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2346 of 2531

BEST AVAILABLE COPY

advice. Do not give any liquid to the person. Do not induce vomiting unless told to do so after calling 800-888-8372 or by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

Eye Contact: If in eyes. Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eye. Call Syngenta (800-888-8372), a poison control center or doctor for treatment advice.

Skin Contact: If on skin or clothing. Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call Syngenta (800-888-8372), a poison control center or doctor for treatment advice.

Inhalation: If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call Syngenta (800-888-8372), a poison control center or doctor for further treatment advice.

Notes to Physician

There is no specific antidote if this product is ingested.

Treat symptomatically.

Skin contact paresthesia effects (itching, tingling, burning or numbness) are transient, lasting up to 24 hours. Treat symptomatically.

Medical Condition Likely to be Aggravated by Exposure

None known.

5. FIRE FIGHTING MEASURES

Fire and Explosion

Flash Point (Test Method):	>212°F (Setaflash)	
Flammable Limits (% in Air):	Lower: % Not Applicable	Upper: % Not Applicable
Autoignition Temperature:	Not Available	
Flammability:	Not Applicable	

Unusual Fire, Explosion and Reactivity Hazards

During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

In Case of Fire

Use dry chemical, foam or CO2 extinguishing media. Wear full protective clothing and self-contained breathing apparatus. Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated buildings, area, and equipment until decontaminated. Water runoff can cause environmental damage. If water is used to fight fire, dike and collect runoff.

6. ACCIDENTAL RELEASE MEASURES

In Case of Spill or Leak

Control the spill at its source. Contain the spill to prevent it from spreading, contaminating soil, or entering sewage and drainage systems or any body of water. Clean up spills immediately, observing precautions outlined in Section 8. If a solid, sweep up material and place in a compatible disposal container. If a liquid, cover entire spill with absorbing material and place into compatible disposal container. Scrub area with hard water detergent (e.g. commercial products such as Tide, Joy, Spic and Span). Pick up wash liquid with additional absorbent and place into compatible disposal container. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposition.

7. HANDLING AND STORAGE

Store the material in a well-ventilated, secure area out of reach of children and domestic animals. Do not store food, beverages or tobacco products in the storage area. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION AND PACKAGING OF THE PRODUCT.

FOR COMMERCIAL APPLICATIONS AND ON-FARM APPLICATIONS CONSULT THE PRODUCT LABEL.

Ingestion: Prevent eating, drinking, tobacco usage and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2347 of 2531

BEST AVAILABLE COPY

Eye Contact:	Where eye contact is likely, use chemical splash goggles. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.
Skin Contact:	Where contact is likely, wear chemical-resistant (such as nitrile or butyl) gloves, coveralls, socks and chemical-resistant footwear. For overhead exposure, wear chemical-resistant headgear. Stringent housekeeping measures are necessary to prevent translocation of the material from contaminated work surfaces to uncontaminated surfaces (railings, doors, etc). Unprotected contact with such translocated material can result in paresthesia effects (see Section 11).
Inhalation:	Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below exposure limits. A NIOSH-certified combination air-purifying respirator with an N, P or R 95 or HE class filter and an organic vapor cartridge may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air-purifying respirators is limited. Use a pressure demand atmosphere-supplying respirator if there is any potential for uncontrolled release, exposure levels are not known, or under any other circumstances where air-purifying respirators may not provide adequate protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Off-white liquid
Odor:	Slight odor/typical aromatic solvent
Melting Point	Not Available
Boiling Point.	212°F
Specific Gravity/Density:	1.04 @ 68°F (20°C)
pH:	7.3(1% w/v dilution in deionized water)

Solubility in H2O

Lambda-Cyhalothrin Technical: 0.004mg/L

Vapor Pressure

Lambda-Cyhalothrin Technical: 1.5 x 10-9 mmHg @ 68°F (20°C)

10. STABILITY AND REACTIVITY

Stability:	Stable under standard conditions
Hazardous Polymerization:	Will not occur.
Conditions to Avoid:	None known.
Materials to Avoid:	None known.
Hazardous Decomposition Products:	Can decompose at high temperatures forming toxic gases

11. TOXICOLOGICAL INFORMATION

Acute Toxicity/Irritation Studies (Finished Product)

Ingestion:	Practically Non-Toxic	
	Oral (LD50 Rat)	> 5000 mg/kg body weight
Dermal:	Slightly Toxic	
	Dermal (LD50 Rat)	> 2000 mg/kg body weight
Inhalation:	Practically Non-Toxic	
	Inhalation (LD50 Rat)	> 4.67 mg/Liter - 4 hours
Eye Contact	Mildly Irritating (Rabbit)	
Skin Contact:	Moderately Irritating (Rabbit)	
Skin Sensitization:	Not available at this time.	

Neurotoxicity

Lambda-Cyhalothrin Technical:	Reversible clinical signs of neurotoxicity in mammals

Reproductive Effects

Lambda-Cyhalothrin:	Not a developmental or reproductive toxicant

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2348 of 2531

BEST AVAILABLE COPY

Technical:

Chronic/Subchronic Toxicity Studies

Lambda-Cyhalothrin Technical: Reversible paresthesia (abnormal skin sensation).

Carcinogenicity

Lambda-Cyhalothrin Technical: No treatment-related tumors in rats or mice.

Other Toxicity Information

In humans, contact with exposed skin may result in temporary itching, tingling, burning or numbness, called paresthesia. The effect may result from splash, aerosol, or hot vapor contact, or transfer to the face from contaminated gloves and hands. The symptoms normally disappear within 24 hours. Face and genital areas are especially susceptible to this effect. Paresthesia involving the face is also known as "subjective facial sensation" or SFS.

Toxicity of Other Components

Petroleum Solvent:

The supplier reports that high vapor/aerosol concentrations (> 1000 ppm) are irritating to the eyes and the respiratory tract, may cause headaches, dizziness, anesthesia, drowsiness, unconsciousness and other central nervous system effects.

Target Organs

Active Ingredients

Lambda-Cyhalothrin Technical: Liver, nervous system

Inert Ingredients

Petroleum Solvent: Eye, respiratory tract, CNS

12. ECOLOGICAL INFORMATION

Summary of Effects

Lambda-Cyhalothrin Technical:

Toxic to fish. Very toxic to aquatic organisms.

Eco-Acute Toxicity

Lambda-Cyhalothrin Technical:	Rainbow Trout 96-hour LC50 0.44 ug/l
	Daphnia magna 48 hours EC50 0.36 ug/l
	Green Algae EC50 >1 mg/l
	Pseudomonas putida IC50 >1 mg/l

Eco-Chronic Toxicity

Lambda-Cyhalothrin Technical:	Not available at this time.

Environmental Fate

Lambda-Cyhalothrin Technical:

No data available for the formulation. The information presented here is for the active ingredient, lambda-cyhalothrin. A thorough review of environmental information is not possible in this document. For additional information call the toll free number listed in Section 16.

Soil/Environment: Rapidly degraded in soil. DT50 for microbial degradation 23-82 d. for field soil 6-40 d. Strongly adsorbed to soil and sediment organic matter. Koc 330000. Negligible potential for leaching of lambda-cyhalothrin and its degradation products through soil. Rapid dissipation from water in aquatic systems. DT50 for dissipation from surface waters in lab water-sediment systems 5-11 h; in a microcosm DT50 <3 h. Rapid and extensive degradation of parent compound in aquatic systems: DT50 for degradation in lab water-sediment systems 7-15 d; in a microcosm DT50 <3 h, DT90 <3 d.

13. DISPOSAL CONSIDERATIONS

Disposal

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2349 of 2531

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Do not reuse product containers. Dispose of product containers, waste containers, and residues according to local, state, and federal health and environmental regulations

Characteristic Waste: Not Applicable

Listed Waste: Xylene U239

14. TRANSPORT INFORMATION

DOT Classification

Not regulated by DOT.

IMC Freight Classification

Insecticides, NOIBN, o/l poison

Comments

Not regulated.

15. REGULATORY INFORMATION

EPCRA SARA Title III Classification

Section 311/312 Hazard Classes: Acute Health Hazard

Section 313 Toxic Chemicals: 1,2,4-Trimethylbenzene (CAS No. 95-63-6)
Cumene (CAS No. 98-82-8)
Xylene (CAS No. 1330-20-7)

California Proposition 65

Not Applicable

CERCLA/SARA 302 Reportable Quantity (RQ)

>49,000 lbs (based on Xylene, CAS # 1330-20-7 [RQ = 100 lbs] in the formulation)

RCRA Hazardous Waste Classification (40 CFR 261)

Not Applicable

TSCA Status

Exempt from TSCA, subject to FIFRA

16. OTHER INFORMATION

NFPA Hazard Ratings		HMIS Hazard Ratings			
Health:	2	Health:	2	0	Minimal
Flammability:	1	Flammability:	1	1	Slight
Instability:	0	Reactivity:	0	2	Moderate
				3	Serious
				4	Extreme

For non-emergency questions about this product call:

1-800-334-9481

Original Issued Date: 07/14/1999
Revision Date: 12/27/2001 Replaces: 10/12/2001

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein.

RSVPw: SCP-955-00303C

End of MSDS

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2350 of 2531

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Appendix E

Posted to NGB FOIA Reading Room
May, 2018

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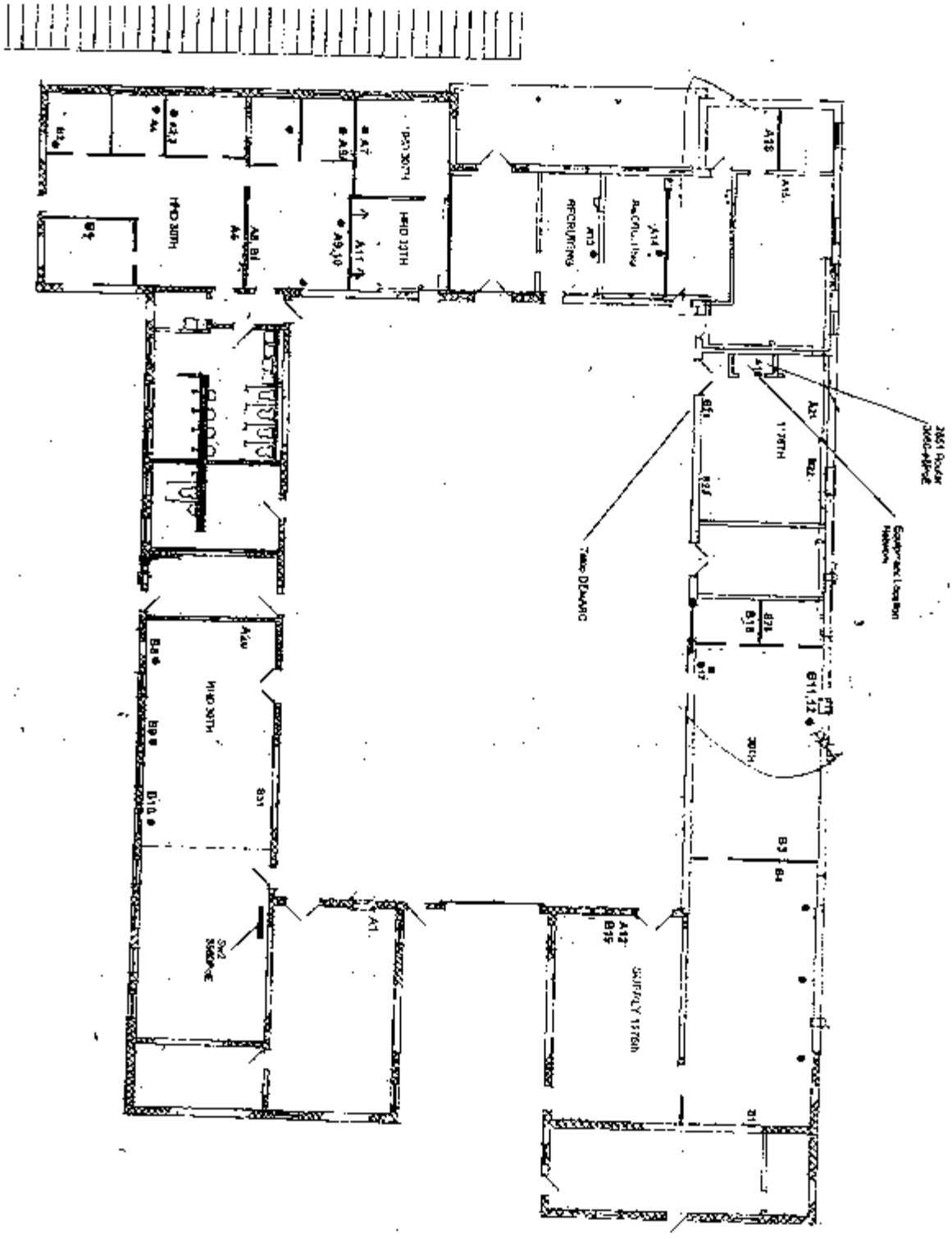
FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau



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Appendix F

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Photo #1: Front entrance of the Tullahoma Armory

Photo #2: South West Corner of the Armory.

Photo #3: Drill Hall.

Photo #4: Drill Hall

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2355 of 2531

Photo #5: Classroom 108.

Photo #6: Classroom 108.

Photo #7: Room 102.

Photo #8: Room 103

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2357 of 2531

Photo #9: Room 109.

Photo #10: Room 109.

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2358 of 2531

Photo #11: Room 110

Photo #12: Supply Room 106.

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2359 of 2531

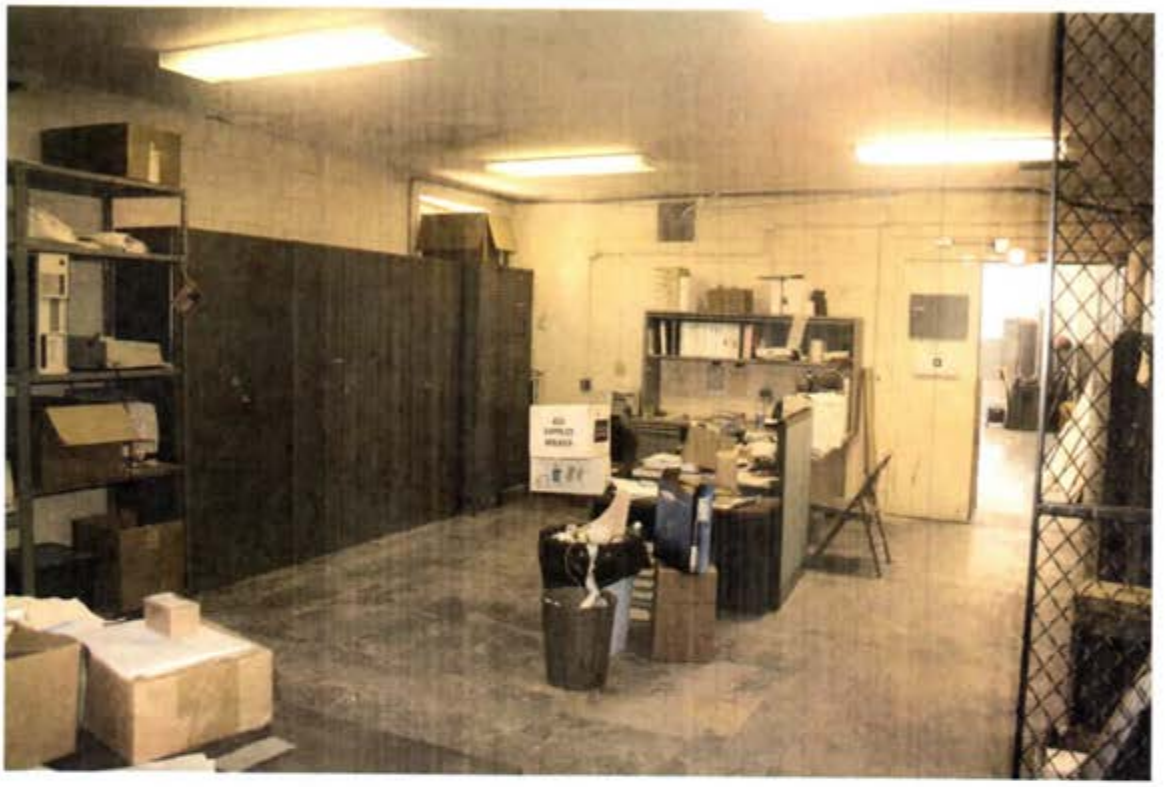

Photo #13: Supply Room 106.

Photo #14: Water damage on the ceiling of the supply room.

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TAMMER SCIENCES & ENGINEERING, Inc.
3744 Lawrence Drive, Naperville, Illinois 60564
Voice: 630-369-7956, Fax: 630-369-7957
E-mail: kkawar@aol.com

Non-Responsive

July 25, 2008

Enclosed are six copies for TNARNG Tullahoma Armory report. Also enclosed is a CD with all of the photos and copies of the reports in Microsoft Word. Lab reports are also included on the CD. An invoice is enclosed.

If you have any questions please do not hesitate to contact me at Non-Responsive cell or e-mail Non-Responsive

Thank you for the opportunity to serve you and the TNARNG.

Sincerely,

Non-Responsive

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2361 of 2531

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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-AVN-SI 31 March 2003

MEMORANDUM FOR: The Adjutant General of Tennessee, ATTN: Non-Responsive
1202 E. Carroll Street, Tullahoma, Tennessee, 37388-3838.

SUBJECT: Transmittal of the Tullahoma, Tennessee Armory Survey Report.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, 30 August 1986, Medical Service, Preventive Medicine.

c. National Guard Regulation (NGR) 385-10, 1988, Army National Guard Safety and Occupational Health Program.

d. AR 11-34, The Army Respiratory Protection Program, 15 February 1990.

e. TB MED 502, Occupational and Environmental Health Respiratory Protection Program, February 1982.

f. DA PAM 40-503, 30 October 2000, The Army Industrial Hygiene Program.

g. DA PAM 40-501, 10 December 1998, Hearing Conservation.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2001, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

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k. Title 29, Code of Federal Regulations (CFR), 2000 rev., part 1910, Occupational Safety and Health Standards.

l. Report dated 11 March 2003, Industrial Hygiene Survey, LAE Consulting, Severn, Maryland.

2. General.

a. At the request of the TNARNG Safety and Occupational Health Office, an Industrial Hygiene Service was put together to conduct Health Hazard Information module (HHIM) Field surveys and industrial hygiene sampling of the Tullahoma Armory, Tullahoma, Tennessee .

b. LAE Consulting, 1218 Scattered Pines Court, Severn, Maryland 21144 conducted the survey.

3. Findings. All HHIM field survey forms and survey findings of the report. (See enclosure 1)

4. Recommendations.

a. Follow all recommendations made in reference 1.l., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Control water infiltration in the armory and/or replace or repair damaged surfaces or components (ceiling and floor tiles). Building conditions that present IAQ concerns or problems not only exacerbates normally minor health issues but also tend to promote or accelerate building deterioration.

c. The recommendations given in the comment section of the HHIM data sheets and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-03. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-04 IHIP.

d. Consider additional Industrial Hygiene services to monitor operations that were not lookod at or surveyed during the present survey, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

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NGB-AVN-SI
SUBJECT: Transmittal of the Tullahoma Armory Survey Report.

f. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

5. If additional information is needed about the industrial hygiene survey or air sample

Non-Responsive

CF:
NBG-AVN-SH
State Occupational Health Office, P O Box 41502, Nashville, TN 37204-1502.
State Safety Manager, P O Box 41502, Nashville, TN 37204-1502.

Encl
as

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LAE CONSULTING
1218 Scattered Pines Court, Severn, MD, 21144
Tel: (410) 551-2717

11 March 2003

MEMORANDUM FOR: 130 Support Center (Corp RAOC), ATTN: Non-Responsive
1202 E. Carroll Street, Tullahoma, Tennessee, 37388-3838

SUBJECT: Industrial Hygiene Survey of Tullahoma National Guard Armory, Tullahoma, Tennessee

1. References.

a. Title 29, Code of Federal Regulations (CFR) Part 1910, Occupational Safety and Health Administration (OSHA).

b. AR 40-5, Preventive Medicine, 15 October 1990.

c. AR 385-10, 23 May 1988, Army Safety Program.

d. TB MED 503, The Army Industrial Hygiene Program.

e. Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.

f. National Institute for Occupational Safety and Health (NIOSH), (76-130) Technical Information, Lead Exposure and Design Considerations for Indoor Firing Ranges GPO, 1975.

g. Title 40, Code of Federal Regulations (CFR) Part 745, Lead, Identification of Dangerous Levels of Lead: Final rule.

h. IES Lighting Handbook, Application Volume 1981, Illumination Engineering Society of North America.

i. Occupational Safety and Health Administration (OSHA), 29 CFR, 1926.1101, Asbestos

j. TG 277, Army Facilities Management Information Document on Mold Remediation Issues, February 2002.

k. TG 278, Industrial Hygiene/Preventive Medicine Mold Assessment Guide, February 2002.

2. Purpose. The purpose of this survey was to conduct a baseline Industrial Hygiene survey of the Jesse Cooper National Guard Armory. The facility was visually examined and the Building Custodian was interviewed for historical information related to the building and the operations performed. A diagram of the building can be found in Enclosure 1. Laboratory results of Lead wipe samples and Asbestos samples at Enclosure 2. Photographs of the facility can be found in Enclosure 3. Health Hazard Inventories can be found in Enclosure 4.

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3. Background. At the request of Non-Responsive of the National Guard Bureau Region South Industrial Hygiene Office, Non-Responsive LAE Consulting conducted an industrial hygiene survey at the Tullahoma National Guard Armory on February 11, 2003. An addendum to the contract requested mold sampling in areas were mold growth has been identified.

4. Facility Description. This facility houses the 130th Support Center (Corp Rear Area Operation Center). The Armory has six full time personnel. The personnel perform administrative duties Monday through Friday between 0800 and1630. The Armory is utilized for drills on the weekend. The Armory was built around the1950s. The facility houses administrative areas, one kitchen/mess hall, one classroom, a Drill hall, Supply Room, and an Arms Room.

5. Findings.

a. Visible mold was identified in the room #201 (1SG's office), room #206 (the recruiter's office) and room #209 (1175th Supply room). Prior to the mold investigation, a telephonic interview was conducted. Six personnel work full time at this facility. The Armory has had problems with the roof leaking but since has been repaired. Personnel have complained of migraine type headaches, intestinal problems and lack of concentration when in the building. One employee was admitted to the hospital for three days with intestinal problems (blood in vomit). An employee stated during the interview that visible mold is in several administrative area in the Armory. Room # 206, 201and 209 were identified on a building schematic as the areas in the building having the mold. Room # 201 is used by the 1SG during drill weekends. After the interview, a decision was made to conduct air sampling and surface swabbing. Air Sampling was to be performed on outdoor air, inside the room with the mold and inside a room without mold. Surface swabbing was to be done on all visible molds in the three rooms. At the time of the survey, the unit was preparing for a full deployment. Wooden crates were being filled and loaded by two diesel Forklifts inside the Drill Hall of the Armory. The overhead rolling doors of the Drill hall were open. The unit had been preparing for deployment for a few days.

a. The office areas were heavy occupied. A walk thru survey of the facility was performed. Visible mold growth was seen on the wall beneath the fan air coil unit in room #206. An exterior investigation showed that the unit's condensation drain is not operating properly. The brick façade underneath the fan coil unit is water stained which, may be evidence of improper drainage. An 8" patch of mold was seen on the wall above the door in room #201 and above the drop ceiling. This area is located were the lower roof of the administrative areas and the higher area of the Drill Hall meet. The room has a window air conditioner. The caulking around the air fan coil unit in room #209 had a small amount of mold growth. The ceiling above the entrance door to this room had water damage but no visible mold. Paint was blistering and peeling on a wall in the Drill Hall. A large black marking (possibly mold) was seen on the wall. The wall is the load bearing portion or outer wall of marking

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Page 2366 of 2531

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(possibly mold) was seen on the wall. The wall is the load bearing portion or outer wall of the Drill Hall. Evidence of extensive water damage was observed in many of the administrative areas. Ceiling tiles in many of the administrative areas were soiled and showing evidence of water damage. Due to the high level of activity in the Armory, cultural swab sampling was performed on visible mold (encl 2).

b. Seventeen (17) wipe samples for Lead were taken from various locations in the Armory (Table 1). Consideration was given to areas in the deactivated Indoor Firing Range. Five of the seventeen samples were above the recommended EPA level of 40 ug/ft^2 indicated in reference g.

Table 1.

Sample Number	Sample Location	Results
1	Former backstop wall, 4 ft up	<12 ug/ft^2
2	Former backstop wall, 1 ft up	<12 ug/ft^2
3	Former backstop wall, 6 ft up	<12 ug/ft^2
4	Top of former range heater	2900 ug/ft^2
5	Former pit floor near 3 ft from backstop	230 ug/ft^2
6	Middle of range floor	120 ug/ft^2
7	Top of gray file cabinet under window	13 ug/ft^2
8	Left side wall 5 ft up near rear wall	<12 ug/ft^2
9	Rear wall firing line 5.5 ft up	<12 ug/ft^2
10	Floor inside supply cage	170 ug/ ft^2
11	9 ft from rear wall (firing line)	200 ug/ ft^2
12	Closet in recruiter's office acoustic material	<12 ug/ ft^2
13	Ceiling in the table chairs storage room	<12 ug/ ft^2
14	Drill hall floor 1 ft from range entrance	32 ug/ft^2
15	Top of Dr. Pepper soda machine	<12 ug/ ft^2
16	Supply grill in Commanders office	33 ug/ft^2
17	Blank	<12 ug/ ft^2

c. The Deactivated Indoor firing range has been converted into a platoon training room, a storage area, the recruiters' office and a table and chairs storage room. Backstop and pit have been removed. The original acoustic walls and ceilings are present in the recruiters' office and the table and chairs room. Lead wipe clearance samples were collected in 1993 showed < 20 ug/ ft^2 . The leads wipe samples for the Deactivated Indoor firing range is in Table 1.

d. A large accumulation of rodent droppings were found in the Mess Supply storage room. Rodent droppings were seen on the shelves and along the baseboard of the storage room. Live or dead rodents were not observed during the survey. The room is a recent addition/construction to the located at the rear of the Armory. Entrance to the storage room is from the outside of the Armory. Pots, pans, insulated containers, single service items and food products are stored in the room.

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2367 of 2531

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6. Recommendations.

a. Recommend remediation of all areas with visible mold. Consider hiring a contractor who is professionally competent in mold remediation. It is important not to perform this remediation as an Armory self-help project. Improper remediation can release mold spores into the air. Remediation should include removal of the water damaged ceiling tiles. The ceiling tiles maybe harboring mold spores. Contact the engineers to inspect all the fan air coil units in the building. Check the drains of the units to ensure that water is draining appropriately from the unit and away from the building. Consider purchasing a seasonal contract for all air fan coil units. Mold is present in the environment. Mold growth inside of a building occurs from when water and /or moisture is present. It is important to conduct good housekeeping practices. Inspect building daily for any leakage and fix the problem immediately, Dry any water leak within 24-48 hours, Remove and dispose of any material that is water soaked and cannot be dried within 24- 48 hours. Observe Humidity levels inside the building, usually condensation on walls and windows are good indicators of high humidity levels. Increase ventilation when the outside air is cold and dry and dehumidify when outside air is warm and humid. The Relative Humidity inside the building should be below 60%, ideal Relative Humidity is 30-50%. Provide ventilation to rooms that are used only during Drill weekend. The species of the fungi found during the sampling may produce symptoms in persons who are sensitive to mold. Generally identifying the species of the mold is not a reliable method of determining an individual's sensitivity. Remediation is the present solution for persons with sensitivities.

b. Recommend that the Tennessee Safety and Occupational Health office review the lead wipe sample results. If sample results are greater than or equal to 40 ug/ft^2 consider decontamination of the range.

c. Consider comparing the current lead wipe samples collected from the range with the ones from 1993. The locations of the samples maybe different, which may cause a difference in results. The Tennessee Safety and Occupational Health office can assist you with the interpretation of the results.

d. The presence of rodents and there droppings may pose some health risk. Good housekeeping practices can assist in reducing and maybe eliminating rodent population. Clean up food spills immediately, store dry goods in containers with tight fitting lids, Mop up water spills, Sweep floors, and clean floors with a detergent and bleach paying special attention to the baseboards. All food items, pots, pans, and equipment must be stored at least 6 inches off the floor. Remove harborage areas outside the building like tall grass and weeds. Inspect the outside of the room for rodent entrances. Seal entrances with caulking or wire mesh. Inspect all containers and equipment coming from the field for rodents and/ or droppings. Contact a licensed pest controller for chemical assistance if housekeeping is not eliminating the problem.

LAE Consulting
1218 Scattered Pines Court, Severn, Maryland 21144
Telephone: (410) 551-2717

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2368 of 2531

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7. Technical Assistance. For technical assistance, regarding information found in this

Non-Responsive

2. Sample Results
3. Photos of Facility
4. HHIM

CF: Safety Occupational Health Office, Houston Barracks
ATTN: AGTN-SAHO, 3041 Sidco Drive, Nashville, TN 37204-1501

LAE Consulting
1218 Scattered Pines Court, Severn, Maryland 21144
Telephone: (410) 551-2717

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FOIA Requested Record #J-15-0085 (TN)
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Page 2369 of 2531

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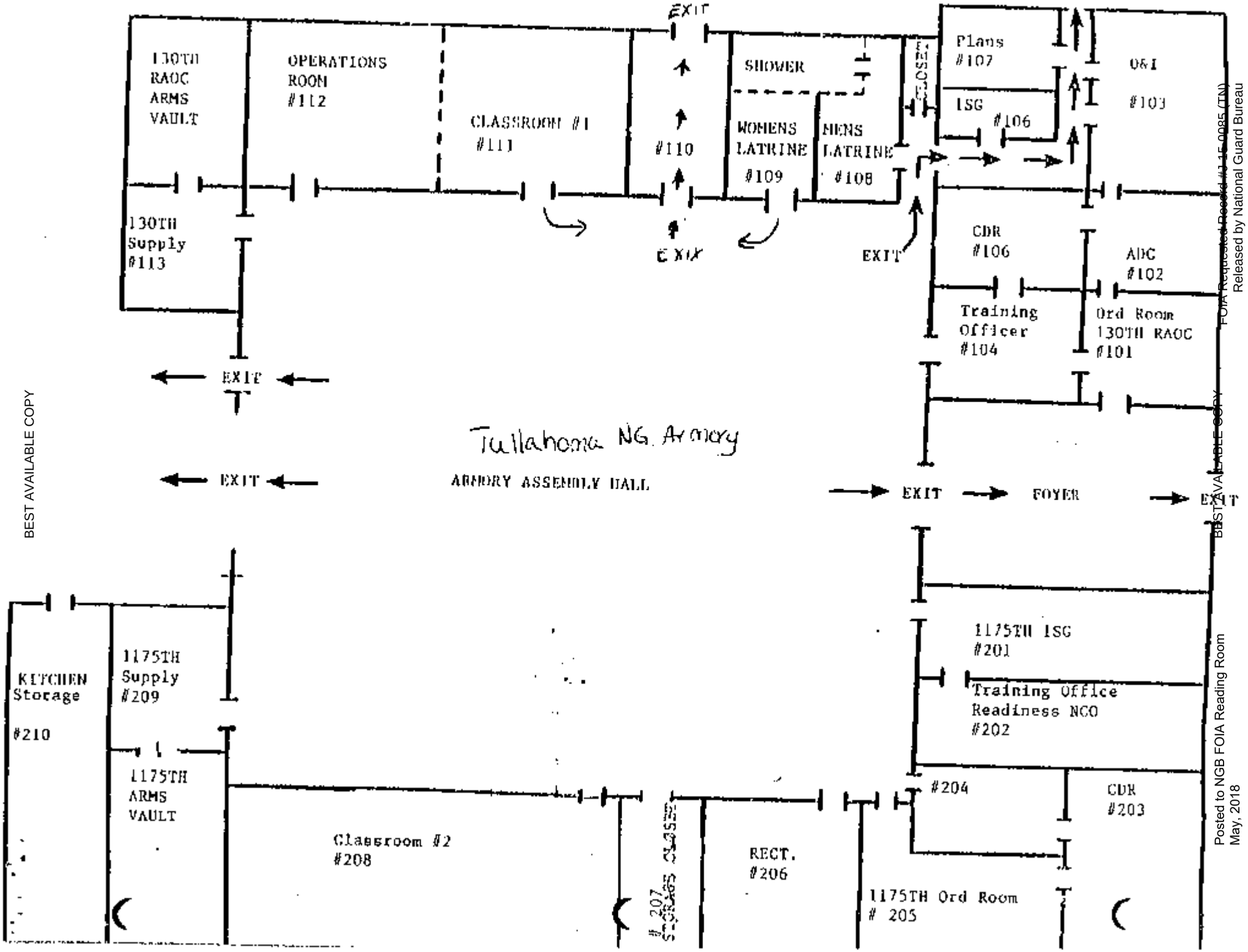

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Page 2370 of 2531

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USPHS DFOH ENVIRONMENTAL MICROBIOLOGY LABORATORY PHILADELPHIA, PA
LABORATORY REPORT #ARNG-03-4R

Client agency: US Army National Guard Bureau Region South, Columbia, SC
POIS#/task #: D8H03AR33304/ARNG-03-04/
Sampling date: 2/11/03
Date of inoculation: 2/12/03
General location: Tullahoma National Guard Armory
Sampling technique: Wipe samplings
Medium used: Malt extract agar (MEA) and cellulose Czapek agar (CCA) for fungi
Samples submitted by: L. Evans
Date characterization completed: 2/24/03

Wipe samples on MEA and CCA plates

Sample ID	Sampling Location	Area (in^2)	Dilution Factor	Fungi on MEA @ 25°C	*Stachybotrys chartarum* on CCA @ 25°C
001	Caulking on wall air conditioning, upper left corner, 1175th supply room	1	40X-MEA 10X-CCA	1. *Penicillium* (10*) 2. *Cladosporium* (4) 3. *Aspergillus sp.* (2) 4. *Aureobasidium* (1) 5. *Epicoccum* (1) CFU/in^2 = 720	Absent
002	Room 202, 8 inch mold patch behind door	3	4,000X-MEA 40X-CCA	1. *Stachybotrys chartarum* (159) CFU/in^2 = 2.1×10^5	Present
003	Room 202, 5 inch mold patch above ceiling tile	1	400X-MEA 40X-CCA	1. *Stachybotrys chartarum* (43) 2. *Aspergillus sp.* (1) CFU/in^2 = 1.8×10^4	Present
004	Recruiter office underneath AC unit	1	40X-MEA 40X-CCA	1. *Stachybotrys chartarum* (15) 2. *Penicillium* (1) CFU/in^2 = 640	Present

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Sample ID	Sampling Location	Area (in^2)	Dilution Factor	Fungi on MEA @ 25°C	*Stachybotrys chartarum* on CCA @ 25°C
LB	Laboratory blank	NA#	10X-MEA 10X-CCA	No fungal growth	Present

* Colony counts.
\# Not applicable.

Characterization completed by: [redacted] Non-Responsive crobiologist

Quality control checked by [redacted] Non-Responsive (initials)

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Page 2372 of 2531

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AMA Analytical Services, Inc.
A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client:	LAE Consulting	**Job Name:**	Tullahoma NG, Tullahoma, TN	**Chain Of Custody:**	109643
Address:	1218 Scattered Pine Court	**Job Location:**	Not Provided	**Date Analyzed:**	02/21/2003
	Severn, Maryland 21144	**Job Number:**	Not Provided	**Person Submitting:**	[redacted]
		P.O. Number:	Not Provided	**Report Date:**	21-Feb-03
Attention:	[redacted]				

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit		Final Result			Comments
0327000	1	Flame	Wipe	****	1.000	12.00	ug/ft²	<	12	ug/ft²	
0327001	2	Flame	Wipe	****	1.000	12.00	ug/ft²	<	12	ug/ft²	
0327002	3	Flame	Wipe	****	1.000	12.00	ug/ft²	<	12	ug/ft²	
0327003	4	Flame	Wipe	****	1.000	12.00	ug/ft²		2900	ug/ft²	
0327004	5	Flame	Wipe	****	1.000	12.00	ug/ft²		230	ug/ft²	
0327005	6	Flame	Wipe	****	1.000	12.00	ug/ft²		120	ug/ft²	
0327006	7	Flame	Wipe	****	1.000	12.00	ug/ft²		13	ug/ft²	
0327007	8	Flame	Wipe	****	1.000	12.00	ug/ft²	<	12	ug/ft²	
0327008	9	Flame	Wipe	****	1.000	12.00	ug/ft²	<	12	ug/ft²	
0327009	10	Flame	Wipe	****	1.000	12.00	ug/ft²		170	ug/ft²	
0327010	11	Flame	Wipe	****	1.000	12.00	ug/ft²		200	ug/ft²	
0327011	12	Flame	Wipe	****	1.000	12.00	ug/ft²	<	12	ug/ft²	
0327012	13	Flame	Wipe	****	1.000	12.00	ug/ft²	<	12	ug/ft²	
0327013	14	Flame	Wipe	****	1.000	12.00	ug/ft²		32	ug/ft²	
0327014	15	Flame	Wipe	****	1.000	12.00	ug/ft²	<	12	ug/ft²	
0327015	16	Flame	Wipe	****	1.000	12.00	ug/ft²		33	ug/ft²	
0327016	17	Flame	Wipe Blank	****	N/A	12.00	ug	<	12	ug	

Is report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, is report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and ability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples.
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Page 2373 of 2537

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AMA Analytical Services, Inc.
A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client:	LAE Consulting	Job Name:	Tullahoma NG, Tullahoma, TN	Chain Of Custody:	109643
Address:	1218 Scattered Pine Court	Job Location:	Not Provided	Date Analyzed:	02/21/2003
	Severn, Maryland 21144	Job Number:	Not Provided	Person Submitting:	[redacted]
		P.O. Number:	Not Provided	Report Date:	21-Feb-03
Attention:	[redacted]				

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Final Result	Comments

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7420; Water: SM-3111B
Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7421, Water: SM-3113B
N/A = Not Applicable mg/Kg = parts per million (ppm) by weight mg/L = parts per million (ppm)
%Pb = percent lead by weight ug = micrograms ug/L = parts per billion (ppb)
Note: All results have two significant digits. Any additional digits shown shoul[redacted] considered when interpreting the result.

Manager: [redacted]

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This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples.
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Page 237 of 2531

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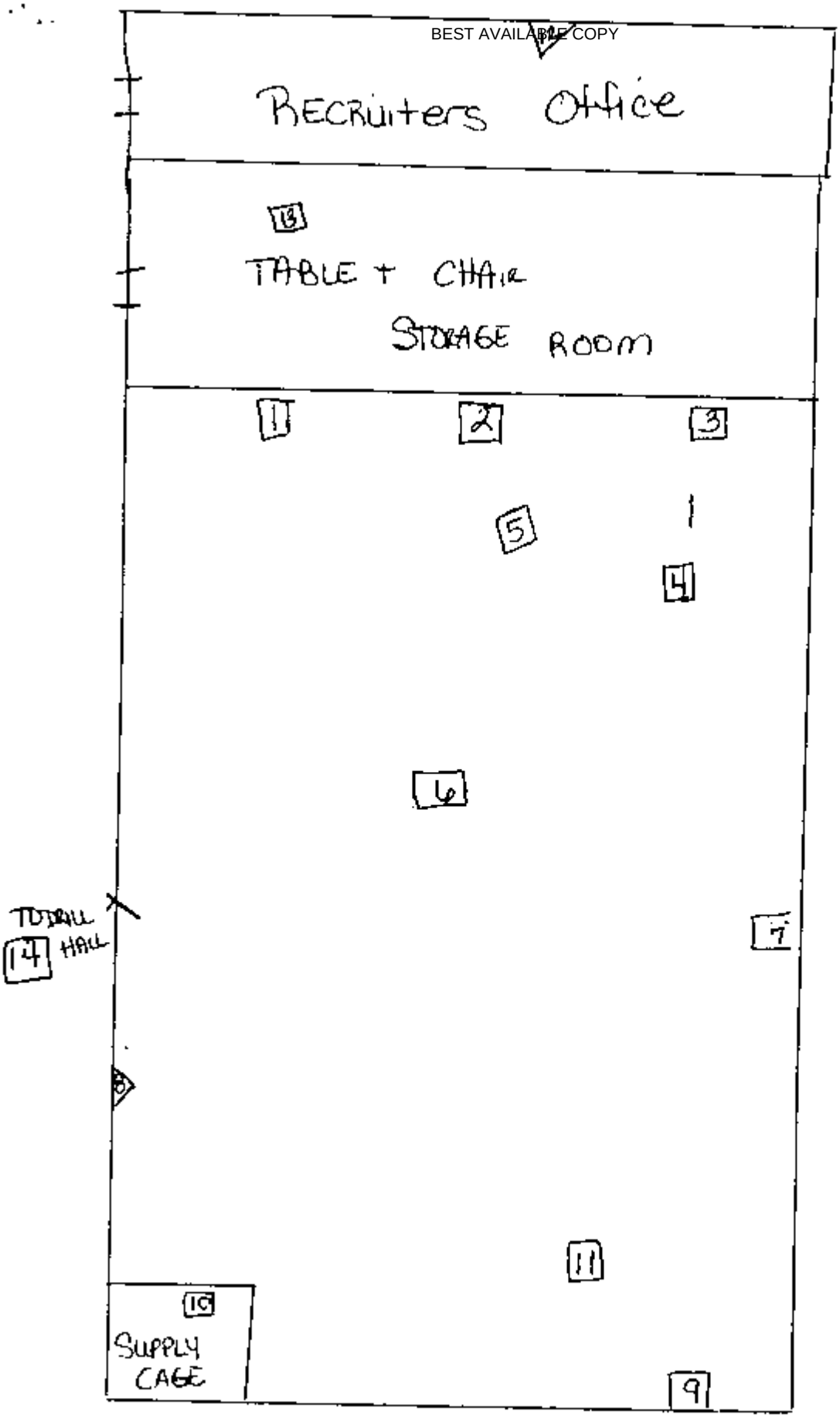

DRILL HALL

Tullahoma N G Armory, TN
LEAD Wipe Sample Locations

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Visible Mold located in Room 202,
in the corner above the door

Visible mold above drop ceiling
in room 202 (near the wires)

View of visible mold located under the fan coil unit in the recruiters office

Exterior view of the dampers of the fan coil unit located in the recruiters office

View of blistered paint on the wall in the Drill

View of residual water damage above the door in the 1175th Supply room

Views of the unit preparing for Deployment
in the Armory Drill Hall

Views of the unit preparing for Deployment in the Armory Drill Hall

Rear views of the Tullahoma, TN Armory

View of lead wipe sample locations #1,2,5 (yellow card) in the converted DIFR

View of lead wipe sample #3 and #4 in the Coverted DIFR

View of lead wipe sample locations #6
in the converted DIFR

View of lead wipe sample location #7
on top of the grey file cabinet

View of lead wipe sample #8, in the converted DIFR

View of lead wipe samples #9 and #11, in the converted DIFR

View lead wipe sample #10, (yellow card), in the DIFR

View of lead wipe sample #12, ceiling accoustic material located in a closet (recruiter's office) former IFR

View of converted Indoor firing range table and chairs storage room located of the Drill Hall floor

View of lead wipe sample location #13, on the ceiling inside table and chairs storage room (former IFR)

View of lead wipe sample #15
top of Dr. Pepper soda machine

View of lead wipe sample #16 on the supply grill in the Commander's office

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HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

[redacted]

ARLOC	INSTALLATION	BLDG/RM NO.
	Tullahoma NG Armory, TN	1202 E. Carroll ST.

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR
11 Feb 03	LA & Consulting

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
		Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
Non-Responsive	130 Support Center (Corps RAOC)		8+

NO. CIV(S)	NO. MIL	NO. CONTRACTORS	NO. LOC(S)	NO. OTHER

SECTION 2: FACILITY DATA

LAB HOODS	VAPOR DEGREASERS	SPRAY BOOTHS
MAINTENANCE BAYS	OPEN SURFACE TANKS	VENTILATION UNITS

SECTION 3: SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS

PERSONAL PROTECTIVE EQUIPMENT (R= REQUIRED; U = UTILIZED)

GLOVES	R/U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R/U
ACID	/	AIR LINE			/
COLD SURFACES	/	ABRASIZE BLASTING HOOD			/
HOT SURFACES	/	DISPOSABLE			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	1/2 FACE AIR PURIFYING			/
SOLVENTS	/	1/4 FACE AIR PURIFYING			/
SURGICAL GLOVES	/	SELF CONTAINED			/

EYES/FACE	R/U	HEARING	R/U	BODY	R/U	HEAD/FIT	R/U
CHEMICAL SPLASH	/	CANAL CAPS	/	APRONS	/	COLD WEATHER BOOTS/HATS	/
FULL FACE SHEILD	/	EARPLUGS	/	COLD WEATHER CLOTHING	/	HARD HATS	/
CHEMICAL/SAFETY	/	HELMETS	/	COVERALLS	/	IMPERMEABLE BOOTS	/
SAFETY/IMPACT	/	MUFFS		FULL BODY SUIT	/	SAFETY/CONDUCTIVE SHOES	/
WELDING HELMET	/	MUFF/EARPLUG COMBO	/	HEAT REFELECTIVE VEST/SUIT	/	SAFETY/NON-CONDUCTIVE SHOES	/
		MUFF/EARPLUG W/TIME LIMIT	/	SAFETY BELT/HARNESS	/		/

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NATIONAL GUARD REGION SOUTH
INDUSTRIAL HYGIENE OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

NGB-ARS-IHSE (40-5f) January 12, 20010

MEMORANDUM FOR The Adjutant General of Tennessee, ATTN: Non-Responsive TN Army National Guard Armory Union City, Armory, 2017 E Reelfoot Avenue, Union City, TN 38261

THRU Non-Responsive Deputy State Surgeon, Tennessee National Guard, HQS, AGTN-DCSPER-DSS, P.O. Box 41502, Houston Barracks, Nashville, Tennessee 37204-1501.

SUBJECT: Transmittal of IH Survey of TN ARNG Union City Armory, Union City, TN.

1. References.

   a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 19 August 1998.

   b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1996 rev.

   c. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 25 May 2007

   d. AR 385-10, The Army Safety Program, 23 August 2007.

   e. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.

   f. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, 23 May 2008.

   g. TB MED 503, The Army Industrial Hygiene Program, 30 October 2000.

   h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2008. American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

   i. Industrial Ventilation, 26th rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

   j. Title 29, Code of Federal Regulations (CFR), 2001 rev., part 1910, Occupational Safety and Health Standards.

   k. Reports of Union City Armory Industrial Hygiene Survey, Mr. Angel M. Guardiola Fayetteville, GA.

2. General.

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a. At the request of Non-Responsive RN, of the Tennessee National Occupational Health Office, an Industrial Hygiene Survey was put together to conduct Health Hazard Information module (HHIM) Field survey of the s and industrial hygiene sampling of the TN ARNG Union City Armory, Union City, TN.

b. The survey was conducted by Non-Responsive er Cake Rd, Fayetteville, GA 30214

3. Findings: The information that follows is based on the findings of the survey performed. All HHIM field survey forms, industrial hygiene sampling and survey findings of the report are enclosed (See ENCL 1). Operations of very short duration were not sampled due to the requirements of the sampling method. If the operation changes or if the length of the operation is increased, contact this office to schedule sampling if it is deemed needed then.

4. Recommendations. Understand that all findings documented in the enclosed report have been reviewed by the Regional Industrial Hygienist and the following recommendations are the ones to be followed.

a. Use the guidance given in the enclosed report as good IH practices, requesting industrial hygiene (IH) services where needed. The recommendations that follow are based on the survey findings as reported for the areas surveyed:

i Up grade the illumination in the Armory to meet Standard. Consider the use of supplemental lighting at locations that were below the recommended standards and replace burned out bulbs and/or light fixtures in the offices, classrooms and drill hall. See Light Readings Section. (RAC 3)

ii Ensure personnel using computers for extended periods of time take occasional breaks and change position to minimize the possibility of eyes and/or hands/wrist injury. (RAC 2)

iii Continue to ensure that weapon maintenance and cleaning is done in a well-ventilated area. Continue to practice good personal hygiene by washing hands after handling and cleaning weapons and ammunition. Ensure that the weapons racks are well cleaned before placing them back in the vault. Also, consider the use of disposable plastic table cloth to cover the tables while the weapons are cleaned to prevent contamination of the tables. (RAC 2)

iv Ensure that the water collection receptacle in the de humidifier at the weapons vault is emptied on a regular basis.

v Place the MSDS book at a visible location in an easy to access area of the armory. Ensure that personnel and troops have knowledge of the location of the MSDS book, and are take the hazardous materials safety training. Also a Hazardous Materials Inventory List should be made from the MSDS forms and be placed in the POL storage. (RAC 3)

b. The recommendations given in the comments section of the HHIM data sheets and data collected will serve as an update of the baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY2009. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY2010 IHIP.

c. Have all HHIM data entered into the HHIM computer module.

d. Use the report to help in correcting all deficiencies noted.

e. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present visits, especially if this will help eliminate health hazards and reduce medical surveillance cost.

f. Contact the State Occupational Health Office for any medical Surveillance that may be needed.

g. To execute your responsibilities in correcting all deficiencies, coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed about the industrial hygiene survey or air sample

Non-Responsive

[redacted]

CF:
Non-Responsive Tennessee State Safety and Occupational Health Manager, 3041 Sidco Drive, Nashville, TN 37204-1504
Non-Responsive N, Occupational Health Nurse, Tennessee State Safety and Occupational Health Office, Smyrna, TN 37167

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FINAL REPORT

FOR

BASELINE INDUSTRIAL HYGIENE SURVEY

TENNESSEE ARMY NATIONAL GUARD

UNION CITY ARMORY

UNION CITY, TN

DATE:

NOVEMBER 20, 2009

PREPARED BY

Non-Responsive

[redacted]

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CONTENTS

1.0 INTRODUCTION

2.0 INSTRUMENTATION

3.0 FINDINGS

4.0 REFERENCES

Attachment 1 IHHM Forms

Attachment 2 Laboratory Reports: A/C-Heating System Outlet Grills & Filters
Weapons Vault

Attachment 3 Weapons Vault Sampling Areas

Attachment 4 Photographs of the Facility

Attachment 5 Schematic Drawing of Facility

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1.0 INTRODUCTION

At the request of the National Guard Bureau South Region Industrial Hygiene Office, Non-Responsive performed a Baseline Industrial Hygiene Survey at the TN ARNG Union City Armory. The purpose of the survey was to perform a baseline survey to evaluate health hazards, controls present in the work site, collect lead swipe samples from renovated/inactive or closed Indoor Firing Ranges, Weapons Vault, A/C-Heating System, illumination survey and to make recommendations regarding health hazards associated with the work at the Union City Armory.

The facility was built in 1960s. Personnel reported that in the 1960s an addition was built on the south and west of the original building. A new roof was installed in 2008. The facility houses the 913 Engineer Company. The armory is used by the troops of the above mentioned unit for their monthly weekend drills.

The 913 Engineer Company with about 165 troops had 4 full time AGR personnel at the time of the survey. The AGR employees are assigned to perform administrative duties Monday-Friday 8:00am-4:30pm. The facility houses administrative areas, a drill hall, classrooms, a learning center, a supply room, a weapons vault, and a kitchen. No problems with the building were reported at the time of the survey. A schematic drawing of the facility can be found in Attachment 5.

The facility was visually examined and personnel consulted to assess potential hazards present. Health Hazard Information Modules were completed. Illumination survey was performed throughout the facility.

2.0 INSTRUMENTATION/CALIBRATION

The following instrumentation was used to obtain light measurements. The instrument used has been calibrated and was operated according to the manufacturer's recommendations:

- SPER SCIENTIFIC Light Meter
- GHOST WIPES, Lead Wipes

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3.0 FINDINGS

Illumination

Illumination levels were recorded in administration offices, classrooms, the conference room, the drill hall and the supply room. Light measurements were below IES guidelines at the Drill Hall and the supply room storage area. The other areas tested were within IES minimum standards. See Light Readings Table at the end of this section.

Administration

Personnel perform administrative duties that consist of reading, handling and generating paper work. Computer use comprises a large portion of the working day, four to five hours per day. This continuous use of computers can in the long run lead to eyestrain and hand/wrist soreness. Personnel reported no health problems associated with the job at this time.

Motor Pool

The motor pool is located behind the building. A large number of vehicles, mainly trucks are kept at the rear and east side of the armory. It is fenced and locked. Operator level PMCS are performed at the armory on weekend drills with road testing. Sometimes the vehicles are taken to the field for training. When major repairs are needed the vehicles are taken to the field maintenance shop facility located behind the armory.

Drill Hall

The Drill Hall is located towards the left side of the building. It is used primarily for formation on weekend drills. Vehicles are not stored in the room. The Drill Hall is used to clean weapons about three times a year. There are air exhaust ventilation fans, located close to the roof at one end of the DH. Both air exhaust fans were working the day of the survey. The weapons are cleaned by groups on tables at the Drill Hall in an area close to the supply Room. The roll-up door is opened while the weapons are cleaned. The tables are not covered. Rags with CLP are used to clean the weapons. The used rags are collected and taken to the field maintenance shop, located behind the armory, for their disposal. Personnel reported that the tables used to clean the weapons are right after they finish and on weekend drills, the tables are cleaned again before serving the food. The Drill Hall is rented about 5 to 10 times a year for different parties or weddings. No cooking is allowed. The renters may use the kitchen to warm food.

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Kitchen

The facility has a kitchen that is used to cook on weekend drills. The unit has a mess section in charge of the kitchen, the cooking and the cleaning. Lunches are provided on Saturday and Sunday on weekend drills. They eat on tables in the Drill Hall. The kitchen looked cleaned and well organized. The tables and chairs are stored at an area behind the kitchen next to where the weight is located.

Boiler Room

There is no boiler in the facility. The facility uses natural gas for the heating units in the Drill Hall and the Supply Room.

Deactivated Indoor Firing Range

There is no deactivated Indoor Firing Range (IFR) at the Union City Armory.

Weapons Vault

The Union City Armory has a weapon storage vault located in the Supply Room. Personnel stated that accountability and issuing of weapons are performed in this area when the weapons are cleaned in the Drill Hall. Weapons are cleaned about three times a year in the Drill Hall as stated in the Drill Hall section above. The dehumidifier in the weapons vault was working the day of the survey. The water collected in the unit's receptacle and emptied by personnel when it is full. All lead samples were taken using a 10 inch by 10 inch template. Five wipe samples were taken from the weapons vault racks. Two of the samples were above the clearance level of 200ug/ft2. See table 1 for results. See attachments 3 and 4 for sampling locations and pictures.

Table 1

Sample Number	Sample Location	Results	
94	Weapons Vault, Left side, Floor in front of 1st rack from front	66ug	94ug/ft2
95	Weapons Vault, Left side, Floor in front and Rack bottom, 3rd rack from front	123ug	175ug/ft2
96	Weapons Vault, Rear wall, Floor in front of 2nd rack from left	198ug	282ug/ft2
97	Weapons Vault, Rear wall, Floor in front and Rack bottom, 4th rack from left	163ug	232ug/ft2

98	Weapons Vault, Right wall front, Floor in front & rack bottom, only rack there	48ug	68ug/ft2
99	Blank	BRL	BRL

A/C System

Central A/C units are used to cool the administration offices, learning center and classrooms. The A/C-Heating units are still the ones installed when the armory was built. Except for repairs that have been performed when needed, no major replacement has been done. The units work well in both winter and summer. The filters will need to be changed in the very near future. All lead samples were taken using a 10 inch by 10 inch template. The US environmental Protection Agency (EPA), under a new standard issued in 2000, considers lead dust as a hazard if levels are greater than 40 micrograms of lead in dust per square foot on floors. The National Guard Bureau recommends a limit of 200 micrograms per square foot for surface contamination. Thirteen wipe samples were collected from the supply air outlet grills in the offices classrooms and library. All samples were below the clearance level of 200 ug/ft2.

Table 2

Sample Number	Sample Location	Results
81	A/C-Heating Outlet, Orderly Room	BRL
82	A/C-Heating Outlet, 913 OPS office	BRL
83	A/C-Heating Outlet, ADMIN Area/Classroom	BRL
84	A/C-Heating Outlet, Training NCO Office	BRL
85	A/C-Heating Outlet, RNCO Office	BLR
86	A/C-Heating Outlet, Learning Center	BLR

87	A/C-Heating Outlet, Classroom 2	BRL
88	A/C-Heating Outlet, Classroom 1	BRL
89	A/C-Heating Outlet, Classroom 3	BRL
90	A/C-Heating Unit Filter, Fan Side (GF1#3A unit)	
91	A/C-Heating Unit Filter, Supply Side (GF#3A unit)	
92	C-Heating Unit Filter, Fan Side (GF #1B unit)	BRL
94	A/C-Heating Unit Filter, Supply Side (GF #1B unit)	BRL
99	Blank	BLR

Material Safety Data Sheets

There is an MSDS Book in the armory located on the hallway wall between the Drill Hall and the Supply Room. A contractor came to the armory, prepared it and placed it at the present location. It was well organized with index. It contains only MSDS forms for household goods. It visible but some signs should be placed to advise personnel and troops about the location of the MSDS book. There is no flammables cabinet in the Supply Room or anywhere inside the armory. All the chemicals are stored at the flammables cabinet of the field maintenance shop which as stated before is located behind the armory.

Light Readings

Light measurements were taken in various locations throughout the facility. The results were compared to guidelines recommended by the Illuminating Engineering Society (IES). The results of the survey are shown in Table 3

Table 3

Location	Light Reading (footcandles)	IES Recommendation (footcandles)

ADO Orderly Room	**59-86 (Avg. 70)**	**50-100**
ADO RNCO Office	**45-54 (Avg. 50)**	**50-100**
ADO 913th OPS	**62-88 (Avg. 69)**	**50-100**
ADO ADMIN Area	**50-112 (Avg. 89)**	**50-100**
ADO Training NCO Office	**52-68 (Avg. 60)**	**50-100**
Learning Center	**50-60 (Avg. 54)**	**50-100**
Copy Room	**67-82 (Avg. 74)**	**50-100**
Classroom 1	**51-80 (Avg. 59)**	**50-100**
Classroom 2	**47-70 (Avg. 59)**	**50-100**
Classroom 3	**53-76 (Avg. 63)**	**50-100**
Classroom 4	**54-74 (Avg. 59)**	**50-100**
ADO Supply Room Office	**48-57 (Avg. 52)**	**50-100**
ADO Supply Room Storage	**16-26 (Avg. 18)**	**20**
Drill Hall	**16-55 (Avg. 28)**	**30**

Light measurements were below IES guidelines at the Drill Hall and the supply room storage area. The other areas tested were within IES minimum standards. ANSI RP7-1991.

4. REFERENCES

- Guide to Occupational Exposure 2000, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.
- American National Standards Institute (ANSI), /Illuminating Engineering Society (IES), Industrial Lighting 1991.
- Title 29, Code of Federal Regulations (CFR). 1999, revision, Part 1910. Occupational Safety and Health Standards
- AR 40-5, Preventative Medicine, 15 October 1990.
- AR 385-10, The Army Safety Program, 23 May 1988.
- National Safety Council, Fundamentals of Industrial Hygiene, 4th edition. 1996.
- AR 385-16, National Guard Pamphlet, Safety Guidelines for Converting Indoor Firing Ranges to Other uses.

- TB MED 503, The Army Industrial Hygiene Program, February 1985.
- Department of the Army Pamphlet (DA PAM) 40-501,27 August 1991. Hearing Conservation.
- Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.

Non-Responsive

[redacted]

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RECOMMENDATIONS

- Consideration should be given to provide supplemental lighting at locations that were below the recommended standards. See Light Readings Section.

- Recommend that when using computers for extended periods of time. personnel should take occasional breaks and change position to minimize the possibility of eyes and/or hands/wrist injury.

- Continue to ensure that weapon maintenance and cleaning is done in a well-ventilated area. Continue to practice good personal hygiene by washing hands after handling and cleaning weapons and ammunition. Ensure that the weapons racks are well cleaned before placing them back in the vault.

- Recommend the use of disposable plastic table cloth to cover the tables while the weapons are cleaned to prevent contamination of the tables.

- Ensure that the water collection receptacle in the de humidifier at the weapons vault is emptied on a regular basis.

- Recommend that A/C filters should be change regularly according to manufacturers' recommendation).

- Ensure that personnel and troops have knowledge of the location of the MSDS book. And is enrolled hazardous materials safety training.

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SECTION 1. DEMOGRAPHIC DATA

a. ARLOC 47000 b. INSTALLATION Mount City Armory c. BLDG/RM NUMBER Readiness NCO Off.

d. LOCATION/CODE AA e. OPERATION/CODE 400 DESCRIPTION

Readiness NCO, - Operations Sgt on weekend Drill, Computer work about 6 hrs/day.

g. MACOM/CODE NG / Non-Responsive ODE / i. SUPERVISO Non-Responsive

j. TELEPHONE/AUTOVON NUMBER Non-Responsive k. RAC l. FREQUENCY (Hr

m. NO CIV(S) n. NO MIL o. NO CONTRACTOR(S) p. NO LOC(S) q. NO OTHER

SECTION 2. IH STAFFING DATA

a. LAB HOODS b. VAPOR DEGREASERS c. MAINTENANCE BAYS d. SPRAY BOOTHS

e. OPEN SURFACE TANKS f. VENTILATION UNITS

SECTION 3. SURVEY DATA

a. SURVEY DATE 11/20/09 b. EVALUATOR (INITIALS) Non-Responsive

c. CONTROLS PRESENT	d. EVALUATION	e. UNIT CODE	f. CONTROLS REQUIRED	g. STATUS
Lighting	45-50, Avg: 50	FC	50-100	Adq

h. PERSONAL PROTECTIVE EQUIPMENT (R-REQUIRED; A-AVAILABLE)

1. RESPIRATOR	MANUFACTURER	NIOSH TC NO	R/A
DISPOSABLE			
½ FACE AIR PURIFYING			
⅝ FACE AIR PURIFYING			
FULL FACE AIR PURIFYING			
POWERED AIR PURIFYING			
AIRLINE			
SELF-CONTAINED			
ABRASIVE BLASTING HOOD			

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	R/A
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	
OIL	/	SAFETY/IMPACT	/	EARPLUGS	/	COVERALLS	/	IMPERMEABLE BOOTS	
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/ HARNESS	/	SAFETY/NONCONDUCTIVE SHOES	
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/								

SECTION 4. HAZARD INVENTORY DATA

a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC or EPC	d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO)
POVDT	eye/head strain Computer work for long periods of time	3	

SECTION 1. DEMOGRAPHIC DATA

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a. ARLOC 47000 b. INSTALLATION Union City, TN Armory c. BLDG/RM NUMBER Supply Room

d. LOCATION/CODE AA e. OPERATION/CODE ADO, SAH f. DESCRIPTION Supply NCO, Admin Vehicle

g. MACOM/CODE NG / Non-Responsive ODE / i. SUPERVISOR Non-Responsive

j. TELEPHONE/AUTOVON NUMBE k. RAC l. FREQUENCY (Hrs Per Day)

m. NO CIV(S) n. NO o. NO CONTRACTOR(S) p. NO LOC(S) q. NO OTHER

SECTION 2. IH STAFFING DATA

a. LAB HOODS b. VAPOR DEGREASERS c. MAINTENANCE BAYS d. SPRAY BOOTHS

e. OPEN SURFACE TANKS f. VENTILATION UNITS

SECTION 3. SURVEY DATA

a. SURVEY DATE 11-20-09 b. EVALUATOR (INITIALS Non-Responsive

c. CONTROLS PRESENT	d. EVALUATION	e. UNIT CODE	f. CONTROLS REQUIRED	g. STATUS
Lighting - Office	48-57; Avg: 52	FC	50 - 100	Adqt
" Storage area	16-26; Avg: 18	FC	20	Inadqt

h. PERSONAL PROTECTIVE EQUIPMENT (R=REQUIRED; A=AVAILABLE)

1. RESPIRATOR	MANUFACTURER	NIOSH TC NO	R/A
DISPOSABLE			
¼ FACE AIR PURIFYING			
½ FACE AIR PURIFYING			
FULL FACE AIR PURIFYING			
POWERED AIR PURIFYING			
AIRLINE			
SELF-CONTAINED			
ABRASIVE BLASTING HOOD			

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	R/A
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	
OIL	/	SAFETY/IMPACT	/	EARPLUGS	/	COVERALLS	/	IMPERMEABLE BOOTS	
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/ HARNESS	/	SAFETY/NONCONDUCTIVE SHOES	
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/								

SECTION 4. HAZARD INVENTORY DATA

a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC or EPC	d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO)
POV DT	Computer work for long period of time - eye/hand strain	3	
FOOTHAZ	Foot hazard	3	
	Heavy lifting	3	

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Analytical Environmental Services, Inc.

Date: 12/3/2009

LEAD ON WIPES (N9100/7082)
N7082

CLIENT: Non-Responsive [redacted]
Project:
Delivery Order:
PO No:

Lab Order: 0911I94
Date Received: 11/23/2009 2:45 PM
Matrix: Wipe

Laboratory ID	Client Sample ID	Results	Units	Report Limit.	DF	Date Collected	Date Analyzed	Analyst
0911I94-001A	81	BRL	ug, Total	20	1	11/20/2009	11/27/2009	MAW
0911I94-002A	82	BRL	ug, Total	20	1	11/20/2009	11/27/2009	MAW
0911I94-003A	83	BRL	ug, Total	20	1	11/20/2009	11/27/2009	MAW
0911I94-004A	84	BRL	ug, Total	20	1	11/20/2009	11/27/2009	MAW
0911I94-005A	85	BRL	ug, Total	20	1	11/20/2009	11/27/2009	MAW
0911I94-006A	86	BRL	ug, Total	20	1	11/20/2009	11/27/2009	MAW
0911I94-007A	87	BRL	ug, Total	20	1	11/20/2009	11/27/2009	MAW
0911I94-008A	88	BRL	ug, Total	20	1	11/20/2009	11/27/2009	MAW
0911I94-009A	89	BRL	ug, Total	20	1	11/20/2009	11/27/2009	MAW
0911I94-010A	90	BRL	ug, Total	20	1	11/20/2009	11/27/2009	MAW
0911I94-011A	91	BRL	ug, Total	20	1	11/20/2009	11/27/2009	MAW
0911I94-012A	92	BRL	ug, Total	20	1	11/20/2009	11/27/2009	MAW
0911I94-013A	93	BRL	ug, Total	20	1	11/20/2009	11/27/2009	MAW
0911I94-014A	94	66	ug, Total	20	1	11/20/2009	11/27/2009	MAW
0911I94-015A	95	123	ug, Total	20	1	11/20/2009	11/27/2009	MAW
0911I94-016A	96	198	ug, Total	20	1	11/20/2009	11/27/2009	MAW
0911I94-017A	97	163	ug, Total	20	1	11/20/2009	11/27/2009	MAW
0911I94-018A	98	48	ug, Total	20	1	11/20/2009	11/27/2009	MAW
0911I94-019A	99	BRL	ug, Total	20	1	11/20/2009	11/27/2009	MAW

Qualifiers: BRL - Not Detected at the Reporting Limit DF - Dilution Factor

Results are blank corrected where applicable

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May, 2018

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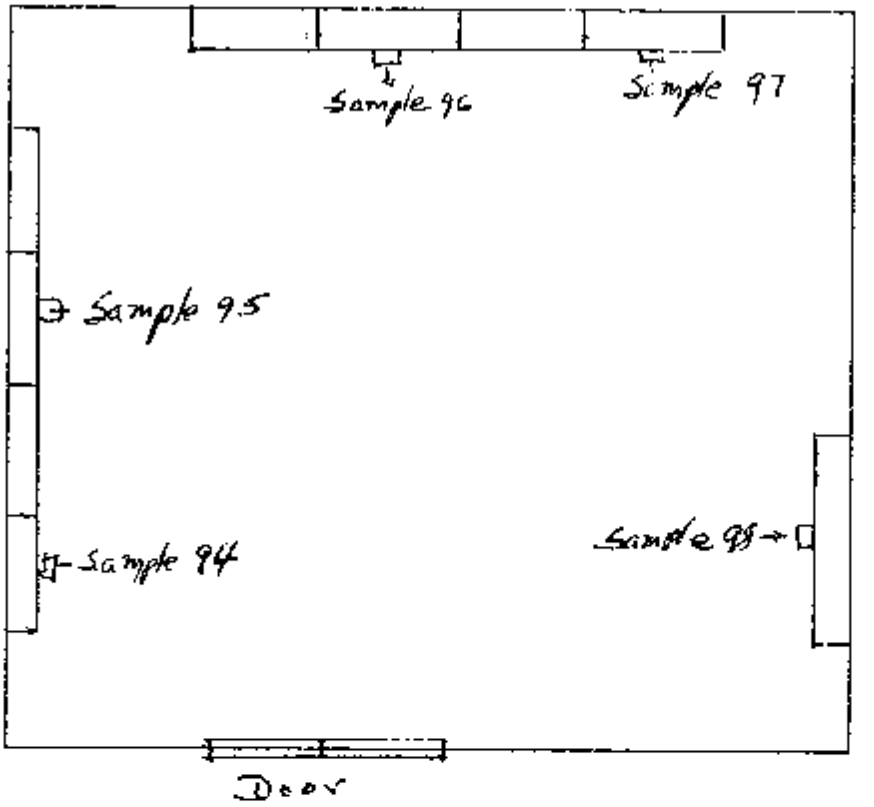
Page 2405 of 2531



Weapons Vault Sampling Areas

Union City, TN Armory

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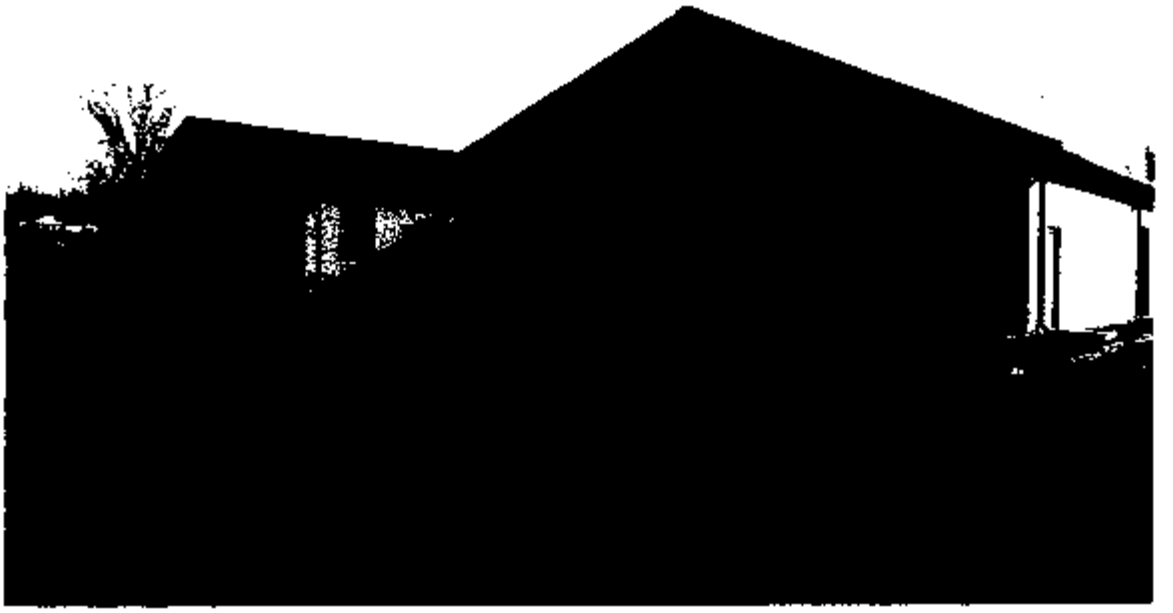

UNION CITY, TN
ARMORY

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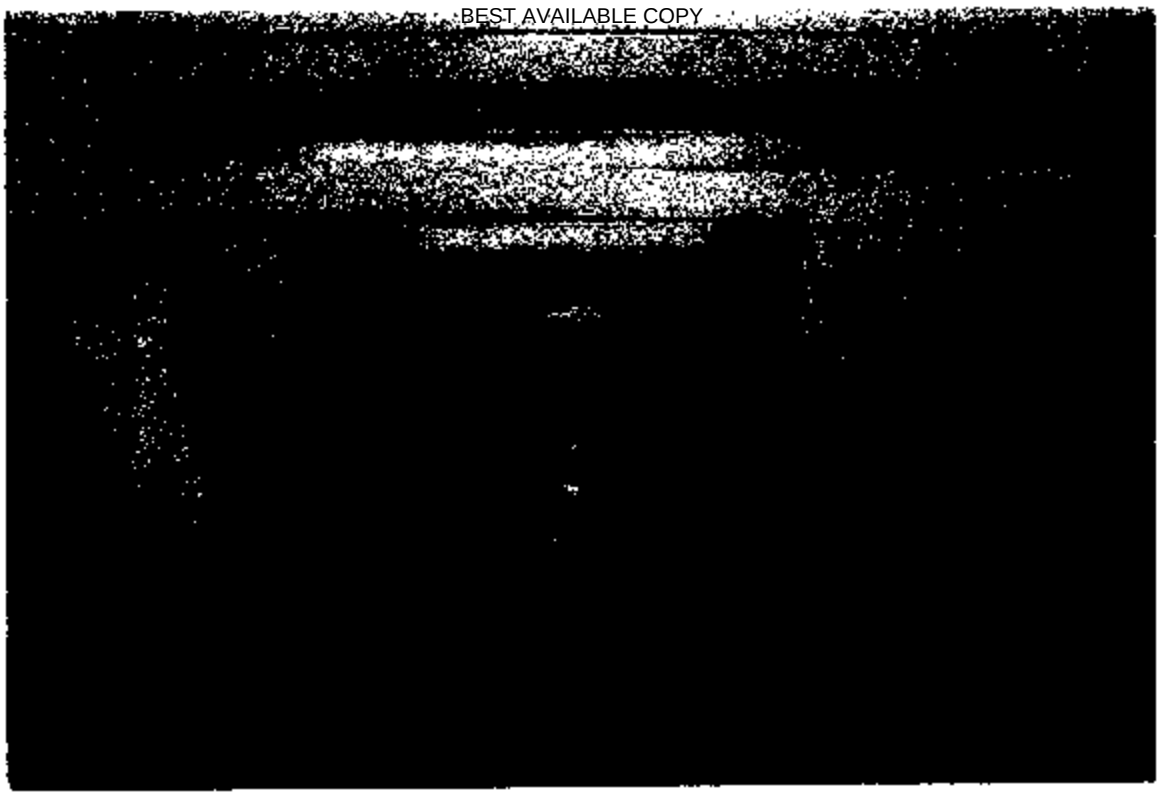

A/C-HEATING OUTLET, ORDERLY & ADM ROOMS, SAMPLES 81&83

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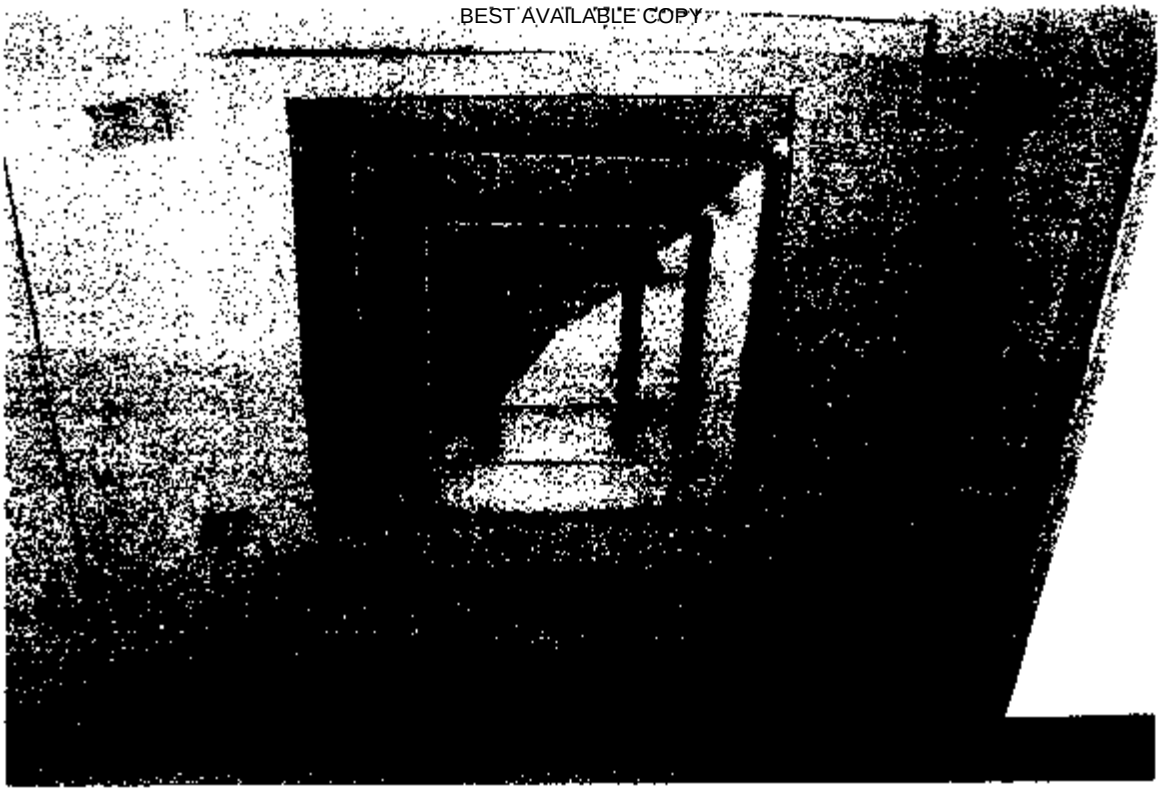
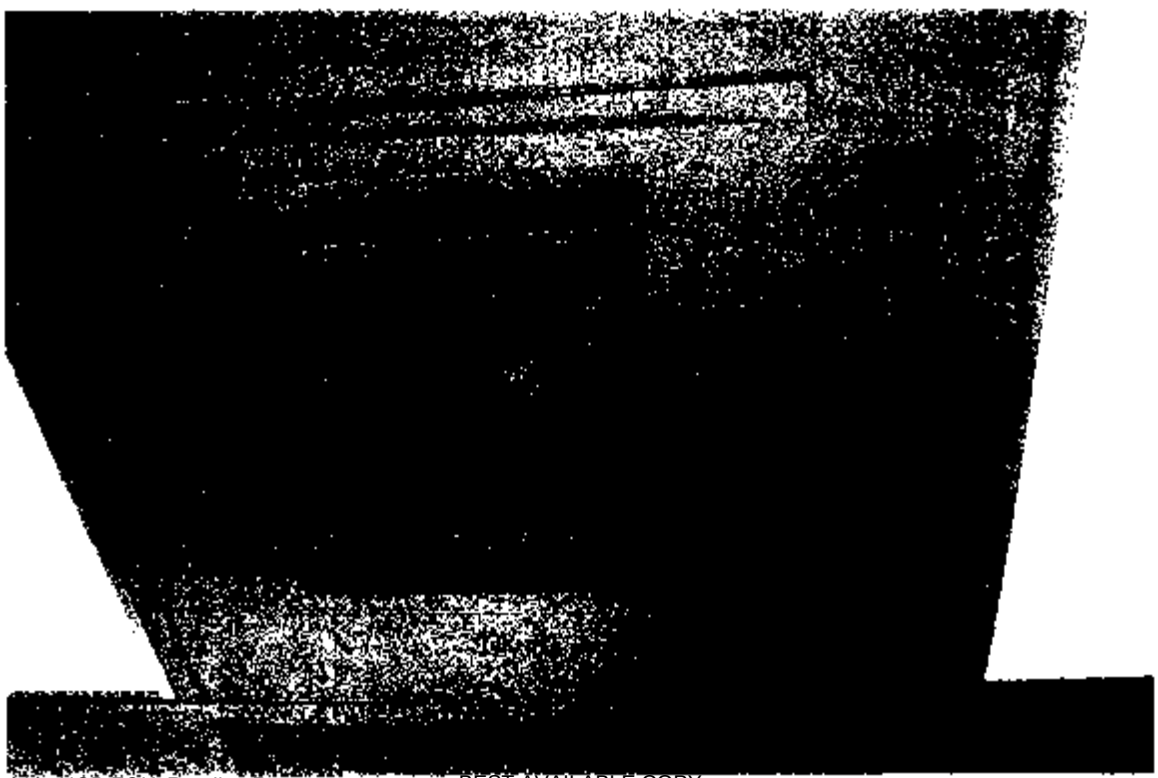


A/C-HEATING OUTLET,
TRNG & READINESS NCO
OFFICES, SAMPLES
84&85



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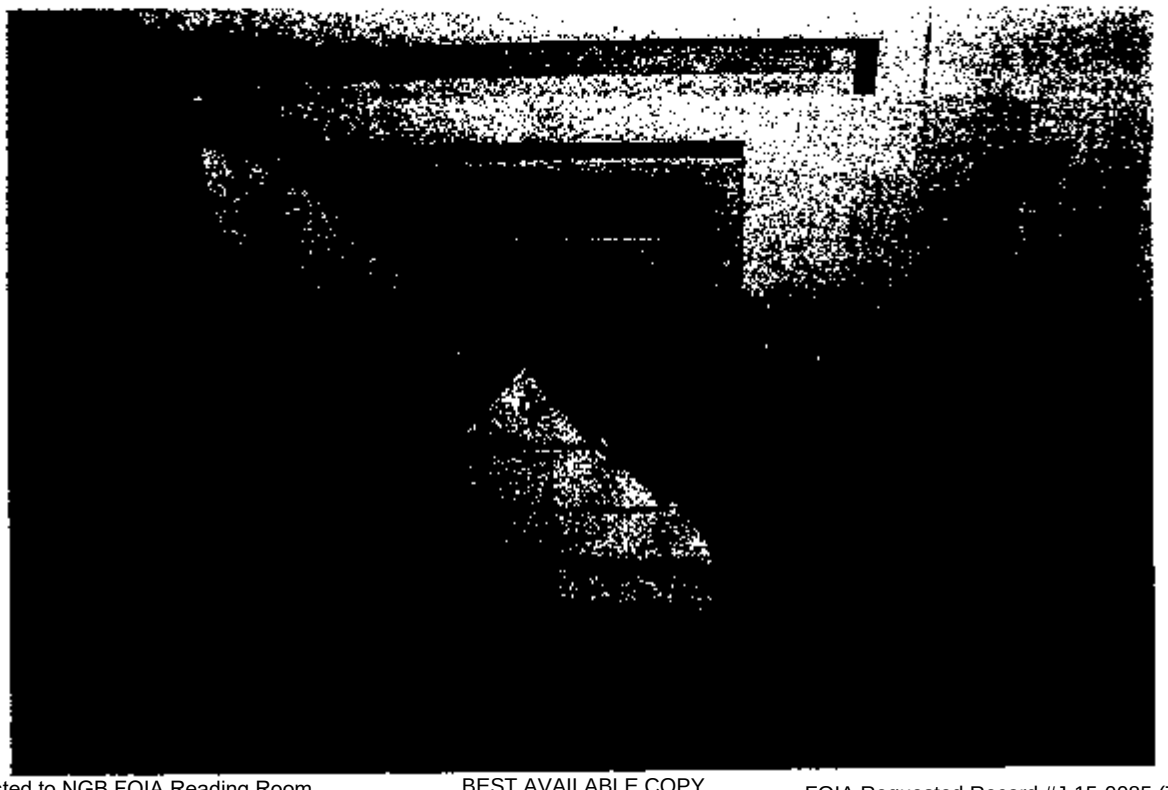
A/C-HEATING OUTLET, LEARNING CENTER, SAMPLE 86

A/C-HEATING OUTLET, CLASSROOM 2(137), SAMPLE 87



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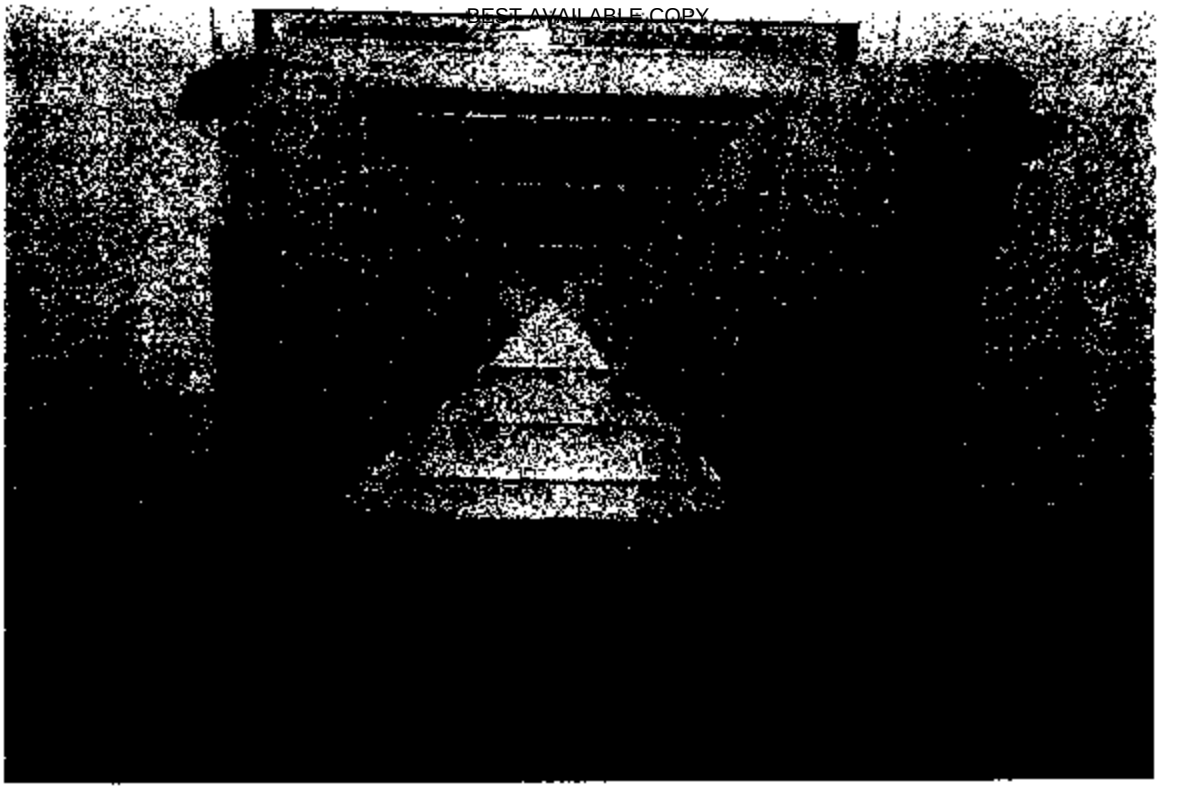
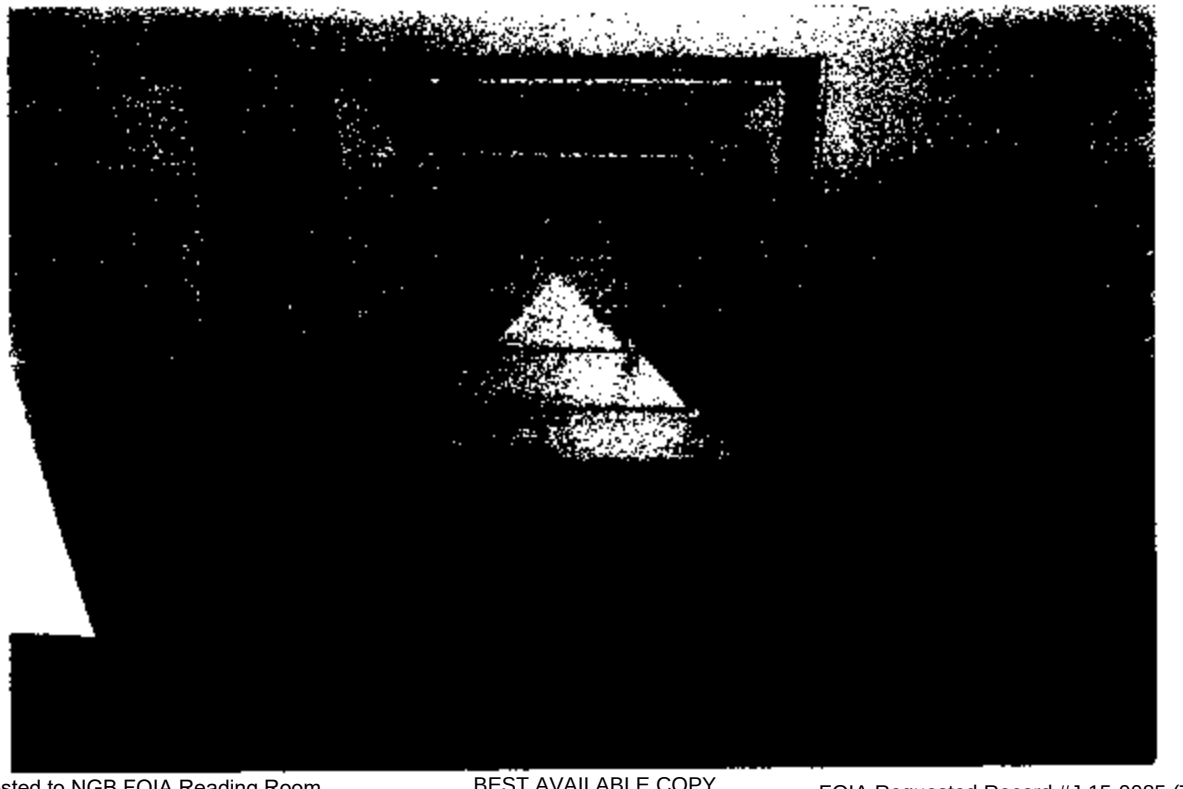


A/C-HEATING OUTLET CLASSROOMS 1(135) & 3(139), SAMPLES 88&89



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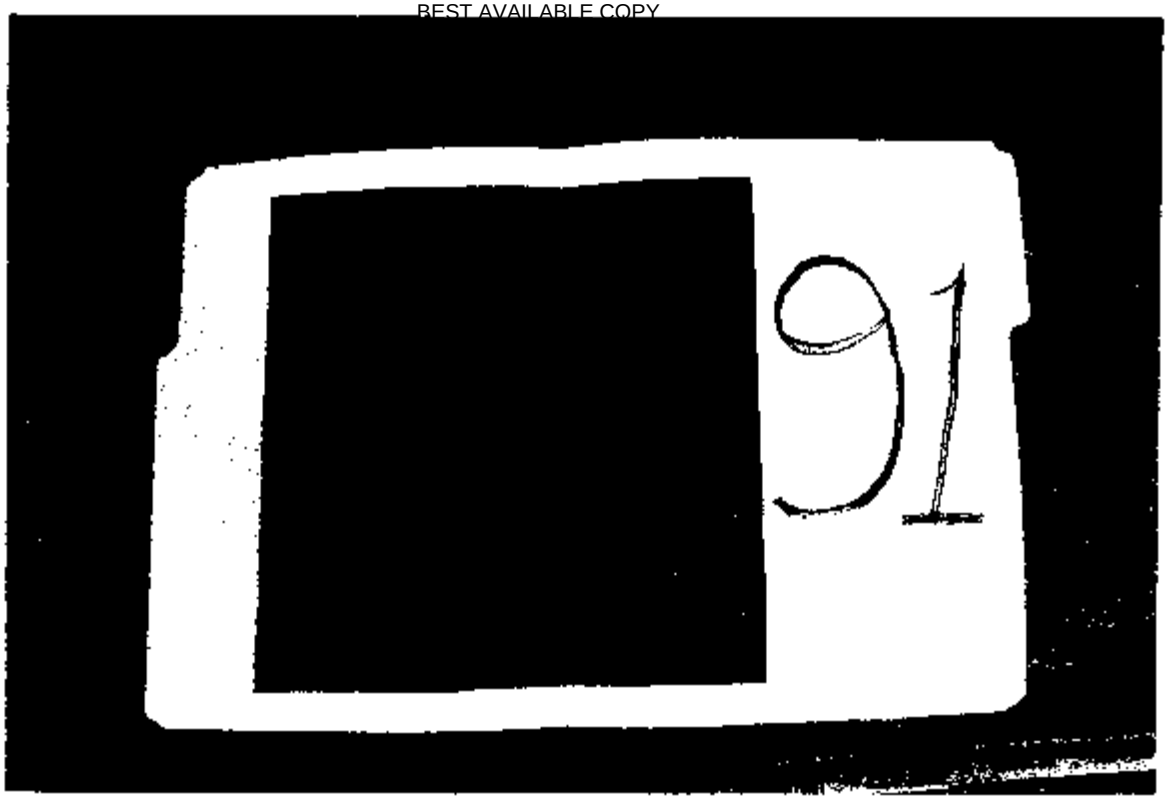
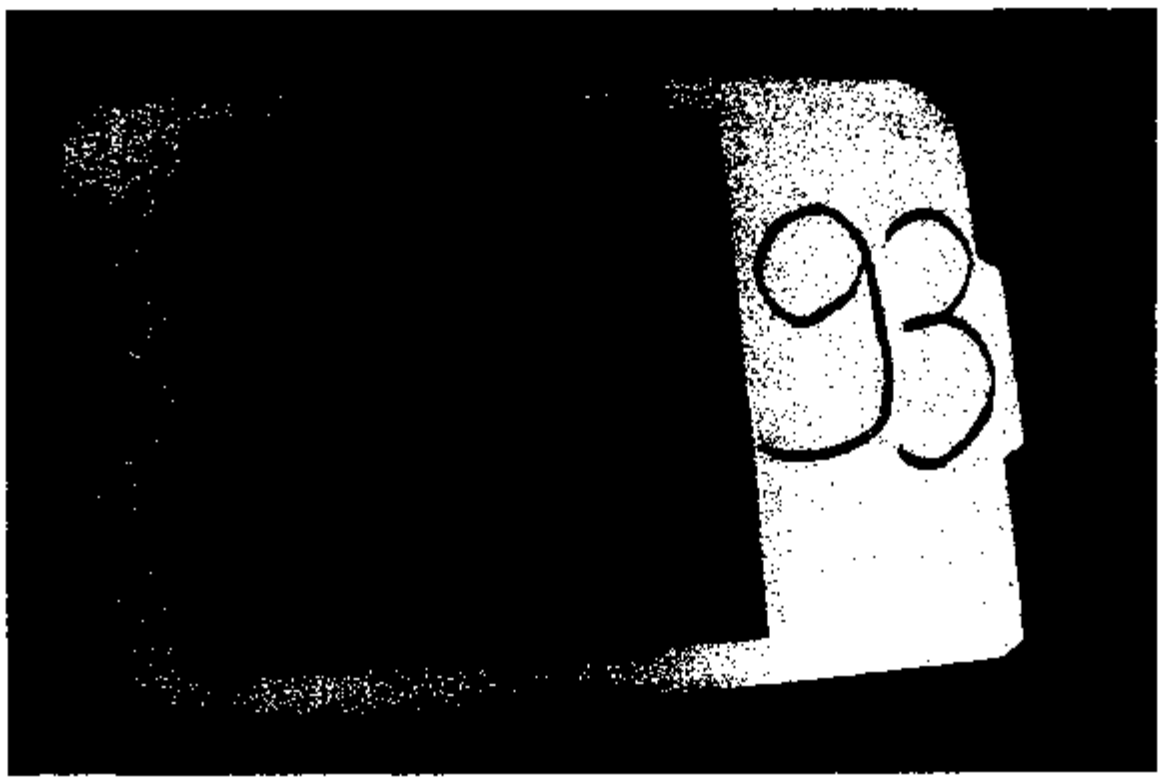


A/C-HEATING FILTER
GF#3A UNIT, SAMPLE 91

A/C-HEATING FILTER,
GF#1B UNIT, SAMPLE 93



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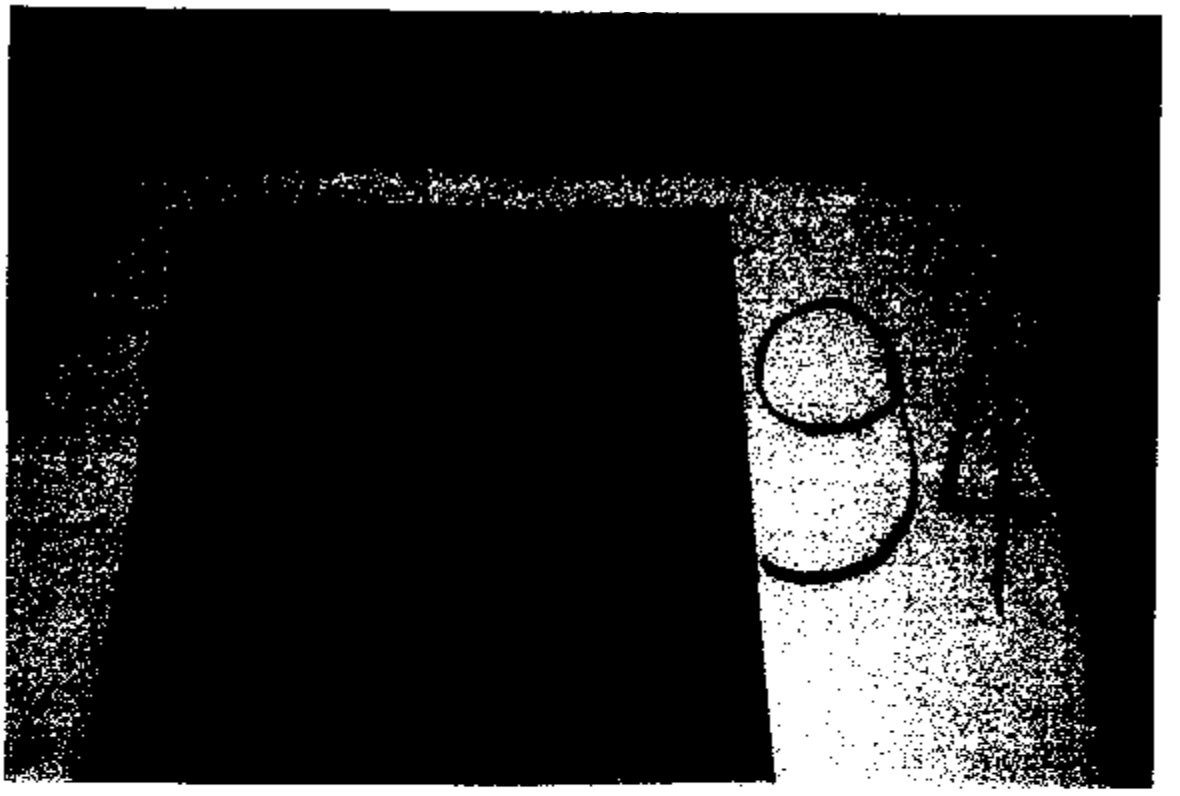
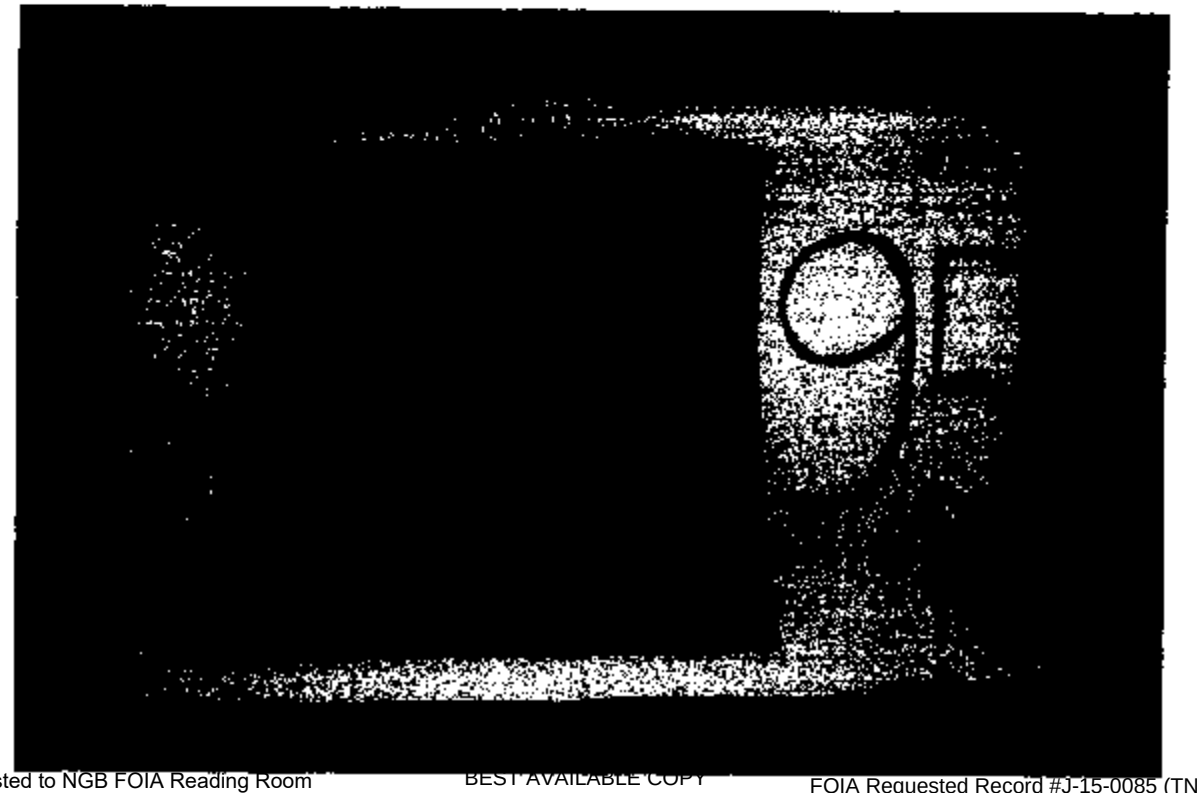


WEAPONS VAULT,
SAMPLES 94 & 95



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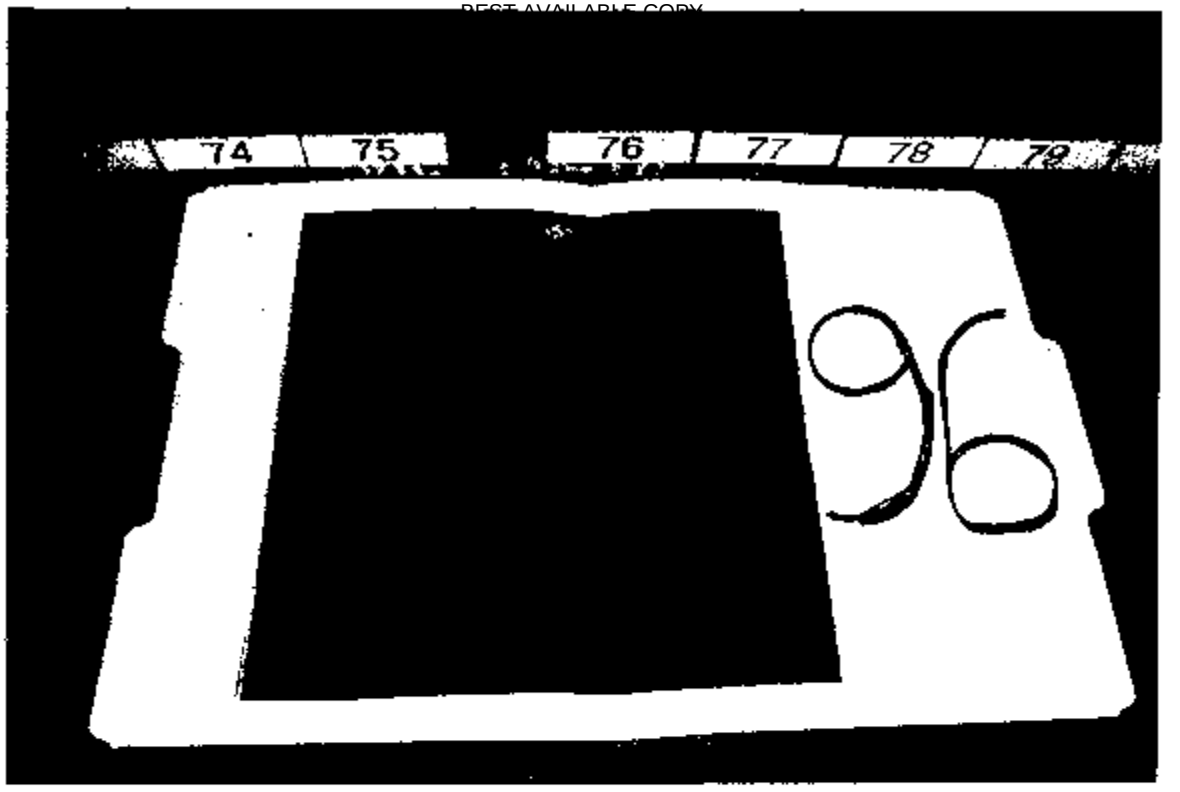
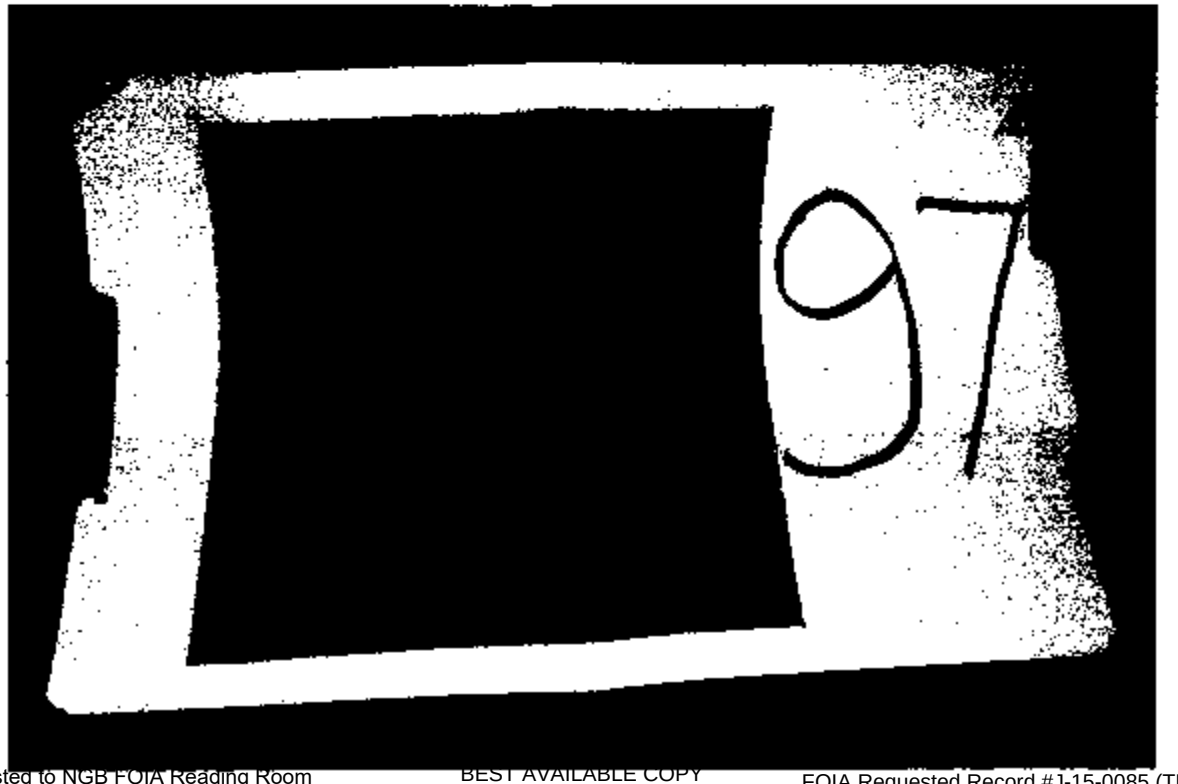


WEAPONS VAULT,
SAMPLES 96 & 97



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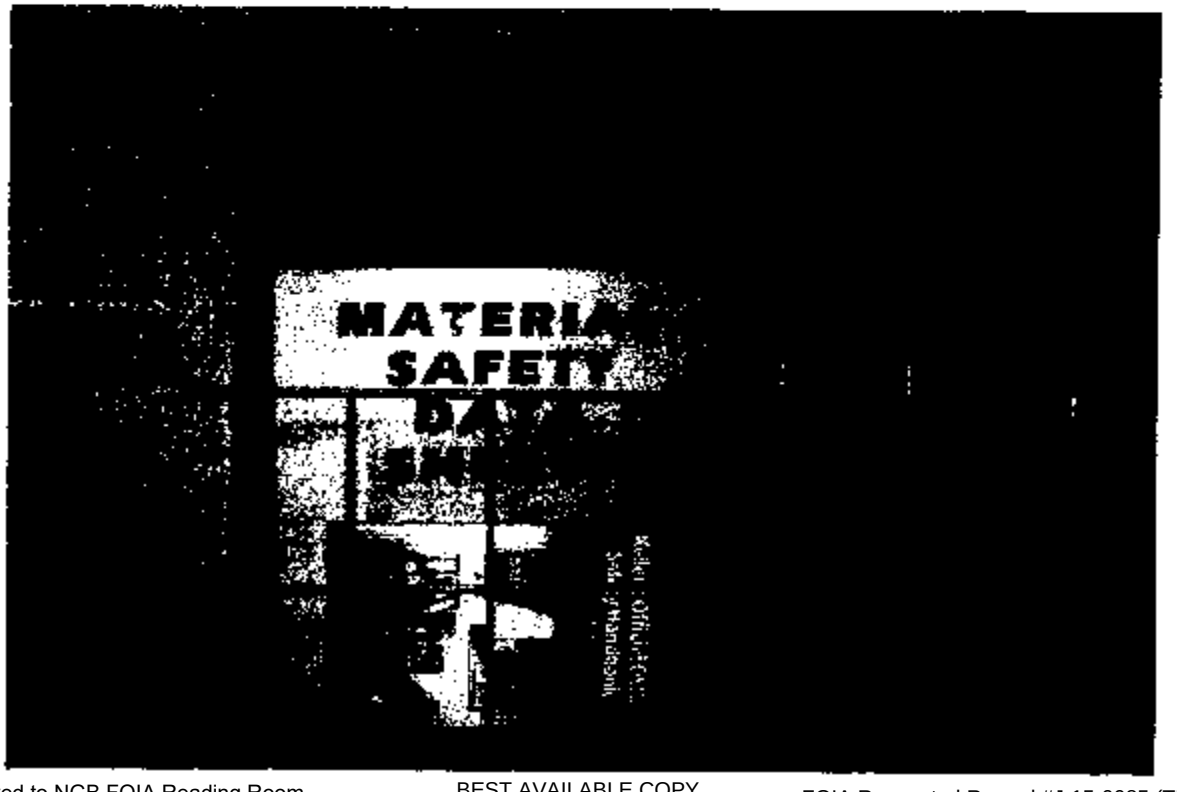
WEAPONS VAULT,
SAMPLE 98

MSDS BOOK



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MOTOR POOL

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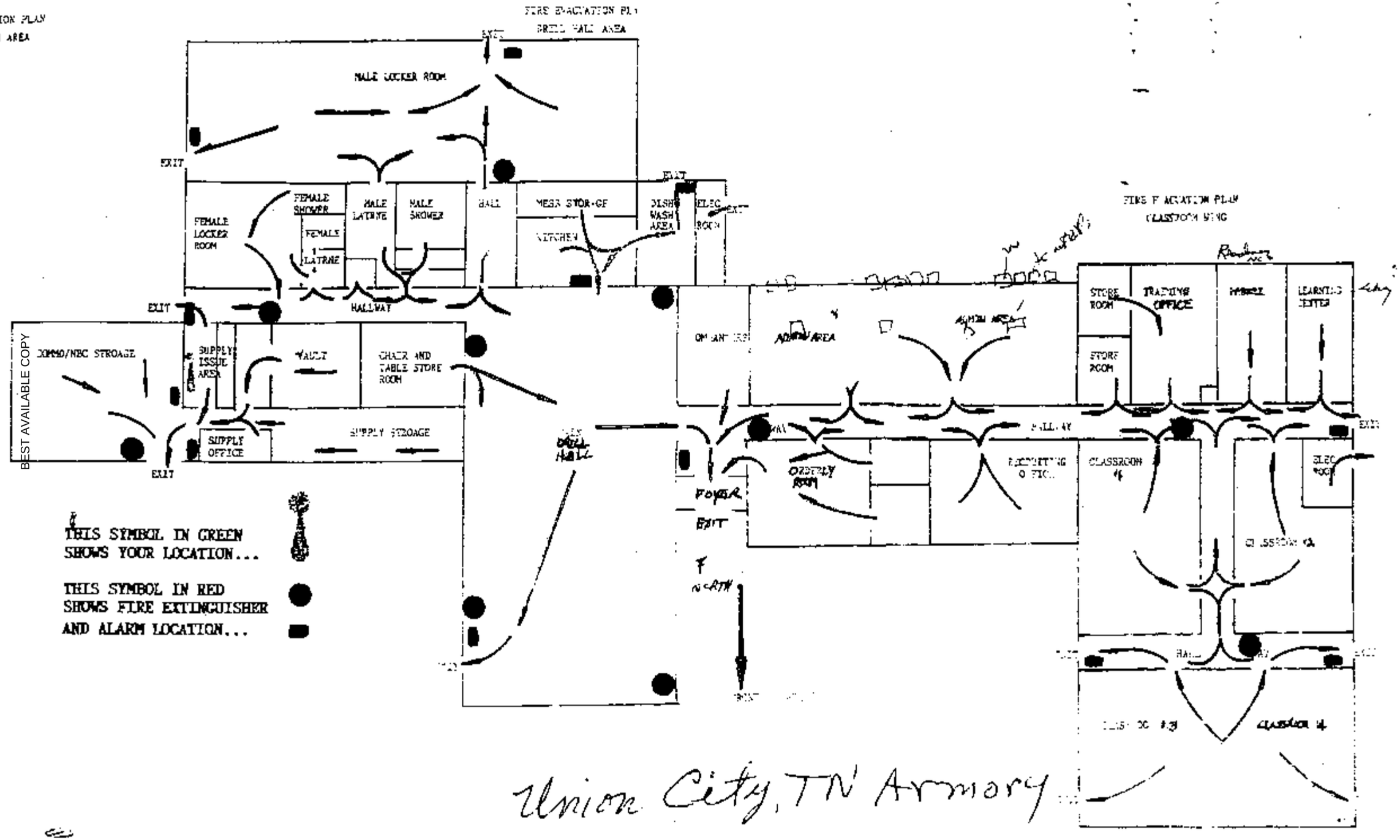

Union City, TN Armory

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released in Natural Guard Bureau
Page 2417 of 2531

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NATIONAL GUARD REGION SOUTH
INDUSTRIAL HYGIENE OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

ARNG-CSG-P (40-5f) 27 October 2010

MEMORANDUM FOR THE ADJUTANT GENERAL OF TENNESSEE, ATTN: [redacted] Non-Responsive DET 1 Troop A 1st 278th Armored Calvary Regiment (ACR), 106 Industrial Drive, Waynesboro, Tennessee 38485.

THRU Non-Responsive Deputy State Surgeon, Tennessee National Guard, HQS, AGTN-DCSPH [redacted] 41502, Houston Barracks, Nashville, Tennessee 37204-1501.

SUBJECT: Industrial Hygiene Survey the Waynesboro Army National Guard Armory, Waynesboro, Tennessee 38372.

1. References.

a. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1996 rev.

a. Title 29, Code of Federal Regulations (CFR), 2009 rev., part 1910, Occupational Safety and Health Standards.

b. Title 29 CFR, General Industry, revised 1996 rev. Part 1940

c. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 25 May 2007

d. AR 385-10, The Army Safety Program, 23 August 2007.

e. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.

f. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, 12 September 2008.

g. TB MED 503, The Army Industrial Hygiene Program, 30 October 2000.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2010 American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 26th rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

k. NG PAM 420-15, 03 November 2006, Facilities Engineering, Rehabilitation and Conversion of Indoor Firing Ranges.

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ARNG-CSG-P (40-5f) 27 October 2010
SUBJECT: Industrial Hygiene Survey the Waynesboro Army National Guard Armory, Waynesboro, Tennessee 38372.

1. Report Industrial Hygiene Survey, SE Safety Solutions, Hampton Cove, AL.

2. General.

a. At the request of Non-Responsive RN, of the Tennessee National Guard Occupational Health Office, an Industrial Hygiene Survey was put together to conduct a Health Hazard Information module (HHIM) Field survey of the s and industrial hygiene sampling of the Waynesboro National Guard Armory.

b. The surveys were conducted by Non-Responsive SE Safety Solutions, Hampton Cove, AL.

3. Findings. All Health Hazard information is on the survey findings of the report. (See enclosure 1). Operations of very short duration were not sampled due to the requirements of the sampling method. If the operation changes or if the length of the operation is increased, contact this office to schedule sampling if it is deemed needed then.

4. Recommendations. Understand that all findings found in the enclosed report have been reviewed by the Regional Industrial Hygienist and the following recommendations are the ones to be followed.

a. Use the guidance given in the enclosed report as good IH practices, requesting industrial hygiene (IH) services where needed. The recommendations that follow are based on the survey findings as reported:

i. Ensure to perform semi-annual inventories and updates of MSDS's on all chemicals in the facility. Ensure all hazardous materials are stored in appropriate locations **(RAC 3)**

ii. Due to the lead dust wipe results, it is recommended that the vault floor and kitchen is decontaminated. The floors should be thoroughly wiped down and or wet mopped with an industrial cleaner using tri-phosphates, Mr. Clean or Spic-n-Span. **(RAC 2)**.

iii. Repair water leaks and remove damaged materials these may in time be source of indoor air quality issues. **(RAC 2)**

b. The recommendations given in the comment section of the HHIM data sheets and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-10. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-11 IHIP.

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c. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present survey, especially if this will help eliminate health hazards and reduce medical surveillance cost.

d. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance, also provided a corrective action plan to the OHN within 30 days of receipt of this report.

e. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

5. If additional information Non-Responsive

Non-Responsive

CF: ARNG-CSG-P
Safety and Occupational Health Manager, Tennessee State Safety and Occupational Health Manager, 3041 Sidco Drive, Nashville, TN 37204-1504

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Industrial Hygiene Report
For
Tennessee Army National Guard
(TN ARNG)
At
Waynesboro Armory
106 Industrial Drive
Waynesboro, Tennessee 38485

Prepared for:
National Guard Bureau
Regional Industrial Hygiene Office
Region South
510 Plaza Drive, Suite 1530
College Park, Georgia 30349

Non-Responsive

[redacted]

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Table of Contents

Subject ..... Page 1

Background ..... Page 1
- Introduction
- Site Description
- Scope of Work
- POC

Instrumentation ..... Page 1

Findings
- DET 1 TRP A 278th ACR ..... Page 1
- Lead Wipe Results ..... Page 2
- Area Deficiencies ..... Page 2
- Illumination Readings ..... Page 3

Recommendations: ..... Page 5

Enclosures:

1. Health Hazard Information Module (HHIM) Survey Form
2. Listing of hazardous chemicals/materials at the facility
3. Analytical Lead Wipe Results
4. Personnel Roster
5. Design Floor Plan
6. Lead Clean Up Procedures
7. References
8. Pictures: 1-24

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SESS

September 13, 2010

MEMORANDUM FOR: Tennessee Army National Guard, ATTN: Non-Responsive ET 1 Troop A 1st 278th Armored Calvary Regiment (ACR), 106 Industrial Drive, Waynesboro, Tennessee 38485

SUBJECT: Industrial Hygiene Consultation and Health Hazard Information Module (HHIM) Survey, Troop A 1st 278th ACR

1. REFERENCES: See Enclosure 7.

2. BACKGROUND: At the request of Non-Responsive ational Guard Bureau Regional Industrial Hygienist, Atlanta, Georgia, an Industrial Hygiene Consultation and Health Hazard Information Module Field Survey were performed at the Tennessee National Guard Armory, 106 Industrial Drive, Waynesboro, Tennessee 38485 on Sep 13, 2010. The POC was Non-Responsive Unit just returned off deployment. The primary mission of Trp A ACR is Infantry warfighter. The purpose of the survey was to perform lead wipe samples; a ventilation survey, an Illuminations survey, and complete HHIM field survey forms on all industrial operations at the facility (see Encl 1 for completed HHIM Survey Form).

3. INSTRUMENTATION: The following survey instrumentation was provided by the contractor and was used to obtain lead wipe dust samples and illumination measurements. All other instrumentation was operated according to manufacturer recommendations.

   a) Reed LM-81LX, Light Meter, S/N: Q303521, calibrated: 12/15/2009
   b) Ghost Lead Dust Wipes, Manufactured: February 2, 2010, Expiration: 08/2013

4. FINDINGS:

   a) TRP A 278th ACR Company and Supply:

      i) Administrative duties included pay, promotions, schools, family support, assignments, and supplies. The supply area was broken down into Class 2 items of clothing and equipment. The supply area was also responsible for maintaining some TA 50.

      ii) One hundred twenty seven M-Day soldiers trained at the facility.

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b) General Area Armory Information:

i) Material Safety Data Sheets (MSDS) were located in the facility. All employees must be initially trained in the Federal Hazardous Communication Program IAW 1910.1200 (see Encl 2 for a listing of hazardous chemicals/materials at the facility).

ii) Twelve lead dust wipe samples were taken, using a 12 inch by 12 inch template. One sample was above the Federal Standard of 40µg/ft². One sample contained low levels of lead at 25µg/ft². No sample was above the National Guard Standard of 200µg/ft². Pictures of the lead sample wipes were taken (see Encl. 8, photos M312 to M323). The analytical lead result sheet included the sampled locations and corrected results. The following table notes where the samples were taken, the surveyor's field number, and the lead results:

Location:	Surveyor's Field No:	Results:
Vault Floor	M312	25
Weapons Issue Countertop	M313	BRL
Drill Hall Floor N.W. Side	M314	BRL
Drill Hall Floor N.E. Side	M315	BRL
Drill Hall Floor Center	M316	BRL
Drill Hall Floor S.W. Side	M317	BRL
Drill Hall Floor S.E. Side	M318	BRL
Kitchen Food Issue Countertop	M319	BRL
Kitchen Floor	M320	83
FL of Old ID Range Near Bul Stp	M321	BRL
Rear Wall of Old ID Range	M322	BRL
Wall Locker stored in Id Range	M323	BRL
Blank		

Note 1: µg/ft² refers to micrograms or one millionth of a gram per sq ft.
Note 2: BRL means Not Detected at the Reporting Limit.

iii) Drill Hall: Conducting classes and drill formations is the main purpose in the hall. (See Encl. 8, photo 13). Illumination levels ranged from 30 to 93 FC's.

iv) Furnace/General Mechanical Ventilation: Good.

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2424 of 2531

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v) The following table identifies area deficiencies:

AREA	DEFICIENCIES
Class Room	Missing ceiling tile
Drill Hall	Water leak in ceiling
Men's latrine	Water leak in ceiling
Women's latrine	Water leak in ceiling

vi) Due to the low noise levels (administrative areas) there was no requirement for a Hearing Conservation Program. The only requirement would be when the M-Day troops were firing their weapons. All M-Day and full-time soldiers had earplugs.

vii) A listing of the Trp A 278th ACR personnel is attached as Encl. 4.

viii) A design floor plan of the armory is attached as Encl. 5.

5. ILLUMINATION SURVEY RESULTS:

a) Illumination Levels: The following additional illumination level readings were taken during the survey and are reported below in foot candles (FC's).

AREA/LOCATION	FOOT CANDLES (FC)
Front Entrance Hallway	55-63
Commander's Office	40-53
Admin Office	39-56
Kitchen	115-125
Locker Room	51-65
Female Latrine	17-34
Drill Hall	30-93
Vault	10-18
Class Room	45-48
Library	51-60
Male Latrine	68-85
Learning Center	33-55
Supply Room	20-45
Old Indoor Range	35-46
Mechanical Room	9-19
Training Aids Room	90-121
Storage	

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May, 2018
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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2425 of 2531

SESS
SUBJECT: Industrial Hygiene Consultation and Health Hazard Information Module

As indicated in the IES Lighting Handbook, Application Volume 1987, Offices: 20-50 FC's, Supply and Publication Areas: 20-50 FC's, Assembly 20-50 FC's, Restrooms: 5-10 FC's, Classrooms: 50-100 FC's, Kitchen: 20-50 FC's, FC's, Library: 50-100 FC's, Storage Rooms: 10-20 FC's, Mail Room: 20-50 FC's.

6. TECHNICAL ASSISTANCE:

Non-Responsive

[redacted]

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May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2426 of 2531

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7. RECOMMENDATIONS:

a) Conduct semi-annual inventories and update MSDS's on all chemicals in the facility. **(RAC 3)**

b) Due to the lead dust wipe results, it is recommended that the kitchen floor and vault floor is cleaned IAW NGB (AR) 385-15 Appendix C. The floors should be thoroughly wiped down and or wet mopped with an industrial cleaner using tri-phosphates, Mr. Clean or Spic-n-Span. For additional lead cleaning measures, see Enclosure 6. **(RAC 2)**

c) Submit a work order to the Facilities Maintenance Office (FMO) to repair the water leaks in the men's & women's latrine (see encl 8, photo 15) **(RAC 3)**

d) Replace the missing ceiling tile in the Class Room (see encl 8, photo 16) **(RAC 3)**

e) Perform monthly checks on fire extinguishers each month, ensure that the devices are checked, recorded, turn upside down and tapped with a rubber mallet to loosen any material at the bottom. Have the local fire department conduct annual inspections of fire extinguishers. **(RAC 3)**

f) Submit a work order to Facility Maintenance Office (FMO) to repair the Water leak in the Drill Hall (see encl 8, photo 17) **(RAC 3)**

g) If work practices change, a new assessment should be made on the controls in Place.

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2427 of 2531

HHIMS Industrial Hygiene Survey Form

Front page

ARLOC	Installation	Building	Room Number
	Waynesboro Armory		

Location	Operation	Survey Date (month / day)	Evaluator	Macom	Submacom	Unit / Organization (45)
AA	ADO	10 09 13		NG	XX	

Supervisor	Mr.	Ms.	Rank	RAC

Supervisor, or Point of Contact Telephone Number	OSN	Commercial	Frequency (hrs/day)	No. CIVs	No. MIL	Contractors	No. LOCs
			008		00	00	00

Lab Hoods	Vapor Degreasers	Spray Booths	Open Surface Tanks	Ventilation Units
00	00	00	00	00

Controls Present (If >6, continue in comments)(25)	Evaluation (25 characters max)	Unit code	Controls Required (25 characters max)
OTH	9-19	FTC	10-20 FTC

Gloves	e*	R	U
acid			
cold surfaces			
hot surfaces			
NBC agents			
oil			
solvents			
surgical gloves			
leather / cotton			
other			

Respirator	e*	R	U	Manufacturer's Description (10 characters max)	NIOSH TC # or Foreign equivalent (10 characters max)
airline					
abrasive blasting hood					
disposable					
full face air purifying					
1/2 face air purifying					
powered air purifying					
1/4 face air purifying					
self-contained					
other					

Eyes and Face	e*	R	U
chemical splash			
full face shield			
chem/safety impact			
safety impact			
welding helmet			
sunglasses			
welding goggles/glasses			
laser eye protection			
other			

Hearing	e*	R	U
canal caps			
(>85-108 dBA steady) earplugs			
" helmets w/ muffs			
" muffs alone			
(108-118) muff/earplug comb			
muffs and earplugs			
(118 or >) with time limit			
other			
other			

Body	e*	R	U
aprons			
cold weather clothing			
coveralls			
full body suit			
heat reflective			
vest/suit			
safety belt/harness			
special purp. clothing			
other			

Head and Feet	e*	R	U
cold weather boots/hat			
hard hats			
impermeable boots			
safety shoes (conductive)			
safety (nonconductive)			
other			
other			
other			
other			

e* = evaluator's recommendation or agreement

Reminders: ergonomics - dermatitis - physical agents - flammable storage
EYE (permanent) ____ - EYE (portable) ____ - SHW - GMV - LEV

ACO ADM DSA DSN LAB LCK
RAD EC8 EPL RHS SPR WEL

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2428 of 2531
Posted to FOIA Reading Room
May 2015

HHIMS Industrial Hygiene Survey Form

Back page

CAS code

PONOISECO
POFOOTHAZ
POFLYPROJ
POEYEHAZA
POFLAMHAZ
POLIFTING
POSHARPOB
POHOTOBJE
POELSHOCK
COLUBEOIL

PAC

EPC

Hazard Description

Social Security Number or Unique Identifier

Last Name (20 characters max)

First Name (20 characters max)

MI

Sex

Category

Personnel data provided by the facility is attached to this form

Insert Privacy Act Statement

Comments

Operation described is PERSONNEL AND ADMINISTRATIVE DUTIES, TYPING, RECORD KEEPING, PROMOTION & EXTENSIONS

This operation was explained to the evaluators, but was not actually observed.

There is a noise data sheet attached to this form

There is a ventilation data sheet attached to this form

[comments continued on attached]

2/8/95 CHPMBACK.XLS

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FOIA Requested Record #0-15-0085 (TN)
Released by National Guard Bureau
Page 2429 of 2531

Posted to NGB FOIA Reading Room
May 2018

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DEPARTMENT OF THE ARMY
HEADQUARTERS, TENNESSEE ARMY NATIONAL GUARD
ENVIRONMENTAL DIVISION

TITLE HAZARDOUS MATERIALS INVENTORY LIST

Purpose Document the type, quantity, and location of hazardous materials at the facility

Instructions The storage areas and containers should be inventoried monthly. The inspection log should be conspicuously posted in the storage area to verify that inspections have been performed. Inventory List should be updated monthly or when new material is received whichever comes first. Additionally the updated log should be forwarded to the appropriate Emergency Response Unit(s).

Facility Location	106 Industrial Drive Waynesboro TN 38485	Page Number 1 of 1	
Storage Area	[redacted]		
Inspector Signature	[redacted]	Date 23 Feb 10	

Item	Trade Name/ Nomenclature	National Stock Number	Container Size/ Type	Quantity on Hand	Location
1	CLP		1gal jug	1	Fire Cabinet #1
2	Lighter Fluid		32oz Can	3	"
3	Acetate		16oz Jar	1	"
4	Starting Fluid		16oz Can	1	"
5	Rifle Bore Cleaner		8oz Can	8	"
6	Diesel Start		16oz Can	3	"
7	Hydro Fluid		1qt Can	1	"
8					
9					
10					
11					
12					
13					
14					
15					

Comments:

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Analytical Environmental Services, Inc

Date: 23-Sep-10

Lab Order: 1009E25
Client: SES
Project: Waynesboro, TN Armory
Matrix: Wipe
Date Received: 9/17/2010 11:45:00 AM

LEAD ON WIPES (N9100/7082)

N7082

Laboratory ID	Client Sample ID	Result	Units	Reporting Limit	DF	Qual	Date Collected	Date Analyzed	Analyst
1009E25-001A	M312	25	ug, Total	20	1		09/13/2010	09/23/2010	TA
1009E25-002A	M313	BRL	ug, Total	20	1		09/13/2010	09/22/2010	TA
1009E25-003A	M314	BRL	ug, Total	20	1		09/13/2010	09/22/2010	TA
1009E25-004A	M315	BRL	ug, Total	20	1		09/13/2010	09/22/2010	TA
1009E25-005A	M316	BRL	ug, Total	20	1		09/13/2010	09/22/2010	TA
1009E25-006A	M317	BRL	ug, Total	20	1		09/13/2010	09/22/2010	TA
1009E25-007A	M318	BRL	ug, Total	20	1		09/13/2010	09/22/2010	TA
1009E25-008A	M319	BRL	ug, Total	20	1		09/13/2010	09/22/2010	TA
1009E25-009A	M320	83	ug, Total	20	1		09/13/2010	09/22/2010	TA
1009E25-010A	M321	BRL	ug, Total	20	1		09/13/2010	09/22/2010	TA
1009E25-011A	M322	BRL	ug, Total	20	1		09/13/2010	09/22/2010	TA
1009E25-012A	M323	BRL	ug, Total	20	1		09/13/2010	09/22/2010	TA
1009E25-013A	BLANK	BRL	ug, Total	20	1		09/13/2010	09/22/2010	TA

Qualifiers: BRL - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
Results are blank corrected where applicable

DF - Dilution Factor

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May, 2018

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FOIA Requested Record #J-13-0085 (TN)
Released by National Guard Bureau
Page 2431 of 2531

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Waynesboro, TN Armory

SUBJECT: Personnel Roster

NAME	RANK	POSITION
Non-Responsive		

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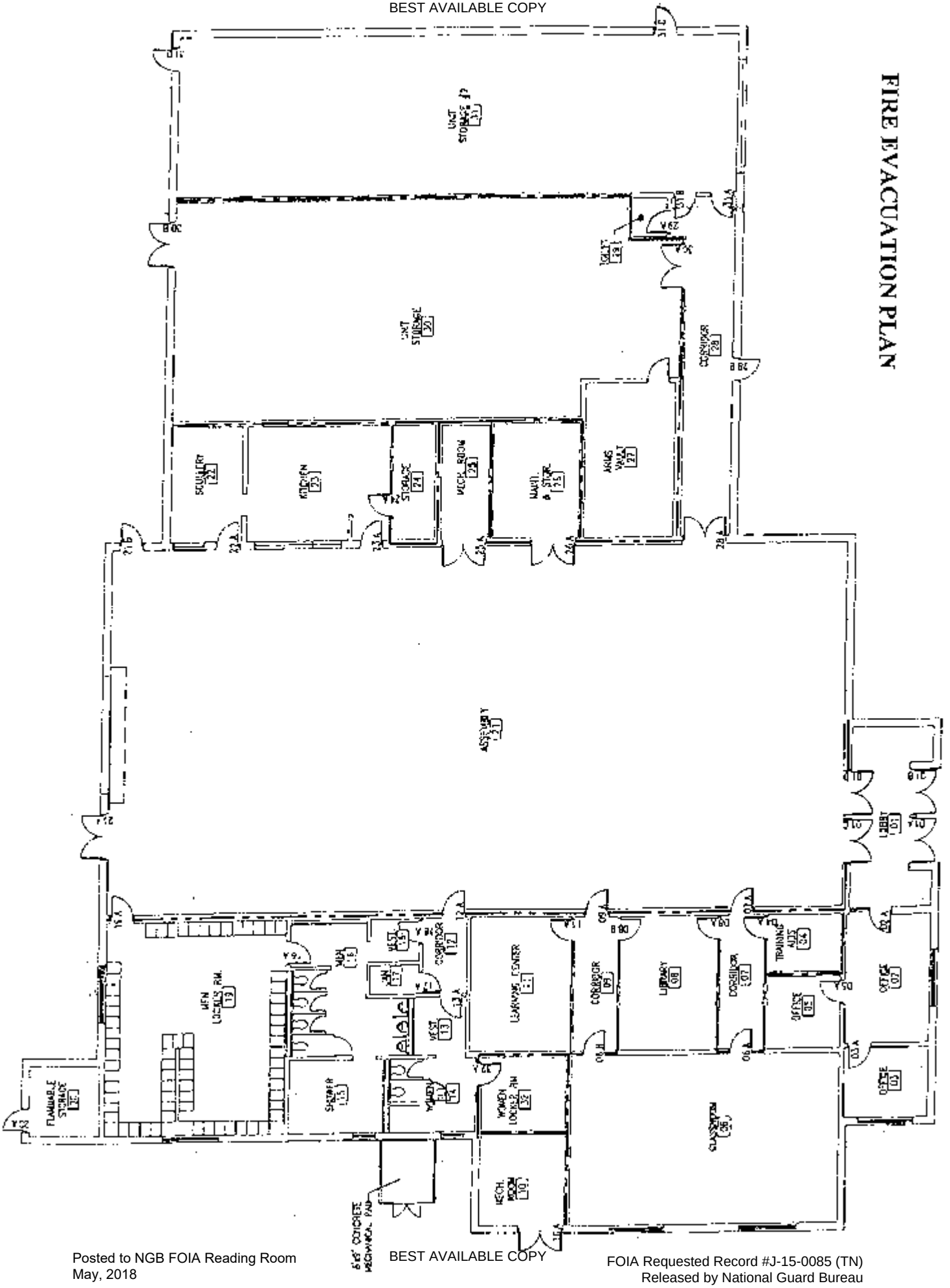
FIRE EVACUATION PLAN



Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau

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ENCLOSURE 6

ARMORY CLEANUP REQUIREMENTS

High Test Results

If the public utilizes your facility and the test results for lead came back above 40 $\mu g/ft^2$ you are responsible for cleaning this area and adjoining areas to meet the 40 $\mu g/ft^2$ or less, unless:

1. You can guarantee that no children under the age of 7 will come into your facility.

2. Your state public health has other guidance, for example, signage is required to warn personnel who are pregnant or of child bearing age, or under the age of 7 years old.

3. Signs stating "No smoking, drinking, eating, or applications of cosmetics without washing of hands prior to activity" are properly installed in your facility.

1. Cleaning of Building.

Before proceeding into the cleanup mode, first discuss with your Environmental Office what procedures are recommended and then coordinate your cleanup efforts with local agencies, if warranted.

a. The building, as well as the dusty materials and equipment in it, should be cleaned one time to reach the lead dust levels that are appropriate for the function of the facility, for example, facilities used by full-time personnel only, utilized by adults or children 7 years old or older children only, or not utilized by pregnant individuals and/or children under the age of 7. **NOTE:** This type of cleaning implies that this is not at a facility that has an active Indoor Firing Range. For facilities with active ranges, these facilities should be monitored with wipe samples taken over the drill floor area by the Range Custodian quarterly, to ascertain that the level of lead is at the required level for your particular facility and situation.

   1. This cleanup can be accomplished using a HEPA vacuum (a very tedious and time-consuming operation) and then by utilizing a wet method with "Spic n Span" or something equivalent to this detergent – using wet rags to wipe down surfaces and mops soaked in this solution to do the entire floor area. **NOTE: Personal protective gloves, rubber boots, or protective disposable shoe/boot covers should be used during this procedure and personnel who have performed the cleanup should wash their clothing separately from their family's clothing.**

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2434 of 2531

BEST AVAILABLE COPY

ENCLOSURE 6

especially if they have young children at home. Personnel should wash their hands after performing this operation to assure that lead contaminates are not ingested.

2. Frequent changing out of the water used for cleaning is vital. Disposal of this hazardous waste water and rags/mop heads, Personal Protective Equipment (PPE), etc., should be coordinated with your Environmental office.

b. Clean all ductwork where lead was found. EPA has a protocol specifically for replacing or cleaning lead in dust form in HVAC systems. EPA Office of Pollution Prevention and Toxics, "*Renovate Right – Important Lead Hazard Information for Families, Child Care Providers and Schools*". http://www.epa.gov/lead/pubs/rrpamph.pdf .

c. Continue to enforce good housekeeping and hygiene practices. These measures make good sense to minimize exposures to any toxic chemicals in the workplace.

d. Provide lead awareness training to the general workforce and any occupants of your facility.

***NOTE:* Before you start any new procedures or practices be aware of the local city and state regulations in your area.**

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2435 of 2531

BEST AVAILABLE COPY

ENCLOSURE 6

ARMORY

CLEANUP & FOLLOW-UP HOUSEKEEPING RECOMMENDATIONS

Materials Needed:

1. Cloth Mop head(s) & Mop head holder(s) with handle.
2. Mop bucket(s) with wringer.
3. Clean cotton rags and sponges.
4. Disposable gloves.
5. Large barrel (55 gallon) to store wastewater in after changing out of dirty scrub water.
6. Disposable overshoes or rubber boots. Personnel conducting cleaning operations should not take clothes, boots, etc. home for laundering.
7. HEPA vacuum
8. Six (6) mill plastic bags to dispose of waste.
9. Wastewater containers.

Disposal of Waste Water and Cleaning Materials:

1. ***NOTE:*** Consult with the Local Army National Guard Environmental Office prior to taking any collection, disposal, or commencement of wiping activities. Each state and territory may have additional regulatory guidance regarding the collection, storage, and disposal of wastewater.

2. Mop heads should be disposed of after initial cleaning, unless otherwise advised by Environmental Office personnel. ***NOTE:*** **Thorough cleaning of mop heads may be sufficient enough to permit subsequent reuse on future Armory cleanups, but check with the local Environmental Office before reuse.**

3. Disposable gloves should be treated as hazardous waste material.

4. Soiled cotton rags should be treated as hazardous waste material.

5. Wash water contaminated with lead may be collected and allowed to slowly evaporate leaving lead deposits/sludge that may be collected in plastic containers, placed in metal drums, and stored for future delivery to an authorized hazardous waste disposal site.

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2436 of 2531

BEST AVAILABLE COPY

ENCLOSURE 6

a. Drums shall be properly labeled to identify contents in accordance with (IAW) Federal, state, and local regulatory guidance.

b. Disposal of containerized waste shall be coordinated IAW state hazardous waste program requirements.

c. The Environmental Office shall coordinate removal and disposal of all containerized hazardous waste through established waste streams.

Post-Cleanup Precautionary Measures:

1. Thoroughly wash hands with soap and water.

2. Rinse off rubber boots with soap and water, capturing wastewater for collection into the established waste stream. If personnel have chosen to use overshoes for protection, dispose of the used overshoes into the established waste stream. ***NOTE***: **This recommendation is for initial cleanup activities; PPE requirements may be reduced after it has been determined that non-hazardous levels of lead have been achieved.**

3. Wash BDU's or personal clothing separately from children's clothes.

IMPORTANT NOTES:

1. **No eating, drinking or application of cosmetics is allowed during cleanup procedures (these may be allowed after washing of hands/face and done outside of cleanup area).**

2. **Avoid blowing, shaking or like actions which could potentially disperse lead dust. Dry sweeping, dusting, wiping, or blowing with compressed air shall not be permitted.**

Initial Armory Cleanup:

1. Use a vacuum cleaner equipped with a HEPA exhaust filter. HEPA vacuum all surfaces in room (ceiling, wall trim, and floors). Start with the ceiling and work down, moving toward the entry door. **Completely clean each room before moving on.**

2. Prepare water and detergent for the wipe down phase, according to manufacturer's recommendations.

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2437 of 2531

ENCLOSURE 6

3. Wet wipe, with cotton rags or sponge, any horizontal, diagonal or vertical surfaces up six (6) feet from floor surfaces using hot water and "Spic-n-Span" or an equivalent product.

***NOTE*: If walls to be cleaned show signs of deterioration, for example, chipping or crumbling paint in which wiping, scrubbing, or disrupting might potentially increase or spread contamination, then this portion of the cleanup should be avoided.**

4. Now prepare water and detergent (for example, Spic n Span, Mr. Clean, Pine Sol) for the mopping phase, according to manufacturer's recommendations, which should be found on the product's label for general clean up.

    a. Change out water and detergent frequently (when water appears dirty)

    b. Rinse out mop heads frequently to prevent contamination of dirty water.

5. Cover entire drill floor surface with above prescribed water and detergent.

6. Final rinse should be with clean water only – after mop heads have been cleaned.

Recommended Follow-up Housekeeping Practices ***after Clearance sampling of cleaned area is performed by certified personnel:***

1. Floor cleaning and dusting should be accomplished using the wet cleaning described in Initial Armory Cleanup SOP.

NOTE: The only exception to these wet cleaning procedures is the use of an approved chemically treated dust floor mop. This can be used for follow-up armory cleaning by sweeping of large particles of dirt and paper.

    a. Use of a pre-treated (chemically treated) dust floor mop will prevent lead dust particles from being disbursed into the surrounding atmosphere.

    b. If a pre-treated dust mop is used – Do Not Shake Mop Head – have mop head laundered after use. **Always keep used dust mop heads in sealed double plastic bags when stored at an armory or facility.** Shaking of a pre-treated mop head may release unwanted contaminants into surrounding atmosphere.

2. Frequency of Cleanup – Armories will vary, according to usage and how often they should be cleaned. The following cleaning schedule is provided:

    a. Only full-time technicians and traditional soldiers using facility during the month. (Cleaned Monthly.)

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2438 of 2531

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ENCLOSURE 6

b. Occasional activities taking place during the month, for example, 1-2 classes or volleyball games, etc. (Cleaned Twice Monthly.)

c. Used regularly by soldiers or outside agencies/personnel. (Cleaned Regularly – at least Weekly)

IMPORTANT NOTES:

1. **Armories with adjoining Indoor Firing Ranges (IFR) should be cleaned more than weekly, again depending on the use of the Armory and IFR.**

2. **Clearance sampling/testing is to be accomplished by certified IH personnel after these cleanup procedures are followed. If the area is an average Armory, occupied by adults only, for whom you are cleaning and is not a converted IFR space, you may continue to utilize the Armory space before officials re-test this space. Please notify your Safety and/or Occupational Health personnel of the completion of this cleaning regime and they will notify the proper officials of the sampling/testing requirements needed.**

3. **If lead cleanup work was contracted out, a third party should do the clearance sampling.**

4. **If young children and pregnant females are, or may be present, signs shall be posted on all facilities, warning of the potential danger of exposure to lead dust.**

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2439 of 2531

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References

Army Regulation (AR) 11-34. The Army Respiratory Protection Program.

Army Regulation (AR) 40-5, Preventative Medicine.

Army Regulation (AR) 385-10, The Army Safety Program.

NGR 385-10, Army National Guard Safety and Occupational Health Program.

TB MED 503, The Army Industrial Hygiene Program.

Title 29, Code of Federal Regulations (CFR), 1999, revision, Part 1910, Occupational Safety and Health Standards.

TG 022, US Army Environmental Hygiene Agency (YSAEHA). Industrial Hygiene Evaluation Guide.

TG 141, US Army for Health Promotion and Preventative Medicine (USACHPPM) Industrial Hygiene Air Sampling Guide.

IES Lighting Handbook

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Photo No. 1

Photo No. 2

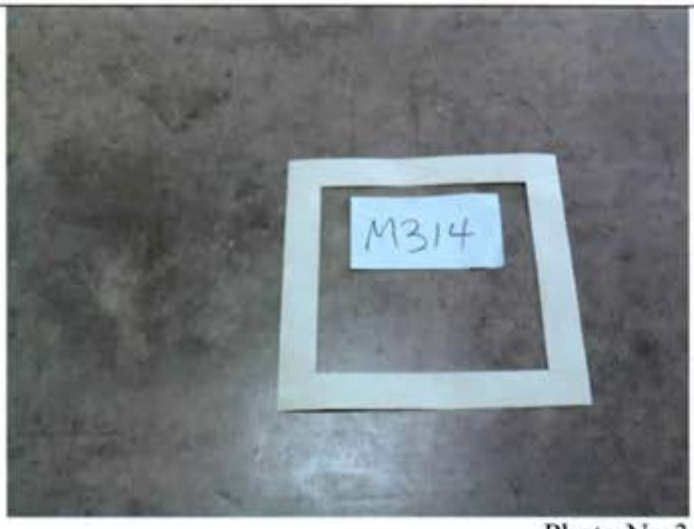

Photo No.3

Photo No.4

Photo No.5

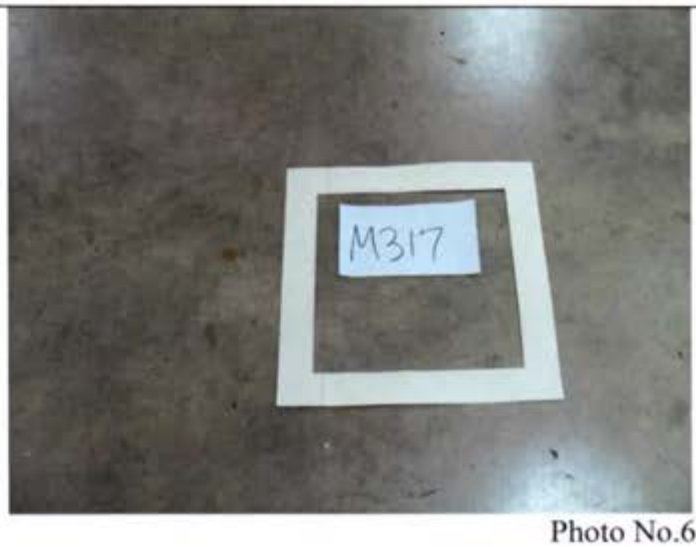

Photo No.6

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2441 of 2531

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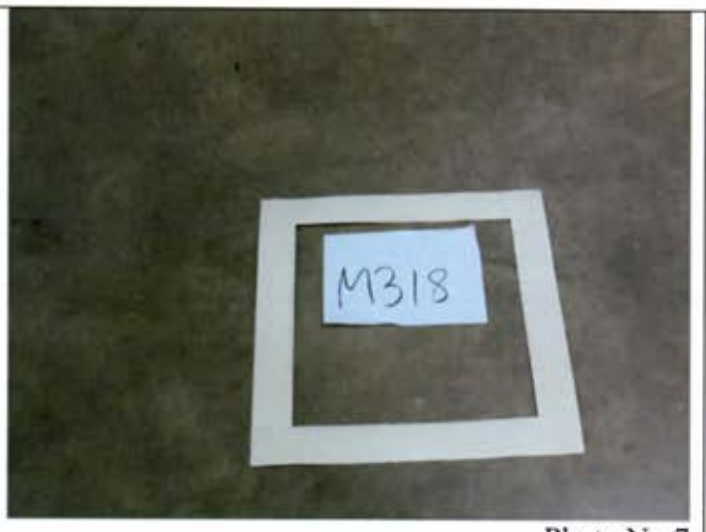

Photo No.7

Photo No.8

Photo No.9

Photo No.10

Photo No.11

Photo No.12

ENCLOSURE 8
Page 2 of 5

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2442 of 2531

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Photo No.13

Photo No.14

Photo No.15

Photo No.16

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2443 of 2531

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Photo No.17

Photo No.18

Photo No.19

Photo No. 20

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2444 of 2531

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Photo No.21

Photo No.22

Photo No.23

Photo No. 24

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2445 of 2531

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DEPARTMENT OF THE ARMY AND THE AIR FORCE
NATIONAL GUARD BUREAU
REGIONAL INDUSTRIAL HYGIENE OFFICE
AIRPORT PLAZA SUITE 1530
510 PLAZA DRIVE
COLLEGE PARK, GA 30349

NGB-AVN-SI February 7, 2005

MEMORANDUM FOR: The Adjutant General of Tennessee, ATTN: [redacted] Non-Responsive [redacted]ate Occupational Health Office, 3041 Sidco Dr, P O Box 41502, Nashville, TN 37204-1502.

SUBJECT: Transmittal of Survey Reports for the ARNG Lawrenceburg Armory, the Hohenwald Armory, the Waynesboro Armory, the Savannah Armory, and the Selmer Armory in TN.

1. References.

a. Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, 26 October 1984.

b. Army Regulation (AR) 40-5, 30 August 1986, Medical Service, Preventive Medicine.

c. National Guard Regulation (NGR) 385-10, 1988, Army National Guard Safety and Occupational Health Program.

d. AR 11-34, The Army Respiratory Protection Program, 15 February 1990.

e. TB MED 502, Occupational and Environmental Health Respiratory Protection Program, February 1982.

f. DA PAM 40-503, 30 October 2000, The Army Industrial Hygiene Program.

g. DA PAM 40-501, 10 December 1998, Hearing Conservation.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2001, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

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j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

k. Title 29, Code of Federal Regulations (CFR), 2000 rev., part 1910, Occupational Safety and Health Standards.

l. Reports dated 27-30 November, and 7 December-26 January 2004, Industrial Hygiene Technician, 1503 Zaiger Drive,Colorado Springs, CO 80915

2. General.

a. At the request of the TNARNG Safety and Occupational Health Office, an Industrial Hygiene Service was put together to conduct Health Hazard Information module (HHIM) Field surveys and industrial hygiene sampling of the ARNG Lawrenceburg Armory, the Hohenwald Armory, the Waynesboro Armory, the Savannah Armory, and the Selmer Armory in TN.

b. Thomas Minkler, Industrial Hygiene Technician, 1503 Zaiger Drive,Colorado Springs, CO 80915 conducted the surveys.

3. Findings. All HHIM field survey forms and survey findings of the reports. (See enclosure 1)

4. Recommendations.

a. Follow all recommendations made in referenco 1.l., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Control water infiltration in the armory and/or replace or repair damaged surfaces or components (ceiling and floor tiles). Building conditions that present IAQ concerns or problems not only exacerbates normally minor health issues but also tend to promote or accelerate building deterioration.

c. The recommendations given in the comment section of the HHIM data sheets and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-05. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-06 IHIP.

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d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present survey, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

f. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

5. If additional information is needed about the industrial hygiene survey or air sample

Non-Responsive

[redacted]

CF:
NBG-AVN-SH

Encl
as

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Industrial Hygiene Report
For
Tennessee Army National Guard
Det 1, Battery B, 2-115th FA BN
106 Industrial Drive
Waynesboro, TN 38485-9502

Prepared for:
Department of the Army and Air Force
National Guard Bureau Regional
Industrial Hygiene Office
510 Plaza Drive
Suite 1530
College Park, GA 30349

Non-Responsive

DBA [redacted]

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2449 of 2531

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Table of Contents

Subject ..... Page 1

Background ..... Page 1
- Introduction
- Site Description
- Scope of Work
- POC

Instrumentation ..... Page 1

Findings
- MSDS ..... Page 1
- Lead Wipe Results ..... Page 2
- Drill Hall ..... Page 2
- Indoor Firing Range ..... Page 3
- Supply ..... Page 3
- Kitchen Grease Trap ..... Page 3
- Mold Results ..... Page 4
- Area Deficiencies ..... Page 4

ILLUMINATION SURVEY RESULTS
- Illumination ..... Page 5

Recommendations
- MSDS's ..... Enclosure 12
- Lead Cleanup Procedures ..... Enclosure 12
- Mold Cleanup Procedures ..... Enclosure 12
- Area Lighting ..... Enclosure 12
- Roof Leak ..... Enclosure 12
- Fire Extinguishers ..... Enclosure 12
- Restrooms ..... Enclosure 12

Enclosures
1. Health Hazard Information Module (HHIM) Survey Form
2. Analytical Lead & Mold Results/Submission Forms
3. Noise Survey, DD 2215
4. Personnel Roster
5. Armory Building Floor Plan
6. Hazard Communication Sample Written Program
7. Maintenance Checklist
8. Hazardous Material Inventory List
9. Lead Cleanup Procedures
10. Mold Cleanup Procedures
11. References
12. Recommendations
13. Pictures: 1-12
14. Pictures: Lead Wipe Samples: M04653-M04671; Paint Chips: M04673 and M04674; Mold Sample: M04675

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November 28, 2004

MEMORANDUM FOR: Tennessee Army National Guard, Attn: Non-Responsive Administration Officer, 759 East Main Street, Henderson, Tennessee 38340

SUBJECT: Industrial Hygiene Consultation and Health Hazard Information Module (HHIM) Survey, Waynesboro Army National Guard, Waynesboro, Tennessee

1. BACKGROUND: At the request of Non-Responsive National Guard Bureau Regional Industrial Hygienist, an Industrial Hygiene Consultation and Health Hazard Information Module Field Survey were performed at the Waynesboro Army National Guard Armory, Waynesboro, Tennessee on November 18, 2004. The POC was Non-Responsive His address was 2-115 FA BN, 759 East Main Street, Henderson, Tennessee 38340. The purpose of the survey was to perform lead wipe samples; a noise survey, a ventilation survey, an Illuminations survey, and complete HHIM field survey forms on all industrial operations at the facility (See encl.1 for completed HHIM Survey Form).

2. INSTRUMENTATION: The following survey instrumentation was provided by the contractor and was used to obtain lead wipe dust samples and illumination measurements. All other instrumentation was operated according to manufacture recommendations.

a) Sper Scientific 840021, Light Meter, S/N: 02997, calibrated: 1-15-04
b) Ghost Lead Dust Wipes, Manufactured: December 1, 2003, Expiration: 06/06
c) TSI Velocicalc 8346, S/N: 00040107, calibrated: 01-12-04
d) Quest Model 2700, Sound Level Meter, S/N: HUC030020, calibrated: 4/28/04
e) Quest QC-10/QC-20, Acoustic Calibrator, S/N: Q10080144, calibrated: 6/16/04
f) Circuit Tester

3. Findings:

a) Detachment 1, Battery B, 2nd Battalion, 115th Field Artillery:

i) Sixty-five M-Day soldiers were deployed. The unit's main job was working with towed 155mm howitzers. Presently, many soldiers were utilized in military police and security. The facility was used as a funeral detail coordination point center.

ii) The administration at the Henderson Armory was responsible to the battery in the area of readiness and personnel support such as pay, assignments, training, promotions, family support and schools.

iii) Material Safety Data Sheets (MSDS) were with the deployed unit. An update HAZCOM SOP was included in the report. All employees must be initially trained in the Federal Hazardous Communication Program IAW 1910.1200.

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iv) Nineteen lead dust wipe samples were taken, using a 10 inch by 10 inch template. Eight samples were above the federal standard of 40μg/ft². Five samples were above the Army National Guard standard of 200μg/ft². Pictures of the lead sample wipes were taken (see encl 14, photo's M04653 to M04671). The analytical lead result sheet included the sampled locations and the results. Also, the sample submission sheets were enclosed in the report (See enclosure 2). The following table notes where the samples were taken, the surveyor's field number, and the lead results:

Location:	Surveyor's Field No:	Results:
North End Floor, Old IFR	M04653	2700 μg/ft²
East End Floor, Old IFR	M04654	190 μg/ft²
Ledge of Sound Proof Material, Old IFR	M04655	17 μg/ft²
Plenum Floor, Old IFR	M04656	550 μg/ft²
Plenum Frame Ledge, Old IFR	M04657	920 μg/ft²
Metal Shelf, Supply Room	M04658	360 μg/ft²
Floor, Under Shelf, Supply Room	M04659	200 μg/ft²
Chair Hauler Surface, Drill Hall	M04660	<14 μg/ft²
Furnace Room, Surface of Mat	M04661	<14 μg/ft²
Portable Tray Holder, Kitchen	M04662	<14 μg/ft²
Middle Floor, Drill Hall	M04663	<14 μg/ft²
Janitor's Closet, Shelf	M04664	<14 μg/ft²
Wooden Shelf, Classroom No.1	M04665	<14 μg/ft²
Window Ledge, Classroom No.2	M04666	<14 μg/ft²
Mop/Broom Room Floor	M04667	55 μg/ft²
South End Floor, Drill Hall	M04668	<14 μg/ft²
Wooden Shelf, Orderly Room	M04669	17 μg/ft²
Top of Fan Surface, Maintenance Storage Rm	M04670	61 μg/ft²
Locker/Exercise Room Floor	M04671	<14 μg/ft²

Note 1: IFR refers to Indoor Firing Range
Note 2: μg/ft² refers to micrograms or one millionth of a gram per square foot
BDL: Below Detection Level

v) Drill Hall: Conducting drill and ceremonies in the large hall was its main purpose (see encl 13, photo 1). Five halogen ceiling lamps were inoperative. The ceiling roof leaked and a work order had been submitted (see encl 13, photo 2). Waiting on bids from contractors. Due to paint peeling from the walls, a sample was taken (see encl 13, photo 3).An outlet cover was broken (see encl 13, photo 4). Four exit signs were inoperative. No emergency backup lights were working. Illumination levels ranged from 3 to 40 FC's. The analytical lead result sheet included the sampled location and the result. Also, the sample submission sheet was enclosed in the report (See enclosure 2). The following table notes where the sample was taken, the surveyor's field number, and the lead result:

Area	Material Sampled	Field Number	% by weight	TCSA or HUD % by weight
Wall in Drill Hall	Peeling Paint	M04674	0.0029	0.5%

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vi) Old Indoor Firing Range: Eighteen fluorescent tubes were burned out. Illumination levels ranged from 5 to 29 FC's. The roof had a leak (see encl 13, photo 5). Due to the peeling paint from the ceiling, a sample was taken (see encl 13, photo 6). The analytical lead result sheet included the sampled location and the result. Also, the sample submission sheet was enclosed in the report (See enclosure 2). The following table notes where the sample was taken, the surveyor's field number, and the lead result:

Area	Material Sampled	Field Number	% by weight	TSCA or HUD Stds % by weight	
Old IFR	Ceiling	M04673	0.0038	0.5%	

vii) Supply Room: The supply area or equipment storage room could hold TA-50, tents, support systems; M16A2's, M40 masks and basic class 7 and 8 items (see encl 13, photo 7). Ten fluorescent ceiling tubes were burned out. Two yellow flammable storage cabinets were in the area. One cabinet had paints and the second cabinet had grease. An alarm was buzzing, due to low batteries. A DD 2214, noise survey form was included in the report as enclosure 3. Illumination levels ranged from 2 to 20 FC's.

viii) Mechanical Room No.1: Two fluorescent ceiling tubes were burned out. Illumination levels ranged from 8-16 FC's.

ix) Mechanical Room No.2: Explosion proof light bulb was burned out. Lawnmower equipment was kept in the room. Personal protective equipment included safety goggles, ear muffs, and ear plugs. Illumination levels ranged from 6-8 FC's.

x) Men's Restroom/Locker Area: Five fluorescent tubes were out in the restroom and one was out in the locker room. Some ceiling tiles were stained and missing. Illumination levels ranged from 5 to14 FC's in the men's restroom and from 1 to 13 FC's in the locker room.

xi) Women's Restroom: There was no lighting in the shower. A ceiling tile was removed from support frame. Illumination levels ranged from 1.4 to 20 FC's.

xii) Recruiter's Office: Six fluorescent tubes were burned out. Some ceiling tiles were stained. Illumination levels ranged from 24 to 65 FC's.

xiii) Restroom, Next to Old Indoor Range: A ceiling tile was missing. Illumination levels ranged from 20 to 22 FC's.

xiv) Kitchen: The grease trap was located outside. A contractor would break up the grease, vacuum out the grease trap contents and then spray it with a bacterial agent. It needed cleaned out (see encl 13, photo 8 & 9). Two fluorescent tubes were out in the main area. Illumination levels ranged from 23 to 44 FC's.

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xv) Old Library, now an office: Illumination levels ranged from 44 to 62 FC's. A mold sample was taken from the ceiling. The analytical mold result sheet included the sampled location and the result. Also, the sample submission sheet was enclosed in the report (See enclosure 2). The following table notes where the sample was taken, the surveyor's field number, and the mold result:

Area	Material Sampled	Field Number	Results
Old Library	Ceiling Tile	M04675	Stachybotrys

xvi) Hallway next to 1SG's Office: Four fluorescent tubes were burned out. Illumination levels ranged from .4 to 1 FC's.

xvii) Hallway next to Recruiter's Office: Two fluorescent tubes were burned out. Illumination levels ranged from 6 to 11 FC's.

xviii) Lobby: Two fluorescent tubes were burned out. Illumination levels ranged from 43 to 50 FC's.

xix) Classroom: Ceiling tiles were stained and some broken (see encl 13, photo 10). Illumination levels ranged from 54 to 72 FC's.

xx) The Wash Rack: The oil/water separator alarm attached to the flammable storage building did not work (see encl 13, photo 11). The oil/water separator sumps were underground and cleaned out by a local contractor (see encl 13, photo 12).

xxi) Due to the low noise levels (administrative areas) there was no requirement for a Hearing Conservation Program.

xxii) Physical exams were performed in Lavinia and Camp Shelby.

xxiii) A listing of Waynesboro Armory personnel was shown in encl. 4.

xxiv) A building floor plan was attached as encl. 5.

xxv) A sample HAZCOM SOP was attached as encl. 6.

xxvi) A Maintenance Armory Checklist, provided by SPC Vasquez, was attached as encl. 7.

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4. ILLUMINATION SURVEY RESULTS:

a) Illumination Levels: The following additional illumination level readings were taken during the survey and are reported below in foot candles (FC's).

AREA/LOCATION	FOOT CANDLES (FC)
Orderly Room	40-106
1SG's Office	47-54
Drill Hall, Door Closed	54-72
Office-was Old Library	44-62
Kitchen Area	23-43
Kitchen Scullery	17-28
Kitchen Mess Storage	8-10
Retention Office	24-65
Supply Area/Equipment Storage	2-20
Vault-Door was Locked	
Maintenance Storage Room	5-8
Men's Locker Room	1-13
Men's Restroom	3-34
Women's Restroom	1.4-20
Mop Room	4-5
Classroom	54-72
Old Indoor Firing Range	5-29
Mechanical Rooms	6-16
Hallways	.4-11
Foyer-Lobby	43-50

As indicated in the IES Lighting Handbook, Application Volume 1987, Offices: 20-50 FC's, Supply and Publication Areas: 20-50 FC's, Assembly 20-50 FC's, Restrooms: 5-10 FC's, Classrooms: 50-100 FC's, Kitchen: 20-50 FC's, FC's, Library: 50-100 FC's, Storage Rooms: 10-20 FC's, Mail Room: 20-50 FC's.

5. Recommendations: See enclosure 12

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6. TECHNICAL ASSISTANCE:

POC for further assistance concerning this evaluation is Non-Responsive [redacted]

CF:

Occupational Health Office
ATTN: Non-Responsive [redacted] NANG,NC
Tennes[redacted]
AGTN-SAHO
Houston Barracks
3041 Sidco Drive
Nashville, TN 37204-1501

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Enclosure 1

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HEALTH HAZARD INFORMATION MODULE FIELD SURVEY

*SEE PRIVACY ACT STATEMENT ON REVERSE
(For use of this form, see SOHDR User's Instructions)

SECTION 1. DEMOGRAPHIC DATA

a. ARLOC 47000 b. INSTALLATION IN NAT GUARD c. BLDG/RM NUMBER ARMORY WAYNESBORO
d. LOCATION/CODE AD / e. OPERATION/CODE AOD / f. DESCRIPTION DET 1, B. BTRY 2ND/115TH FA WAS DEPLOYED WITH APPROXIMATELY 65 M-DAY TROOPS. THE BATTALION IN HENDERSON TOOK CARE OF PAY, PROMOTIONS, SCHOOLS, ASSIGNMENTS AND
g. MACOM/CODE NG / Non-Responsive ODE XX / i. SUPERVISOR Non-Responsive
j. TELEPHONE/AUTOVON NUMBER
m. NO CIV(S) n. NO M k. RAC 3 l. FREQUENCY (Hrs Per Day) 7 HRS/DAY
OR(S) p. NO LOC(S) q. NO OTHER

SECTION 2. IH STAFFING DATA

a. LAB HOODS 0 b. VAPOR DEGREASERS 0 c. MAINTENANCE BAYS 0 d. SPRAY BOOTHS 0
e. OPEN SURFACE TANKS 0 f. VENTILATION UNITS 0

SECTION 3. SURVEY DATA

a. SURVEY DATE 11-18-04 b. EVALUATOR (INITIALS) Non-Responsive

c. CONTROLS PRESENT	d. EVALUATION	e. UNIT CODE	f. CONTROLS REQUIRED	g. STATUS
OTH (DRILL HALL)	3-40 FC INSUFFICIENT	FTC	30 FTC	RECMD
OTH (SUPPLY AREA)	3-20 FC INSUFFICIENT	FTC	30 FTC	RECMD
OTH (KITCHEN)	23-43 FC INSUFFICIENT	FTC	50 FTC	RECMD

h. PERSONAL PROTECTIVE EQUIPMENT (R-REQUIRED; A-AVAILABLE)

1. RESPIRATOR

	MANUFACTURER	NIOSH TC NO	R/A
DISPOSABLE			
½ FACE AIR PURIFYING			/
½ FACE AIR PURIFYING			/
FULL FACE AIR PURIFYING			/
POWERED AIR PURIFYING			/
AIRLINE			/
SELF-CONTAINED			/
ABRASIVE BLASTING HOOD			/

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	R/A
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	/
OIL	/	SAFETY/IMPACT	X/X	EARPLUGS	X/X	COVERALLS	/	IMPERMEABLE BOOTS	/
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	/
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/ HARNESS	/	SAFETY/NONCONDUCTIVE SHOES	/
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/					BDU'S	X/X		

SECTION 4. HAZARD INVENTORY DATA

a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC or EPC	d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO)
7439-92-1	LEAD, INORGANIC DUSTS & FUMES, AS PB	2B	YES

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SECTION 5 PERSONNEL

Non-Responsive

SECTION 6 COMMENTS (add blank sheet of paper if necessary)

- UNIT TOWED 2-3 155mm HOWITZERS WITH MTV'S 5 TONS.
- EQUIPMENT WAS LATERALLY TRANSFERRED
- PHYSICALS WERE CONDUCTED AT CAMP SHELBY OR MILAN TRAINING CENTER.
- MSDS'S WITH DEPLOYED UNIT.
- SAFETY IMPACT GOGGLES WERE DUSTY.
- PRESENTLY, THE ARMORY WAS USED AS A FUNERAL DETAIL COORDINATION POINT.
- DRILL HALL CEILING LEAKS - WORK ORDER WAS SUBMITTED (OUT ON BIDS).
- FLAMMABLE STORAGE ROOM'S ROOF LEAKS.
- THE OIL/WATER SEPARATOR ALARM WAS INOPERATIVE.
- MEN'S LATRINE SINK BACKS UP.

PRIVACY ACT STATEMENT

Title 5 U.S. Code, Section 301; Executive Order 9397 authorizes the use of your Social Security Number as a identification number. The purpose of this information is to identify and monitor data relating each UA civilian employee exposed to a hazardous condition. The use of this information is to provide histories of exposure for any given employee.

Disclosure of your Social Security Number is not mandatory; however, nondisclosure may result in ...

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TEST REPORT
Page 1 of 2
12/1/04

DATA CHEM LABORATORIES, INC.

Submitted To: Non-Responsive

Reference Data:	**Lead**
Client Sample No.:	M04653 through M04672
P.O. No.:	BPA: W912JM-04-A-0007
Sample Location:	Waynesboro, TN Armory
Project No.:	3
Sample Type:	Ghost Wipe
Method Reference:	3050B/6010B
DCL Set ID No.:	04-S-6043
DCL Sample ID No.:	04-33891 through 04-33910
Sample Receipt Date:	11/22/2004
Preparation Date:	11/24/04
Analysis Date:	11/30/04

The samples were prepared in accordance with EPA method 3050B. Sample condition was acceptable upon receipt except where noted. The samples were then analyzed in accordance with EPA method 6010B using a Perkin Elmer 3000XL (ICP) purged spectrometer.

The results are provided in the enclosed data table. Results relate only to the items tested and are not blank corrected unless indicated in the data table.

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DATA CHEM LABORATORIES, INC.

ANALYTICAL REQUEST FORM

☑ REGULAR Status (5 working days from receipt)

☐ RUSH Status Required - ADDITIONAL CHARGE

RESULTS REQUIRED BY _____ DATE

CONTACT DATACHEM LABS PRIOR TO SENDING SAMPLES

Date 11-18-04 Purchase Order No. _____

Company Name MINCKLER & Associates

Address 1503 ZAIGER DRIVE

Co[redacted] 80915

Person [redacted]

Telepho[redacted]

Fax Tel[redacted]

Billing A[redacted]

MR. [redacted]

NATIONA[redacted] College Park GEORGIA

Quote No. _____

Sample Collection

Sampling Site WAYNESBORO, TN ARMORY, PROJ No. 3

Industrial Process N/A

Date of Collection 11-18-04

Time Collected 7:58 a.m.

Date of Shipment 11-19-04

QC Requirem[redacted]

Collector's No[redacted]

Signature [redacted]

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REQUEST FOR ANALYSES

Laboratory Use Only	Client Sample Number	Media Type*	Sample Volume (Liters)	ANALYSES REQUESTED - Use Method Number If Known
33891	M04653	GHOST WIPE	10 in X 10 in	LEAD- NORTH END FLOOR, OLD INDOOR RANGE
33892	M04654	"	"	LEAD- EAST END FLOOR, OLD INDOOR RANGE
33893	M04655	"	"	LEAD- LEDGE OF SOUND PROOF MAT. IFR.
33894	M04656	"	"	LEAD- PLENUM FLOOR, OLD IFR
33895	M04657	"	"	LEAD- PLENUM FRAME LEDGE, OLD IFR
33896	M04658	"	"	LEAD- METAL SHELF, SUPPLY RM
33897	M04659	"	"	LEAD- UNDER SHELF, FLOOR, SUPPLY RM
33898	M04660	"	"	LEAD- CHAIR HAULER SURFACE, DRILL HALL
33899	M04661	"	"	LEAD- FURNACE RM - SURFACE OF MAT
33900	M04662	"	"	LEAD- PORTABLE TRAY HOLDER, KITCHEN
33901	M04663	"	"	LEAD- MIDDLE FLOOR, DRILL HALL
33902	M04664	"	"	LEAD- JANITOR'S RM CLOSET, SHELF
33903	M04665	"	"	LEAD- WOODEN SHELF, CLASSROOM No. 1

CHAIN[redacted]

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DATA CHEM LABORATORIES, INC.

ANALYTICAL REQUEST FORM

☐ **REGULAR** Status (5 working days from receipt)

☐ **RUSH** Status Required - ADDITIONAL CHARGE

RESULTS REQUIRED BY _____ DATE

CONTACT DATACHEM LABS PRIOR TO SENDING SAMPLES

Date: 11-18-04 Purchase Order No. _____ Quote No. _____

Company Name: MINCKLER + ASSOC.

Sample Collection

Address: 1503 ZAIGER DRIVE

Sampling Site: WAYNESBORO, TN ARMORY, PROJ. No. 3

Colorado Springs, Colorado 80915

Industrial Process: N/A

Non-Responsive

Date of Collection: 11-18-04

Time Collected: 7:58 a.m.

Date of Shipment: 11-19-04

Non-Responsive

MR.

REQUEST FOR ANALYSES

Laboratory (Use Only)	Client Sample Number	Media Type*	Sample Volume (Liters)	ANALYSES REQUESTED - Use Method Number if Known
33904	M04666	GHOST WIPE	10WX10IN	LEAD- WINDOW LEDGE, CLASSROOM No. 2
33905	M04667	"	"	LEAD- MOP/BROOM RM FLOOR
33906	M04668	"	"	LEAD- SOUTH END FLOOR, DRILL HALL
33907	M04669	"	"	LEAD- WOODEN SHELF, ORDERLY RM
33908	M04670	"	"	LEAD- TOP OF FAN SURFACE, MAINT. STOR. RM
33909	M04671	"	"	LEAD- FLOOR, LOCKER/EXERCISE RM FLOOR
33910	M04672	"		LEAD- BLANK
33911	M04673	PLASTIC BAG		LEAD- OLD INDOOR FIRING RANGE CEILING
33912	M04674	PLASTIC BAG		LEAD- DRILL HALL WALL
33913	M04675	PLASTIC BAG		MOLD- OLD LIBRARY CEILING

CHAIN OF CUSTODY

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Relinquished (Signature)			Date / Time 11/30/04 1853
Relinquished (Signature)		(Signature)	Date / Time

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Results
Lead

Client #	DCL #	Total Area (ft^2)	µg/Wipe	µg/ft^2
M04653	04-33891	0.694	1900.	2700.
M04654	04-33892	0.694	130.	190.
M04655	04-33893	0.694	12.	17.
M04656	04-33894	0.694	380.	550.
M04657	04-33895	0.694	640.	920.
M04658	04-33896	0.694	250.	360.
M04659	04-33897	0.694	140.	200.
M04660	04-33898	0.694	ND	<14.
M04661	04-33899	0.694	ND	<14.
M04662	04-33900	0.694	ND	<14.
M04663	04-33901	0.694	ND	<14.
M04664	04-33902	0.694	ND	<14.
M04665	04-33903	0.694	ND	<14.
M04666	04-33904	0.694	ND	<14.
M04667	04-33905	0.694	38.	55.
M04668	04-33906	0.694	ND	<14.
M04669	04-33907	0.694	12.	17.
M04670	04-33908	0.694	42.	61.
M04671	04-33909	0.694	ND	<14.
M04672	04-33910	0	ND	-
	Prep Blank		ND	
% Recovery	LCS 1		89.	
% Recovery	LCS 2		89.	
RPL			10.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

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DATA CHEM LABORATORIES, INC.

Submitted To: Non-Responsive [redacted]

Reference Data:	**Lead**
Client Sample No.:	M04673 through M04674
P.O. No.:	BPA: W912JM-04-A-0007
Sample Location:	Waynesboro, TN Armory Project No. 3
Sample Type:	Paint Chip
Method Reference:	3050B/6010B
DCL Set ID No.:	04-S-6043
DCL Sample ID No.:	04-33911 through 04-33912
Sample Receipt Date:	11/22/2004
Preparation Date:	12/01/2004
Analysis Date:	12/01/2004

The samples were prepared in accordance with EPA method 3050B. Sample condition was acceptable upon receipt except where noted. The samples were then analyzed in accordance with EPA method 6010B using a Jarrell Ash Trace ICP.

The results are provided in the enclosed data table. Results relate only to the items tested and are not blank corrected unless indicated in the data table.

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Non-Responsive [redacted]

Non-Responsive [redacted]

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CINCINNATI, OHIO 45242-3706
513 733-5336, FAX 513 733-5347

WEST COAST OFFICE
11 SANTA YORMA COURT
NOVATO, CALIFORNIA 94945
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Results
Lead

Client #	DCL #	mg/Kg (ppm)	% by weight
M04673	04-33911	38.	0.0038
M04674	04-33912	29.	0.0029
	Prep Blank	ND	
% Recovery	LCS	*133.	
% Recovery	34228MS	NA	
% Recovery	34228MSD	NA	
RPL		25.	0.0025

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.
MS/MSD = matrix spike/matrix spike duplicate.
*NOTE: high recovery for the LCS.

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DATA CHEM LABORATORIES, INC.

TEST REPORT
Page 1 of 2
12/2/04

Submitted To: Non-Responsive

Reference Data:

Sample Location:	Mold Waynesboro, TN Armory, Project No. 3
Sample Type:	Bulk
Client Sample No.:	M04675
PO #:	Not Available
Method Reference:	DCL SOP Method MC-AN-005
Sample Set ID#:	04-W-6043
DATACHEM Lab No.:	04-33913
DATACHEM Sample Receipt Date:	11/22/04
Analysis Date:	12/1/04

Sample condition was acceptable upon receipt except where noted.

The sample is mounted on a supportive glass slide, which is then prepared for viewing by the use of appropriate microbiological stains.

DCL SOP Method MC-AN-005 is used to identify fungal spore types at the genus level and to quantify spore concentrations. This procedure does not provide an exact spore count. It does provide a visual estimation of identifiable contamination and individual spore concentrations within a visual field using plain light microscopy under 630x magnification. Individual spherical spores lacking any distinguishing characteristics may be grouped and classified under the category "Amerospores." Total fungal spore particulate concentrations include both viable and non-viable estimates.

The results are provided in the enclosed data table.

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These analyses were conducted at DataChem Laboratories, Salt Lake City, UT.

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Data Table

Client #	**M04675**				
DCL #	**04-33913**				

Summary Results	**Percentage**				
Mycelial Fragments	**25-50%**				

	Spore Percentage				
Alternaria	ND				
Amerospores	ND				
Arthrinium	ND				
Ascospores	ND				
Aspergillium/Penicillium	ND				
Basidiospores	ND				
Bipolaris/Dreschlera	ND				
Chaetomium	ND				
Cladosporium	ND				
Curvularia	ND				
Hormonema spp.	ND				
Oidium/Peronospora	ND				
Paecilomyces	ND				
Pithomyces/Ulocladium	ND				
Rusts	ND				
Smuts/Myxomycetes	ND				
Stachybotrys	**50-100%**				
Stemphylium	ND				
Torula	ND				
Unidentified Conidia	ND				
Total Spore Percentage	**50-100%**				

Sample Calculation: Visual estimation of spore concentrations are based on background interference contamination and individual spore concentrations within a visual field. A total spore percentage versus the background interference concentration is presented in the data table. Individual percentages of various spore types are also provided, representing as a whole the total conidia percentage.

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Cincinnati, OH

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Enclosure 3

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NOISE SURVEY
(Sound Level Meter Survey)

DATE (Year Month Day)	TYPE SURVEY
04 11 18	1 — 1–INITIAL SURVEY 2–RE–SURVEY 3–OTHER

SOUND LEVEL METER		MICROPHONE		CALIBRATOR	
MANUFACTURER: Quest		MANUFACTURER:		MANUFACTURER: Quest	
MODEL: 2700	SERIAL NO: HUC030020	MODEL:	SERIAL NO:	MODEL: QC-10/QC-20	SERIAL NO: Q10080144
LAST ELECTROACOUSTIC CALIB DATE (year month day): 04 11 18		LAST ELECTROACOUSTIC CALIB DATE (year month day):		LAST ELECTROACOUSTIC CALIB DATE (year month day): 04 06 16	

WIND SCREEN ☐ USED ☐ NOT USED — MEASUREMENTS OBTAINED ☐ INDOORS ☐ OUTDOORS

DESCRIPTION OF AREAS/DUTIES WHERE NOISE SURVEY CONDUCTED *(Illustrate on additional sheet and attach to form)*

Waynesboro, Tennessee
Det 1, Battery B, 2-115 FA
Waynesboro Armory

PRIMARY SOURCE OF NOISE: Alarm Unit

SECONDARY SOURCE OF NOISE:

SOUND LEVEL DATA					PROTECTION REQUIRED (re: dBA Level)			
LOCATION	METER ACTION	dBC	dBA	RISK ASSESSMENT CODE	NONE less than 85	PLUG OR MUFF 85–108	PLUG AND MUFF 108–118	PLUG + MUFF + TIME LIMIT greater than 118
Alarm Control Unit	S		84	IV	X			

NOTES: Range of levels noted by /; i.e., 102/109. At operator work stations, measure at ear level.
METER ACTION: Enter F for fast meter action and S for slow meter action.

REMARKS *(i.e., Area and equipment posted, hearing protection in use, etc.)*

Pre & Post Cal @ 114 dBA

MORE DETAILED NOISE EVALUATION REQUIRED: ☐ YES ☒ NO *(If "YES", identify type evaluation needed.)*

NAME(S) OF PERSONS IDENTIFIED FOR AUDIOMETRIC MONITORING *(Use additional sheet if more space is needed and attach to form)*

See Personnel Roster

[redacted] Non-Responsive

[redacted] Name, First Name, MI)

[redacted] Non-Responsive

[redacted] Non-Responsive

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Page 2467 of 2531

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INSTRUCTIONS
(Refer to DOD Component Instructions for Additional Guidance)

PURPOSE: This form is intended to record noise survey results for the identification of potentially noise-hazardous environments.

GENERAL: Print all information in ink. Only medical, industrial hygiene, safety, or engineering personnel who meet training requirements specified by the DOD components will make sound level measurements.

1. Date - Enter date noise survey conducted (e.g., if Jan 14, 1979, enter 79/01/14).

2. Type, Survey - Enter appropriate numeric code in box (e.g., enter "1" if area or operation not surveyed before or no available records of previous survey; enter "2" if resurvey conducted at regular intervals (such as once each 12 months); or enter "3" if noise being reevaluated to confirm validity of previously obtained measurements or for purposes other than indicated).

3. Sound Level Meter:

a. Mfgr - Enter name of company that produced sound level meter.
b. Model - Enter manufacturer's designation.
c. Serial No. - Enter manufacturer's serial number.
d. Last Electroacoustic Calib Date - Enter year, month, day (see item 1) of last comprehensive calibration required by DOD component. Not to include calibration checks made with acoustical calibrator.

4. Microphone (Fill in this section if microphone is detachable from sound level meter)
a. Manufacturer - Enter name of company that produced microphone.
b. Model - If available, enter manufacturer's designation.
c. Serial No. - Enter manufacturer's serial number.
d. Last Electroacoustic Calib Date - Enter year, month, and day (see item 1) of last comprehensive calibration as required by DOD component.

5. Calibrator:

a. Manufacturer - Enter name of company that produced calibrator.
b. Model - Enter manufacturer's designation.
c. Serial No. - Enter manufacturer's serial number.
d. Last Electroacoustic Calib Date - Enter year, month, and day (see item 1) of last comprehensive calibration as required by DOD component.

6. Wind Screen - Check appropriate box indicating if manufacturer's device to reduce wind noise is mounted over microphone assembly.

7. Measurements Obtained - Check appropriate box indicating if measurements obtained indoors or outdoors.

8. Description of Areas/Duties Where Noise Survey Conducted - Include building number(s), name of activity and/or operation, identify specific microphone locations, performance conditions and descriptions of machinery (e.g., rpm, load, etc). Where applicable, include noise-hazard contours of area. On additional sheet make simple line drawing of area and identify noise sources and locations of measurement.

9. Primary Source of Noise - If possible, identify the location(s) of the highest dBA value.

10. Secondary Source of Noise - If possible, identify all other noise sources when the primary noise source is off (e.g., background noise sources and other noise sources that may or may not be noise hazardous).

11. Sound Level Data

a. Location - Position where measurement is obtained should correspond with those identified, or illustrated on form.
b. Meter Action - See NOTES in Sound Level Data Sec.
c. dBC - If required by DOD component, enter sound levels measured with weighting switch of meter in "C" position.
d. dBA - Enter sound levels measured with weighting switch of meter in "A" position. See NOTES in Sound Level Data Section.
e. Risk Assessment Code - Enter expression of risk that combines elements of hazard severity and mishap probability. Hazard severity categories shall be assigned by roman numeral as follows:

(1) Category I - Catastrophic: May cause death or loss of a facility (Code I).
(2) Category II - Critical: May cause severe injury, e.g., severe occupational illness, or major property damage (Code II).
(3) Category III - Marginal: May cause minor injury, e.g., minor occupational illness, or minor property damage (Code III).
(4) Category IV - Negligible: Probably would not affect personnel safety or health, but is nevertheless in violation of specific criteria (Code IV). Mishap probability shall be assigned capital letter according to following criteria:

(a) Subcategory A: Likely to occur immediately or within a short period of time (Code A).
(b) Subcategory B: Probably will occur in time (Code B).
(c) Subcategory C: May occur in time (Code C).
(d) Subcategory D: Unlikely to occur (Code D).
Enter codes as IIB, IIIC, etc. Refer to DOD Instruction 6055.1/DOD component instructions for specific definitions and guidance.

12. Protection Required (re: dBA Level)
a. None (less than 85): If dBA levels less than 85, check this column. No hearing protectors required.
b. Plug or Muff (85-108): If dBA levels 85-108 inclusive, check this column. Earplugs, ear muffs, ear-canal caps, or noise-attenuating helmet required.
c. Plug and Muff (108-118): If dBA levels over 108 to 118 inclusive, check this column. Earplugs worn in combination with ear muffs or noise-attenuating helmet required.
d. Plug, Muff & Time: If dBA levels over 118, check this column. Earplugs worn in combination with ear muffs or noise-attenuating helmet and time limit (to be determined by DOD component) required.

13. Remarks - Enter type of hearing protection in use, whether area and equipment posted with appropriate caution signs, etc.

14. More Detailed Noise Evaluation Required - Check "yes" box if more detailed noise evaluation is required; check "no" box if not. Specify the type of evaluation needed (e.g., octave band analysis, etc).

15. Name(s) of Persons Identified for Audiometric Monitoring - List names of individuals routinely exposed to noise in preceding locations.

16. Name, Phone No. and Organization of Supervisor of Noise-Hazardous Area or Operation - Enter name (surname, given name & middle initial) of the first echelon (immediate) supervisor of the location (and personnel) surveyed.

17. Survey Performed by - Enter name (surname, given name & middle initial) of individual performing survey & signature.

18. Hearing Conservation Monitor - Enter name of individual reviewing survey results & signature. Usually local surgeon or designated representative.

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Enclosure 4

Waynesboro Armory
Waynesboro, TN

SUBJECT: Personnel Roster

NAME	RANK/TITLE	POSITION	UNIT ASSIGNED
[redacted]			1, Battery B, 2-115 FA
			1, Battery B, 2-115 FA
			1, Battery B, 2-115 FA

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Enclosure 5

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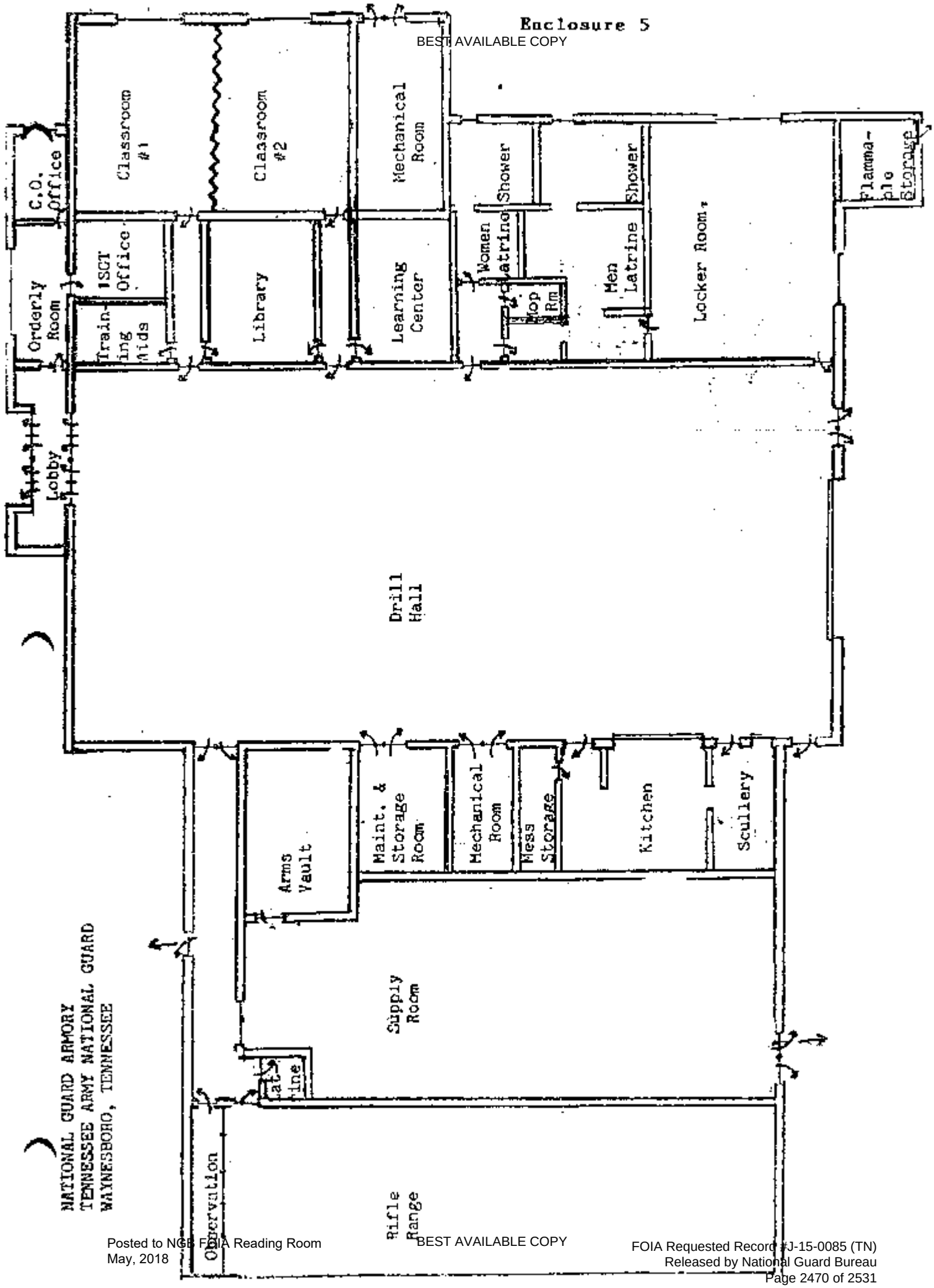

NATIONAL GUARD ARMORY
TENNESSEE ARMY NATIONAL GUARD
WAYNESBORO, TENNESSEE

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HAZARD COMMUNICATION SAMPLE WRITTEN PROGRAM

NOTE: The written program must include the specific methods that are used to achieve compliance with the requirements of the Hazard Communication Standard (29 CFR 1910.1200). The specific methods described in this sample written program are for illustrative purposes, and other effective methods may be substituted to satisfy local needs or practices.

I. General

The purpose of this instruction is to ensure that (facility name) is in compliance with the OSHA Hazard Communication Standard (HCS) 29 CFR 1910.1200.

The [occupational safety and health manage (OS&H) manager) or other technically qualified designee] is the overall coordinator of the facility program acting as the representative of {senior facility official], who has overall responsibility.

In general, each employee in the facility will be appraised of the substance of the HCS, the hazardous properties of chemicals they work with, and measures to take to protect themselves from these chemicals.

II. List of Hazardous Chemicals

The [OS&H manager or designee] will maintain list of all hazardous chemicals used in the facility, and update the list as necessary. The hazardous chemical list will be updated upon receipt of hazardous chemicals at the facility. The list of hazardous chemicals is maintained at [location].

III. Material Safety Data Sheets (MSDS's)

The [OS&H manager or designee] will maintain an MSDS library on every substance on the list of hazardous chemicals in the [location]. The MSDS will consist of a fully completed OSHA Form 174 or equivalent. The [location manager or supervisor] will ensure that each [work area or shop] maintains an MSDS for hazardous materials used in that area. MSDS's will be readily available to all employees.

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The [local OS&H manager or designee] is responsible for acquiring and updated MSDS's. The [local OS&H manager or designee] will review each MSDS for accuracy and completeness and will consult with the [Area/Region/Headquarters OS&H manager] if additional research is necessary. The [local OS&H manager or designee] must clear all new procurements for the facility. Whenever possible, the least hazardous substance will be procured.

IV. Contractor Employers

The [local OS&H manager or designee], upon notification from the [responsible supervisor], will advise outside contractors of any chemical hazards which may be encountered in the normal course of their work on the premises.

V. Non-Routine Tasks

[Maintenance or other supervisors] contemplating a non-routine task, e.g. boiler repair, will consult with the [local OS&H manager or designee] and will ensure that employees are informed of chemical hazards associated with the performance of these tasks and appropriate protective measures. This will be accomplished by a meeting of supervisors and the OS&H manager with affected employees before such work is begun.

VI. Additional Information

Further information on this written program, the hazard communication standard, and applicable MSDS's is available at [location/telephone number].

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MAINTENANCE CHECKLIST

AS NEEDED

_____ Fix leaky faucets.
_____ Unclog slow running drains.
_____ look for Roof leaks.
_____ Replace blown bulbs.

MONTHLY

_____ Inspect and test Fire alarms.
_____ inspect and replace filters as necessary (Air conditioner)
_____ Clean/Vacuum grill and inside compressor (unit of central air conditioner, when in use)
_____ Walk around the building exterior to check general condition.

QUARTERLY

_____ Replace fire alarm batteries.(At least twice per year)
_____ Cut back any trees or shrubs touching the exterior. (Twice per year)
_____ Inspect and touch up exterior paint.
_____ Clean gutters and inspect down spouts.
_____ Inspect roof for warping, aging, moss and cracking.
_____ Perform seasonal pest control.
_____ Fix loose or cracked caulking around tiles sinks showers, toilets and counters.
_____ Inspect foundation for water penetration, settlements and cracks.
_____ Wax and buff floors.
_____ Inspect and touch up interior paint.

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HAZARDOUS MATERIAL INVENTORY

FACILITY NAME: _____ STORAGE AREA: _____ PAGE ____ OF ____ PAGES

LOCATION: _____

CML NAME (FROM MSDS)	NSN	CAS NUMBER	HAZARD CATEGORY (FIRE / EXPOSURE RELEASE OF PRESSURE / REACTIVITY / IMMEDIATE HEALTH HAZARD (ACUTE) / DELAYED HEALTH HAZARD (CHRONIC))	SIZE CON	# DAYS ONSITE	*EST AVG DAILY AMT	*EST MAX AMT STORED	*ANL AMT REC'D	*ANL AMT SHIPPED (WASTE OR RECY)	EHS TPQ	EHS RQ	CERCLA RQ	TAB
			☐☐☐☐☐										
			☐☐☐☐☐										
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ALL AMOUNTS MUST BE EXPRESSED IN LBS

CONVERSIONS: (# LBS PER GL) SOLVENTS-6.7 MOGAS-6.2 DIESEL-7.1 JP8-6.2 ALL OTHERS-8.3
2 LBS = 1 OT 1 LB = 1 PT

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Enclosure 9

Step-by-Step Summary

Cleaning: How To Do It

1. Include step-by-step procedures for precleaning, cleaning during the job, and daily and final cleaning in project design or specifications.

2. Assign responsibilities to specific workers for cleaning and for maintaining cleaning equipment.

3. Have sufficient cleaning equipment and supplies before beginning work.

4. If contamination is extensive, conduct precleaning of the dwelling unit. Move or cover all furniture and other objects.

5. Conduct ongoing cleaning during the job, including regular removal of large and small debris and dust. Decontamination of all tools, equipment, and worker protection gear is required before it leaves containment areas. Electrical equipment should be wiped and high-efficiency particulate air (HEPA) vacuumed, not wetted down, to minimize electrocution hazards.

6. Schedule sufficient time (usually 30 minutes to an hour) for a complete daily cleaning, starting at the same time near the end of each workday after lead hazard control activity has ceased.

7. For final cleaning, wait at least 1 hour after active lead hazard control activity has ceased to let dust particles settle.

8. Use a vacuum cleaner equipped with a HEPA exhaust filter. HEPA vacuum all surfaces in the room (ceilings, walls, trim, and floors). Start with the ceiling and work down, moving toward the entry door. Completely clean each room before moving on.

9. Wash all surfaces with a lead specific detergent, high-phosphate detergent, or other suitable cleaning agent such as Mr. Clean or Spic-n- Span to dislodge any ground-in contamination, then rinse. Change the cleaning solution after every room is cleaned.

10. Repeat step 8. To meet clearance standards consistently, a HEPA vacuum, wet wash, and HEPA vacuum cycle is recommended. For interim control projects involving dust removal only, the final HEPA vacuuming step is usually not needed. Other cleaning methods are acceptable, as long as clearance criteria are met and workers are not overexposed.

11. After final cleaning, perform a visual examination to ensure that all surfaces requiring lead hazard control have been addressed and all visible dust and debris have been removed. Record finding s and correct any incomplete work. This visual examination should be performed by the owner of an owner's representative who is independent of the lead hazard control contractor.

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12. If other construction work will disturb the lead-based paint surfaces, it should be completed at this point. If those surfaces are disturbed, repeat the final cleaning step after the other construction work has been completed.

13. Paint or otherwise seal treated surfaces and interior floors.

14. Conduct a clearance examination.

15. If clearance is not achieved, repeat the final cleaning.

16. Continue clearance testing and repeated cleaning until the dwelling achieves compliance with all clearance standards. As an incentive to conduct ongoing cleaning and a thorough final cleaning, the cost of repeated cleaning after failing to achieve clearance should be borne by the contractor as a matter of the job specifications, not the owner.

17. Do not allow residents to enter the work area until cleaning is completed and clearance is established.

18. Cleaning equipment list:

* HEPA vacuums.

* Detergent.

*Waterproof gloves.

* Rags.

* Sponges.

* Mops.

* Buckets.

* HEPA vacuum attachments (crevice tools, beater bar for cleaning rugs).

* 6-mil plastic bags.

* Debris containers.

* Waste water containers.

* Shovels.

* Rakes.

* Water-misting sprayers.

* 6-mil polyethylene sheeting (or equivalent).

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Enclosure 10

Stachybotrys chartarum
a mold that may be found in water-damaged homes

November 2000

Environmental Health Investigations Branch
California Department of Health Services

Stachybotrys chartarum ecology

Stachybotrys chartarum (*SC*) is a greenish black mold that grows on material with a high cellulose content, such as fiberboard, the paper covering of gypsum wallboard, wallpaper, dust, and wood when these become chronically water damaged. This mold requires very wet conditions for days or weeks in order to grow. Excessive indoor humidity resulting in water vapor condensation on walls, plumbing leaks, spills from showering or bathing, water leaking through foundations or roofs may lead to growth of many types of mold, including *Stachybotrys*. No one knows how frequently this mold is found indoors since buildings are not routinely tested for its presence.

Toxin production

Stachybotrys chartarum is one of many molds that are capable of producing one or more mycotoxins (chemicals produced by molds that may be able to cause symptoms or illness in people). It has recently gained notoriety as some strains are capable of producing a very potent toxin. However, finding *Stachybotrys* within a building does not necessarily mean that occupants have been exposed either to allergens (pieces of the fungus or spores that can cause allergic symptoms in people prone to allergies) or toxins produced by this fungus. Laboratory studies indicate that molds such as *Stachybotrys* that have the ability to produce toxins do not always do so. Whether a mold produces a toxin while growing in a building may depend on what the mold is growing on, conditions such as temperature, pH, humidity or other unknown factors. When mycotoxins are present, they occur on spores and the small mold fragments that may be released into the air. While *Stachybotrys* is growing, a wet slime layer covers its spores, preventing them from becoming airborne. However, when the mold dies and dries up, air currents or physical handling can cause spores to become airborne. There are no commercial laboratory tests currently available that can detect mycotoxins in a building where molds are present.

Health Effects

Health problems associated with *Stachybotrys chartarum* were first noted in Russian and Eastern European farm animals that ate moldy hay in the 1930's and 1940's. Horses eating heavily *SC*-contaminated fodder experienced immune system suppression, infection and bleeding that was fatal with high doses. The first reported human health effects were seen in agricultural workers who handled the moldy straw or hay. These high level exposures were associated with coughing, runny nose, burning sensations in the mouth or nose, nose bleeds, headache, fatigue and skin irritation (rashes and itching) at the site of moldy hay contact.

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Much less is known about health effects of *SC* when it occurs in indoor environments, such as homes or office buildings, where the most likely route of exposure is inhalation. If large numbers of *SC* spores are released into the air, some people may develop symptoms such as coughing, wheezing, runny nose, irritated eyes or throat, skin rash, fatigue or diarrhea. Researchers have theorized that these symptoms may result from toxins produced by *SC* or exposure to a combination of several molds or bacteria and the chemicals they produce. Most people who experience health effects associated with moldy buildings fully recover following removal and clean-up of the mold contamination.

Much of the concern about toxin-producing indoor molds and especially *Stachybotrys* followed its identification in the mid-1990s in the homes of a small number of Cleveland infants with an unusual form of lung bleeding. The original investigation, cosponsored by the U.S. Centers for Disease Control and Prevention (CDC) suggested that very wet homes and *Stachybotrys* growth played a role in these lung hemorrhage cases. However, after reviewing the methods used to conduct the original study, the CDC concluded in May, 2000 that a possible association between the lung bleeding in the Cleveland infants (now called "acute idiopathic pulmonary hemorrhage") and exposure to molds, specifically *Stachybotrys chartarum*, was not proven. However, both the CDC and other research groups are continuing to examine the role of indoor molds in both child and adult health, particularly for those molds that may produce toxins.

How can I tell if my health problems are caused by *Stachybotrys*?

It is currently difficult to prove that individual health symptoms are due to *SC* exposure for several reasons:

1) When buildings are sampled, usually several other molds or bacteria (some capable of producing chemicals such as endotoxin) are found in addition to *SC*, and these may also contribute to symptoms;
2) These symptoms are very nonspecific and may be related to exposure to other sources (such as dust mites, animal dander, pollen or other allergens) or to infectious agents such as viruses that cause common colds or flu;
3) Research has not identified how much *Stachybotrys* exposure is necessary to produce symptoms;
4) There is no test that can determine if a person was exposed to this fungus or its toxins.

Laboratory Tests for Human Exposure to *SC* mold or toxins

A few physicians have used a blood antibody test to determine whether their patients have been exposed to the *SC* mold or its toxins. However, this procedure has not been proven to be valid. In one study of 48 people exposed to *SC*, only 4 had elevated antibodies. The *Stachybotrys* antibody test can also be positive when an individual is exposed to other types of mold altogether (i.e., cross-reaction). Therefore this test cannot be used to definitively determine whether someone has been exposed to the *Stachybotrys* mold or its toxins. In addition, since we do not know how long antibodies remain elevated after *SC* exposure, it is also possible that a positive test may be evidence of a previous encounter with *SC* or a cross-reacting mold, not a current one.

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Prevention of Mold in Dwellings

As part of routine building maintenance, buildings should be inspected for evidence of water damage and visible mold. Water damage should be corrected early (within 48 hours) and building surfaces or furnishings dried to prevent mold growth. If any type of visible mold growth is found, whether *Stachybotrys* or any other mold, the water damage leading to it should be corrected and visible mold removed by appropriate methods as described below.

Correction of Visible Mold

Visible mold should be removed by the simplest and easiest method that is proper and safe. Common household molds found around bathtubs or between shower tiles should be removed with a household cleanser. For building components like walls or ceilings showing any type of fungal growth, including *Stachybotrys*, specific methods for removal are based on the extent of visible contamination and underlying water damage. New York City Department of Health produced a set of voluntary guidelines in April, 2000 that incorporate the best available knowledge on removing mold contaminated building components. Their recommendations are summarized here, but the full text should be consulted before deciding on a remediation strategy. Text is available at the New York City Department of Health website listed at the end of this document.

1) **Level I** : If the area of mold is small and isolated (10 square feet or less) – e.g., ceiling tiles, small areas on walls

   A) The area can be cleaned by individuals who have received training on proper clean up methods, protection and potential health hazards. These individuals should be free from asthma, allergy and immune disorders. Gloves, eye protection and an N95 disposable respirator (available at neighborhood hardware stores) should be worn.

   B) Contaminated material that cannot be cleaned should be removed and placed in a sealed plastic bag before taking it out of the building. This will prevent contamination of other parts of the building.

   C) The work area and areas used by the remediation workers while exiting the building should be cleaned with a damp cloth or mop. All areas should be left dry and visibly free of mold contamination and debris.

2) **Level II**: mid-sized isolated areas (10-30 square feet) – e.g., a wallboard panel

   The recommendations are the same as Level I, with the added precaution that

   A) Moldy materials should be covered with plastic sheets and taped before any handling or removal is done. For instance, a moldy panel of gypsum wallboard should have plastic sheeting taped over the affected area on the wall before it is cut to remove the contaminated section. Once cut from the wall, that section should be placed inside another layer of plastic and sealed up with tape before it is carried through the building for disposal.

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B) Following removal of contaminated material, the work area and exit areas should be HEPA vacuumed (a vacuum equipped with a High-Efficiency Particular Air filter) in addition to cleaning with a damp cloth or mop.

3) **Levels III, IV, V:** Large area (more than 30 square feet) – e.g., several wallboard panels or more

A health and safety professional with experience performing microbial investigations should be consulted prior to any cleaning activities to provide oversight for the project. See the specific recommendations in "Guidelines on Assessment and Remediation of Molds in Indoor Environments", New York City Department of Health, on their website (see Additional Resources). If you do not have access to the Internet you may request a copy through the California Department of Health Services Indoor Air Quality Assistance Line at (510) 540-2476.

Summary

Exposure to high levels of *Stachybotrys chartarum* and other mold spores may cause health symptoms in some individuals. Therefore, any fungal growth on building materials should be cleaned off or removed as rapidly as possible to maintain a healthy indoor environment. New York City Department of Health guidelines provide detailed information on mold remediation strategies and are available from their website (see Additional Resources).

At present there is no environmental test to determine whether Stachybotrys growth found in buildings is producing toxins. There is also no blood or urine test that can establish if an individual has been exposed to *Stachybotrys chartarum* spores or its toxins. Anyone with persistent health problems that they believe may be related to indoor molds should consult their physician.

Additional Resources

New York City Department of Health. Guidelines on Assessment and Remediation of Molds in Indoor Environments. Full text document available at http://www.ci.nyc.us/health. For further information about this document contact New York City Department of Health at (212) 788-4290.

U.S. E.P.A. Indoor Air Quality Web Site – Mold Links and General Information Page
http://www.epa.gov/iedweb00/pubs/moldresources.html

U.S. E.P.A. Indoor Air Quality Information Clearinghouse: 1-800-438-4318
For information on many types of indoor air contaminants.

Centers for Disease Control and Prevention. Questions and Answers on *Stachybotrys chartarum* and other molds http://www.cdc.gov/nceh/asthma/factsheets/molds/default.htm

Centers for Disease Control and Prevention. Update: Pulmonary Hemorrhage/Hemosiderosis Among Infants – Cleveland, OH, 1993-1996. Morbidity and Mortality Weekly Report 49(09):180-

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REFERENCES:

a) Title 29, Code of Federal Regulations (CFR) Part 1910, Occupational Safety and Health Administration (OSHA).

b) ARNG PAM 385-16, Guidelines for Converting Indoor Firing Ranges to Other Uses.

c) NGR 385-15, Policy and Responsibilities for Inspection/Evaluation and Use of National Guard Indoor Firing Ranges.

d) Army Regulation (AR) 40-5, 15 October 1990, Medical Service, Preventive.

e) AR 11-34, 15 February 1990, The Army Respiratory Program.

f) AR 385-10, 23 May 1988, Army Safety Program.

g) FC-Reg. 385-2, 1 July 1999, Ionizing and Nonionizing Radiation Protection Program

h) Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.

i) Technical Bulletin Medical (TB MED) 503, 1 February 1985, The Army Industrial Hygiene Program.

j) Technical Bulletin Medical (TB MED) 530, 1 January 1991, Food Service Sanitation

k) National Guard Regulation (NGR) 385-10, 20 December 1989, Army National Guard Safety and Occupational Health Program.

l) Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist (ACGIH), Cincinnati, Ohio.

m) IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.

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Recommendations:

a) An updated HAZCOM SOP was included in the report (See encl. 6). Conduct semi-annual inventories and update MSDS's on all chemicals in the facility. A hazardous material inventory sheet was included in the report (see encl 8). Tab the MSDS's on side with numbers corresponding to the hazardous material inventory sheet tab numbers for easy access in case of a spill. Include a chemical list in the janitor's MSDS book and the unit's MSDS book. A risk assessment code (RAC) of 3 was assigned to this operation.

b) Due to the lead dust wipe results, it is recommended that the old indoor firing range be thoroughly cleaned from top to bottom to include the floor, the plenum floor and frame, the shelves, and the light fixtures/covers. Also, the supply room floor, the supply room metal shelves, the mop/broom room, and the fan base in the maintenance storage room must be thoroughly wiped down and or wet mopped with an industrial cleaner using tri-phosphates, Mr. Kleen or Spic-n-Span. For additional lead cleaning measures, see enclosure 9. A risk assessment code (RAC) of 1 was assigned to this operation.

c) Replace the lamps, fluorescent tubes, and or bulbs in the kitchen area, the drill hall to include the exit and backup lights, the supply room, the mechanical rooms, the men's restroom and locker room, the recruiter's office, the hallway, the lobby, and the old indoor firing range. Due to the low illumination levels in the women's showers, add lighting. Also, ensure that all exit signs and back up emergency fire lights are working. A risk assessment code (RAC) of 2 was assigned to this operation.

d) Follow up on the submitted work order to repair the roof leak in the drill hall. A risk assessment code (RAC) of 3 was assigned to this operation.

e) Follow up on the submitted work order to repair the roof leak in the classroom. Replace any missing or broken ceiling tiles. Openings in a ceiling present a path for smoke and heat to travel that could delay the response of smoke detectors or automatic sprinklers. A risk assessment code (RAC) of 2 was assigned to this operation.

f) Clean out the kitchen grease trap by a certified contractor. A risk assessment code (RAC) of 3 was assigned to this operation.

g) Submit a work order to have a certified contractor clean the black mold on the old library room's ceiling. For mold cleanup procedures see enclosure 10. A risk assessment code (RAC) of 3 was assigned to this operation.

h) Submit a work order to replace the receptacle cover in the drill hall. A risk assessment code (RAC) of 3 was assigned to this operation.

i) Perform monthly checks on fire extinguishers. Each month, ensure that the devices are turn upside down and tapped with a rubber mallet to loosen any material at the bottom. A risk assessment code (RAC) of 1 was assigned to this operation.

j) If work practices change, a new assessment should be made on the controls in place

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Enclosure 13

Photo No.1

Photo No.2

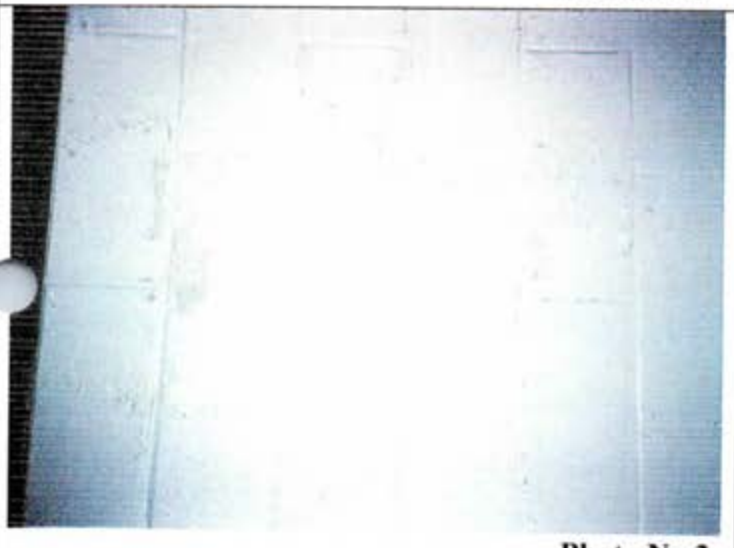

Photo No.3

Photo No.4

Photo No.5

Photo No.6

Photo No.7

Photo No.8

Photo No.9

Photo No.10

Photo No.11

Photo No.12

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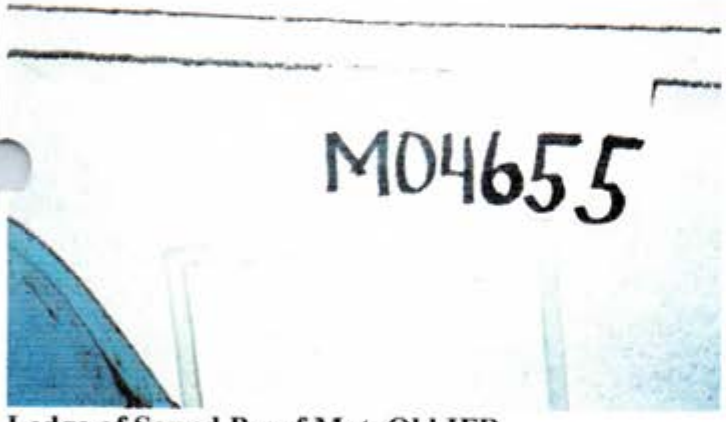
Enclosure 14

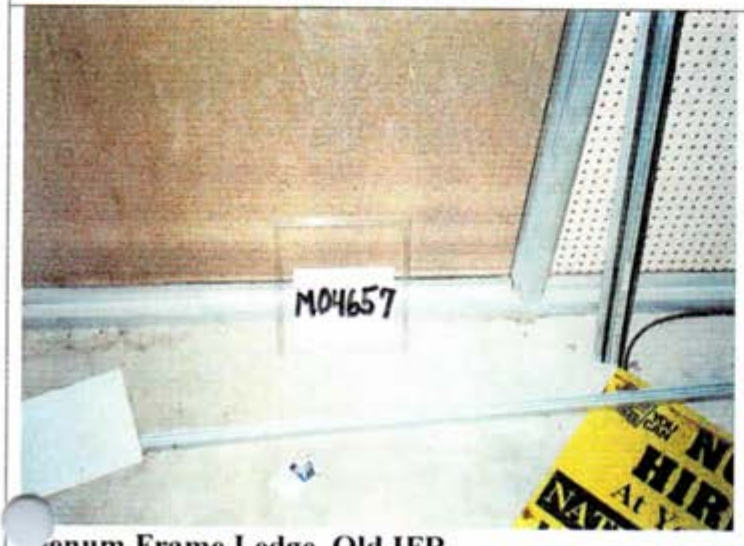
North End Floor, Old Indoor Firing Range (IFR)

East End Floor, Old IFR



Ledge of Sound Proof Mat, Old IFR

Plenum Floor, Old IFR



Plenum Frame Ledge, Old IFR

Metal Shelf, Supply Room

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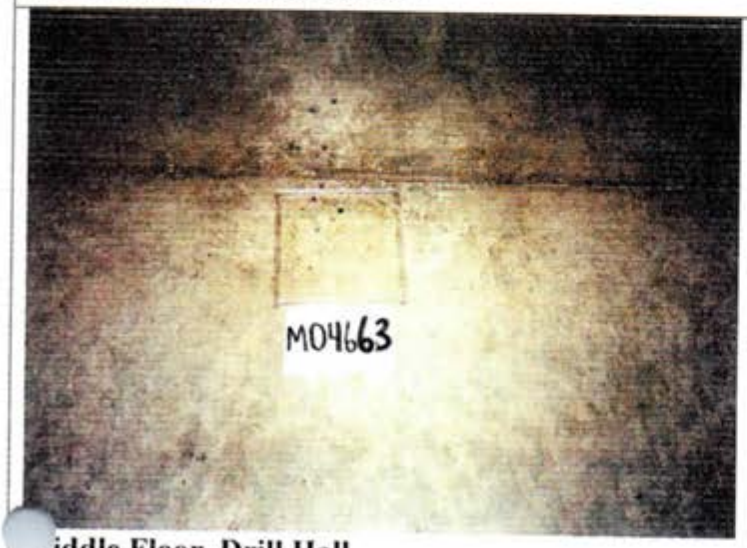
Floor, Under Shelf, Supply Room

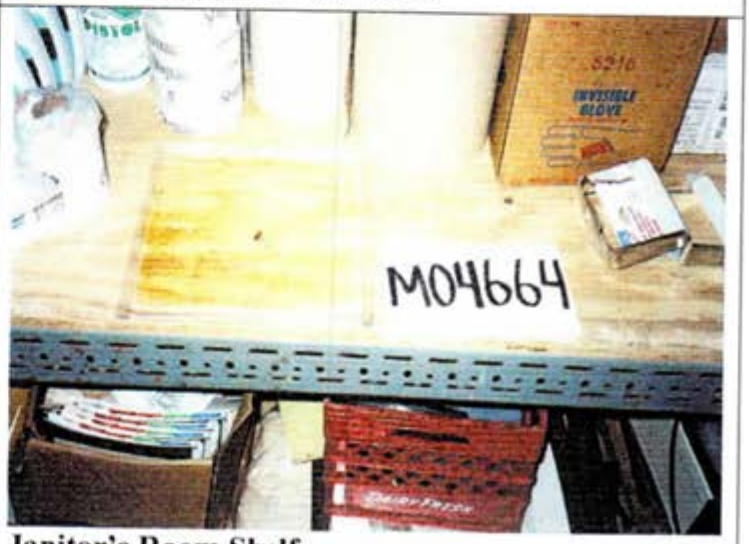
Chair Hauler Surface, Drill Hall

Mat Surface, Furnace Room

Portable Tray Holder, Kitchen



iddle Floor, Drill Hall



Janitor's Room Shelf

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Wooden Shelf, Classroom No.1

Window Ledge, Classroom No.2

Mop/Broom Room Floor

South End Floor, Drill Hall

ooden Shelf, Orderly Room

Fan Support Surface, Maintenance Storage Room

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Floor, Locker/Exercise Room

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NATIONAL GUARD REGION SOUTH
INDUSTRIAL HYGIENE OFFICE
510 PLAZA DRIVE, SUITE 1530
COLLEGE PARK, GA 30349

NGB-ARS-IHSE (40-5f)

27 August 2010

MEMORANDUM FOR THE ADJUTANT GENERAL OF TENNESSEE, ATTN: [redacted] Non-Responsive Winchester National Guard Armory, HQ Regiment Fire Support, Armor Calvary Regiment, 313 Wilton Circle, Winchester, Tennessee 37398.

THRU Non-Responsive Deputy State Surgeon, Tennessee National Guard, HQS, AGTN-DCSPER-DSS, P.O. Box 41502, Houston Barracks, Nashville, Tennessee 37204-1501.

SUBJECT: Industrial Hygiene Survey the Winchester Army National Guard Armory, Winchester, Tennessee 37398.

1. References.

a. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1996 rev.

a. Title 29, Code of Federal Regulations (CFR), 2009 rev., part 1910, Occupational Safety and Health Standards.

b. Title 29 CFR, General Industry, revised 1996 rev. Part 1940

c. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, 25 May 2007

d. AR 385-10, The Army Safety Program, 23 August 2007.

e. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.

f. National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, 12 September 2008.

g. TB MED 503, The Army Industrial Hygiene Program, 30 October 2000.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2010 American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 26th rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. USAEHA TG-141, November 1997, Guidelines for Air Sampling and Bulk sample Collection.

k. NG PAM 420-15, 03 November 2006, Facilities Engineering, Rehabilitation and Conversion of Indoor Firing Ranges.

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau

1. Industrial Hygiene Survey Report, Non-Responsive nvironmental Associates, Inc.,1108 East Dolphin Drive, Oak Island, NC.

2. General.

a. At the request of Non-Responsive, of the Tennessee National Guard Occupational Health Office, an Industrial Hygiene Survey was put together to conduct a Health Hazard Information module (HHIM) Field survey of the s and industrial hygiene sampling of the Winchester National Guard Armory.

b. The surveys were conducted by Non-Responsive Environmental Associates, Inc., Oak Island, N

3. Findings. All Health Hazard information is on the survey findings of the report. (See enclosure 1). Operations of very short duration were not sampled due to the requirements of the sampling method. If the operation changes or if the length of the operation is increased, contact this office to schedule sampling if it is deemed needed then.

4. Recommendations. Understand that all findings found in the enclosed report have been reviewed by the Regional Industrial Hygienist and the following recommendations are the ones to be followed.

a. Use the guidance given in the enclosed report as good IH practices, requesting industrial hygiene (IH) services where needed. The recommendations that follow are based on the survey findings as reported:

i. Upgrade lighting to appropriate recommended light levels in the Drill Hall. Painting the walls and floors a light color, cleaning existing light fixtures, rearranging furniture to make better use of available light, and supplemental or task lighting are considerations in increasing available light levels. [ANSI/IES-RP7-1991]

ii. Replace burnt out lights in the Physical Fitness (weight) Room. **(RAC 2)**

b. The recommendations given in the comment section of the HHIM data sheets and data collected will serve as a baseline for the Industrial Hygiene Implementation Plan (IHIP) for FY-10. A follow up operation and hazard specific air sampling survey based on the enclosed findings will be included in the FY-11 IHIP.

c. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the present survey, especially if this will help eliminate health hazards and reduce medical surveillance cost.

d. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational

Safety and Health Office for technical guidance, also provided a corrective action plan to the OHN within 30 days of receipt of this report.

e. Give special consideration to cleaning light fixtures, increasing the wattage and painting walls a lighter color when upgrading the lighting in the facility.

5. If additional information is needed about the industrial hygiene survey [illegible]

Non-Responsive

[redacted]

CF: NGB-ARS-IHSE
Safety and Occupational Health Manager, Tennessee State Safety and Occupational Health Manager, 3041 Sidco Drive, Nashville, TN 37204-1504

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NEA

Non-Responsive [redacted] VIRONMENTAL ASSOCIATES, INC.

The World Is Our Environment

INDUSTRIAL HYGIENE SURVEY
WINCHESTER, TENNESSEE
ARMY NATIONAL GUARD ARMORY

Submitted To:

Non-Responsive

[redacted]

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau

NEA

[redacted] Non-Responsive [redacted] IC

[redacted] Non-Responsive [redacted]

RE: Contract between Region South Industrial Hygiene Office
and [redacted] Environmental Associates, Inc.
Industrial Hygiene Survey

Dear [redacted] Non-Responsive [redacted]

In accordance with the requirements of the above reference, [redacted] Non-Responsive [redacted] Environmental Associates, Inc. (NEA) is pleased to submit this report.

This submittal incorporates the requirements of the Industrial Hygiene Contract and interview information collected. The survey and sampling were performed diligently and in accordance with industry regulations, guidelines, and good management standards. The information is complete and accurate to the best of our knowledge.

If you have any questions or comments regarding the report, please contact me.

Sincerely,

[redacted] Non-Responsive [redacted]

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Table of Contents

PAGE		
1.0	EXECUTIVE SUMMARY	1
2.0	BACKGROUND	1
3.0	SITE DESCRIPTION	1
4.0	SCOPE OF WORK	2
5.0	IH SURVEY PERSONNEL & POINT OF CONTACTS	2
6.0	METHODOLOGY	2
7.0	FINDINGS	2
	7.1 Illumination Survey	2
	7.2 Maintenance Work-Bay (Inactive Firing Range)	3
	7.3 Industrial Hygiene Lead Wipe Sampling	3
	7.4 HAZCOM, Chemical Inventory, MSDS & General Observations	4
8.0	OCCUPANT HEALTH & COMFORT QUESTIONNAIRES & (OHCQ) FACILITY INFORMATION FORM (FIF)	4
9.0	HEALTH HAZARD INFORMATION MODULE FORMS (HHIM)	4
10.0	PHOTOGRAPHS	4
11.0	REFERENCES	5

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2494 of 2531

Table of Contents
(CONTINUED

12.0 LIMITATIONS 5

13.0 RECOMMENDATIONS 5

APPENDICES:

APPENDIX A: Building Diagram, Summary of Illumination Measurements

APPENDIX B: Firing Range Sample Placement Diagram, Chain of Custody Forms, Lab Sample Results & Sample Photographs

APPENDIX C: Occupant Health and Comfort Questionnaire, Facility Information Form, Health Hazard Information Module, Photographs & References

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2495 of 2531

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1.0 EXECUTIVE SUMMARY

The average reading taken in the drill hall was 35 FCS. Upgrade the lighting in the drill hall to the recommended illumination level of 50 FCS for the type of activities conducted.

Replace burned out lights in the Physical Fitness (Weight) Room (20 FCS).

Laboratory lead wipe sample results indicated lead concentrations were below the National Guard Bureau (NGB) Pamphlet 420-15 guidelines of 200µg/ft², or lower for post cleaning indoor firing ranges (IFR). Ensure that the State of Tennessee does not have lead reduction levels lower than recommended in Pamphlet 420-15.

2.0 BACKGROUND

Non-Responsive [redacted] Environmental Associates, Inc. (NEA) was contracted by the National Guard Region South Industrial Hygiene Office to conduct an Industrial Hygiene Initial Baseline Survey of the Winchester National Guard Armory, Headquarters, Regiment Fire Support, Armor Calvary Regiment, Winchester, Tennessee 37398. The survey was conducted on July 20th, 2010 by Paul Nichols, Certified Hazard Control (CHCM).

Winchester Army National Guard Armory is the headquarters for armories in the region. The armory is the central unit responsible for administration (processing paper work), readiness, and personnel support. The armory is used for drills on weekends. On weekends LNGA personnel perform within their Military Occupational Specialty.

Vehicle maintenance is the responsibility of the OMS #8 in Winchester, which is located at the rear of the armory.

The baseline survey included conducting illumination studies, lead wipe samples, Health Hazard Information Modules (HHIMs), Hazard Communication Program, Petroleum Oil & Lubricant (POL) procedures, Facility Information Form (FIF) and Occupant Health and Comfort Questionnaires (OHCQ).

3.0 SITE DESCRIPTION

Winchester National Guard Armory, Headquarters, Regiment Fire Support, Armor Calvary Regiment, is located in a commercial area at 313 Wilton Circle, Winchester, Tennessee 37398. The armory was built in1992. The armory contains the usual and customary offices, class rooms, inactive-indoor firing range (IFR), drill hall, kitchen, storage, supply, recreation room, and men/women latrines, etc. There are currently eleven (11) full-time employees assigned.

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NEA
Non-Responsive
ENVIRONMENTAL ASSOCIATES, INC.

4.0 SCOPE of WORK

The industrial hygiene (IH) survey conducted at Winchester Army National Guard Armory included an illumination survey of the entire facility and lead wipe samples of the recreation/exercise room (IFR) and vault. A review of the Hazard Communication Program (Haz Com) was made, to include Material Safety Data Sheets (MSDS's), personal protective equipment (PPE), and inspection of the flammable/non-flammable storage cabinets. A review of the Facility Information Form (FIF) and Occupant Health and Comfort Questionnaire (OHCQ) which addresses questions or concerns of the employees was also completed.

5.0 IH SURVEY PERSONNEL AND POINTS OF CONTACTS

Non-Responsive Environmental Associates, Incorporated, was responsible for this survey. LNGA points of contacts (POCs) and coordinators were Non-Responsive industrial Hygiene Technician, Non-Responsive and Non-Responsive survey escort).

Mr. Seymour did an outstanding job of on-site coordination and should be commended for his efforts.

6.0 SURVEY METHODOLOGY

A walk-thru survey was conducted of the Armory, vehicle maintenance bay (IFR), offices, and storage areas. Employees were interviewed, and the OHCQs/FIF were reviewed. Sampling and evaluation strategies were developed from information obtained from the POCs, OHCQs, FIF, and a walk-thru. Procedures and strategies were designed for the purpose of collecting lead wipe samples, and conducting a lighting survey. The POC was charged with providing NEA detailed information about the process and the flow of operations for each area. All tests and procedures were conducted in accordance with usual and customary, generally accepted, IH protocol.

7.0 FINDINGS

7.1 Illumination Survey

Illumination readings were obtained with an Extech Model 407026 Heavy Duty Light Meter, Serial # Z118558, with a National Institute of Standards and Technology (NIST) traceable calibration. Illumination readings were recorded in foot-candles (FCS) and the Extech light meter was programmed for the type of illumination present. Illumination readings were taken in offices, class rooms,

Posted to NGB FOIA Reading Room
May, 2018

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2497 of 2531

inactive IFR (recreation/weight room), drill hall, vault, kitchen, storage, supply, recreation room, and men/women latrines

Illumination Parameters FCS

Office/ Admin = 70	Physical Fitness = 50	Vehicle Work/Bays = 50
Supply =20	Vault = 20	Drill Hall = 50
Latrines = 20	Library = 70	Kitchen= 50

The average reading taken in the drill hall was 35 FCS. The average reading taken in the weight room (4 bulbs out) and recreation areas were 20 and 40 FCS, respectively. The readings were well below the recommended illumination level of 50 FCS for the type of activities conducted. The other areas met or exceeded the guidelines. A building diagram and summary of illumination measurements and Army National Guard DG 415 Design Guide Lighting Standards are included in Appendix A.

7.2 Maintenance Work-Bay

Vehicle maintenance is the responsibility of the OMS #8 in Winchester, which is located at the rear of the armory.

7.3 Industrial Hygiene Lead Wipe Sampling

Twelve lead dust surface samples were collected from representative areas using Environmental Express Ghost Wipes™ and 12 inch by 12 inch templates. The entire area was wiped using an "S" configured motion. The Ghost™ Wipe was then folded in half, and the area was again wiped in a direction 90° to the first using an "S" motion. The wipe was folded again and the perimeter of the area was wiped. The wipe was then placed into a plastic bag and sealed. In addition, a clean wipe was placed in a resealable plastic bag and submitted as a blank sample for analysis. The samples were sent to Analytical Environmental Services, Inc., an American Industrial Hygiene Certified Laboratory, for chemical analysis. The samples were submitted using the Chain of Custody Procedure where they were individually processed and given a unique number.

Reportedly, the vehicle maintenance bay was never used as a firing range. No samples were above the recommended NGB guidelines of 200ug/ft² (Reference e). An indoor firing range sample placement diagram, Chain of Custody Forms, laboratory sample results, and photographs are included in Appendix B.

A table denoting sample locations, field numbers, and lead results is outlined below.

Lead Wipe Sample Locations, Field Numbers & Results

Sample Number	Sample Location	Results (µg/ft²)
Win-01	Rear Floor (FL) Left	BRL
Win-02	Rear (FL) Right (RT)	BRL
Win-03	Mid Wall Left	BRL
Win-04	Wall Rt	BRL
Win-05	Mirror Wall Left	BRL
Win-06	Wall RT	BRL
Win-07	Bullet Stop Left	BRL
Win-08	Bullet Stop RT	BRL
Win-09	Drill Hall FL, East	BRL
Win-10	Drill Hall FL West	BRL
Win-11	Vault FL	BRL
WIN-12	Vault Trunk Top	22
Blank		BRL

BRL=Below Reportable Limits

7.4 HAZCOM, Chemical Inventory, MSDS Review, and General Observations

POL and chemical storage is the responsibility of the OMS #8 in Winchester, which is located at the rear of the armory.

8.0 OCCUPANT HEALTH AND COMFORT QUESTIONNAIRE (OHCQ) & FACILITY INFORMATION FORM (FIF)

Five Armory personnel responded to the OHCQ. Two employees identified the HVAC system being a problem. The OHCQs and FIF forms are included in Appendix C.

9.0 HEALTH HAZARD INFORMATION MODULE (HHIM)

The HHIM Field Survey Forms were completed for operations surveyed. A roster of employees, controls/protective measures, and potential health hazards for specific operations were identified. The HHIM Field Survey Forms are included in Appendix C.

10.0 PHOTOGRAPHS

Site photographs are included in Appendix C.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2499 of 2531

11.0 REFERENCES

A list of references used during the course of this survey is included in Appendix C.

12.0 LIMITATIONS

Variation of the work environment is an inherent part of sampling and evaluations. This report reflects conditions, operations, and practices observed and reported at the time of the survey. Changes in operating conditions, materials used, and work practices can alter the environment and the outcome of this type of survey.

13.0 RECOMMENDATIONS

The average reading taken in the drill hall was 35 FCS. Upgrade the lighting in the drill hall to the recommended illumination level of 50 FCS for the type of activities conducted.

Replace burned out lights in the Physical Fitness (Weight) Room (20 FCS).

Laboratory lead wipe sample results indicated lead concentrations were below the National Guard Bureau (NGB) Pamphlet 420-15 guidelines of 200µg/ft², or lower for post cleaning indoor firing ranges (IFR). Ensure that the State of Tennessee does not have lead reduction levels lower than recommended in Pamphlet 420-15.

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2500 of 2531

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APPENDIX A

Building Diagram & Summary of Illumination Measurements & NG Design Guide Lighting Standards

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
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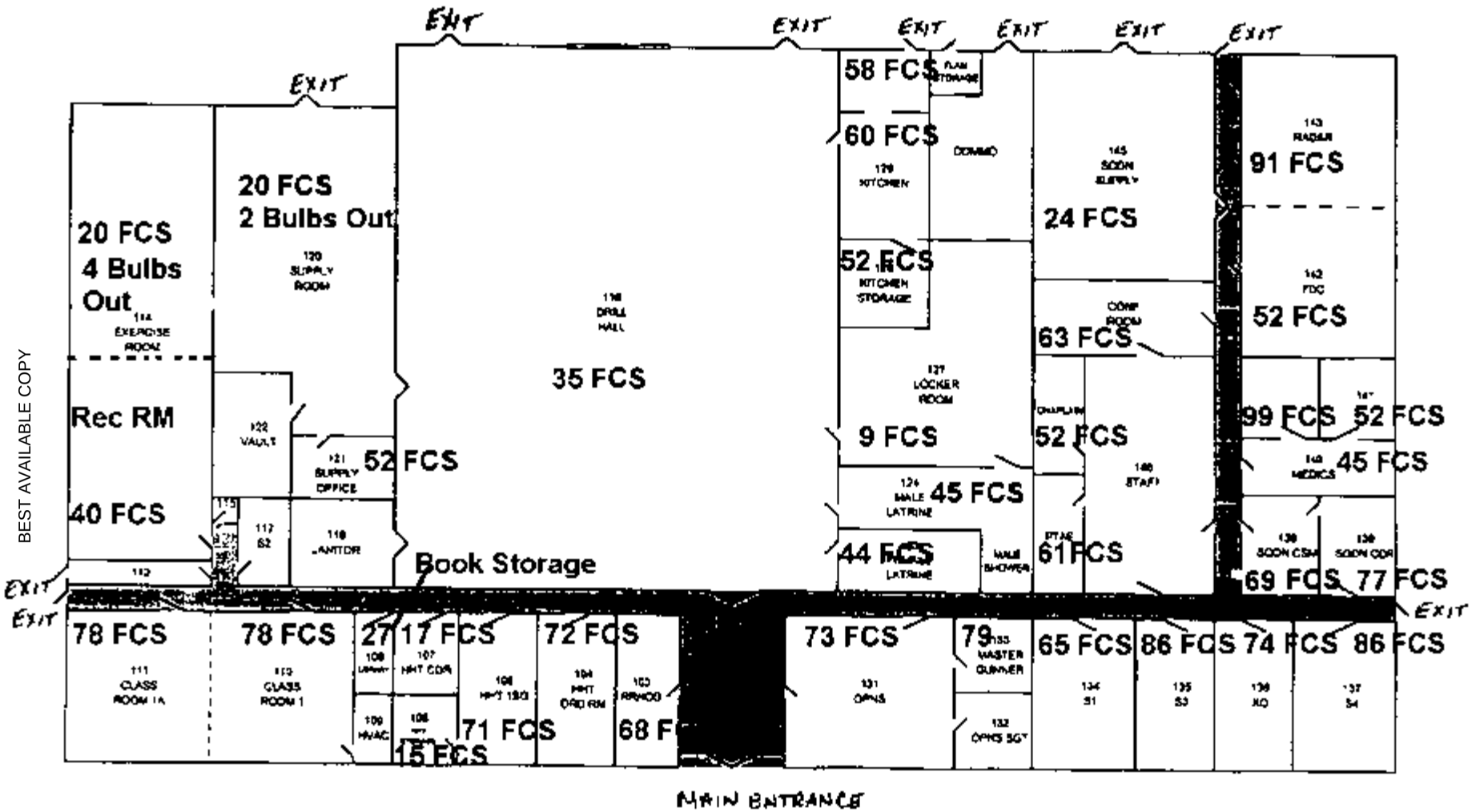
Building Diagram & Summary of Illumination Measurements



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FOIA Requested Record #J-15-0085 (TN)
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Table 6. Electrical Requirements

	FUNCTIONAL AREA	LIGHTING	OUTLETS	NOTES
Office Areas				
1	General Supervisor	70 FC, FL	1 duplex per wall	1
2	Supervisor	70 FC, FL	1 duplex per wall	1
3	Production Controller	70 FC, FL	1 duplex per wall	1
4	Inspection and Library	70 FC, FL	1 duplex per 10 LF of wall	1
5	Automation Clerk	70 FC, FL	1 duplex per 10 LF of wall	1
6	Common IT Space	70 FC, FL	1 duplex per 10 LF of wall	2
7	IT Support Activities	70 FC, FL	1 duplex per 10 LF of wall	2
8	Classroom	70 FC, FL	1 duplex per 10 LF of wall	
Personnel Areas				
1	Toilet/Shower	40 FC, FL	1 duplex GFCI per 2 areas	
2	Locker Room	40 FC, FL	1 duplex GFCI	
3	Break Area	30 FC, FL	1 duplex per 10 LF of wall	
4	Physical Fitness Area	50 FC, FL	1 duplex per 12 LF of wall	2
Work Areas				
1	Tool Room	50 FC, FL	1 duplex per 20 LF of wall	
2	Supply Room	30 FC, FL	1 duplex per 20 LF of wall	
3	Battery Room	30 FC, FL	explosion proof	4
4	Comm. & Electronic Shop	70 FC, FL	1 duplex per 2 LF of workbench	2
5	Instrument Repair Shop	70 FC, FL	1 duplex per 2 LF of workbench	2
6	Small Arms Repair Shop	70 FC, FL	1 duplex per 2 LF of workbench	2
7	Small Arms Test Room	70 FC, FL	1 duplex per 2 LF of workbench	2
8	Vault (Small Arms)	20 FC, FL	1 duplex	
9	Vault (CBT Vehicle Arms)	20 FC, FL	1 duplex	
10	Injector Test Room	70 FC, FL	1 duplex per 2 LF of workbench	2
11	Fuel and Ignition Repair Shop	70 FC, FL	1 duplex per 2 LF of workbench	2
12	Bit Storage/Issue	20 FC, FL	1 duplex per 20 LF of wall	
13	Machine Shop	50 FC, FL	1 duplex per 10 LF of wall	2
14	Carpenter Shop	50 FC, FL	1 duplex per 10 LF of wall	2
15	Lumber Storage Shed	10 FC, FL	none	

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Table 9. Electrical Requirements (Continued)

	FUNCTIONAL AREA	LIGHTING	OUTLETS	NOTES
16	Canvas Shop	50 FC, FL	1 duplex per 10 LF of wall	2
17	Missile Repair Shop	70 FC, FL	1 duplex per 10 LF of wall	2
18	Vault (Missile)	20 FC, FL	1 duplex	
19	Calibration Room	70 FC, FL	1 duplex per 2 LF of workbench	
20	Calibration Storage	20 FC, FL	1 duplex per 20 LF of wall	
21	Glass Repair Room	50 FC, FL	1 duplex per 10 LF of wall	2
22	Radiator Test & Repair Room	50 FC, FL	1 duplex per 10 LF of wall	2
23	COMSEC Repair Room	50 FC, FL	1 duplex per 10 LF of wall	2
24	Radiation Calibration Room	70 FC, FL	1 duplex per 2 LF of workbench	
25	Bulk POL Storage for Lubricating Systems	20 FC, FL	1 duplex	
26	Bulk POL Storage	20 FC, FL	1 duplex per 20 LF of wall	
27	Controlled Waste Handling	30 FC, FL	1 duplex per 20 LF of wall	
28	Bulky Equipment Storage	20 FC, FL	1 duplex per 20 LF of wall	
29	Flammable Materials Storage	20 FC, FL	1 duplex explosion proof	
30	Enclosed Unheated Storage	20 FC, FL	1 duplex per 20 LF of wall	
Workbays				
1	General Purpose Workbay	50 FC, FL	1 duplex per 10 LF of wall	2
2	Warm-Up Bay	50 FC, FL	1 duplex per 10 LF of wall	2
3	Welding Shop	50 FC, FL	1 duplex per 10 LF of wall	2
4	Wash Bay	50 FC, FL	N/A	2
5	Paint Stripping Bay	50 FC, FL	1 duplex per 10 LF of wall	2
6	Paint Preparation Bay	50 FC, FL	1 duplex per 10 LF of wall	2
7	Paint Booth	50 FC, FL	1 duplex per 10 LF of wall	2
8	Lubrication Bay	50 FC, FL	1 duplex per 10 LF of wall	2
9	Engine/Transmission Test Cell	50 FC, FL	1 duplex per 10 LF of wall	2
10	Electronics Bay	50 FC, FL	1 duplex per 10 LF of wall	2
11	Body Shop	50 FC, FL	1 duplex per 10 LF of wall	2

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APPENDIX B

IFR Sample Placement Diagram, Chain of Custody Forms, Lab Sample Results & Sample Photographs

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May, 2018

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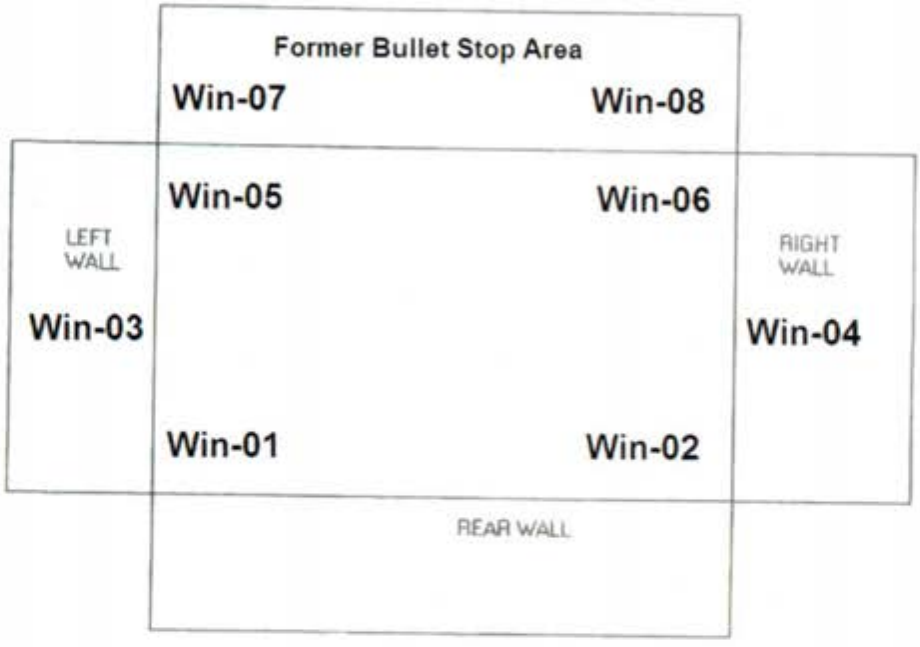
INDOOR FIRING RANGE SAMPLE PLACEMENT DIAGRAM



Drill Hall Carpet
Win-09, Drill Hall
Win-10, Drill Hall

Win-11, Vault
Win-12, Vault

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AES

ANALYTICAL ENVIRONMENTAL SERVICES, INC.

July 29, 2010

Non-Responsive [redacted]

RE: Winchester TN Armory

Dear Non-Responsive [redacted]

Order No: 1007J05

Analytical Environmental Services, Inc. received 13 samples on 7/23/2010 10:30:00 AM for the analyses presented in following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.

AES' certifications are as follows:

-NELAC/Florida Certification number E87582 for analysis of Environmental Water, soil/hazardous waste, and Drinking Water Microbiology, effective 07/01/10-06/30/11.

-AIHA Certification ID #100671 for Industrial Hygiene samples (Organics, Inorganics), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) effective until 09/01/11.

These results relate only to the items tested. This report may only be reproduced in full.

If you have any questions regarding these test results, please feel free to call.

Non-Responsive [redacted]

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May, 2018
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Page 2507 of 2531

Analytical Environmental Services, Inc

Date: 29-Jul-10

Client: [redacted] Environmental Associates, Inc.
Project: Winchester TN Armory
Lab Order: 1007J05

Dates Report

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1007J05-001A	WIN-01, REAR FLOOR LEFT	7/20/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007J05-002A	WIN-02, REAR FLOOR RIGHT	7/20/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007J05-003A	WIN-03, MID WALL LEFT	7/20/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007J05-004A	WIN-04, MID WALL RIGHT	7/20/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007J05-005A	WIN-05, MIRROR WALL LEFT	7/20/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007J05-006A	WIN-06, WALL RT	7/20/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007J05-007A	WIN-07, BULLETSTOP LEFT	7/20/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007J05-008A	WIN-08, BULLETSTOP RT.	7/20/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007J05-009A	WIN-09, DRILLHALL FLOOR I	7/20/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007J05-010A	WIN-10, DRILLHALL FLOOR \	7/20/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007J05-011A	WIN-11, VAULT FLOOR	7/20/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007J05-012A	WIN-12, VAULT TRUNK	7/20/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010
1007J05-013A	BLANK	7/20/2010 12:00:00AM	Wipe	LEAD ON WIPES (N9100/7082)		07/27/2010	07/28/2010

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2508 of 2531

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May, 2018

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Analytical Environmental Services, Inc

Date: 29-Jul-10

Lab Order: 1007J05
Client: [redacted]nvironmental Associates, Inc.
Project: Winchester TN Armory
Matrix: Wipe
Date Received: 7/23/2010 10:30:00 AM

LEAD ON WIPES (N9100/7082)

N7082

Laboratory ID	Client Sample ID	Result	Units	Reporting Limit	DF	Qual	Date Collected	Date Analyzed	Analyst
1007J05-001A	WIN-01, REAR FLOOR LEFT	BRL	ug, Total	20	1		07/20/2010	07/28/2010	MP
1007J05-002A	WIN-02, REAR FLOOR RIGHT	BRL	ug, Total	20	1		07/20/2010	07/28/2010	MP
1007J05-003A	WIN-03, MID WALL LEFT	BRL	ug, Total	20	1		07/20/2010	07/28/2010	MP
1007J05-004A	WIN-04, MID WALL RIGHT	BRL	ug, Total	20	1		07/20/2010	07/28/2010	MP
1007J05-005A	WIN-05, MIRROR WALL LEFT	BRL	ug, Total	20	1		07/20/2010	07/28/2010	MP
1007J05-006A	WIN-06, WALL RT	BRL	ug, Total	20	1		07/20/2010	07/28/2010	MP
1007J05-007A	WIN-07, BULLETSTOP LEFT	BRL	ug, Total	20	1		07/20/2010	07/28/2010	MP
1007J05-008A	WIN-08, BULLETSTOP RT.	BRL	ug, Total	20	1		07/20/2010	07/28/2010	MP
1007J05-009A	N-09, DRILLHALL FLOOR EA	BRL	ug, Total	20	1		07/20/2010	07/28/2010	MP
1007J05-010A	N-10, DRILLHALL FLOOR WE	BRL	ug, Total	20	1		07/20/2010	07/28/2010	MP
1007J05-011A	WIN-11, VAULT FLOOR	BRL	ug, Total	20	1		07/20/2010	07/28/2010	MP
1007J05-012A	WIN-12, VAULT TRUNK	22	ug, Total	20	1		07/20/2010	07/28/2010	MP
1007J05-013A	BLANK	BRL	ug, Total	20	1		07/20/2010	07/28/2010	MP

Qualifiers: BRL - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
Results are blank corrected where applicable

DF - Dilution Factor

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May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau

FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2510 of 2531

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ANALYTICAL ENVIRONMENTAL SERVICES, INC
3785 Presidential Parkway, Atlanta GA 30340-3704
TEL. (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX (770) 457-8188

CHAIN OF CUSTODY

Work Order 1007J05

Date 7/20/10 Page 1 of 1

COMPANY [redacted]

ADDRESS [redacted]

ANALYSIS REQUESTED: Lead

Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.

#	SAMPLE ID	SAMPLED DATE	SAMPLED TIME	Grab	Composite	Matrix (See codes)	PRESERVATION (See codes)	REMARKS	No. of Containers
1	WIN-01, Rear Floor Left	7/20/10	[redacted]						
2	WIN-02, Rear Floor Right	"	[redacted]						
3	WIN-03, Mid Wall Left	"	[redacted]						
4	WIN-04, Mid Wall Right	"							
5	WIN-05, Mirror Wall Left	"							
6	WIN-06, Wall Rt	"							
7	WIN-07, Bullet Stop Left	"							
8	WIN-08, Bullet Stop Rt.	"							
9	WIN-09, Drill Hall Floor East	"							
10	WIN-10, Drill Hall Floor West	"							
11	WIN-11, Vault Floor	"							
12	WIN-12, Vault Trunk	"							
13									
14									

RELINQUISHED BY — DATE/TIME

1 Paul Nichols

2

3

[redacted] DATE/TIME

PROJECT INFORMATION

PROJECT NAME: Winchester, TN Armory

PROJECT #

SITE ADDRESS: 313 Wilton Circle, Winchester

SEND REPORT TO: Paul Nichols

INVOICE (IF DIFF[redacted]

bill f[redacted]

Suit[redacted]

QUOTE # PO#

RECEIPT

Total # of Containers

Turnaround Time Request

- (X) Standard 5 Business Days
- ( ) 2 Business Day Rush
- ( ) Next Business Day Rush
- ( ) Same Day Rush (auth req.)
- ( ) Other

STATE PROGRAM (if any)

E-mail? Y / N Fax? Y / N

DATA PACKAGE I II III IV

SPECIAL INSTRUCTIONS/COMMENTS

Please Fax or Email results ASAP

The bill for this project shou[redacted]

NGB, 510 Plaza Dr. Suite 153[redacted]

SHIPMENT METHOD

OUT VIA

IN VIA

CLIENT FedEx UPS MAIL COURIER

GREYHOUND OTHER

SAMPLES RECEIVED AFTER 5PM OR SATURDAY ARE CONSIDERED AS RECEIVED ON THE NEXT BUSINESS DAY; IF NO TAT IS MARKED ON COC AES WILL PROCEED AS STANDARD TAT.

SAMPLES ARE DISPOSED OF 30 DAYS AFTER COMPLETION OF REPORT UNLESS OTHER ARRANGEMENTS ARE MADE.

MATRIX CODES A = Air DW = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify) WW = Waste Water

PRESERVATIVE CODES H+I = Hydrochloric acid + ice I = Ice only N = Nitric acid S+I = Sulfuric acid + ice S/N+I = Sodium Bisulfate/Methanol + ice O = Other (specify) NA = None

White Copy - Original, Yellow Copy - Client

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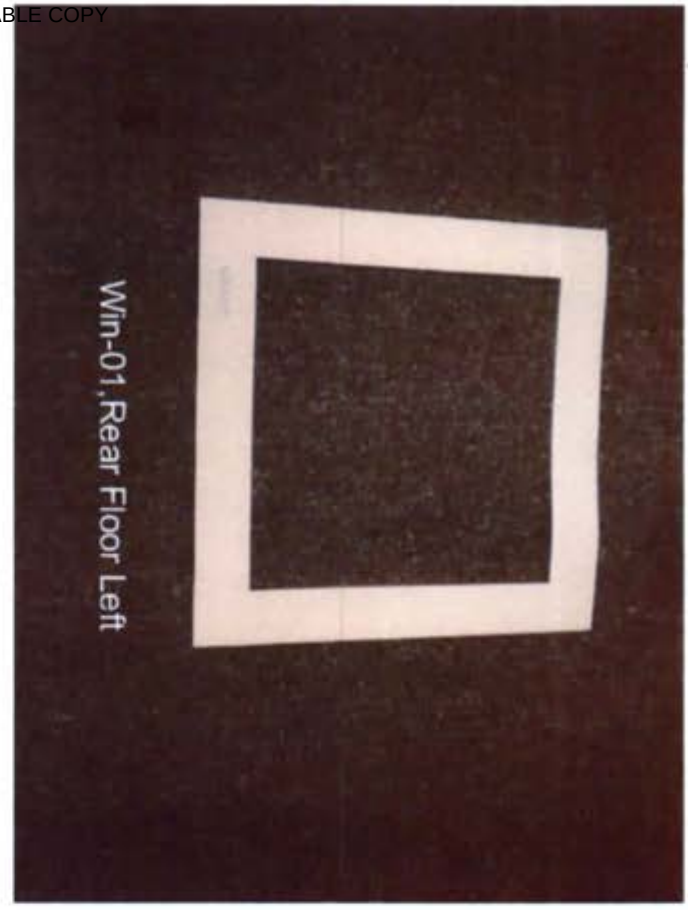
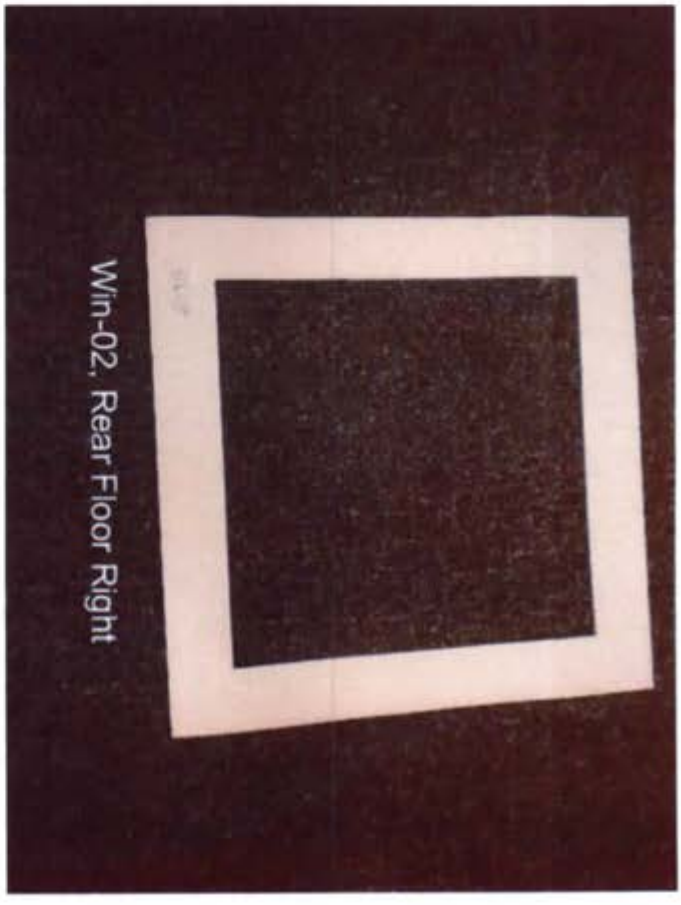


Win-01,Rear Floor Left

Win-05, Wall (Mirror)



Win-02, Rear Floor Right

Win-06, Wall

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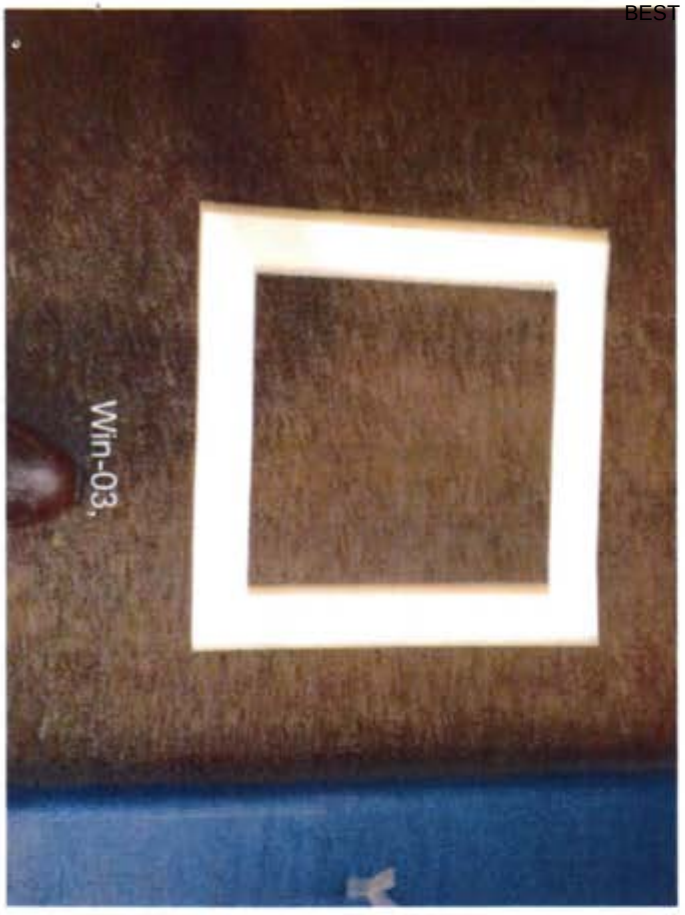
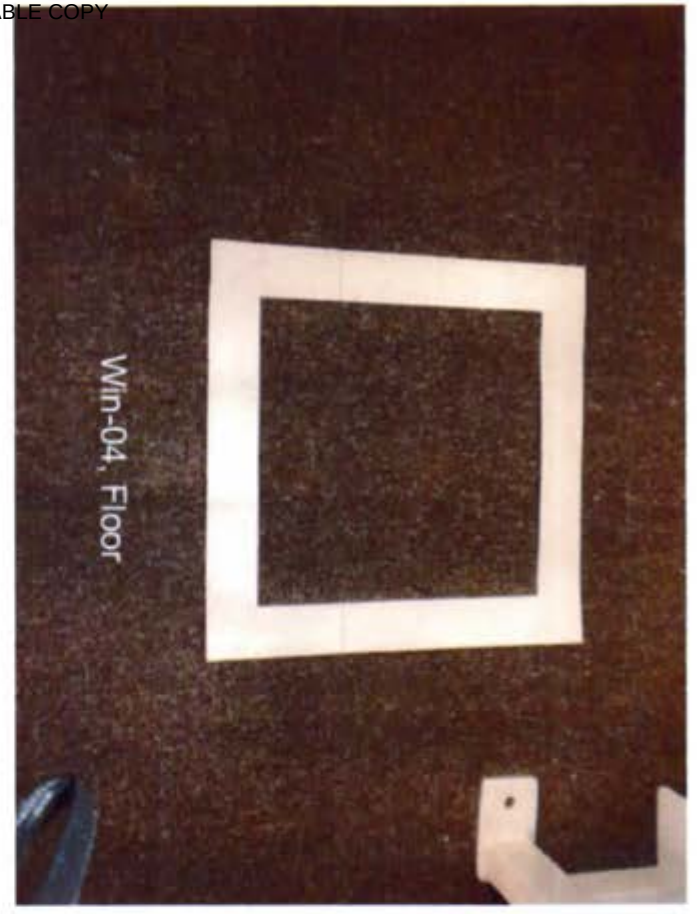
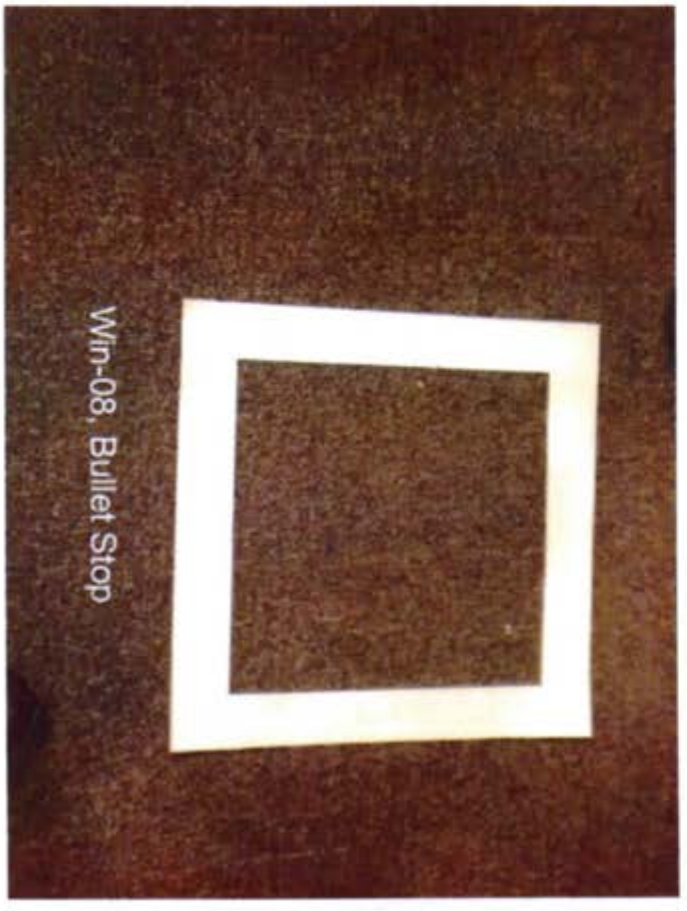


Win-03,



Win-04, Floor



Win-08, Bullet Stop

Win-07, Bullet Stop Floor

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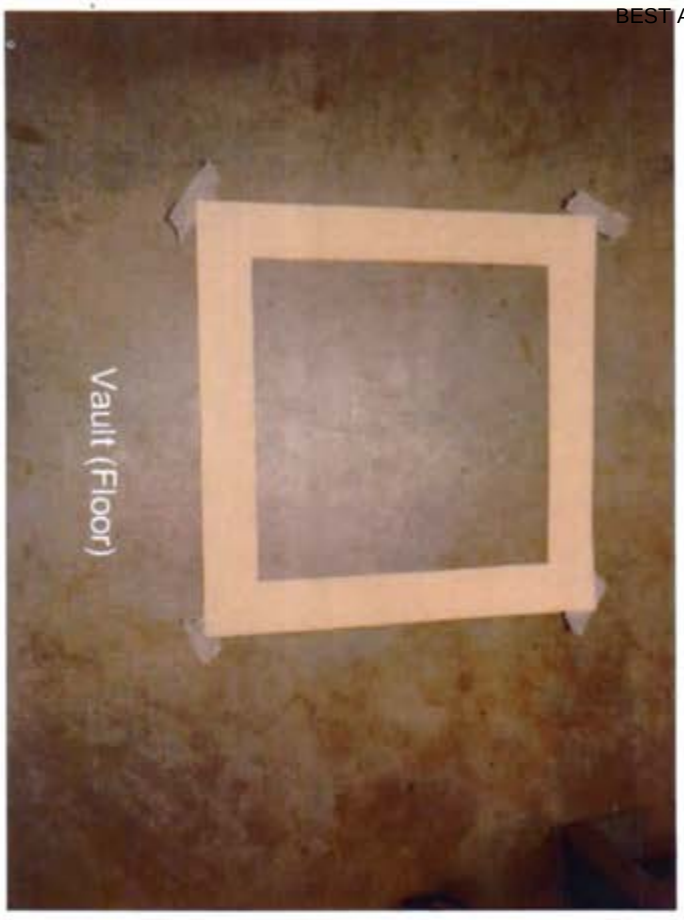
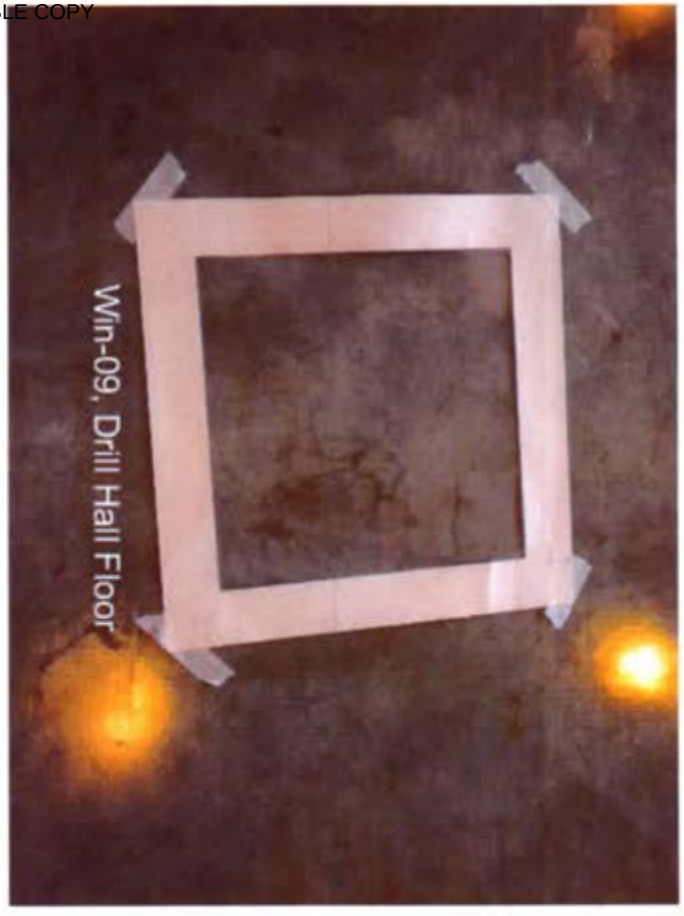


Vault (Floor)



Win-09, Drill Hall Floor

Vault (Trunk)

Win-10, Drill Hall Floor

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APPENDIX C

Facility Information Form, Occupant Health and Comfort Questionnaires, Health Hazard Information Module, Photographs & References

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May, 2018

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APPENDIX C

Facility Information Form, Occupant Health and Comfort Questionnaires, Health Hazard Information Module, Photographs & References

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May, 2018

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Released by National Guard Bureau

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Facility Information Form

State: Tennessee
Facility: TN ARNG
Facility Address: Winchester Armory, 313 Wilton Circle, Winchester, TN 37398
Phone#Non-Responsive

Work Schedule (M-F, 8-4:30)

Date Prepared: 7/22/10
Supervisor: Non-Responsive

Fax #:_____

General Information	
Number of Maintenance Bays: Number of Exhaust Extensions:	0
Total Number of Personnel:	11
Number of Maintenance Personnel:	
Number of Administrative Personnel:	
Approximate area of facility (ft²) ApproximateDate/ Construction	1992

Operations		
	Yes (if Yes, How Many Hours per Day on Average)	No
Abrasive Blasting (List Type)	none	
Aerosol Can Painting		
Air Compressors (How many?) Armament	none	
Aviation Life Support Equipment	none	
Avionics	none	
Battery Charging Room or Battery Storage Room	none	
Brake/Clutch Repair and/or Replacement	none	
Calibration of Equipment	none	
Canvas Repair	none	
Carpentry Shop	none	
Grinding, buffing, polishing, sanding	none	
Hazardous Materials/POL Handling	yes	
Electronics Repair	none	
Pneumatic Tool Operation	none	
Respirators (what kind?) Refueling	no	
Solvent Tank Use (How Many) 1	no	
Spray Paint Booth	none	
Sheet Metal Working	none	
Small Arms Repair	none	
Soldering	none	
Supply/Warehouse	none	
Testing and Tuning of Engines	no	
Welding (List Types)	no	
Other Noise sources	none	

Please write below any special concerns that you would like to have addressed during the survey:

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ARLOC	INSTALLATION	BLDG/	RMNO.
47000	Winchester Armory, 313 Wilton Circle, Winchester, TN 37398		

LOCATION/CODE	OPERATION/CODE/ ADO

SURVEY DATE: 0720/10, Evaluator: Non-Responsive

WACOM/CODE	SUBMACOM/CODE	SUPERV/SOD
National Guard Bureau/NG	ARNG	Non-Responsive

TELEPHONE	UNIT/ORGARNIZATION	RAC	FREQUENCY (hrs/day
Non-Responsive	Winchester Armory	3	HRS/DAY As Needed

NO. CIV(S)	NO. MIL	NO. CONTRACTORS	NO. LOC(S)	NO. OTHER
0	11	0	0	0

SECTION 2 . FACILITY DATA

LAB HOODS	VAPOR DEGREASERS	SPRAY BOOTHS
0	0	0
MAINTENANCE BAYS	**OPEN SURFACE TANKS**	**VENTILATION UNITS**
0	0	0

SECTION 3: SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS
Video display terminal	Admin use computers Adequate lights in admin offices		50-75 FCS	

PERSONAL PROTECTIVE EQUIPMENT (R= REQUIRED; U = UTILIZED)

GLOVES	R/U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R/U
ACID	/	AIR LINE			/
COLD SURFACES	/	ABRASIZE BLASTING HOOD			/
HOT SURFACES	/	DISPOSABLE			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL		1/2 FACE AIR PURIFYING			/no
SOLVENTS	/	1/4 FACE AIR PURIFYING			/
SURGICAL GLOVES	/	SELF CONTAINED			/

EYES/FACE	R/U	HEARING	R/U	BODY	R/U	HEAD/FIT	R/U
HEMICAL SPLASH		(CANAL CAPS		APRONS	/	(COLD WEATHER BOOTS/HATS	

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FULL FACE SHEILD	/	EARPLUGS		COLD WEATHER CLOTHING	/	HARD HATS	/
CHEMICAL/SAFETY	/	HELMETS	/	COVERALLS		IMPERMEABLE BOOTS	
SAFETY/IMPACT	/	MUFFS	/	FULL BODY SUIT	/	SAFETY/CONDUCTIVE SHOES	/
WELDING HELMET	/	dUFF/EARPLUG COMBO	/	HEAT REFELECTIVE VEST/SUIT	/	SAFETY/NON-CONDUCTIVE SHOES	/
		MFF/EARPLUG W/TIME LIMIT		SAFETY BELT/HARNESS	/		/

SECTION 4 HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
POVDT	Video Display Terminal	2	F
PODTRESS	Physical Stress	2	F

SECTIONS. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY
See Attached List					

SECTIONS: COMMENTS

1. Computers are used in the shop and admin office.

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Winchester Armory Roster

SS#

Non-Responsive

[redacted]

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OCCUPANT HEALTH AND COMFORT QUESTIONNAIRE

Indoor Air Quality Survey (NO NAMES)

Date: [illegible]

1 Location of Facility

Winchester TN

2 Area or room where you spend the most time in the building:

office

3. Gender: Male Female

Age: Under 25 25-34 35-44 45-54 55 and over

4. Do you:

Smoke?	Yes	No
Have hay fever/pollen allergies?	Yes	No
Have skin allergies/dermatitis?	Yes	No
Have a cold/flu?	Yes	No
Have sinus problems?	Yes	No
Have other allergies?	Yes	No
Wear contact lenses?	Yes	No
Operate video display terminals?	Yes	No
Take medication for asthma, allergies, sinus, lung or immune problems?	Yes	No

5. Do any of your work activities produce dust or odor? Yes No

Describe:

6 Office characteristics.

Number of persons sharing same room/work area 2 Number of windows in room/work area 2

Please rate adequacy of your workspace (i.e desk space, size of work area)

Poor 1 2 Average 3 4 Excellent 5

Please rate room temperature:

Poor 1 2 Average 3 4 Excellent 5

7 How many years or months have you worked

In this room/area? 7 months In this building? 7 months

8. List symptoms you have experienced in this building. More than one answer may apply (for example, headaches may occur frequently, and improve on vacation.) When do these symptoms occur?

Have you seen a doctor for any or all of these symptoms? Yes No

If yes, did your doctor relate this to your work, and if so, what were the diagnosis and recommended treatment? When do symptoms disappear?

9 In your opinion, what is the cause of perceived indoor air quality problems?

OCCUPANT HEALTH AND COMFORT QUESTIONNAIRE

Indoor Air Quality Survey (NO NAMES)

Date:

1 Location of Facility
WINCHESTER TN

2. Area or room where you spend the most time in the building:
ORDERLY RM

3. Gender: Male Female
Age: Under 25 25-34 35-44 45-54 55 and over

4. Do you.

Smoke?	Yes	No
Have hay fever/pollen allergies?	Yes	No
Have skin allergies/dermatitis?	Yes	No
Have a cold/flu?	Yes	No
Have sinus problems?	Yes	No
Have other allergies?	Yes	No
Wear contact lenses?	Yes	No
Operate video display terminals?	Yes	No
Take medication for asthma, allergies,sinus,lung or immune problems?	Yes	No

5. Do any of your work activities produce dust or odor? Yes No
Describe:

6. Office characteristics:

Number of persons sharing same room/work area --6 Number of windows in room/work area--6--

Please rate adequacy of your workspace (i e desk space, size of work area)

Poor Average Excellent
1 2 3 4 5

Please rate room temperature:

Poor Average Excellent
1 2 3 4 5

7. How many years or months have you worked:
In this room/area? 8mo In this building? 8mo

8. List symptoms you have experienced in this building. More than one answer may apply (for example, headaches may occur frequently, and improve on vacation.). When do these symptoms occur?

Have you seen a doctor for any or all of these symptoms? Yes No

If yes, did your doctor relate this to your work, and if so, what were the diagnosis and recommended treatment? When do symptoms disappear?

9 In your opinion, what is the cause of perceived indoor air quality problems?

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OCCUPANT HEALTH AND COMFORT QUESTIONNAIRE

Indoor Air Quality Survey (NO NAMES)

Date:

1 Location of Facility

Winchester, TN

2. Area or room where you spend the most time in the building.

Supply Room

3 Gender: Male Female

Age: Under 25 25-34 35-44 45-54 55 and over

4. Do you.

Smoke?	Yes	No
Have hay fever/pollen allergies?	Yes	No
Have skin allergies/dermalitis?	Yes	No
Have a cold/flu?	Yes	No
Have sinus problems?	Yes	No
Have other allergies?	Yes	No
Wear contact lenses?	Yes	No
Operate video display terminals?	Yes	No
Take medication for asthma, allergies, sinus, lung or immune problems?	Yes	No

5. Do any of your work activities produce dust or odor? Yes No

Describe:

6. Office characteristics:

Number of persons sharing same room/work area 0 Number of windows in room/work area 0

Please rate adequacy of your workspace (i.e. desk space, size of work area)

Poor 1 2 Average 3 4 Excellent 5

Please rate room temperature:

Poor 1 Average 2 3 4 Excellent 5

7. How many years or months have you worked:
In this room/area? 7 In this building? 7

8. List symptoms you have experienced in this building. More than one answer may apply (for example headaches may occur frequently, and improve on vacation.). When do these symptoms occur? None

Have you seen a doctor for any or all of these symptoms? Yes No

If yes, did your doctor relate this to your work, and if so, what were the diagnosis and recommended treatment? When do symptoms disappear?

9 In your opinion, what is the cause of perceived indoor air quality problems? building is old Cooling and Heating system is probably fairly old Needs updated

Posted to NGB FOIA Reading Room
May, 2018

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FOIA Requested Record #J-15-0085 (TN)
Released by National Guard Bureau
Page 2522 of 2531

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OCCUPANT HEALTH AND COMFORT QUESTIONNAIRE

Indoor Air Quality Survey (NO NAMES)

Date: 20 July 2010

1. Location of Facility
   WINCHESTER TN

2. Area or room where you spend the most time in the building: [illegible]

3. Gender: (Male) Female
   Age: Under 25 25-34 35-44 (45-54) 55 and over

4. Do you:

Smoke?	Yes	(No)
Have hay fever/pollen allergies?	Yes	(No)
Have skin allergies/dermatitis?	Yes	(No)
Have a cold/flu?	Yes	(No)
Have sinus problems?	Yes	(No)
Have other allergies?	Yes	(No)
Wear contact lenses?	Yes	(No)
Operate video display terminals?	Yes	(No)
Take medication for asthma, allergies, sinus, lung or immune problems?	Yes	(No)

5. Do any of your work activities produce dust or odor? Yes (No)
Describe:

6. Office characteristics:

   Number of persons sharing same room/work area 3 Number of windows in room/work area 5

   Please rate adequacy of your workspace (i.e. desk space, size of work area)

   Poor 1 2 Average 3 4 Excellent (5)

   Please rate room temperature:

   Poor 1 Average 2 (3) 4 Excellent 5

7. How many years or months have you worked:
   In this room/area? 5 mo In this building? [illegible]

8. *List symptoms you have experienced in this building. More than one answer may apply (for example, headaches may occur frequently, and improve on vacation.). When do these symptoms occur?* [illegible]

Have you seen a doctor for any or all of these symptoms? Yes (No).

If yes, did your doctor relate this to your work, and if so, what were the diagnosis and recommended treatment? When do symptoms disappear?

9. *In your opinion, what is the cause of perceived indoor air quality problems?* [illegible]

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OCCUPANT HEALTH AND COMFORT QUESTIONNAIRE

Indoor Air Quality Survey (NO NAMES)

Date: 7/20/10

1 Location of Facility

Winchester, TN 37398

2. Area or room where you spend the most time in the building

Rm 134

3. Gender Male Female

Age: Under 25 25-34 35-44 45-54 55 and over

4. Do you:

Smoke?	Yes	No
Have hay fever/pollen allergies?	Yes	No
Have skin allergies/dermatitis?	Yes	No
Have a cold/flu?	Yes	No
Have sinus problems?	Yes	No
Have other allergies?	Yes	No
Wear contact lenses?	Yes	No
Operate video display terminals?	Yes	No
Take medication for asthma, allergies, sinus, lung or immune problems?	Yes	No

5. Do any of your work activities produce dust or odor? Yes No

Describe:

6. Office characteristics:

Number of persons sharing same room/work area ------- Number of windows in room/work area---------

2

Please rate adequacy of your workspace (i.e. desk space, size of work area)

Poor 1 2 Average 3 4 Excellent 5

Please rate room temperature:

Poor 1 2 Average 3 4 Excellent 5

7. How many years or months have you worked:
In this room/area? 1 In this building? 1

8. *List symptoms you have experienced in this building. More than one answer may apply (for example, headaches may occur frequently, and improve on vacation.). When do these symptoms occur?* None

Have you seen a doctor for any or all of these symptoms? Yes No

If yes: did your doctor relate this to your work, and if so, what were the diagnosis and recommended treatment? When do symptoms disappear?

9 *In your opinion, what is the cause of perceived indoor air quality problems?* Very Good!

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OCCUPANT HEALTH AND COMFORT QUESTIONNAIRE

Indoor Air Quality Survey (NO NAMES)

Date: [illegible]

1 Location of Facility

Winchester TN

2 Area or room where you spend the most time in the building

Office

3. Gender: Male ~~Female~~

Age: Under 25 25-34 35-44 45-54 55 and over

4. Do you

Smoke?	Yes	No
Have hay fever/pollen allergies?	Yes	No
Have skin allergies/dermatitis?	Yes	No
Have a cold/flu?	Yes	No
Have sinus problems?	Yes	No
Have other allergies?	Yes	No
Wear contact lenses?	Yes	No
Operate video display terminals?	Yes	No
Take medication for asthma, allergies, sinus, lung or immune problems?	Yes	No

5. Do any of your work activities produce dust or odor? Yes No

Describe:

6. Office characteristics

Number of persons sharing same room/work area 2 Number of windows in room/work area 2

Please rate adequacy of your workspace (i.e. desk space, size of work area)

Poor 1 2 Average 3 4 Excellent 5

Please rate room temperature

Poor 1 2 Average 3 4 Excellent 5

7 How many years or months have you worked

In this room/area? 7 months In this building? 7 months

8. *List symptoms you have experienced in this building. More than one answer may apply (for example, headaches may occur frequently, and improve on vacation.). When do these symptoms occur?*

Have you seen a doctor for any or all of these symptoms? Yes/No

If yes, did your doctor relate this to your work, and if so, what were the diagnosis and recommended treatment? When do symptoms disappear?

9 *In your opinion, what is the cause of perceived indoor air quality problems?*

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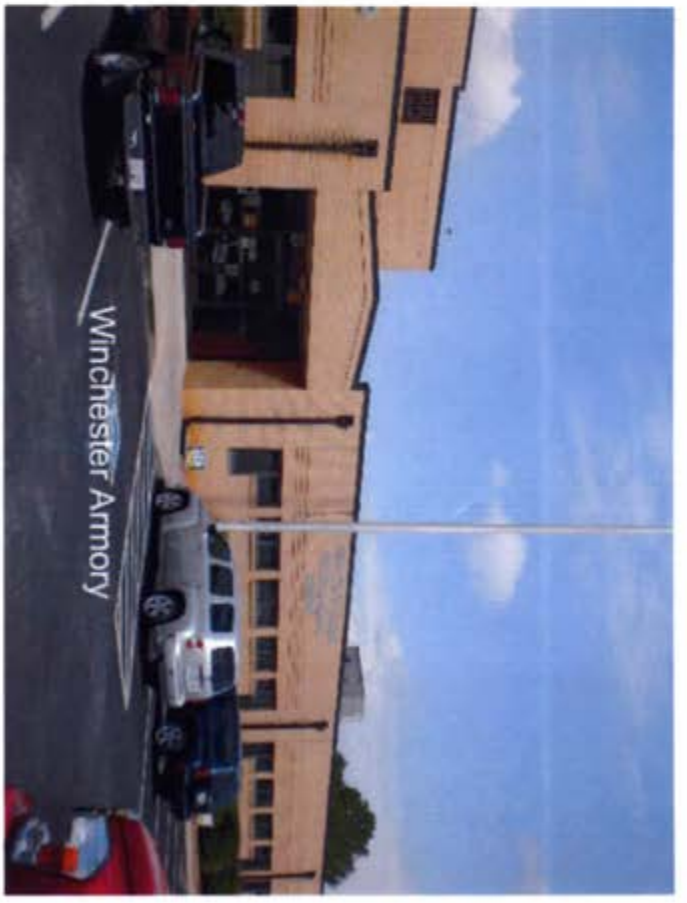

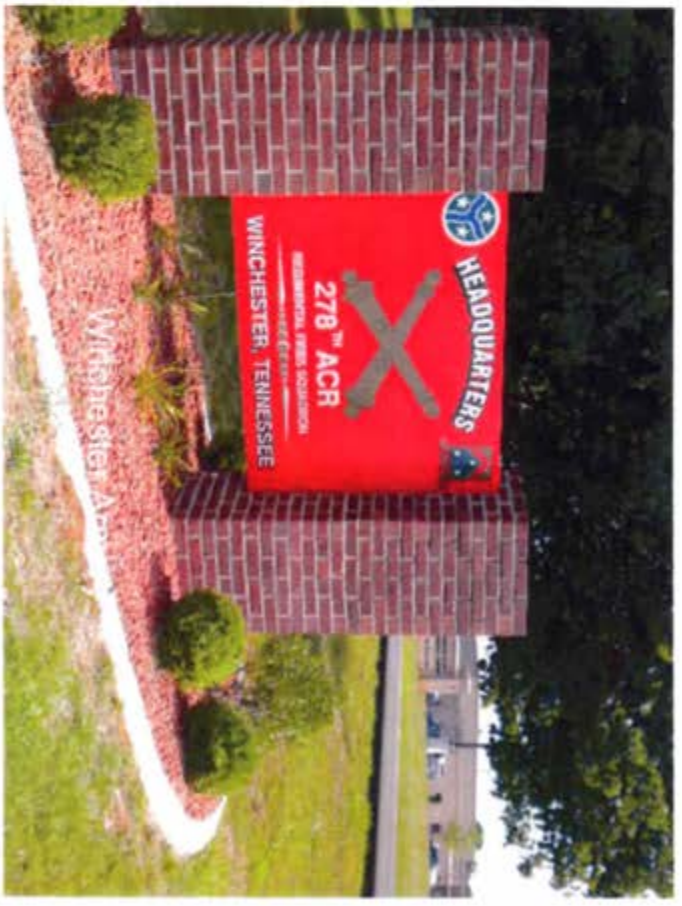

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Winchester Armory (Rear)

Winchester Armory (Rear)

Winchester Armory (Rear)

Shelbyville Armory

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Weight Room (Firing Range)

Recreation Room (Firing Range)

Weight Room (Firing Range)

Weight Room (Firing Range)

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e. National Guard Pam 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006.

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g. DA PAM 40-503, The Army Industrial Hygiene Program, 30 October 2000.

h. Threshold Limit Values and Biological Exposure Indices (TLV's) for 2003, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

i. Industrial Ventilation, 23rd Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.

j. Title 29, Code of Federal Regulations (CFR), 2001 rev., part 1910, Occupational Safety and Health Standards.

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