INDUSTRIAL HYGIENE SURVEY

TRP A 1ST SQDN 104TH CAV
1ST Troop Philadelphia City Cavalry

23RD STREET

PHILADELPHIA, PA

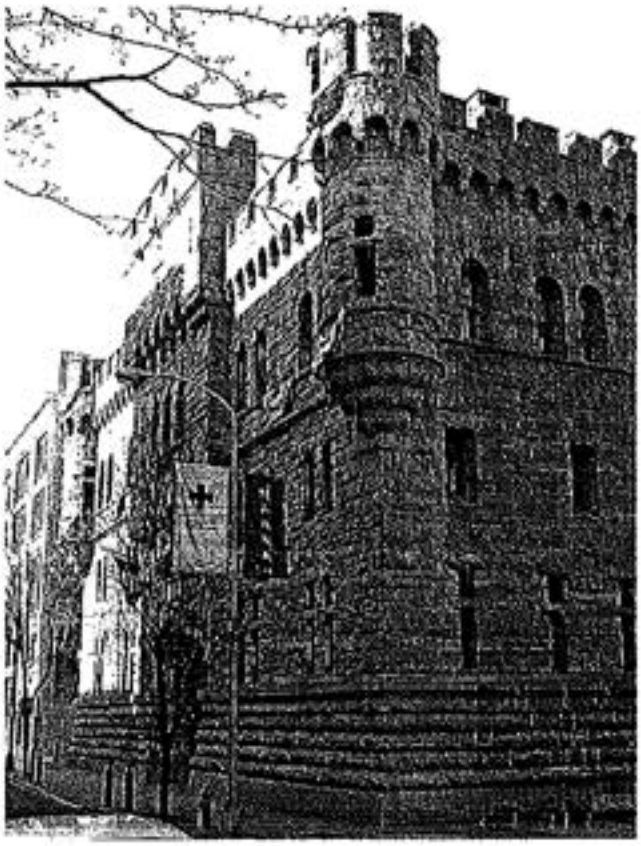
March 25/26, 2003

And

August 20, 2003

OPTECH
OPERATIONAL TECHNOLOGIES
CORPORATION

INDUSTRIAL HYGIENE SURVEY
23RD STREET ARMORY
PHILADELPHIA, PENNSYLVANIA



TRP A 1ST SQDN
104TH CAV

1ST TROOP
PHILADELPHIS CITY
CAVALRY

1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at 23rd Street Armory in Philadelphia, Pennsylvania on March 25 and 26, 2003 with a return trip on August 20,2003. NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. Non- from OpTech, completed this survey. Non- a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the IH Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D.

2.0. EXECUTIVE SUMMARY

2.1. No indoor air quality problems were noted.

2.2. Illumination levels were below recommended minimum standards in most areas of the facility.

2.3. Wipe samples for inorganic lead were collected. Sample results in the assembly hall, both basements plus all samples in the former indoor firing range were significantly greater than the 200 $\mu g/ft^2$ criteria.

2.4. Air sampling for inorganic lead was conducted. Sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	TRP A 1ST SQDN 104TH CAV		
ADDRESS	1ST Troop Philadelphia City Cavalry		
	22 South 23rd Street		
	Philadelphia, PA 19103		
CONTACT	SFC [redacted]		
PHONE	215-560-3926		
DATE BUILT	1882	FACILITY SIZE	30,505 sq.ft.
INDOOR FIRING RANGE	Inactive/ CLOSED		4-floors plus 2 partial basements
ASSISTED	[redacted] (retired Guard)		
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	5		
TRADITIONAL (MIL)	128		
CHILD ACTIVITIES	None		
ADULT ACTIVITIES	Rents facility about 2 times per month		

3.1.1. This is a historic facility. The exterior is stone and appears to be in good condition. Personnel stated that the facility had deteriorated years ago. Most areas have since been remodeled and necessary repairs made. Two natural gas furnaces provide heat. The inactive firing range was recently cleaned and is presently being utilized as a locker room.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity (RH) in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 Indoor Air Quality Standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ASHRAE 62-2001, Section 6.1.3, states that concentrations up to 700 ppm CO_2 above outdoor concentrations will achieve an acceptable level of indoor air quality.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ASHRAE 55-1992 recommends that temperature ranges be 73 to 79 degrees Fahrenheit (°F) during the summer and 68 to 74°F during the winter. Relative humidity levels be maintained between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE 1
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO2 (ppm)	Temp. (°F)	RH (%)
25 March					
1255	Outdoors – Backgroundd	0.0	418	66.8	40.9
1335	2nd Floor – NCO Club	0.0	527	70.3	30.8
1340	4th Floor Banquet Room	0.0	555	68.4	34.0
1345	3rd Floor – Museum	0.0	515	67.8	33.2
1350	1st Floor - Officer's Quarters	0.0	476	67.6	34.1
1420	West Basement	0.0	495	69.2	36.2
26 March					
0900	Outdoors – Background	0.0	457	66.4	44.0
0920	East Basement	0.0	558	64.8	40.8
0928	Drill Floor	0.0	516	64.3	42.9
0934	North Stair Well	0.0	504	63.6	45.6
0940	West Basement	0.0	515	66.7	40.4

3.2.5. No indoor air quality problems were noted. Carbon monoxide and carbon dioxide levels were within recommended ranges.

3.3. ILLUMINATION

3.3.1. Illumination levels were measured in most areas of the facility. Sunlight was excluded, as much as possible for this survey, by closing doors and blocking windows. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 - 463). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
Orderly Room	46 - 60	53	70	NO
Desks	44 – 50	47	70	NO
Rear Office	44 – 46	45	70	NO
Desk	38	38	70	NO
Troop Office	20 – 48	36	70	NO
Desks	40 - 44	42	70	NO
Kitchen	10 – 48	32	75	NO
W. Basement Locker Rm. (former range)	22 - 50	30	40	NO
W. Basement Male Latrine/Showers	24 – 72	54	40	YES

3.3.2. Levels were well below recommended minimum standards in most all areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3.4. WIPE SAMPLES

3.4.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples were collected at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot ($\mu g/ft^2$) and are listed in Table 3. The initial five samples had suspected laboratory error, which was confirmed by repeat sampling and analysis. Table 3 lists the results from the second visit. Additional samples were collected during the first visit. The results of these additional samples are listed in Table 4. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
LEAD WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Phi-03232-19	Orderly Room	BDL
PA Phi-03232-20	Troop Office	120
PA Phi-03232-21	Assembly Hall – South End by Basement Stairs	430
PA Phi-03232-22	West Basement – Floor by Return Duct	420
PA Phi-03232-23	Kitchen – Top of Dividing Wall	150
PA Phi-03232-24	BLANK Sample	160

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.2. Additional wipe samples were collected during this survey. These samples were collected to further analyze the extent of contamination should the first five samples indicate a possible hazard. Since samples collected in the assembly hall and west basement exceeded the recommended criteria (see Section 3.4.4.), the additional samples were analyzed. Results are listed in Table 4.

TABLE 4
ADDITIONAL LEAD WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Phi-03084-10	Banquet Hall – Top of Baby Grand Piano	BDL
PA Phi-03084-11	2nd Floor – NCO Club	BDL
PA Phi-03084-12	East Basement	9072
PA Phi-03084-13	Drill Floor – NW Corner	331
PA Phi-03084-14	North Stairwell – Main Floor	135
PA Phi-03084-15	West Basement – Outside Former Range	518
PA Phi-03084-16	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.3. FORMER INDOOR FIRING RANGE

3.4.3.1. A set of five samples were collected in the former indoor firing range during the second visit. The range had recently been cleaned and lockers had been moved back into the area. Results are presented in Table 5.

TABLE 5
FORMER INDOOR FIRING RANGE
LEAD WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Phi-03232-25	Backstop Floor	18000
PA Phi-03232-26	Lighting Fixture – ¾ of the way Down Range	6300
PA Phi-03232-27	Ceiling Beam – ½ Way Down Range	180000
PA Phi-03232-28	Air Supply Vent – Behind Firing Line	53,000
PA Phi-03232-29	Floor Outside Range	690
PA Phi-03232-30	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.4. WIPE SAMPLING RESULTS

3.4.4.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 µg/ft^2. This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. (See memorandum in Attachment E, Recommendations for Surface Lead Dust in Armories.) Sample results in the assembly hall, both basements plus all samples in the former indoor firing range were significantly greater than the 200 µg/ft^2 criteria. The contamination in the range is from former range activities. Contamination in other basement areas and assembly hall appears to be from dust migrating from the range plus suspected that lead. Also, vehicles are driven into the assembly hall area daily. Lead may have accumulated over time from leaded gasoline used prior to 1978.

3.4.5. AIR SAMPLING

3.4.5.1. Air Sampling for inorganic lead was performed during this survey. Table 6 lists the results of these samples, and is reported in milligrams per cubic meter (mg/m^3) of air.

TABLE 6
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
Area – Orderly Room	PA Phi-03084-01	Lead	<0.003 mg/m³	0.05 mg/m³	YES
Area – Drill Floor	PA Phi-03084-02	Lead	<0.003 mg/m³	0.05 mg/m³	YES
Non-Responsive	PA Phi-03084-03	Lead	<0.003 mg/m³	0.05 mg/m³	YES

mg/m³ = milligrams per cubic meter < = less than (below detection limits)

3.4.5.2. Air samples collected in the armory were well below OSHA's permissible exposure

limit for lead (29 CFR 1910.1025(a)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this building.

3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION DAMAGE

3.5.1.1. No water intrusion problems were reported or observed within the building.

3.5.2. PROGRAMS

3.5.2.1. There are no designated confined space areas within this facility. A need has not been established for a HAZCOM program, the need for personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.3. HOUSEKEEPING

3.5.3.1. The facility is impressively clean, orderly and in good condition.

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

E – Recommendations for Surface Lead in Armories

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
Philadelphia, PA	PENNSYLVANIA ARNG ARMORY	23RD Street Armory

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR (initials)
25/26 March / 20 August, 2003	JSS

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	NA	Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
215-560-3926	TRPA 1ST SQDN 104TH CAV 1ST TRP Phil. City Cav	3	9

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
5	12 B			

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	CONROLS 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			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	½ FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	¼ 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 WEATHR 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	/		

AEHA Form 271-R (Test), 1 Jan 92 (HSHB-MI-I)

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	3	C

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

SECTION 6. COMMENTS

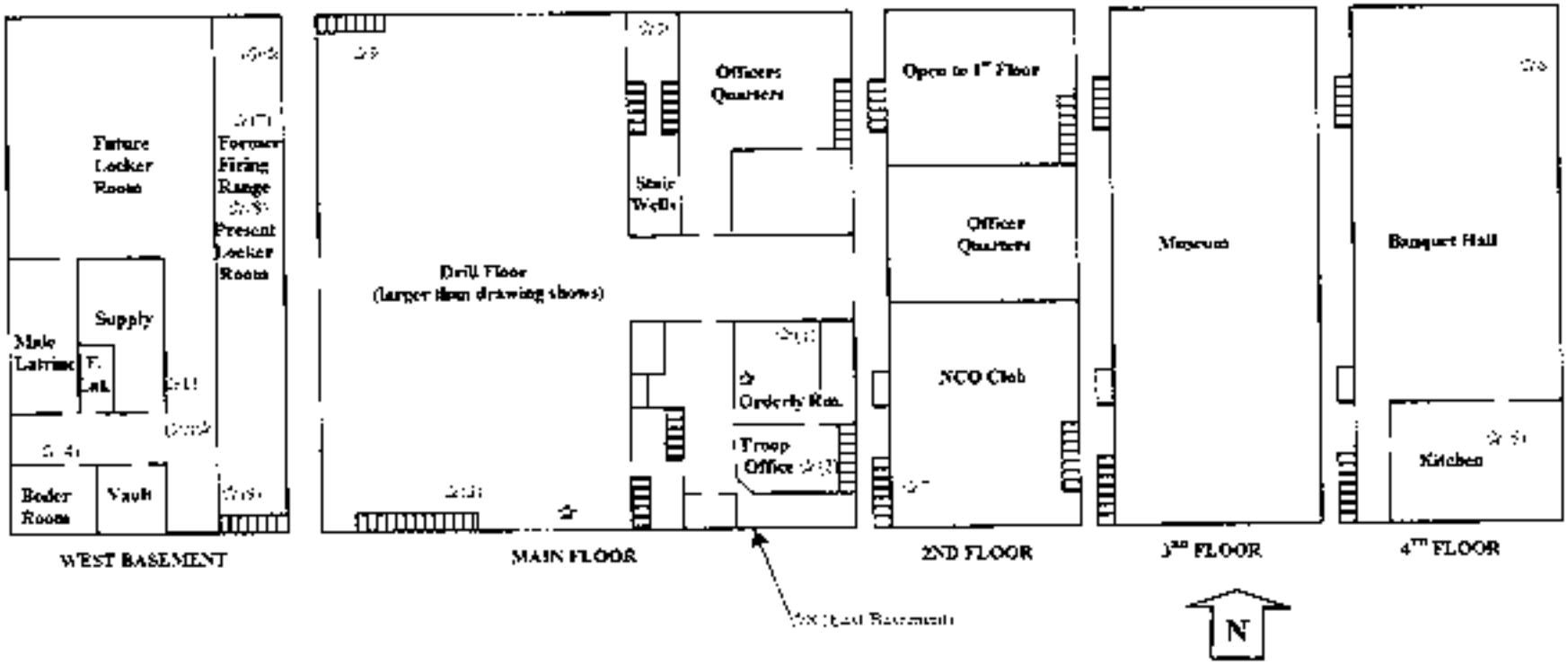
☐ No comments ☐ See attached sheet

PRIVACY ACT STATEMENT

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

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

SOUTH 23RD STREET
PHILADELPHIA, PENNSYLVANIA



☆ = Wipe Sample (or 2nd Visit Samples) Elevator ☆ = Area Air Sample

TRP A 1ST SQDN 104TH CAV
1ST Troop Philadelphia City Calvary
PHILADELPHIA, PENNSYLVANIA
WIPE SAMPLING POINTS

(1) PA Phi-232-19
Orderly Room

(2) PA Phi-232-20
Troop Office

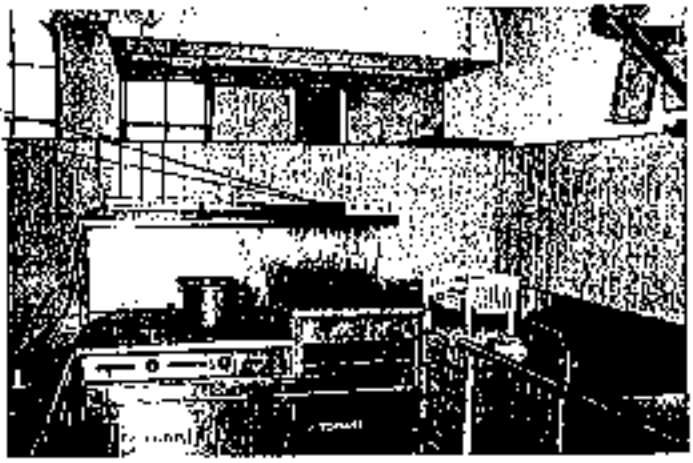
(3) PA Phi-232-21
Drill Floor – South End

Attachment B

Former Range Entry

(4) PA Phi-232-22
W. Basement – By Return Grille

(5) PA Phi-232-23
Kitchen



Attachment B

ADDITIONAL SAMPLES

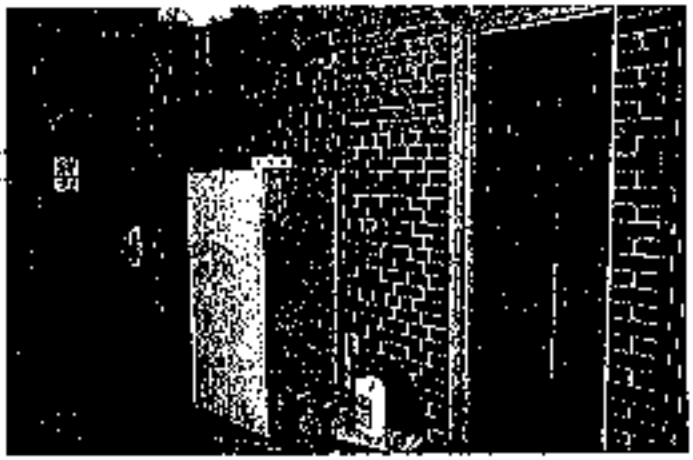
(6) PA Phi-03084-10
4th Floor – Banquet Room

(7) PA Phi-03084-11
2nd Floor – NCO Club

(8) PA Phi-03084-12
East Basement

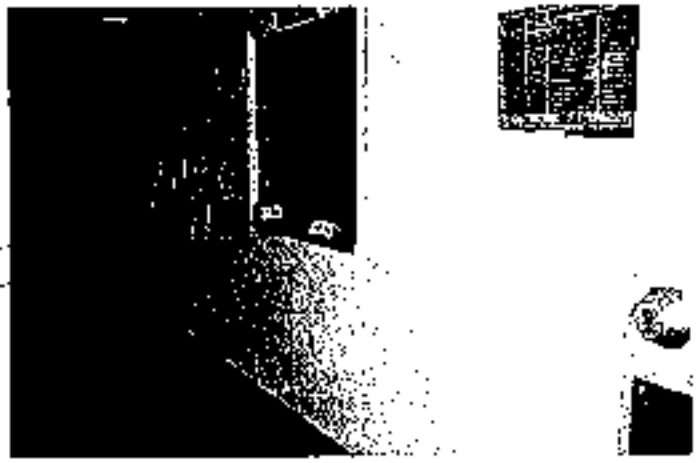
Attachment B

(9) PA Phi-03084-13
Drill Floor – NW Corner



(10) PA Phi-03084-14
North Stair Well

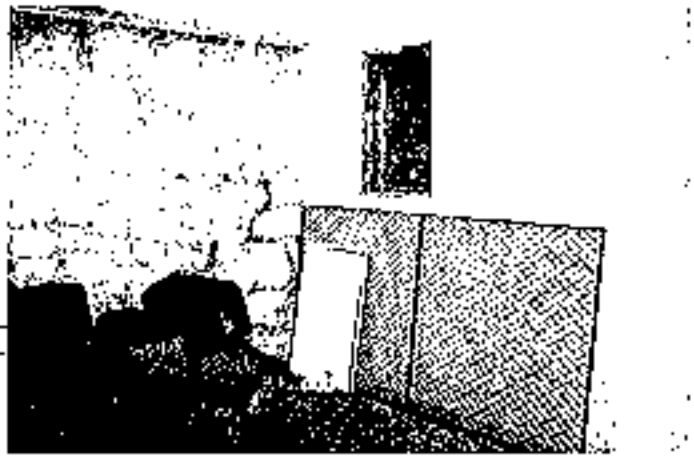
(11) PA Phi-03084-15
West Basement
Near Former Range



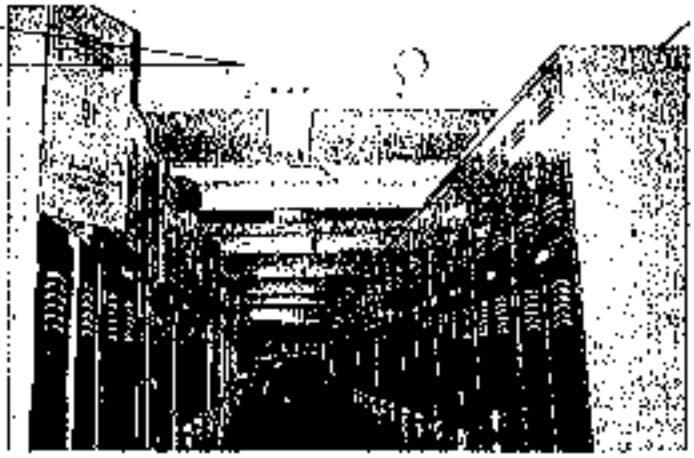
Attachment 16

FORMER INDOOR FIRING RANGE SAMPLING POINTS

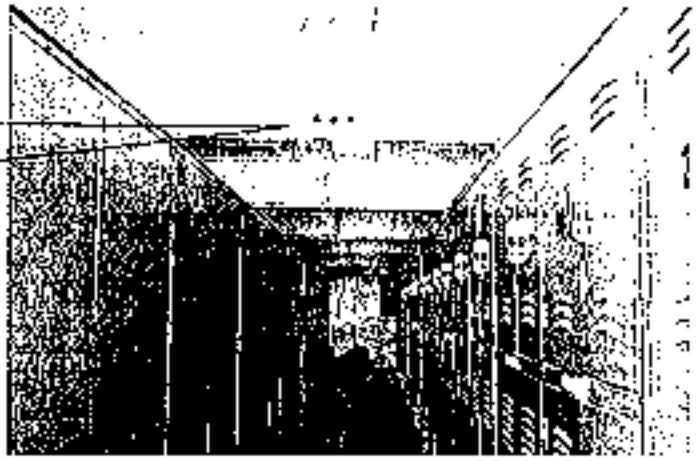
(6) PA Phi-232-25
Bullet Trap Area



(7) PA Phi-232-26
Light Fixture – ½ of the Way Down Range

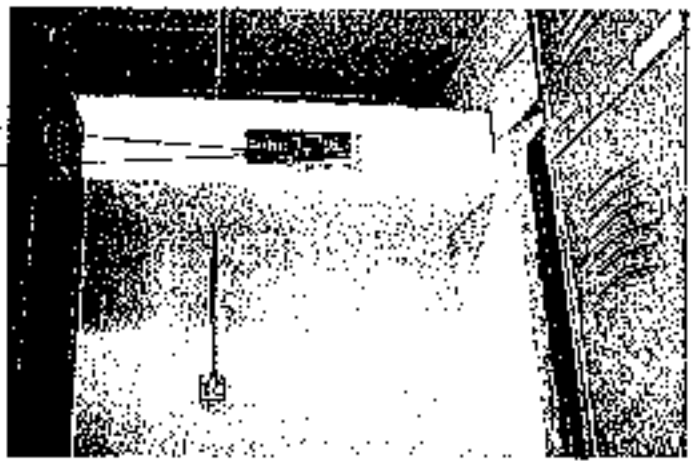


(8) PA Phi-232-27
Ceiling Beam
½ Way Down Range



Attachment B

(9) PA Phi-232-28
Air Supply Vent
Behind Firing Line



(10) PA Phi-232-29
Floor Outside Former Range

Attachment B

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client:	National Guard Bureau	**Job Name:**	Pennsylvania Armories-Philadephia 23rd St.	**Chain Of Custody:**	117159
Address:	301-IH Old Bay Lane, Attn: NGB-AVN-SI, State Military Reservation	**Job Location:**	Not Provided	**Date Analyzed:**	9/12/2003
	Havre de Grace, Maryland 21078	**Job Number:**	Not Provided	**Person Submitting:**	[redacted]
		P.O. Number:	Not Provided	**Report Date:**	12-Sep-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
0366542	PAPhi-03232-19	Flame	Wipe	****	0.111	108.00	ug/ft²	< 110	ug/ft²	
0366543	PAPhi-03232-20	Flame	Wipe	****	0.111	108.00	ug/ft²	120	ug/ft²	
0366544	PAPhi-03232-21	Flame	Wipe	****	0.111	108.00	ug/ft²	430	ug/ft²	
0366545	PAPhi-03232-22	Flame	Wipe	****	0.111	108.00	ug/ft²	420	ug/ft²	
0366546	PAPhi-03232-23	Flame	Wipe	****	0.111	108.00	ug/ft²	150	ug/ft²	
0366547	PAPhi-03232-24	Flame	Wipe	****	0.111	108.00	ug/ft²	160	ug/ft²	
0366548	PAPhi-03232-25	Flame	Wipe	****	0.111	108.00	ug/ft²	18000	ug/ft²	
0366549	PAPhi-03232-26	Flame	Wipe	****	0.111	108.00	ug/ft²	6300	ug/ft²	
0366550	PAPhi-03232-27	Flame	Wipe	****	0.111	108.00	ug/ft²	180000	ug/ft²	
0366551	PAPhi-03232-28	Flame	Wipe	****	0.111	108.00	ug/ft²	53000	ug/ft²	
0366552	PAPhi-03232-29	Flame	Wipe	****	0.111	108.00	ug/ft²	690	ug/ft²	
0366553	PAPhi-03232-30	Flame	Wipe	****	0.111	108.00	ug/ft²	< 110	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.

Analyst: [redacted]

Technical Manager: [redacted]

TEST REPORT
Page 4 of 4
03-S-2793

Results
Lead

Client #	DCL #	Total Area (in^2)	µg/Wipe	µg/in^2	µg/ft²
PA Was-03080-53	03-17674	16	ND	<0.625	
PA Was-03080-54	03-17675	16	ND	<0.625	
PA Phi-03084-10	03-17676	16	ND	<0.625	
PA Phi-03084-11	03-17677	16	ND	<0.625	
PA Phi-03084-12	03-17678	16	1000.	63. x 144 =	9072
PA Phi-03084-13	03-17679	16	36.	2.3 x 144 =	331.2
PA Phi-03084-14	03-17680	16	15.	0.94 x 144 =	135.4
PA Phi-03084-15	03-17681	16	58.	3.6 x 144 =	518.4
PA Phi-03084-16	03-17682	16	ND	<0.625	
PA Ply-03086-09	03-17683	16	ND	<0.625	
PA Ply-03086-10	03-17684	16	ND	<0.625	
PA Ply-03086-11	03-17685	16	ND	<0.625	
PA Ply-03086-12	03-17686	16	ND	<0.625	
PA Ply-03086-13	03-17687	16	ND	<0.625	
PA Ply-03086-14	03-17688	16	ND	<0.625	
PA Phi-03087-13	03-17689	16	ND	<0.625	
PA Phi-03087-14	03-17690	16	190.	12. x 144 =	1728
PA Phi-03087-15	03-17691	16	13.	0.81 x 144 =	116.6
PA Phi-03087-16	03-17692	16	ND	<0.625	
PA Phi-03087-17	03-17693	16	34.	2.1 x 144 =	302.4
PA Phi-03087-18	03-17694	16	ND	<0.625	
	Prep Blank		ND		
% Recovery	LCS		84.		
% Recovery	LCS		84.		
RPL			10.		

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive
Analyst

Non-Responsive
Reviewer

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m³
PA Cha-03078-17	03-17810	434.6	ND	<0.002
PA Fri-03079-01	03-17811	313.2	ND	<0.003
PA Fri-03079-02	03-17812	334.6	ND	<0.003
PA Can-03080-01	03-17813	462.7	ND	<0.002
PA Can-03080-02	03-17814	457.2	ND	<0.002
PA Can-03080-03	03-17815	482.1	ND	<0.002
PA Was-03080-40	03-17816	334.2	ND	<0.003
PA Was-03080-41	03-17817	339.5	ND	<0.003
PA Was-03080-42	03-17818	360.1	ND	<0.003
PA Phi-03084-01	03-17819	292.5	ND	<0.003
PA Phi-03084-02	03-17820	295.2	ND	<0.003
PA Phi-03084-03	03-17821	310.2	ND	<0.003
PA Ply-03086-01	03-17822	363.6	ND	<0.003
PA Ply-03086-02	03-17823	384.2	ND	<0.003
PA Phi-03087-01	03-17824	636.7	ND	<0.002
PA Phi-03087-02	03-17825	672.3	ND	<0.001
PA Phi-03087-03	03-17826	593.1	ND	<0.002
PA Phi-03087-04	03-17827	522.9	ND	<0.002
PA Phi-03090-01	03-17828	351.3	ND	<0.003
PA Phi-03090-09	03-17829	190.8	ND	<0.005
	Prep Blank 3		ND	
% Recovery	LCS 5		110.	
% Recovery	LCS 6		109.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

Non-Responsive

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non-[redacted]@md.ngb.army.mil

Attachment D

REFERENCE LIST INDEX

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2. Specific Regulations and Guidance
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   c. Battery Charging Room
   d. Bird and Bat Manure
   e. Bloodborne Pathogens
   f. Chemical Agent Resistant Coating (CARC) Paint
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GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REFERENCE LIST

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   a. DODI 6055.1, DOD SOH Program, 19 August 1998.
   b. DODI 6055.5, DOD OEH. *[DRAFT]*
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   p. NFC, A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. [Current date]
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   r. ANSI Standards. [Current Dates]

2. Specific Regulations/Guidance
   a. **ABRASIVE BLASTING**
      (1) ANSI Z9.4 1997, Abrasive Blasting Operations - Ventilation and Safe Practices.
      (2) 29 CFR 1910.94 Ventilation
      (3) 42 CFR 84

   b. **ASBESTOS**
      (1) AR 40-5, Preventive Medicine, 15 October 1990. *[05/2002 Being Updated]*
      (2) AR 200-1, Environmental Protection and Enhancement, Chapter 8, 21 February 1997.
      (3) TB MED 513, Guidelines for the Evaluation and Control of Asbestos Exposure, 15 December 1986. *[05/2000 Under Revision as DA PAM 40-513]*
      (4) TG 157, USAEHA, The Installation Asbestos Management Program Assessment Checklists, July 1994.
      (5) 29 CFR 1910.1001
      (6) 29 CFR 1926.58 (prior to 1994 CFR)
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(8) MEMORANDUM SGPS-PSP, OTSG, subject: AMEDD Role Supporting Asbestos Abatement/Asbestos Management Programs, 19 Jan 89.

(9) EPA, Guidance for Controlling Asbestos-Containing Materials in Buildings, June 1985.

(10) DD Form 2493-1 (Asbestos Exposure, Part I--Initial Medical Questionnaire)

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c. **BATTERY CHARGING ROOM**

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(2) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

d. **BIRD AND BAT MANURE**

(1) TG 142, USAEHA, Managing Health Hazards Associated with Bird and Bat Excrement, Dec 1992.

e. **BLOODBORNE PATHOGENS**

(1) 29 CFR 1910.1030

(2) TG 190, USAEHA, Guide to Managing Occupational Exposure to Bloodborne Pathogens, Jan 94.

f. **CHEMICAL AGENT RESISTANT COATING (CARC) PAINT**

(1) TG 144, USAEHA, Guidelines for Controlling Health Hazards in Painting Operations, 24 August 1987.

(2) DA LTR, USAEHA, HSHB-MI-WR, subject: Respiratory Protection When Spraying CARC, 19 November 1992.

(3) TM 43-0139, Painting Instructions for Army Material, 27 July 1988I Aug 86.

(4) MEMORANDUM SGPS-PSP, OTSG, subject AMEDD, Occupational Health Requirements in Support of Painting in the Army, 22 February 1985.

(5) AR 750-1, Army Materiel Maintenance Policy and Retail Maintenance Operations (Prohibits welding on CARC paint) 1 July 1996.

g. **CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR, EXPLOSIVE (CBRNE)**

(1) DODI 2000.gg, DOD Installation CBRNE Emergency Response Guidelines.

(2) DHHS, NIOSH Pub No. 2002 139, Guidance for Protecting Building Environments from Airborne Chemical, Biological, or Radiological Attacks, May 2002.

(3) TG 275, USACHPPM, Personal Protective Equipment Guide for Medical Treatment Facility Personnel Handling Casualties from Weapons of Mass Destruction and Terrorism Events. *[Draft]*

h. **CONFINED SPACE**

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(2) 29 CFR 1910.147 (Lockout/Tagout)
(3) ANSI Z117.1-Safety Requirements for Confined Spaces, 1995.
(4) SOP for ARNG Confined Space Entry Program, 25 April 1991.
(5) Letter, US Dept of Labor (DOL) addressed to Vanessa Char, 22 Apr 1994.
(6) OSHA Instruction STD 1-7.3, US DOL, subject: 29 CFR 1910.147, the Control of Hazardous Energy (Lockout/Tagout)--Inspection Procedures and Interpretive Guidance, 11 Sep 90.
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(8) Confined Space Entry Program for Helicopters, 2003.

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(2) DG 415-2, Design Guide for Logistics Facilities, current.
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(5) TI-300, 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.
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(7) ASHRAE, Standard 62-2002, Ventilation for Acceptable Indoor Air Quality.
(8) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

j. **ERGONOMICS**

(1) DA PAM 40-21, Medical Services, Ergonomics Program, 15 May 2000.
(2) ANSI Z-365, Management of Work Related Musculoskeletal Disorders, 2000.
(3) 29 CFR 1910. *[PROPOSED STANDARD]*

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(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

l. **HAZARD COMMUNICATION**

(1) 29 CFR 1910.1200
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m. **HEARING CONSERVATION**

(1) DA PAM 40-501, Medical Services, Hearing Conservation Program, 10 December 1998.

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(3) TG 175, USAEHA, Readiness thru Hearing Conservation: Guide for Unit Commanders and Supervisors, June 1999.

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(2) USACERL Technical Report P-91/42, IAQ Management for Operations and Maintenance Personnel, September 1991.

(3) EPA 400/1-91/003 or DHHS, NIOSH, Publication No. 91-114, Building IAQ, A Guide for Building Owners and Facility Managers, December 1991.

(4) ASHRAE, Standard 62-2002, Ventilation for Acceptable IAQ.

(5) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

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o. **INDOOR FIRING RANGES**

(1) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(2) NGR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges, 30 March 1990. *[11/02 Under Revision]*

(3) CEHND 1110-1-18, USACE Design Manual for Indoor Firing Range, June 1990.

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(6) NIOSH, Technical Information, December 1975, subject: Lead Exposure and Design Considerations for Indoor Firing Ranges.

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(8) Information Paper, Alternative Ammunition, 15 March 1996.

(9) Information Paper, Bullet Traps, 26 April 1996.

(10) Information Paper, ARNG IFR Action Plan, 28 January 2002.

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(2) 29 CFR 1926.62

(3) 24 CFR 35.61 (HUD, Percentage of Lead in Paint)

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(5) OSHA Instruction CPL 2-2.58, Office of Health Compliance Assistance, 13 December 1993.

(6) Federal Register, 18 April 1990, Vol. 55, No. 75, HUD, Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing, as amended, September 1990, Office of Public and Indian Housing, Department of Housing and Urban Development, 451 Seventh Street, SW, Washington, DC 20410.

(7) NIOSH, Request for Assistance in Preventing Lead Poisoning in Construction Workers, April 1992.

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q. **LIGHTING**

(1) RP-1-1993, Office Lighting, ANSI/IESNA.

(2) RP-7-2001, Industrial Lighting, IES.

r. **OCCUPATIONAL VISION**

(1) DA PAM 40-506, Medical Services, The Army Vision Conservation and Readiness Program, 20 July 2001.

(2) ANSI Z87.1, Practice for Occupational and Educational Eye and Face Protection, 1989, Change A, REAF 1998.

(3) ANSI Z358.1 for Emergency Eyewash and Shower Equipment, 1998.

(4) OTSG Memorandum SGPS-PSP, subject: Acanthameoba Keratitis and Eyewash Stations, 8 May 89.

(4) 29 CFR 1910.133

s. **PAINT SPRAY BOOTH**

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(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

(3) 29 CFR 1910.94

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(5) ANSI Z9.3-1995 for Exhaust Systems - Spray Finishing Operations - Safety Code for Design, Construction, and Ventilation.

(6) ANSI Z9.2-2001, Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems.

t. **PERSONAL PROTECTIVE EQUIPMENT**

(1) Quick Selection Guide to Chemical Protective Clothing, 2nd edition, Forsberg, K and Mansdorf, S., 1993.

(2) Chemical Protective Clothing, Vol 1 and 2, Johnson, J. and Anderson, K., American Industrial Hygiene Association, 1990.

(3) Guidelines for the Selection of Chemical Protective Clothing, 3rd Edition, ACGIH, Inc., Feb 1987.

u. **RADIATION PROTECTION PROGRAM**

(1) NGR 385-11, Safety, Ionizing and Nonionizing Radiation Protection, 18 February 1999.

(2) AR 11-9, Army Radiation Safety Program, 28 May 1999.

(3) 29 CFR 1910.96

(4) 29 CFR 1910.97

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(1) AR 11-34, The Army Respiratory Protection Program, 15 February 1990. *[11/02 Being Updated]*

(2) 29 CFR 1910.134

(3) 42 CFR 84

(4) TB MED 502, Respiratory Protection Program, February 1992. *[11/02 Being Updated as DA PAM 40-502]*

(5) ANSI/CGA G-7.1-1997, Commodity Specification for Air.

(6) ANSI Z88.2-1992, Standard for Respiratory Protection.

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(1) ANSI Z4.1-1986, Change REAF 1995, Sanitation in Places of Employment-Minimum Requirements.

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x. **SMOKING**

(1) AR 600-63, Army Health Promotion, 28 April 1996.

(2) DODI 1010.15, Smoke-Free DOD Facilities, 2 January 2001.

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(2) TI-300f 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

z. **WELDING OPERATION**

(1) 29 CFR 1910.252

(2) 29 CFR 1910.253

(3) 29 CFR 1910.254

(4) ANSI/AWS Z49.1-1999, Safety in Welding and Cutting and Allied Processes.

(5) TM 5-805-7, Welding Design, Procedures and Inspection, 20 May 85.

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(b)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 $\mu g/ft^2$) and windowsills (250 $\mu g/ft^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of 200 $\mu g/ft^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 $\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 $\mu g/ft^2$ on floors and 250 $\mu g/ft^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland




Industrial Hygiene Survey for PAARNG – Philadelphia 23rd Street Readiness Center 22 South 23rd Street Philadelphia, Pennsylvania 19103

AECOM
January 2013
Document No.: 60276421.1/Philadelphia 23rd Street Readiness Center

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland

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January 2013
Document No.: 60276421.1/Philadelphia 23rd Street Readiness Center

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Executive Summary

On November 13, 2012, AECOM conducted an Industrial Hygiene (IH) survey of the Philadelphia 23rd Street Readiness Center facility located at 22 South 23rd Street in Philadelphia, Pennsylvania. Garrett Wright, SFC was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Philadelphia 23rd Street Readiness Center operations.

The industrial hygiene survey was generally conducted in accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings", dated January 2012.

The Philadelphia 23rd Street Readiness Center is currently staffed by three personnel. Some of the personnel were not present at the time of the survey due to active duty assignments or other off-site responsibilities. The facility is configured as an administrative area and a Drill/Assembly Hall.

Personnel at the facility were undertaking normal daily activities, which are primarily administrative in nature, at the time of the survey.

The activities undertaken during the Industrial Hygiene survey included facility descriptions, lead wipe/air sampling, evaluation of housekeeping, illumination studies, ventilation system evaluation, and a review of the physical building condition.

The Philadelphia 23rd Street Readiness Center is housed in a two-story masonry building, and consists of approximately 60% administrative space and 40% Assembly Hall.

Lighting levels measured throughout the facility were generally inadequate as per ANSI/IESNA RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

Wipe samples collected for lead-containing dust throughout the facility did not indicate lead levels above the ARNG action level.

No peeling lead-based paint was observed at the Philadelphia 23rd Street Readiness Center during this survey.

No visible damaged friable suspect friable asbestos-containing material (ACM) was observed.

No visible water damaged or visible signs of mold growth were observed.

There is no Heating, Ventilation & Air Conditioning (HVAC) system at the Philadelphia 23rd Street Readiness Center.

1.0 Facility Description and Operations

The Philadelphia 23rd Street Readiness Center, constructed in 1910, is a two-story administrative masonry structure with a lower level/basement. The building consists of two main sections. The larger one-story section, consists primarily of offices, training/classroom, locker/shower rooms, storage and administrative areas, and is finished with sheetrock walls, lay-in ceiling tiles and floor tile. The two-story Assembly/Drill Hall area is finished with painted block walls and a concrete floor. According to site personnel there is no firing range at the facility.

The primary activity at the Philadelphia 23rd Street Readiness Center is routine administrative duties and occasional use by units for support and training of soldiers. The Assembly Hall is not rented out for civic activities. The Philadelphia 23rd Street Readiness Center is currently staffed by three personnel. No vehicle maintenance activities are undertaken at the facility.

2.0 Sampling in Readiness Centers

2.1.1 Wipe Sampling

Wipe sampling for lead was conducted in the Assembly Hall and administrative areas following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost wipes. Samples were collected in areas that are not frequently cleaned and showed signs of dust whenever possible.

The following table presents the results of the lead wipe sampling conducted at the facility.

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
Wipe – 001	Assembly Hall - cabinet	<110 ug/ft^2
Wipe – 002	Break Room - table	<110 ug/ft^2
Wipe – 003	Administrative Office - desk top	<110 ug/ft^2
Wipe – 004	Administrative Office - shelf	<110 ug/ft^2
Wipe – 005	Foyer - floor	<110 ug/ft^2

ug/ft^2 = Micrograms per square foot.

Wipe samples collected in association with the administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U. S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 micrograms per square foot (ug/ft^2) for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

The wipe samples collected throughout the facility did not detect levels of lead in excess of the ARNG action level of 200 micrograms per square foot (ug/ft^2). Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

Per Shirley Chapman of NGB-IH, the requirement for Lead air sampling has been removed from the Statement of Work. It was reported that historically, air samples collected at administrative facilities are typically below the limit of detection.

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls appeared to be generally in good condition. Concrete flooring was generally tiled or unpainted. AECOM did not observe damaged or peeling paint during this evaluation.

3.1.2 Suspect Asbestos Containing Materials

AECOM did not observe damaged, friable suspect asbestos containing materials (ACM) in readily accessible areas of the Philadelphia 23rd Street Readiness Center during this survey. Thermal system piping is typically covered in typical fiberglass insulation with associated fittings and appeared in good condition.

Other typical miscellaneous building materials observed but not sampled include floor tiles and associated mastic, cove base and associated mastic, ceiling tiles, and window glazing compound and caulks.

3.1.3 Water Damage/Mold

AECOM did not observe evidence of water intrusion during this survey.

3.1.4 Housekeeping

The Philadelphia 23rd Street Readiness Center was observed to be generally clean and orderly during this assessment. AECOM did not observe dust accumulation on readily accessible horizontal surfaces within areas commonly used in the facility.

3.1.5 Indoor Air Quality/ Ergonomics

The administration section of the building contains general office space. The administration section is generally utilized by all of the Philadelphia 23rd Street Readiness Center staff members including a recruiter. No Indoor Air Quality concerns were noted by the Philadelphia 23rd Street Readiness Center personnel.

The Philadelphia 23rd Street Readiness Center personnel did not report any ergonomics issues or concerns. Office furniture and accessories designed to promote ergonomically correct behaviors were observed.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (^{o} Fahrenheit), and relative humidity (as percentage) are presented in the following table.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (^{o}F)	Relative Humidity (%)
Outside	0.2	265	72.5	24.8
Drill Hall	0.4	371	71.2	23.6
Locker Room	0.4	334	71.8	24.1
Boiler Room	0.4	386	74.6	23.7
Restroom/Shower	0.4	472	73.8	22.3
Cage Storage Area	0.4	403	71.4	21.4
Office	0.2	316	72.6	26.7
Conference Room	0.2	327	71.8	25.8
Break Room	0.1	412	71.8	26.4

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (^{o}F)	Relative Humidity (%)
Maintenance Closet	0.3	486	70.2	25.2
Foyer	0.1	391	71.3	25.7
Vacant Office	0.2	452	70.6	23.3
Corridor	0.2	383	71.2	23.5

Table 3-1 Guidelines:
Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard. OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.
Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.
Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 5.10.1).
Temperature: Winter (clothing insulation = 1.0 clo) Relative humidity 30-60% - Temp - 68 – 75°F
Summer Temp - 73 – 79°F. (Derived from ASHRAE Standard 55-2010)

4.0 Ventilation and HVAC System

4.1.1 Ventilation Systems and Potential for Contamination of Clean Air Sources

There is no Field Maintenance Shop (FMS) located at the Philadelphia 23rd Street Readiness Center. As such, no potential for contamination of clean air sources was observed at the facility.

There is no Heating, Ventilation & Air Conditioning (HVAC) system at the Philadelphia 23rd Street Readiness Center.

4.1.2 HVAC Maintenance

There is no HVAC system at the Philadelphia 23rd Street Readiness Center. The building consists of a natural gas boiler that feeds radiant heaters throughout the building. The natural gas boiler also provides heat for the facilities domestic water.

5.0 Lighting

Lighting levels in all areas were measured utilizing a Cal-Light 400 light meter that displays lighting levels in foot-candles. Lighting levels were generally inadequate.

Table 5-1: Light Survey

Location	Results – (Foot candles)	Met Standard (Y/N)	Standard*
Drill Hall	5.1	Y	10
Locker Room	27.5	Y	7
Boiler Room	10.3	N	30
Restroom/Shower	59.6	Y	5
Cage Storage Area	26.4	N	30
Office	29.6	N	50
Conference Room	5.5	N	30
Break Room	15.7	Y	10
Maintenance Room	28.3	N	30
Foyer	19.4	Y	10
Vacant Office	52.1	Y	50
Corridor	19.6	Y	5
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI RP-7-01)			

6.0 Evaluation of Attached Garage

There is no attached garage associated with the Philadelphia 23rd Street Readiness Center.

7.0 Conclusions and Limitations

AECOM has conducted this survey in accordance with applicable OSHA methods and standard industrial hygiene practice. The following conclusions were based on the observations and assessments of activities that occurred during the on-site evaluation:

Housekeeping is performed regularly at the Philadelphia 23rd Street Readiness Center.

AECOM did not observe any damaged, friable suspect asbestos-containing materials at the Philadelphia 23rd Street Readiness Center.

AECOM did not observe peeling paint during at the Philadelphia 23rd Street Readiness Center.

AECOM did not observe evidence of water intrusion at the Philadelphia 23rd Street Readiness Center.

Lighting levels measured throughout the facility were generally inadequate as per ANSI/IESNA RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

Wipe samples collected in association with the administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft^2 for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

AECOM provided these services consistent with the level and skill ordinarily exercised by members of the profession currently providing similar services under similar circumstances at the time the services were provided. This statement is in lieu of other statements either expressed or implied. This report is intended for the sole use of National Guard Bureau – Army National Guard. The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, and use or re-use of this document, the findings, conclusions, or recommendations is at the risk of said user.

As with all such surveys, the results of the sampling represent conditions found on the date of the survey and may not represent conditions found at other times. Additionally, this survey was limited with respect to the specific parameters indicated above and should not be construed to be a comprehensive evaluation or a definitive representation of conditions within the facility. The information presented in this report is intended to be used as a guide to evaluate the need for further investigation or the need for modifications to the processes or procedures surveyed.

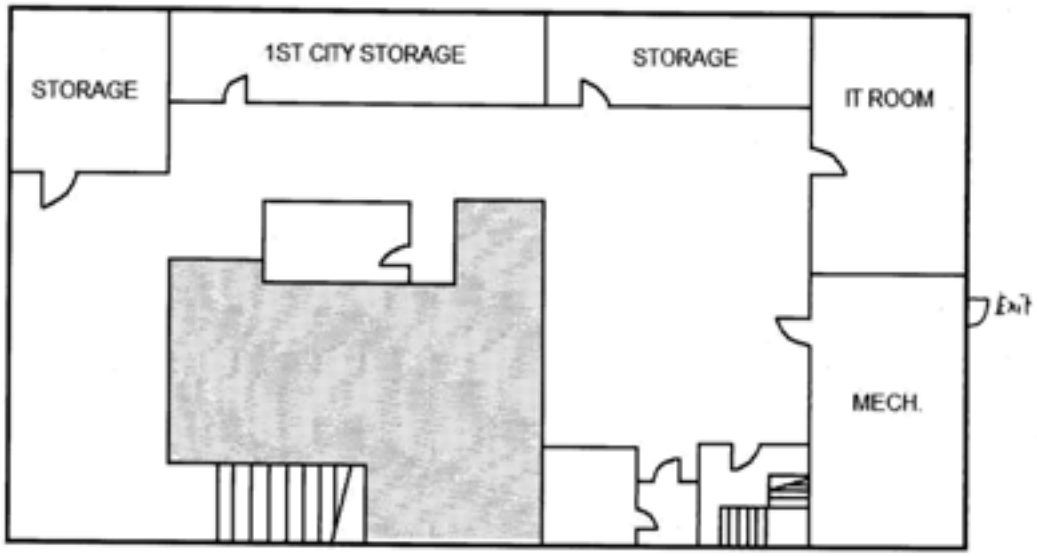
The Client recognizes and agrees that all testing and remediation methods have reliability limitations, no method nor number of sampling locations can guarantee that a condition will be discovered within the performance of the services as authorized by the Client. Additionally, the passage of time may result in a change in the environmental characteristics at this site. This report does not warrant against future operations or conditions that could affect the recommendations made. The results, findings, conclusions, and recommendations expressed in this report are based only on conditions that were observed during AECOM's inspection of the site.

Appendix A

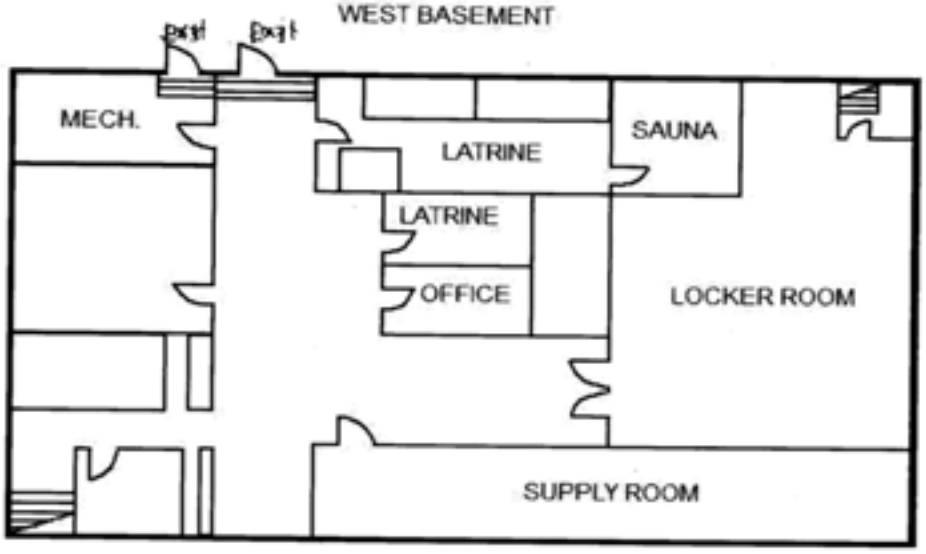
Philadelphia 23rd Street Readiness Center Facility Layout

AECOM

EAST END BASEMENT

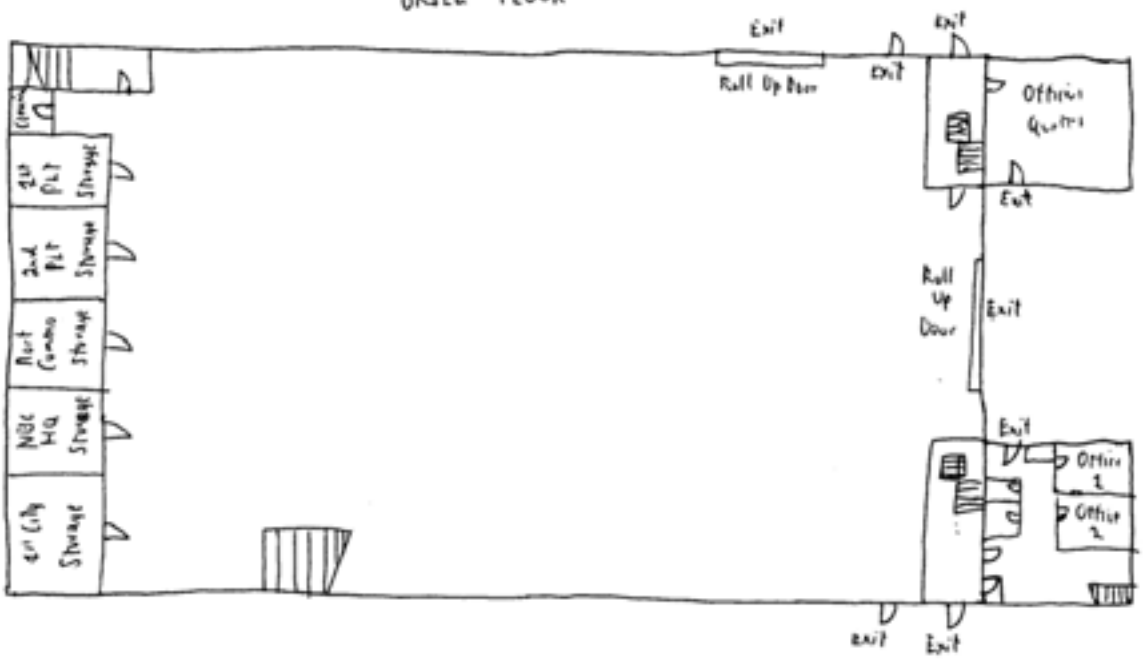


WEST BASEMENT

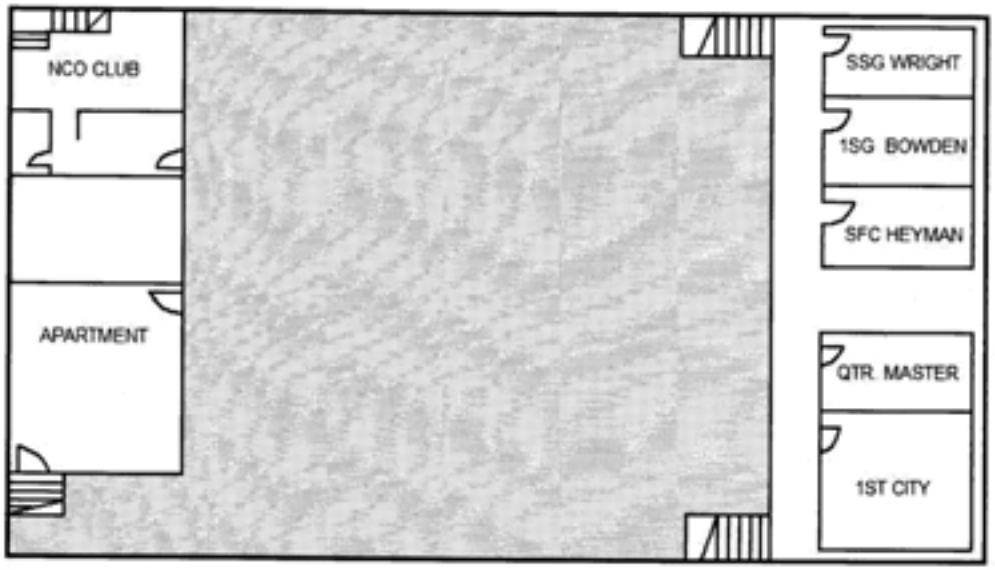


AECOM

DRILL FLOOR



SECOND FLOOR



Appendix B

Philadelphia 23rd Street Readiness Center Photographs

AECOM

Photograph 1

View of Building Exterior

Photograph 2

View of Assembly/Drill Hall

Photograph 3

View of Administrative Offices

Photograph 4

View of Locker Room - Basement

AECOM

Photograph 5

View of Caged Storage Area - basement

Photograph 6

View of Boiler Room - Basement

Appendix C

Analytical Results

AECOM

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	Not Provided	Chain Of Custody:	514631
Address:	301-181 Old Bay Lane, Attn: ARNG-CIO-P, State Military Reservation	Job Location:	Philadelphia 23rd Street	Date Submitted:	11/30/2012
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM
		P.O. Number:	W912K6-09-A-0003	Date Analyzed:	12/6/2012 Report Date: 12/7/2012

Attention: Non-Responsive

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		Total ug	Final Result		Comments
13018434	Wipe-001	Flame	Wipe	****	0.111	0.9	ug/ft²	<12	<108	ug/ft²	
13018435	Wipe-002	Flame	Wipe	****	0.111	0.9	ug/ft²	<12	<108	ug/ft²	
13018436	Wipe-003	Flame	Wipe	****	0.111	0.9	ug/ft²	<12	<108	ug/ft²	
13018437	Wipe-004	Flame	Wipe	****	0.111	0.9	ug/ft²	<12	<108	ug/ft²	
13018438	Wipe-005	Flame	Wipe	****	0.111	0.9	ug/ft²	<12	<108	ug/ft²	

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B

See QC Summary for analytical results of quality control samples associated with these samples.

NA = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)

%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)

Note: All samples were received in good condition unless otherwise noted.

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results

Final results for air and wipe samples are based on client supplied information nor verified by this laboratory.

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

Analyst: Non-Responsive

Technical Manager: Non-Responsive

An AIHA (#100479) and NY ELAP (#10920) Accredited Laboratory

4475 Forbes Blvd. · Lanham, MD, 20706 · (301) 459-3640 · Toll Free (800) 346-0961 · Fax (301) 459-2643

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AMA Analytical Services, Inc.
Focused on Results www.amalab.com
AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)
4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This Number For Inquiries) **514618**

Mailing/Billing Information:

1. Client Name: National Guard Bureau
2. Address 1: 301-81 Old Bay Lane
3. Address 2: Attn: NGB-AVN-SI, State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:

1. (Project Name)
2. (Project Location) Philadelphia - 23rd Street
3. Job #: P.O. # W912K8-08-A-0003
4. Contact Person [redacted] @ phone #
5. Submitted by: AECOM (Signature) [redacted]

Reporting Info (Results provided as soon as technically feasible). If no TAT/Reporting Info is provided, AMA will assign defaults of 5-Day and email/fax to contacts on file.

NORMAL BUSINESS HOURS ... ☒ 5 Day ... 12/7/12

REPORT TO: [redacted] aecom.com ... army.mil

TEM Air – Please Indicate Filter Type ... PLM Bulk ... TEM Bulk ... TEM Dust ... TEM Water ... MISC

☒ *Pb Dust Wipe (wipe type/ [illegible]) 5 (QTY)

☒ All samples received in good condition unless otherwise noted. (TEM Water samples ____ °C)

If field data sheets are submitted, there is no need to complete bottom section.

SEE ATTACHED FIELD DATA SHEETS

CLIENT ID #	SAMPLE LOCATION/ID	DATE/TIME	VOL (L)/Wipe Area	LEAD
wipe-001	D.Hall cabinet	11/13	1 sq ft	X
wipe-002	Break rm. table	↓	↓	↓
wipe-003	office desk	↓	↓	↓
wipe-004	office shelf	↓	↓	↓
wipe-005	Foyer/Entrance floor	↓	↓	↓

CLIENT CONTACT (LABORATORY STAFF ONLY)

Date/Time: Contact: By:

Date/Time: Contact: By:

Date/Time: Contact: By:

LABORATORY STAFF ONLY: (CUSTODY)

1) Date/Time RCVD: 11 / 30 / 12 @ 1030 via FedEx By: [redacted]

2) Date/Time Analyzed: ____ / ____ / ____ @ ____ By: ____

3) Results Reported To: ____ Via: ____ Date: ____ Time: ____ Initials: ____

4) Courier: 7941 1694 5332

Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. http://www.osha.gov/comp-links.html

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3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF

4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://armypubs.army.mil/epubs/pdf/R40_5.PDF

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9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf

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11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.

12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.

13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.

14. ANSI/ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality.

15. RP-1-2004, Office Lighting, ANSI/IESNA.

16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.

17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.

18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.

19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland




Industrial Hygiene Survey
for PAARNG – Crane Readiness Center
826 Crane Avenue
Pittsburgh, Pennsylvania 15216

AECOM
January 2013
Document No.: 60276421.1/Crane Readiness Center

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland

Industrial Hygiene Survey
for PAARNG – Crane Readiness Center
826 Crane Avenue
Pittsburgh, Pennsylvania 15216

Non-Responsive
Industrial Hygienist

Non-Responsive
Project Manager

Non-Responsive
Northeast District Health & Safety Manager

AECOM
January 2013
Document No.: 60276421.1/Crane Readiness Center

AECOM

Contents

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Executive Summary

On November 7, 2012, AECOM conducted an Industrial Hygiene (IH) survey of the Crane Readiness Center facility located at 826 Crane Avenue in Pittsburgh, Pennsylvania. Non-[redacted], MSG was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Crane Readiness Center operations.

The industrial hygiene survey was generally conducted in accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings", dated January 2012.

The Crane Readiness Center is currently staffed by forty personnel. Some of the personnel were not present at the time of the survey due to active duty assignments or other off-site responsibilities. The facility is configured as an administrative area and a Drill/Assembly Hall.

Personnel at the facility were undertaking normal daily activities, which are primarily administrative in nature, at the time of the survey.

The activities undertaken during the Industrial Hygiene survey included facility descriptions, lead wipe/air sampling, evaluation of housekeeping, illumination studies, ventilation system evaluation, and a review of the physical building condition.

The Crane Readiness Center is housed in a two-story masonry building, and consists of approximately 60% administrative space, 20% Assembly Hall, and 20% Field Maintenance Shop (FMS) which is attached to the Crane Readiness Center .

Lighting levels measured throughout the facility were generally inadequate as per ANSI/IESNA RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

Wipe samples collected for lead-containing dust throughout the facility did not indicate lead levels above the ARNG action level.

No peeling lead-based paint was observed at the Crane Readiness Center during this survey.

No visible damaged friable suspect asbestos-containing material (ACM) was observed. However, damaged non-friable adhesive glue dabs (associated with ceiling tiles) were observed in the former firing range. A bulk sample of this suspect asbestos-containing material was collected for analysis and determined to be negative for asbestos content.

No visible water damaged or visible signs of mold growth were observed.

There is no Heating, Ventilation & Air Conditioning (HVAC) system in the building. Natural gas boilers feed radiant heaters throughout the building including administrative area, storage areas, and assembly hall as well as provide heat for the facilities domestic water.

1.0 Facility Description and Operations

The main section of the Crane Readiness Center, constructed in 1965, is a two-story masonry facility. The building consists of administrative area (observed on both floors) includes offices, training/classrooms, restrooms, storages rooms/areas, a kitchen and break rooms and are finished with sheetrock walls, lay-in ceiling tiles and either floor tile or carpet. The two-story Assembly/Drill Hall is finished with painted block walls and a concrete floor. The FMS facility attached to the Crane Readiness Center is operated on an as-needed basis and was locked and not in use at the time of the survey. According to site personnel there is a former firing range at the facility which is currently used as a locker room.

The primary activity at the Crane Readiness Center is routine administrative duties and occasional use by units for support and training of soldiers. The Assembly Hall is not rented out for limited civic activities. The Crane Readiness Center is currently staffed by forty personnel. Occasional vehicle maintenance activities are undertaken at the facility.

2.0 Sampling in Readiness Centers

2.1.1 Wipe Sampling

Wipe sampling for lead was conducted in the Assembly Hall and administrative areas following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost wipes. Samples were collected in areas that are not frequently cleaned and showed signs of dust whenever possible.

The following table presents the results of the lead wipe sampling conducted at the facility.

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
W – 001	Assembly Hall - table	<110 ug/ft^2
W – 002	Kitchen - counter	<110 ug/ft^2
W – 003	Office - desk top	<110 ug/ft^2
W – 004	Office - cabinet	<110 ug/ft^2
W – 005	Administration Corridor - floor	<110 ug/ft^2
W - 006	Former Firing Range – old heater vent	<110 ug/ft^2
W – 007	Former Firing Range – old bullet trap	<110 ug/ft^2
W – 008	Former Firing Range – overhead heater unit	<110 ug/ft^2

ug/ft^2 = Micrograms per square foot.

Wipe samples collected in association with the administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U. S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 ug/ft^2 for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

The wipe samples collected throughout the facility did not detect levels of lead in excess of the ARNG action level of 200 micrograms per square foot (ug/ft^2). Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

Per Non-Responsive of NGB-IH, the requirement for Lead air sampling has been removed from the Statement of Work. It was reported that historically, air samples collected at administrative facilities are typically below the limit of detection.

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls appeared to be generally in good condition. Concrete flooring was generally tiled or unpainted. AECOM did not observe damaged or peeling paint during this evaluation.

3.1.2 Suspect Asbestos Containing Materials

AECOM did not observe damaged, friable suspect asbestos containing materials (ACM) in readily accessible areas of the Crane Readiness Center during this survey. Thermal system piping is typically covered in typical fiberglass insulation with associated fittings and appeared in good condition.

AECOM did observe damaged suspect non-friable ACM in the former firing range. This suspected ACM consisted of approximately 2,000 square feet of adhesive glue dabs observed on the ceiling. The associated ceiling tiles had been removed and were not observed. A bulk sample of this suspect material was collected for analysis and determined to be negative for asbestos content. Laboratory analytical results are presented in Appendix C.

Other typical suspect miscellaneous building materials observed but not sampled include floor tiles and associated mastic, cove base and associated mastic, ceiling tiles, and window glazing compound and caulks.

3.1.3 Water Damage/Mold

AECOM did not observe evidence of water intrusion during this survey.

3.1.4 Housekeeping

The Crane Readiness Center was observed to be generally clean and orderly during this assessment. AECOM did not observe dust accumulation on readily accessible horizontal surfaces within areas commonly used in the facility.

3.1.5 Indoor Air Quality/ Ergonomics

The administration section of the building contains general office space. The administration section is generally utilized by all of the Crane Readiness Center staff members including a recruiter. No Indoor Air Quality concerns were noted by the Crane Readiness Center personnel.

Crane Readiness Center personnel did not report any ergonomics issues or concerns. Office furniture and accessories designed to promote ergonomically correct behaviors were observed.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (^{o} Fahrenheit), and relative humidity (as percentage) are presented in the following table.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (^{o}F)	Relative Humidity (%)
Outside	0.2	335	69.7	22.1
Room 106 RSD Office	1.4	1120	68.7	26.6
1st Floor Corridor	1.0	858	61.2	27.2

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (^{o}F)	Relative Humidity (%)
Room 107 PAC Office	2.2	926	65.3	38.9
Room 109 General Office	2.6	706	67.2	42.1
Room 111 Medical Office	2.6	447	68.1	33.8
Former Firing Range/Lockers	1.5	932	67.7	26.8
Stairwell	1.8	888	68.9	31.5
Room 211 Break Room	1.9	711	66.7	31.4
State Maintenance Office	1.2	910	69.3	29.0
Room 207 Storage Room	1.2	655	70.3	29.4
Room 206 Direct Ship Office	1.6	679	70.6	30.7
2nd Floor Corridor	1.8	632	70.1	29.5
Kitchen	1.4	493	64.9	28.4
Assembly Hall	1.3	636	64.5	29.2
Physical Fitness Room	1.2	716	63.6	37.3
Men's Restroom/Shower	0.8	713	64.5	39.7
Female Restroom/Shower	0.6	635	65.1	28.6
Boiler Room	0.6	631	65.9	32.4

Table 3-1 Guidelines:
Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard. OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.
Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.
Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 5.10.1).
Temperature: Winter (clothing insulation = 1.0 clo) Relative humidity 30-60% - Temp - 68 – 75°F
Summer Temp - 73 – 79°F. (Derived from ASHRAE Standard 55-2010)

4.0 Ventilation and HVAC System

4.1.1 Ventilation Systems and Potential for Contamination of Clean Air Sources

There is an attached Field Maintenance Shop (FMS) located at the Crane Readiness Center. However, since the Crane Readiness Center does not have a Heating, Ventilation & Air Conditioning (HVAC) system, no potential for contamination of clean air sources was observed at the facility.

4.1.2 HVAC Maintenance

There is no HVAC system at the Crane Readiness Center. The building is cooled by wall mounted air conditioning units in a limited number of offices/area or by open windows. Natural gas boilers feed radiant heaters throughout the remainder of the building including storage areas, the assembly hall provide heat for the facilities domestic water.

5.0 Lighting

Lighting levels in all areas were measured utilizing a Cal-Light 400 light meter that displays lighting levels in foot-candles. Lighting levels were generally inadequate.

Table 5-1: Light Survey

Location	Results – (Foot candles)	Met Standard (Y/N)	Standard*
Room 106 RSD Office	68.1	Y	50
1st Floor Corridor	43.6	Y	5
Room 107 PAC Office	61.4	Y	50
Room 109 General Office	22.4	N	50
Room 111 Medical Office	24.9	N	50
Former Firing Range/Lockers	62.6	Y	7
Stairwell	14.0	Y	5
Room 211 Break Room	39.4	Y	10
State Maintenance Office	35.4	N	50
Room 207 Storage Room	55.3	Y	10
Room 206 Direct Ship Office	82.6	Y	50
2nd Floor Corridor	27.3	Y	5
Kitchen	11.3	N	50
Assembly Hall	31.2	Y	10
Physical Fitness Room	19.2	N	30
Men's Restroom/Shower	56.7	Y	5
Female Restroom/Shower	28.8	Y	5
Boiler Room	2.9	N	30
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI/IESNA RP-7-01)			

6.0 Evaluation of Attached Garage

There is an attached Field Maintenance Shop (FMS) garage associated with the Crane Readiness Center. According to site personnel, the FMS facility generally conducts minor engine repair and brake work on an as-needed basis. The FMS garage was not in use and locked at the time of the survey.

7.0 Conclusions and Limitations

AECOM has conducted this survey in accordance with applicable OSHA methods and standard industrial hygiene practice. The following conclusions were based on the observations and assessments of activities that occurred during the on-site evaluation:

Housekeeping is performed regularly at the Crane Readiness Center.

AECOM did not observe any damaged, suspect friable asbestos-containing materials at the Crane Readiness Center. Damaged suspect non-friable asbestos-containing material was observed in the former firing range. A bulk sample of an adhesive ceiling tile glue dab was collected. According to the laboratory results the adhesive ceiling tile material was not asbestos-containing.

AECOM did not observe peeling paint during at the Crane Readiness Center.

AECOM did not observe evidence of water intrusion at the Crane Readiness Center.

Lighting levels measured throughout the facility were generally inadequate as per ANSI/IESNA RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

Wipe samples collected in association with the administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft^2 for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

AECOM provided these services consistent with the level and skill ordinarily exercised by members of the profession currently providing similar services under similar circumstances at the time the services were provided. This statement is in lieu of other statements either expressed or implied. This report is intended for the sole use of National Guard Bureau – Army National Guard. The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, and use or re-use of this document, the findings, conclusions, or recommendations is at the risk of said user.

As with all such surveys, the results of the sampling represent conditions found on the date of the survey and may not represent conditions found at other times. Additionally, this survey was limited with respect to the specific parameters indicated above and should not be construed to be a comprehensive evaluation or a definitive representation of conditions within the facility. The information presented in this report is intended to be used as a guide to evaluate the need for further investigation or the need for modifications to the processes or procedures surveyed.

The Client recognizes and agrees that all testing and remediation methods have reliability limitations, no method nor number of sampling locations can guarantee that a condition will be discovered within the performance of the services as authorized by the Client. Additionally, the passage of time may result in a change in the environmental characteristics at this site. This report does not warrant against future operations or conditions that could affect the recommendations made. The results, findings, conclusions, and recommendations expressed in this report are based only on conditions that were observed during AECOM's inspection of the site.

Appendix A

Crane Readiness Center Facility Layout

AECOM

1st FLOOR FIRE EVACUATION DIAGRAM – Crane Armory, Pittsburgh, PA 15216

1. First person to identify fire will immediately activate fire alarm.

2. Attempts to extinguish fire will be accomplished as personnel are evacuated from the building if means are available.

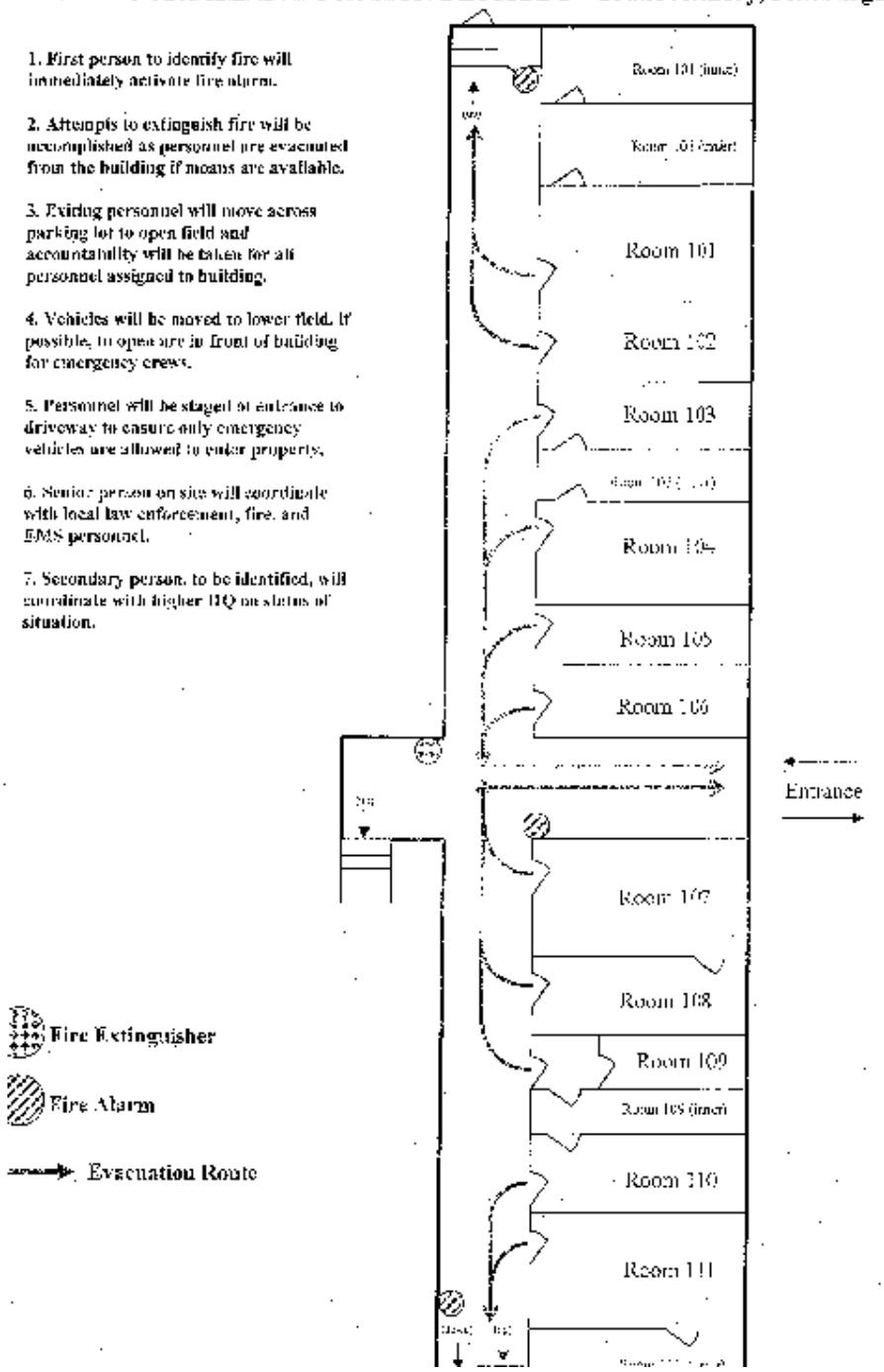
3. Exiting personnel will move across parking lot to open field and accountability will be taken for all personnel assigned to building.

4. Vehicles will be moved to lower field, if possible, to open area in front of building for emergency crews.

5. Personnel will be staged at entrance to driveway to ensure only emergency vehicles are allowed to enter property.

6. Senior person on site will coordinate with local law enforcement, fire, and EMS personnel.

7. Secondary person, to be identified, will coordinate with higher HQ on status of situation.



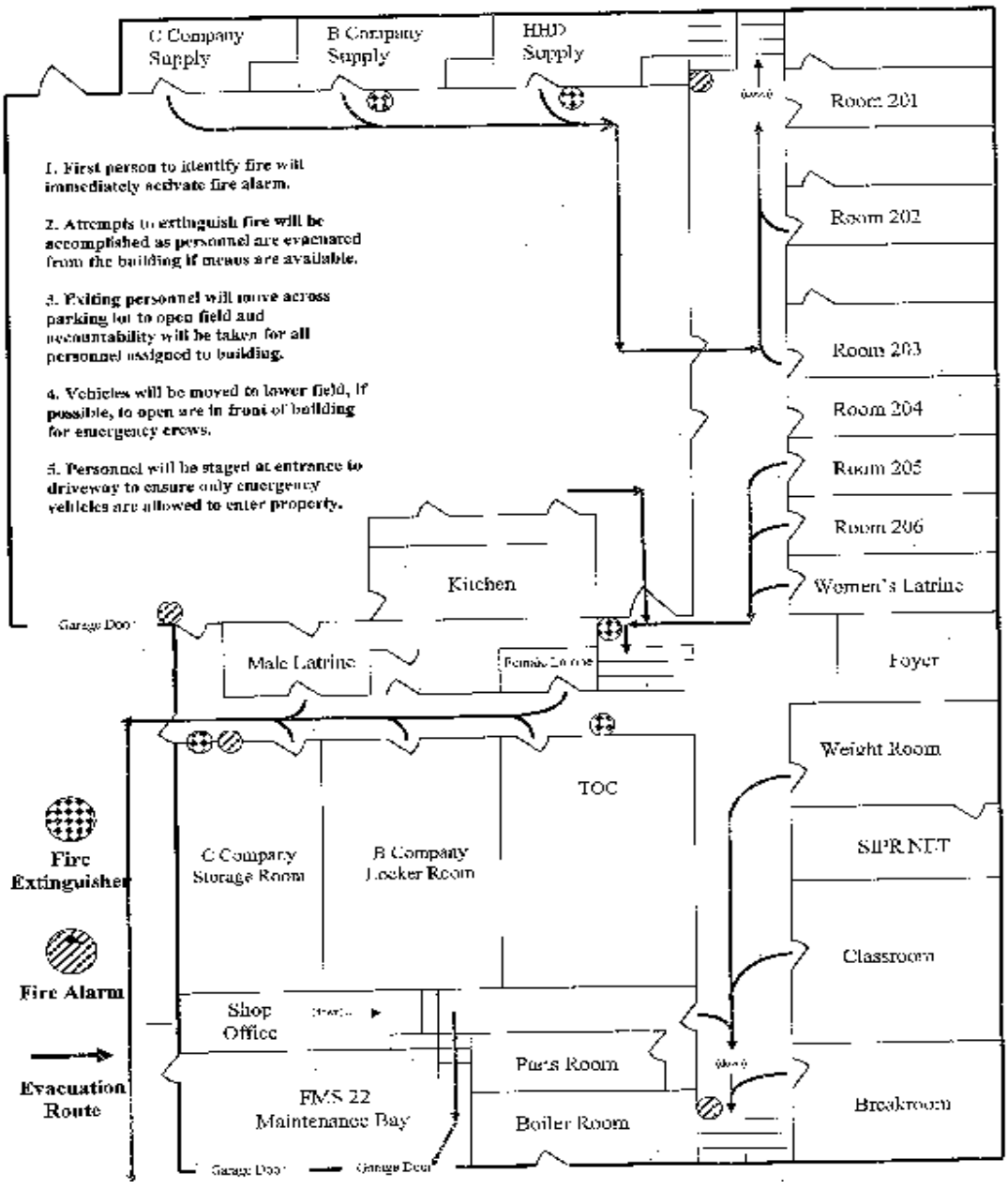
Fire Extinguisher

Fire Alarm

Evacuation Route

AECOM

2nd FLOOR FIRE EVACCATION DIAGRAM – Crane Armory, Pittsburgh, PA 15216



Appendix B

Crane Readiness Center Photographs

Photograph 1

View of Building Exterior
Photograph 2

View of Adjoining Fleet Maintenance Shop in Rear of Site Building

Photograph 3

View of Administrative Corridor

Photograph 4

View of Assembly Hall

Photograph 5

View of Caged Storage and Lockers in Assembly Hall

Photograph 6

View of Typical Office

AECOM

Photograph 7

View of Break Room

Photograph 8

View of Wall-Mounted Air Conditioning Unit in Typical Office

Photograph 9

View of Physical Fitness Room in Assembly Hall

Photograph 10

View of Kitchen

Photograph 11

View of Flammable Storage Cabinets in Service bay

Photograph 12

View of Locker Room in Former Firing Range

Photograph 13

View of Old Heating System in Former Firing Range

Photograph 14

View of Damaged Ceiling Tile Adhesive in Former Fire Range

Appendix C

Analytical Results

AECOM

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	Pittsburgh Crane	Chain Of Custody:	514659		
Address:	301-81 Old Bay Lane, Attn: ATZM-CXG-P, State Military Reservation	Job Location:	Not Provided	Date Submitted:	11/30/2012		
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM		
		P.O. Number:	W912R6-09-A-0010	Date Analyzed:	12/6/2012	Report Date:	12/7/2012
Attention:	Non-Responsive						

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	Total ug	Final Result	Comments
L3018754	W-001	Flame	Wipe	****	0.111	10 ug/ft²	<12	<10 ug/ft²	
L3018755	W-002	Flame	Wipe	****	0.111	10 ug/ft²	<12	<10 ug/ft²	
L3018756	W-003	Flame	Wipe	****	0.111	10 ug/ft²	<12	<10 ug/ft²	
L3018757	W-004	Flame	Wipe	****	0.111	10 ug/ft²	<12	<10 ug/ft²	
L3018758	W-005	Flame	Wipe	****	0.111	10 ug/ft²	<12	<10 ug/ft²	
L3018759	W-006	Flame	Wipe	****	0.111	10 ug/ft²	12	100 ug/ft²	
L3018760	W-007	Flame	Wipe	****	0.111	10 ug/ft²	<12	<10 ug/ft²	
L3018761	W-008	Flame	Wipe	****	0.111	10 ug/ft²	<12	<10 ug/ft²	

An AIHA (#101470) and NY ELAP (#10920) Accredited Laboratory

4475 Forbes Blvd. · Lanham, MD. 20706 · (301) 459-3640 · Toll Free (800) 346-0961 · Fax (301) 459-2643

AECOM

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	Pittsburgh-Coraopolis	Chain Of Custody:	514659		
Address:	301-81 Old Bay Line, Attn: ARNG-CIG-P, State Military Reservation	Job Location:	Not Provided	Date Submitted:	11/30/2012		
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM		
		P.O. Number:	W912S6-09-A-0003	Date Analyzed:	12/6/2012	Report Date:	12/7/2012

Attention: Non-Responsive

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (SF)	Reporting Limit	Total ug	Final Result	Comments

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B

N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)

%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)

Note: All samples were received in good condition unless otherwise noted.

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results

Final results for air and wipe samples are based on client supplied information nor verified by this laboratory.

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

See QC Summary for analytical results of quality control samples associated with these samples.

Analyst: Non-Responsive

Technical Manager: Non-Responsive

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AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

NY ELAP
10920

CERTIFICATE OF ANALYSIS

Client:	National Guard Bureau	Job Name:	Pittsburg-Crane	Chain of Custody:	514619
Address:	301-81 Old Bay Line, Attn: ARNG-CIC-P, State Military Reservation	Job Location:	Not Provided	Date Analyzed:	12/7/2012
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM
		P.O. Number:	W912SI-03-A-0010		

Attention: Non-Responsive

Summary of Asbestos Analysis of Non-Friable Organically Bound (NOB) Bulk Samples

AMA Sample Number	Client Sample #	Sample Type *	% Total Asbestos **	% Asbestos by PLM ***	% Asbestos by TEM ***	Type(s) of Asbestos	% Organics	% Acid Soluble	% Other	Material Type	Sample Color	Comments
E8018762	Bulk-101	Whole	NAD	N/A	NAD		54.7%	N/A	45.3%	Glue	Brown	

* Whole = Whole sample submitted and gravimetric reduction performed by AMA Analytical Services Residue = Gravimetric reduction of sample performed by client and residue only submitted for analysis.

** NAD = "No Asbestos Detected" TR = "Trace equals less than 1% of this component"

*** PLM = Polarized Light Microscopy after gravimetric reduction (NY ELAP Method 198.6) TEM = Transmission Electron Microscopy after gravimetric reduction (NY ELAP Method 198.4)

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

Technical Director Non-Responsiv

Analyst(s) Non-Responsive

NY ELAP (10920) Accredited Laboratory

4475 Forbes Blvd. - Lanham, MD, 20706 - (301) 459-3640 - Toll Free (800) 346-0961 - Fax (301) 459-3643

AECOM

AMA Analytical Services, Inc.
Focused on Results www.amalab.com
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4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This Number For Inquiries)

514659

Mailing/Billing Information:
1. Client Name: National Guard Bureau
2. Address 1: 301-IH Old Bay Lane
3. Address 2: Attn: NGB-AVN-SI, State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:
(1) (Job Name) Pittsburgh-Crane
(2) (Job Location)
3. Job #: P.O. #: W9124B-09-A-0003
4. Contact Person: [redacted] @ phone #
5. Submitted by: AECOM (Signature)

Reporting Info (Results provided as soon as technically feasible). If no TAT/Reporting Info is provided, AMA will assign defaults of 5-Day and email/fax to contacts on file.

AFTER HOURS (must be pre-scheduled): ☐ Immediate Date Due: ☐ 24 Hour Time Due: Comments:
NORMAL BUSINESS HOURS: ☐ Immediate ☐ Next Day ☐ 2 Day ☐ 3 Day ☒ 5 Day - (date) 12/7/12 ☐ Results Requested By Noon
REPORT TO: ☒ Include COC/Field Data Sheets with Report ☒ Email [redacted]

Asbestos Analysis
*PCM Air - Please Indicate Filter Type: ☐ NIOSH 7400 ___ (QTY) ☐ Fiberglass ___ (QTY)
TEM Air* - Please Indicate Filter Type: ☐ AHERA ___ (QTY) ☐ NIOSH 7402 ___ (QTY) ☐ Other (specify ___) ___ (QTY)
PLM Bulk: ☐ EPA 600 - Visual Estimate ___ (QTY) ☐ EPA Point Count ___ (QTY) ☐ NY State Friable 198.1 ___ (QTY) ☐ Grav. Reduction ELAP 198.6 ___ (QTY) ☐ Other (specify ___) ___ (QTY)
MISC: ☐ Vermiculite ☐ Asbestos Soil: PLM ___ (Qual) PLM ___ (Quant) PLM/TEM ___ (Qual) PLM/TEM ___ (Quant)
*Lab recommends that blank samples be submitted with all air samples

TEM Bulk: ☒ ELAP 198.4/Chatfield 1 (QTY) ☐ NY State PLM/TEM ___ (QTY) ☐ Residual Ash ___ (QTY)
TEM Dust*: ☐ Qual. (presence/absence) Vacuum/Dust ___ (QTY) ☐ Quan. (s/area) Vacuum D5755-95 ___ (QTY) ☐ Quan. (s/area) Dust D6480-99 ___ (QTY)
TEM Water: ☐ Qual. (presence) ___ (QTY) ☐ ELAP 198.2/EPA 100.2 ___ (QTY) ☐ EPA 100.1 ___ (QTY)

☑ All samples received in good condition unless otherwise noted. (TEM Water samples ___ °C)
If field data sheets are submitted, there is no need to complete bottom section.

Metals Analysis: ☐ Pb Paint Chip ___ (QTY) ☒ *Pb Dust Wipe (wipe type: ___) 1 + 8 (QTY) ☐ *Pb Air ___ (QTY) ☐ Pb Soil/Solid ___ (QTY) ☐ Pb TCLP ___ (QTY) ☐ Drinking Water ☐ Pb ___ (QTY) ☐ Cu ___ (QTY) ☐ As ___ (QTY) ☐ Waste Water ☐ Pb ___ (QTY) ☐ Cu ___ (QTY) ☐ As ___ (QTY) ☐ Pb Pressure (Media ___) ___ (QTY)
Fungal Analysis: Collection Apparatus for Spore Trap/Air Sampler: Collection Media: ☐ *Spore Trap ___ (QTY) ☐ *Surface Swab ___ (QTY) ☐ *Surface Tape ___ (QTY) ☐ Other (Specify ___) ___ (QTY) ☐ Surface Vacuum Dust ___ (QTY) ☐ Culturable ID Genus (Media ___) ___ (QTY) ☐ Culturable ID Species (Media ___) ___ (QTY)

CLIENT ID #	SAMPLE INFORMATION SAMPLE LOCATION/ID	DATE/TIME	VOL (L)/Wipe Area	TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
W-001	D. Hall Table	11/7	Negin				X								
W-002	kitchen counter	↓	↓				↓								
W-003	office desk														
	SEE ATTACHED FIELD DATA SHEETS														
W-004	office cabinet														
W-005	Foyer floor	✓	✓				✓								
W-006	F.Range-Heat Vent														
W-007	F.Range-P/floor														
W-008	F.Range-Heat Vent	↓	↓				↓								
Bulk-001	Ceiling Tile Glue dab	11/7		X						X					

CLIENT CONTACT (LABORATORY STAFF ONLY)
Date/Time: Contact: By:
Date/Time: Contact: By:
Date/Time: Contact: By:

LABORATORY STAFF ONLY: (CUSTODY)
1. Date/Time RCVD: 11 / 30 / 12 @ 1000 Via FEDEX By (Print) [redacted]
2. Date/Time Analyzed: ___ / ___ / ___ @ ___ By (Print)
3. Results Reported To ___ Via ___ Date ___ / ___ / ___ Time ___ Initials
4. Comments: 7941 7694 5331

Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. http://www.osha.gov/comp-links.html

2. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998. http://www.dtic.mil/whs/directives/corres/pdf/605501p.pdf

3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF

4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://armypubs.army.mil/epubs/pdf/R40_5.PDF

5. AR 385-10, The Army Safety Program, 23 August 2007; Rapid Action Revision (RAR) issue date: 4 October 2011. http://armypubs.army.mil/epubs/pdf/R385_10.PDF

6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://armypubs.army.mil/epubs/pdf/P40_501.pdf

7. DA PAM 40-11, Preventive Medicine, 22 July 2005, RAR issue date: 19 October 2009. http://armypubs.army.mil/epubs/pdf/p40_11.pdf

8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://armypubs.army.mil/epubs/pdf/P40_503.PDF

9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf

10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current Ed.

11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.

12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.

13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.

14. ANSI/ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality.

15. RP-1-2004, Office Lighting, ANSI/IESNA.

16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.

17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.

18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.

19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf

Industrial Hygiene Survey

HHB DET 1/107th FA
BTRY C 1/107TH FA
SVC BTRY 1/107TH
BTRY D 1/229TH FA

EMERSON STREET
PITTSBURGH, PENNSYLVANIA

June 6, 2003

OPTECH

OPERATIONAL TECHNOLOGIES
CORPORATION

RECOMMENDATIONS

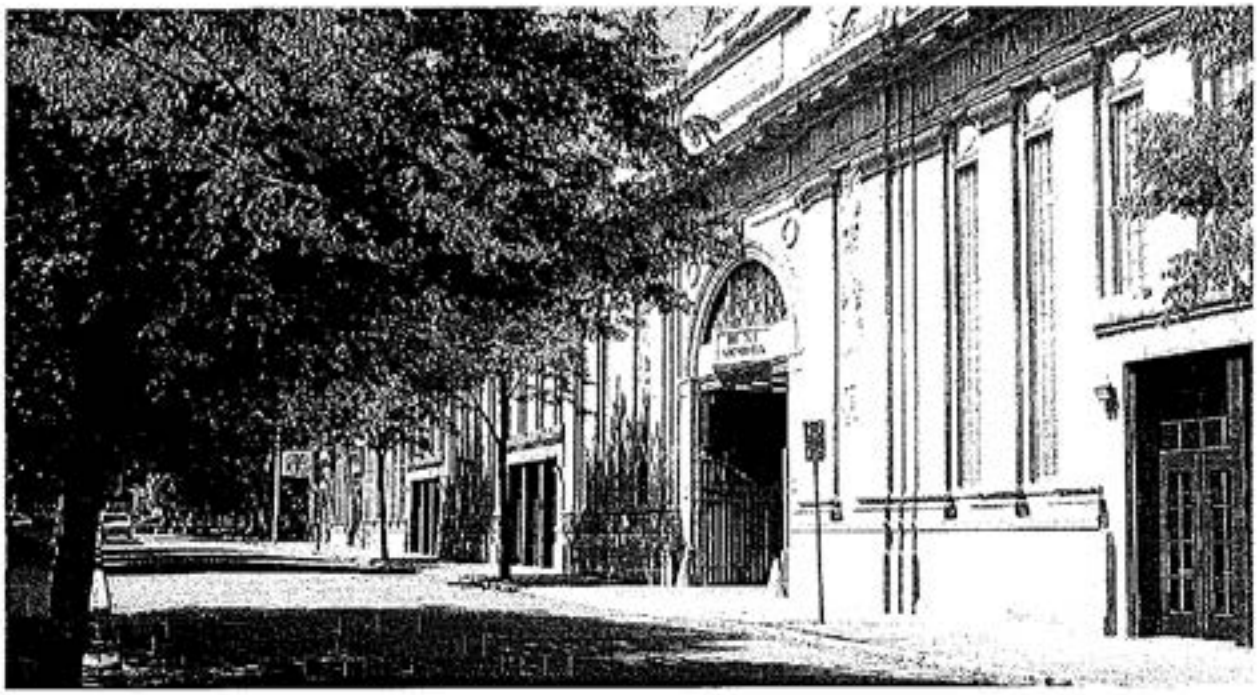
1. ILLUMINATION

1.1. Levels were slightly below recommended minimum standards in all but one area of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3. LEAD

3.1. Seven of the ten swipe inorganic lead samples collected throughout the facility exceeded the 200 $\mu g/ft^2$ criterion. All five samples collected in the former indoor firing range also exceeded the criterion. The source of lead contamination is from the indoor firing range activities and possibly from lead paint. The range was scheduled for clean up just after completion of this survey. Recommend that the range and surrounding areas be re-tested after the range is cleaned. Also recommend that the facility be cleaned by wet-wiping/mopping and/or cleaned by a high efficiency particulate air (HEPA) vacuum. This method of cleaning should be repeated during routine cleaning duties.

INDUSTRIAL HYGIENE SURVEY
HHB DET 1/107th FA
BTRY C 1/107TH FA
SVC BTRY 1/107TH
BTRY D 1/229TH FA
EMERSON STREET
PITTSBURGH, PENNSYLVANIA



1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Emerson Street Armory in Pittsburgh, Pennsylvania on June 06, 2003. The NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. [redacted] from OpTech, completed this survey. [redacted] a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the IH Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D.

2.0. EXECUTIVE SUMMARY

2.1. No indoor air quality problems were noted.

2.2. Illumination levels were below recommended minimum standards in most areas of the facility.

2.3. Wipe samples for inorganic lead were collected. Seven of the ten swipe samples in the facility exceeded the 200 $\mu g/ft^2$ criterion. All five samples collected in the former firing range also exceeded the criterion. The source of lead contamination is from indoor firing range activities and possibly from lead paint. The range was scheduled for clean up just after completion of this survey.

2.4. Air sampling for inorganic lead was collected. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	**HHB DET 1107TH FA**		
	BTRY C 1/107TH FA		
	SVC BTRY 1/107TH		
	BTRY D 1/229TH FA		
ADDRESS	**324 Emerson Street**		
	Pittsburg, PA 15206		
CONTACT	**1SG** [redacted]		
PHONE	**412-204-8015**		
DATE BUILT	**1912**	**FACILITY SIZE**	**38,110 sq. ft.**
INDOOR FIRING RANGE	**CLOSED**		**2-floors plus basement**
ASSISTED			
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	**35**		
TRADITIONAL (MIL)	**250**		
CHILD ACTIVITIES	**This facility houses the distant learning center.**		
ADULT ACTIVITIES			

3.1.1. The exterior is cement and stone and appears to be in good condition. The interior is in good condition. The facility is heated by a steam boiler and cooled by window air conditioning units. Asbestos is present in steam pipe insulation.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity (RH) in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 Indoor Air Quality Standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ASHRAE 62-2001, Section 6.1.3, states that concentrations up to 700 ppm CO_2 above outdoor concentrations will achieve an acceptable level of indoor air quality.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ASHRAE 55-1992 recommends that temperature ranges be 73 to 79 degrees Fahrenheit (°F) during the summer and 68 to 74°F during the winter. Relative humidity levels be maintained between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE 1
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO_2 (ppm)	Temp. (°F)	RH (%)
1145	Outdoors Background	0.0	452	86.6	66.4
1210	Basement Hallway	0.0	492	73.1	63.1
1213	Former Indoor Range Area	0.0	495	70.1	60.2
1217	Shower Room (basement)	0.0	505	72.3	58.4
1220	Kitchen	0.0	480	72.1	56.2
1223	Assembly Hall	0.0	478	73.4	57.6
1227	Male Latrine	0.0	481	73.6	58.1
1231	Maintenance Area	0.0	505	74.1	56.2
1234	Dinning Hall	0.0	496	75.4	58.4
1239	Break Room	0.0	481	76.6	54.0

TIME	AREA	CO (ppm)	CO2 (ppm)	Temp. (°F)	RH (%)
1244	Room A 203	0.0	477	73.1	56.6
1248	Room A 210	0.0	515	74.5	56.1
1250	Hallway	0.0	505	73.2	58.2
1255	Stairwell	0.0	510	73.2	59.1
1259	Female Latrine	0.0	498	73.1	58.1
1303	Classroom	0.0	498	74.4	57.2
1306	Lobby	0.0	476	76.4	56.4

3.2.5. No indoor air quality problems were noted. Carbon monoxide, carbon dioxide, temperature and relative humidity were within recommended ranges.

3.3. ILLUMINATION

3.3.1. Illumination levels were measured in most areas of the facility. Outdoor sunlight was excluded, as much as possible for this survey, by closing doors and blocking sunlight. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 - 463). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
Kitchen	40 – 52	48	75	NO
Male Latrine	38 – 44	41	40	YES
Classroom	40 – 48	45	70	NO
Female Latrine	36 - 42	40	40	YES
Assembly Hall	32 - 40	36	75	NO
Locker Room	32 – 42	38	40	NO
Classroom	32 – 58	46	70	NO
Former Range	20 - 40	31	40	NO

3.3.2. Levels were below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3.4. WIPE SAMPLES

3.4.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples were taken at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot ($\mu g/ft^2$) and are listed in Table 3. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead ($\mu g/ft^2$)
PA Pit-03157-03	Latrine – Pipe	69
PA Pit-03157-04	Hallway Window Sill	397
PA Pit-03157-05	Break Room – Desk Top	134
PA Pit-03157-06	Kitchen – Vent	1,191
PA Pit-03157-07	Maintenance Area – end	2,800
PA Pit-03157-08	BLANK Sample	BDL

$\mu g/ft^2$ = micrograms per square foot BDL = Below Detection Limits

3.4.2. Additional wipe samples were collected during this survey. These samples were collected to further analyze the extent of contamination should the first five samples indicate a possible hazard. Since the samples taken in hallway, kitchen and maintenance area exceeded the 200 $\mu g/ft^2$ criterion (see Section 3.4.4 below), these additional samples were analyzed. The results are presented in Table 4.

TABLE 4
ADDITIONAL WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead ($\mu g/ft^2$)
PA Pit-03157-09	Latrine – End Radiator	650
PA Pit-03157-10	Assembly Hall – South End	3,800
PA Pit-03157-11	Assembly Hall – North End	2,400
PA Pit-03157-12	Break Room – Window Sill	350
PA Pit-03157-13	1st Floor – Hallway Cage	440
PA Pit-03157-14	BLANK Sample	BDL

$\mu g/ft^2$ = micrograms per square foot BDL = Below Detection Limits

3.4.3. CLOSED FIRING RANGE WIPE SAMPLING

3.4.3.1. Additional wipe samples were collected in the former indoors firing range. This area is presently being utilized for storage. The range is scheduled for clean-up later in June 2003. The laboratory analysis results are listed below in Table 5.

TABLE 5
FORMER FIRING RANGE WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Pit-03157-15	Top of Pipe	1,582
PA Pit-03157-16	Shelf Rack	489
PA Pit-03157-17	Stair Step	2,000
PA Pit-03157-18	Pipe Inside range	2,245
PA Pit-03157-19	Wall	1,991
PA Pit-03157-20	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.4. WIPE SAMPLING RESULTS

3.4.4.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 µg/ft². This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. (See memorandum in Attachment E, Recommendations for Surface Lead Dust in Armories.) All five samples collected in the former firing range exceeded the criterion along with most samples throughout the facility. In the former range, the source of lead contamination is from firing range activities. Apparently lead from the range has migrated throughout the facility. Also since the facility was constructed in 1912, lead paint is suspected in the facility. The range was scheduled for clean up just after completion of this survey.

3.4.5. AIR SAMPLING

3.4.5.1. Air Sampling for inorganic lead was performed during this survey. Table 6 lists the results of these samples, and is reported in milligrams per cubic meter (mg/m³) of air.

TABLE 6
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
Non-[redacted]	PA Pit-03157-01	Lead	<0.003 mg/m³	0.05 mg/m³	YES
Area – Kitchen	PA Pit-03157-02	Lead	<0.003 mg/m³	0.05 mg/m³	YES

mg/m³ = milligrams per cubic meter < = less than (below detection limits)

3.4.5.2. Air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this building.

3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION DAMAGE

3.5.1.1. There was no visible water intrusion damage to the facility.

3.5.2. LEAD PAINT

3.5.2.1. No peeling paint was observed and no samples were taken.

3.5.3. ASBESTOS

3.5.3.1. Personnel stated that steam pipe elbow joints may contain asbestos. All suspected areas were in good condition and no samples were taken.

3.5.4. PROGRAMS

3.5.4.1. There are no designated confined space areas within this facility. There are no exhaust ventilation systems to control a hazard. No chemicals besides normal cleaning materials are present. Therefore, a need has not been established for a HAZCOM program, the need for personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.5. HOUSEKEEPING

3.5.5.1. The facility is kept impressively clean and orderly.

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

E – Recommendations for Surface Lead in Armories

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
Pittsburgh, PA	PENNSYLVANIA ARNG ARMORY	Emerson St. Armory

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR (Initials)
6 June 2003	JSS

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	NA	[redacted] Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
412-204-8015	107TH FA	2	9

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
35	250			

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	CONROLS 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			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	½ FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	¼ 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 WEATHR 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	/		

AEHA Form 271-R (Test), 1 Jan 92 (HSHB-MI-I)

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	2	a

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

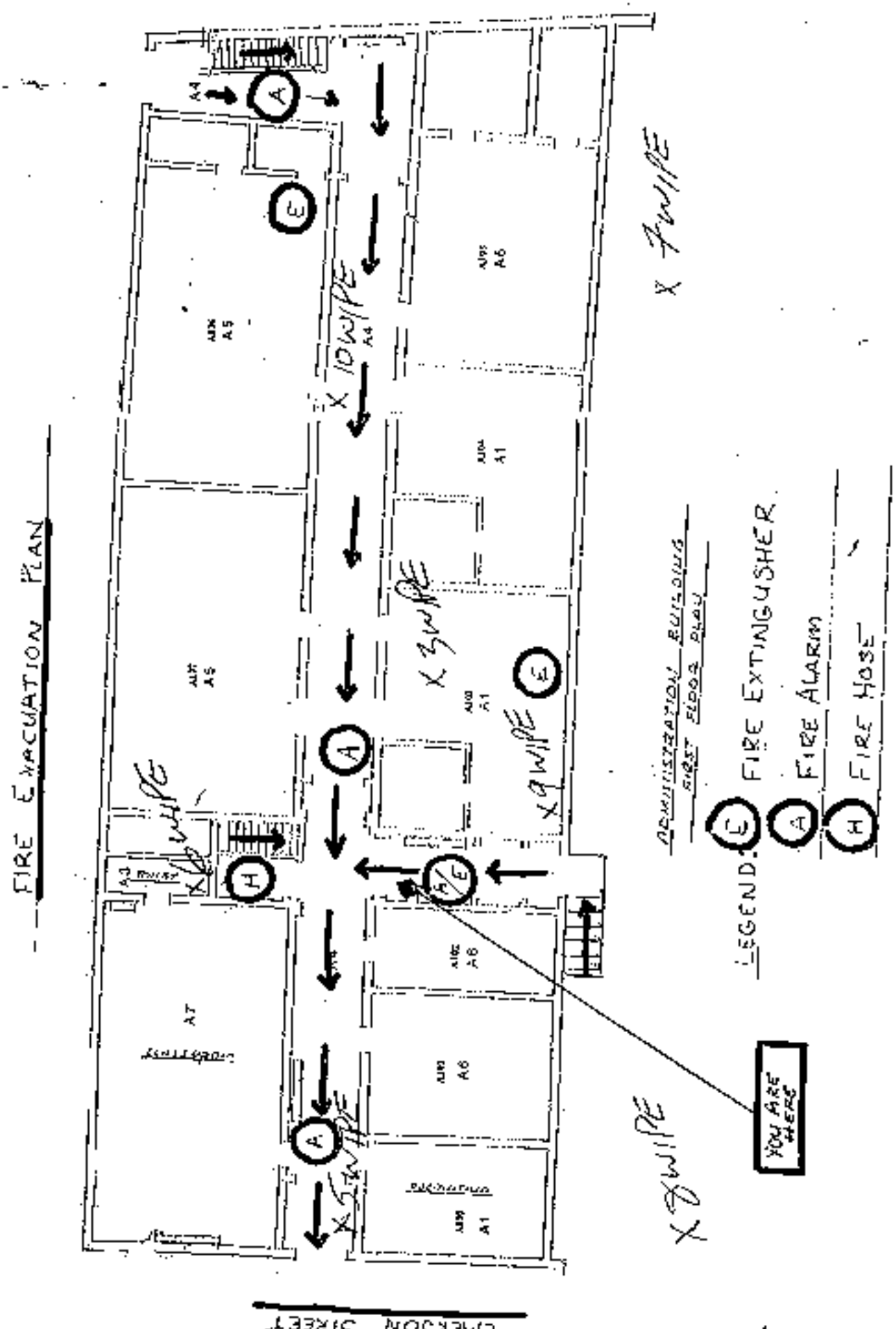
SECTION 6. COMMENTS

☐ No comments ☐ See attached sheet

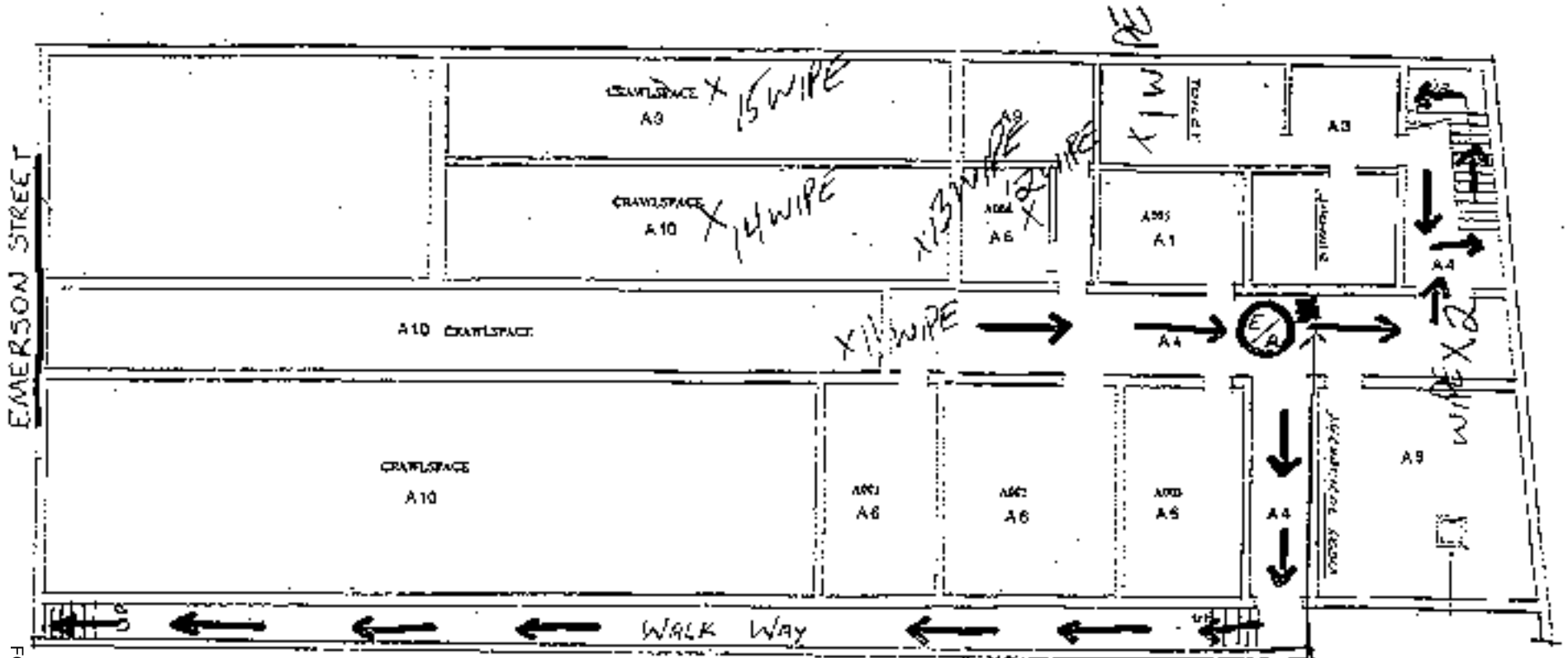
PRIVACY ACT STATEMENT

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

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



FIRE EVACUATION PLAN

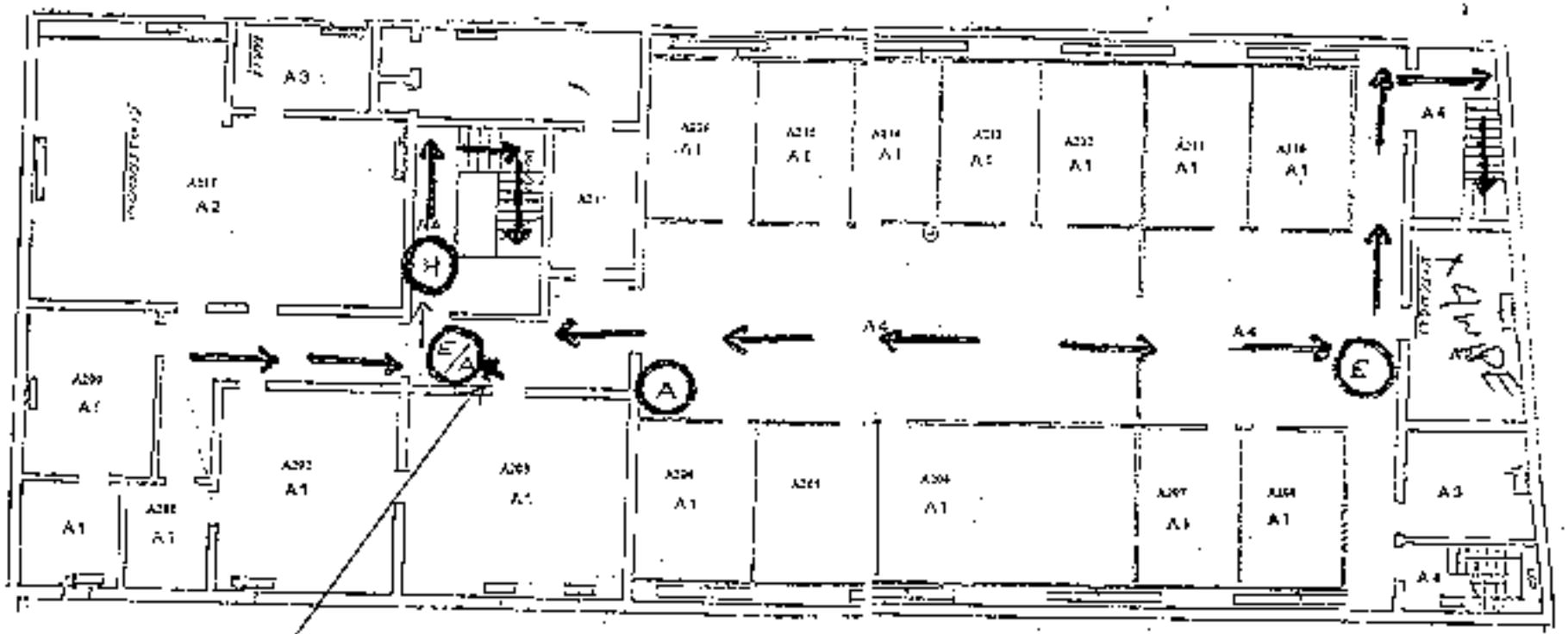


ADMINISTRATION BUILDING
BASEMENT PLAN

LEGEND: E = FIRE EXTINGUISHER
A = FIRE ALARM
H = FIRE HOSE

YOU ARE HERE

FIRE EXIT PLAN



ADMINISTRATION BUILDING
SECOND FLOOR PLAN

YOU ARE HERE

LEGEND: (E) = FIRE EXTINGUISHER

(A) = FIRE ALARM

(H) = FIRE HOSE

EMERSON STREET ARMORY
PITTSBURGH, PENNSYLVANIA
WIPE SAMPLING POINTS

(1) PA Pit-03157-03
Basement - Latrine

(2) PA Pit-03157-04
Hallway - Window Sill

(3) PA Pit-03157-05
Break Room

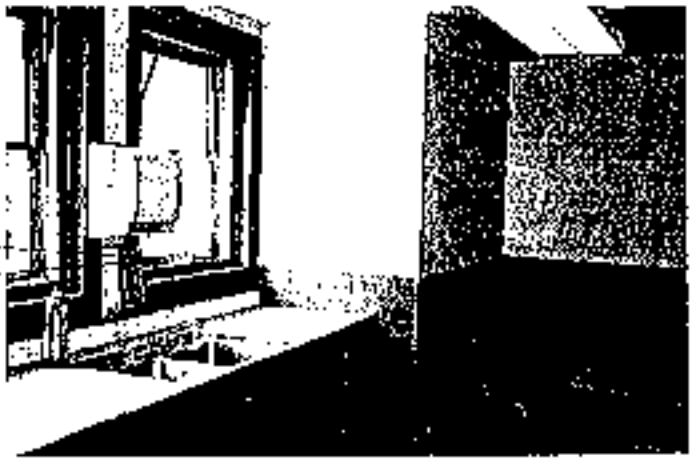
(4) PA Pit-03157-06
Kitchen – Return Air Grille

(5) PA Pit-03157-07
Maintenance Area

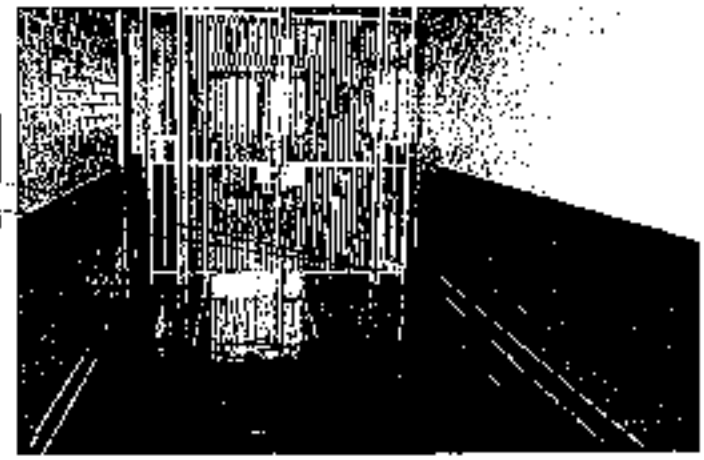
ADDITIONAL SAMPLES

(7) PA Pit-03157-10
Assembly Hall – S. End

(9) PA Pit-03157-12
Break Room

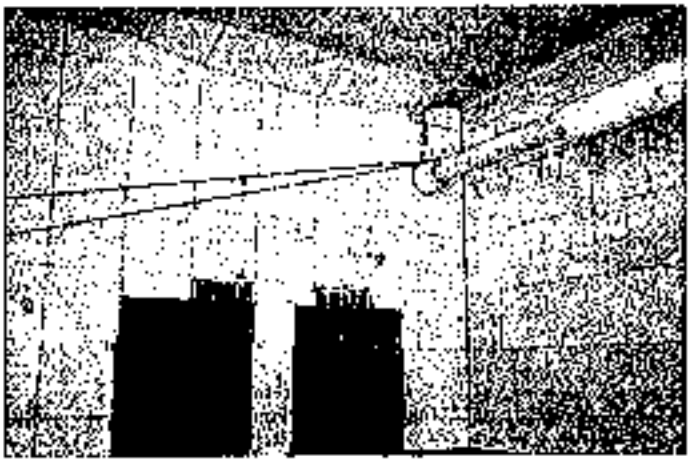


(10) PA Pit-03157-13
1st Floor – Hallway



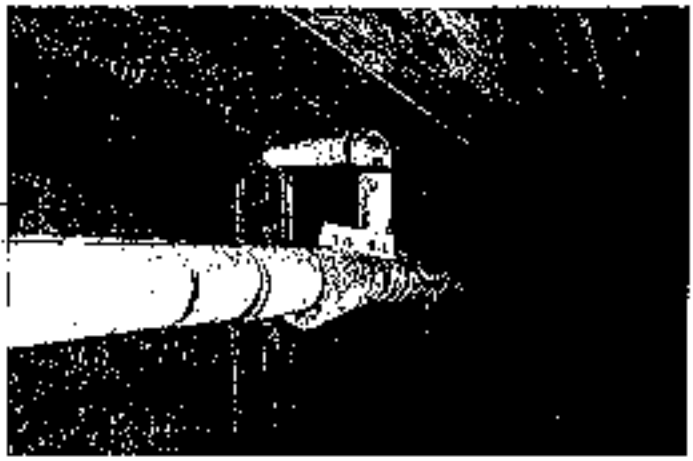
FORMER INDOOR FIRING RANGE SAMPLES

(11) PA Pit-03157-15
Former Range
Pipe Behind Firing Line

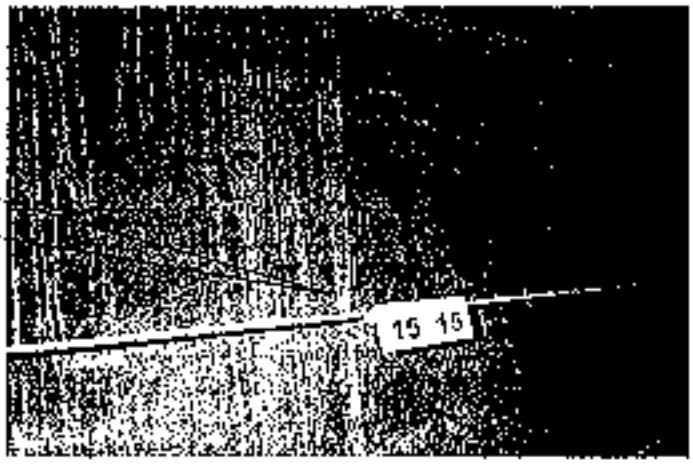


(13) PA Pit-03157-17
Former Range
Stored Equipment

(14) PA Pit-03157-18
Former Range
Pipe In Crawl Space



(15) PA Pit-03157-19
Former Range
Pipe In Crawl Space



RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
AIHA Certificate of Accreditation #480 LAP ID 101533

TABLE I. ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	RES 94604-1
Client:	Operational Technologies, Corp.
Client Project Number / P.O.:	06 03
Client Project Description:	Armories/Pennsylvania
Date Samples Received:	June 24, 2003
Analysis Type:	USEPA SW846 3050B / AA(7420)
Turnaround:	3-5 Day
Date Samples Analyzed:	July 1, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA Pit-03157-03	EM 787933	0.11	7.6	23	69
PA Pit-03157-04	EM 787934	0.11	43.7	23	397
PA Pit-03157-05	EM 787935	0.11	14.7	23	134
PA Pit-03157-06	EM 787936	0.11	131.0	23	1192
PA Pit-03157-07	EM 787937	0.11	308.0	23	2800
PA Pit-03157-08	EM 787938	0.11	BDL	23	BDL
PA Pit-03157-015	EM 787939	0.11	174.0	23	1582
PA Pit-03157-016	EM 787940	0.11	53.8	23	489
PA Pit-03157-017	EM 787941	0.11	220.0	23	2000
PA Pit-03157-018	EM 787942	0.11	247.0	23	2245
PA Pit-03157-019	EM 787943	0.11	219.0	23	1991
PA Pit-03157-020	EM 787944	0.11	BDL	23	BDL
PA Pit-03157-24	EM 787945	0.11	6.3	23	57
PA Pit-03157-25	EM 787946	0.11	7.7	23	70
PA Pit-03157-26	EM 787947	0.11	BDL	23	BDL
PA Pit-03157-27	EM 787948	0.11	14.0	23	127
PA Pit-03157-28	EM 787949	0.11	8.6	23	78
PA Pit-03157-29	EM 787950	0.11	BDL	23	BDL
PA Wit-03161-03	EM 787951	0.11	6.3	23	57
PA Wit-03161-04	EM 787952	0.11	BDL	23	BDL
PA Wit-03161-05	EM 787953	0.11	8.2	23	75
PA Wit-03161-06	EM 787954	0.11	7.8	23	71
PA Wit-03161-07	EM 787955	0.11	BDL	23	BDL
PA Wit-03161-08	EM 787956	0.11	BDL	23	BDL
PA New-03161-24	EM 787957	0.11	BDL	23	BDL
PA New-03161-25	EM 787958	0.11	BDL	23	BDL
PA New-03161-26	EM 787959	0.11	2.7	23	25
PA New-03161-27	EM 787960	0.11	2.7	23	25
PA New-03161-28	EM 787961	0.11	BDL	23	BDL
PA New-03161-29	EM 787962	0.11	BDL	23	BDL

BDL - Below Detection Limit

Data Qa

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client:	National Guard Bureau	**Job Name:**	Pennsylvania Armories-Pittsburg Crane Ave.	**Chain Of Custody:**	117546
Address:	301-Bl Old Bay Lane, Attn: NGB-AVN-SL State Military Reservation	**Job Location:**	Emerson Street	**Date Analyzed:**	9/22/2003
	Havre de Grace, Maryland 21078	**Job Number:**	Not Provided	**Person Submitting:**	[redacted]
		P.O. Number:	Not Provided	**Report Date:**	22-Sep-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
0367518	PA-Pit-03156-30	Flame	Wipe	****	0.111	108.01	ug/ft²	< 110	ug/ft²	
0367519	PA-Pit-03156-31	Flame	Wipe	****	0.111	108.01	ug/ft²	< 110	ug/ft²	
0367520	PA-Pit-03156-32	Flame	Wipe	****	0.111	108.01	ug/ft²	240	ug/ft²	
0367521	PA-Pit-03156-33	Flame	Wipe	****	0.111	108.01	ug/ft²	160	ug/ft²	
0367522	PA-Pit-03156-34	Flame	Wipe	****	0.111	108.01	ug/ft²	1300	ug/ft²	
0367523	PA-Pit-03156-35	Flame	Wipe	****	0.111	108.01	ug/ft²	< 110	ug/ft²	
0367524	PA-Pit-03157-09	Flame	Wipe	****	0.111	108.01	ug/ft²	650	ug/ft²	
0367525	PA-Pit-03157-10	Flame	Wipe	****	0.111	108.01	ug/ft²	3800	ug/ft²	
0367526	PA-Pit-03157-11	Flame	Wipe	****	0.111	108.01	ug/ft²	2400	ug/ft²	
0367527	PA-Pit-03157-12	Flame	Wipe	****	0.111	108.01	ug/ft²	350	ug/ft²	
0367528	PA-Pit-03157-13	Flame	Wipe	****	0.111	108.01	ug/ft²	440	ug/ft²	
0367529	PA-Pit-03157-14	Flame	Wipe	****	0.111	108.01	ug/ft²	< 110	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.

Analy[redacted] Chnical Manager: [redacted]

An AIHA (#8863), NVLAP (# 101143), & New York ELAP (#10920) Accredited Laboratory

4475 Forbes Blvd. - Lanham, MD 20706 - (301) 459-2640 - Toll Free (800) 346-0961 - Fax (301) 459-2643

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m³
PA Her-03154-01	03-20664	370.5	ND	<0.003
PA Her-03154-02	03-20665	382.4	ND	<0.003
PA New-03154-22	03-20666	465.6	ND	<0.002
PA New-03154-23	03-20667	450.1	ND	<0.002
PA Cor 03155-01	03-20668	305.5	ND	<0.003
PA Cor 03155-02	03-20669	292.0	ND	<0.003
PA Bea-03156-01	03-20670	312.3	ND	<0.003
PA Bea-03156-02	03-20671	294.7	ND	<0.003
PA Pit-03156-22	03-20672	263.9	ND	<0.004
PA Pit-03156-23	03-20673	247.1	ND	<0.004
PA Pit-03157-01	03-20674	384.5	ND	<0.003
PA Pit-03157-02	03-20675	380.9	ND	<0.003
PA Pit-03157-22	03-20676	421.3	ND	<0.002
PA Pit-03157-23	03-20677	404.6	ND	<0.002
PA Wil-03161-01	03-20678	445.6	ND	<0.002
PA Wil-03161-02	03-20679	437.2	ND	<0.002
PA New-03161-22	03-20680	148.1	ND	<0.007
PA New-03161-23	03-20681	139.1	ND	<0.007
PA Car-03161-37	03-20682	248.3	ND	<0.004
PA Car-03161-38	03-20683	240.0	ND	<0.004
	Prep Blank		ND	
% Recovery	LCS 1		97.	
% Recovery	LCS 2		99.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive [redacted]

Analyst

Non-Responsive [redacted]

Reviewer

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non-Responsive @md.ngb.army.mil

Attachment D

REFERENCE LIST INDEX

1. General Regulations and National Consensus Standards
2. Specific Regulations and Guidance
   a. Abrasive Blasting
   b. Asbestos
   c. Battery Charging Room
   d. Bird and Bat Manure
   e. Bloodborne Pathogens
   f. Chemical Agent Resistant Coating (CARC) Paint
   g. Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE)
   h. Confined Space Entry Program
   i. Design Review
   j. Ergonomics
   k. Flammable Storage Room
   l. Hazard Communication
   m. Hearing Conservation
   n. Indoor Air Quality
   o. Indoor Firing Ranges
   p. Lead
   q. Lighting
   r. Occupational Vision
   s. Paint Spray Booth
   t. Personal Protection
   u. Radiation Protection
   v. Respiratory Protection
   w. Sanitation
   x. Smoking
   y. Vehicle Exhaust
   z. Welding Operation

GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REFERENCE LIST

1. General Regulations and National Consensus Standards
   a. DODI 6055.1, DOD SOH Program, 19 August 1998.
   b. DODI 6055.5, DOD OEH. *[DRAFT]*
   c. DOD 6055.5-M, DOD Occupational Health Surveillance Manual, 13 May 1987.
   d. DODI 6050.5, DOD Hazard Communication, 29 Oct 90. Change 1, 6 May 1996.
   e. AR 40-5, Preventive Medicine, 15 October 1990. [05/2002 Being Updated]
   f. DA PAM 40-5, Preventive Medicine. *[DRAFT]*
   g. AR 385-10, The Army Safety Program, 29 February 2000.
   h. NGR 385-10, ARNG SOH Program, 7 October 1988, Change 1, 29 December 1989.
   i. Title 29, Part 1910, Occupational Safety and Health Standards. [Current Date]
   j. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 2002.
   k. ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th edition, 2001.
   l. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.
   m. TG 141, USACHPPM Industrial Hygiene Sampling Guide, November 1997.
   n. National Safety Council, Fundamentals of Industrial Hygiene, 5th Edition, 2002.
   o. NIOSH, Pocket Guide to Chemical Hazards, 2001.
   p. NFC, A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. [Current date]
   q. ASHRAE Standards. [Current Dates]
   r. ANSI Standards. [Current Dates]

2. Specific Regulations/Guidance
   a. **ABRASIVE BLASTING**
      (1) ANSI Z9.4 1997, Abrasive Blasting Operations - Ventilation and Safe Practices.
      (2) 29 CFR 1910.94 Ventilation
      (3) 42 CFR 84

   b. **ASBESTOS**
      (1) AR 40-5, Preventive Medicine, 15 October 1990. *[05/2002 Being Updated]*
      (2) AR 200-1, Environmental Protection and Enhancement, Chapter 8, 21 February 1997.
      (3) TB MED 513, Guidelines for the Evaluation and Control of Asbestos Exposure, 15 December 1986. *[05/2000 Under Revision as DA PAM 40-513]*
      (4) TG 157, USAEHA, The Installation Asbestos Management Program Assessment Checklists, July 1994.
      (5) 29 CFR 1910.1001
      (6) 29 CFR 1926.58 (prior to 1994 CFR)
      (7) 29 CFR 1926.1101

(8) MEMORANDUM SGPS-PSP, OTSG, subject: AMEDD Role Supporting Asbestos Abatement/Asbestos Management Programs, 19 Jan 89.

(9) EPA, Guidance for Controlling Asbestos-Containing Materials in Buildings, June 1985.

(10) DD Form 2493-1 (Asbestos Exposure, Part I--Initial Medical Questionnaire)

(11) DD Form 2493-2 (Asbestos Exposure, Part II--Periodic Medical Questionnaire)

(12) EPA NESHAPS Asbestos Regulation (40 CFR 61, Subpart M).

c. BATTERY CHARGING ROOM

(1) TG 022, USAEHA, page 81, Industrial Hygiene Evaluation Guide, October 1975. *[Out of Print]*

(2) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

d. BIRD AND BAT MANURE

(1) TG 142, USAEHA, Managing Health Hazards Associated with Bird and Bat Excrement, Dec 1992.

e. BLOODBORNE PATHOGENS

(1) 29 CFR 1910.1030

(2) TG 190, USAEHA, Guide to Managing Occupational Exposure to Bloodborne Pathogens, Jan 94.

f. CHEMICAL AGENT RESISTANT COATING (CARC) PAINT

(1) TG 144, USAEHA, Guidelines for Controlling Health Hazards in Painting Operations, 24 August 1987.

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(3) TM 43-0139, Painting Instructions for Army Material, 27 July 1988I Aug 86.

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(5) AR 750-1, Army Materiel Maintenance Policy and Retail Maintenance Operations (Prohibits welding on CARC paint) 1 July 1996.

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(2) DHHS, NIOSH Pub No. 2002 139, Guidance for Protecting Building Environments from Airborne Chemical, Biological, or Radiological Attacks, May 2002.

(3) TG 275, USACHPPM, Personal Protective Equipment Guide for Medical Treatment Facility Personnel Handling Casualties from Weapons of Mass Destruction and Terrorism Events. *[Draft]*

h. **CONFINED SPACE**

(1) 29 CFR 1910.146 (Confined Space Entry)
(2) 29 CFR 1910.147 (Lockout/Tagout)
(3) ANSI Z117.1-Safety Requirements for Confined Spaces, 1995.
(4) SOP for ARNG Confined Space Entry Program, 25 April 1991.
(5) Letter, US Dept of Labor (DOL) addressed to Vanessa Char, 22 Apr 1994.
(6) OSHA Instruction STD 1-7.3, US DOL, subject: 29 CFR 1910.147, the Control of Hazardous Energy (Lockout/Tagout)--Inspection Procedures and Interpretive Guidance, 11 Sep 90.
(7) DHHS, NIOSH Pub No. 87113, A Guide to Safety in Confined Spaces, July 1987.
(8) Confined Space Entry Program for Helicopters, 2003.

i. **DESIGN REVIEW**

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(2) DG 415-2, Design Guide for Logistics Facilities, current.
(3) DG 415-3, Design Guide for Training Site Facilities, current.
(4) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.
(5) TI-300, 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.
(6) UFGS 15940A, Overhead Vehicle Tailpipe (and welding Fume) Exhaust Removal Systems, December 2001.
(7) ASHRAE, Standard 62-2002, Ventilation for Acceptable Indoor Air Quality.
(8) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

j. **ERGONOMICS**

(1) DA PAM 40-21, Medical Services, Ergonomics Program, 15 May 2000.
(2) ANSI Z-365, Management of Work Related Musculoskeletal Disorders, 2000.
(3) 29 CFR 1910. *[PROPOSED STANDARD]*

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(1) 29 CFR 1910.106
(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

l. **HAZARD COMMUNICATION**

(1) 29 CFR 1910.1200
(2) NGR 385-10, Chapter 6

m. **HEARING CONSERVATION**

(1) DA PAM 40-501, Medical Services, Hearing Conservation Program, 10 December 1998.

(2) TG 181, USAEHA, Noise Dosimetry and Risk Assessment, May 1999.

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n. **INDOOR AIR QUALITY (IAQ)**

(1) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

(2) USACERL Technical Report P-91/42, IAQ Management for Operations and Maintenance Personnel, September 1991.

(3) EPA 400/1-91/003 or DHHS, NIOSH, Publication No. 91-114, Building IAQ, A Guide for Building Owners and Facility Managers, December 1991.

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(5) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

(6) NIOSH, IAQ Selected References, Sep 1989.

(7) OSHA Instruction CPL 2-2.20B CH-1, Directorate of Technical Support, 13 Nov 90.

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(2) NGR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges, 30 March 1990. *[11/02 Under Revision]*

(3) CEHND 1110-1-18, USACE Design Manual for Indoor Firing Range, June 1990.

(4) HQDA LTR, Office of the Adjutant General, DACS-SF, subject: Inspection and Evaluation of US Army Indoor Firing Ranges, 26 March 1993.

(5) Departments of the Army and Air Force, NGB-ADB-OM, subject: All State Log Number (I920323) Indoor Range Clean-up at State Owned Armories, 28 July 1992.

(6) NIOSH, Technical Information, December 1975, subject: Lead Exposure and Design Considerations for Indoor Firing Ranges.

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(8) Information Paper, Alternative Ammunition, 15 March 1996.

(9) Information Paper, Bullet Traps, 26 April 1996.

(10) Information Paper, ARNG IPR Action Plan, 28 January 2002.

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(2) 29 CFR 1926.62

(3) 24 CFR 35.61 (HUD, Percentage of Lead in Paint)

(4) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(5) OSHA Instruction CPL 2-2.58, Office of Health Compliance Assistance, 13 December 1993.

(6) Federal Register, 18 April 1990, Vol. 55, No. 75, HUD, Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing, as amended, September 1990, Office of Public and Indian Housing, Department of Housing and Urban Development, 451 Seventh Street, SW, Washington, DC 20410.

(7) NIOSH, Request for Assistance in Preventing Lead Poisoning in Construction Workers, April 1992.

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q. **LIGHTING**

(1) RP-1-1993, Office Lighting, ANSI/IESNA.

(2) RP-7-2001, Industrial Lighting, IES.

r. **OCCUPATIONAL VISION**

(1) DA PAM 40-506, Medical Services, The Army Vision Conservation and Readiness Program, 20 July 2001.

(2) ANSI Z87.1, Practice for Occupational and Educational Eye and Face Protection, 1989, Change A, REAF 1998.

(3) ANSI Z358.1 for Emergency Eyewash and Shower Equipment, 1998.

(4) OTSG Memorandum SGPS-PSP, subject: Acanthameoba Keratitis and Eyewash Stations, 8 May 89.

(4) 29 CFR 1910.133

s. **PAINT SPRAY BOOTH**

(1) NFPA No. 33, Standard for Spray Application Using Flammable and Combustible Materials, 1995.

(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

(3) 29 CFR 1910.94

(4) 29 CFR 1910.107

(5) ANSI Z9.3-1995 for Exhaust Systems - Spray Finishing Operations - Safety Code for Design, Construction, and Ventilation.

(6) ANSI Z9.2-2001, Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems.

t. **PERSONAL PROTECTIVE EQUIPMENT**

(1) Quick Selection Guide to Chemical Protective Clothing, 2nd edition, Forsberg, K and Mansdorf, S., 1993.

(2) Chemical Protective Clothing, Vol 1 and 2, Johnson, J. and Anderson, K., American Industrial Hygiene Association, 1990.

(3) Guidelines for the Selection of Chemical Protective Clothing, 3rd Edition, ACGIH, Inc., Feb 1987.

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(1) NGR 385-11, Safety, Ionizing and Nonionizing Radiation Protection, 18 February 1999.

(2) AR 11-9, Army Radiation Safety Program, 28 May 1999.

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(4) 29 CFR 1910.97

v. **RESPIRATORY PROTECTION**

(1) AR 11-34, The Army Respiratory Protection Program, 15 February 1990. *[11/02 Being Updated]*

(2) 29 CFR 1910.134

(3) 42 CFR 84

(4) TB MED 502, Respiratory Protection Program, February 1992. *[11/02 Being Updated as DA PAM 40-502]*

(5) ANSI/CGA G-7.1-1997, Commodity Specification for Air.

(6) ANSI Z88.2-1992, Standard for Respiratory Protection.

w. **SANITATION**

(1) ANSI Z4.1-1986, Change REAF 1995, Sanitation in Places of Employment-Minimum Requirements.

(2) 29 CFR 1910.141

x. **SMOKING**

(1) AR 600-63, Army Health Promotion, 28 April 1996.

(2) DODI 1010.15, Smoke-Free DOD Facilities, 2 January 2001.

(3) DODD1010.10, Health Promotion, 11 March 1986.

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(1) ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th Edition, 2001.

(2) TI-300f 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

z. **WELDING OPERATION**

(1) 29 CFR 1910.252

(2) 29 CFR 1910.253

(3) 29 CFR 1910.254

(4) ANSI/AWS Z49.1-1999, Safety in Welding and Cutting and Allied Processes.

(5) TM 5-805-7, Welding Design, Procedures and Inspection, 20 May 85.

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 $\mu g/ft^2$) and windowsills (250 $\mu g/ft^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of 200 $\mu g/ft^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 $\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

Attachment E

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 $\mu g/ft^2$ on floors and 250 $\mu g/ft^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

Attachment 6

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland




Industrial Hygiene Survey
for PAARNG – York Readiness Center
369 North George Street
York, Pennsylvania 17404

AECOM
January 2013
Document No.: 60276421/York Readiness Center

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland

Industrial Hygiene Survey
for PAARNG – York Readiness Center
369 North George Street
York, Pennsylvania 17404

Non-Responsive
Industrial Hygienist

Non-Responsive
Project Manager

Non-Responsive
Northeast District Health & Safety Manager

AECOM Environment
January 2013
Document No.: 60276421/York Readiness Center

AECOM

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Executive Summary

On November 13, 2012, AECOM Technical Services Northeast, Inc. (AECOM) conducted an Industrial Hygiene (IH) survey of the York Readiness Center facility located at 369 North George Street in York, Pennsylvania. SSG [redacted] was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the York Readiness Center operations.

The industrial hygiene survey was generally conducted in accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings", dated January 2012.

The York Readiness Center is currently staffed by six personnel. The facility is configured as an administrative area and a drill hall.

Personnel at the facility were undertaking normal daily activities, which are administrative in nature, at the time of the survey.

The activities undertaken during the industrial hygiene survey included facility descriptions, lead wipe sampling, evaluation of housekeeping, illumination studies, ventilation system evaluation, and a review of the physical building condition.

Housekeeping is performed regularly at the York Readiness Center.

Lighting levels measured throughout the facility were generally adequate as per American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005, with the exception of the Drill Hall, Conference room, State Maintenance Office, and the garage behind the armory.

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U.S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 micrograms per square foot (ug/ft^2) for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas. However, wipe samples collected in association with the former firing range indicated levels of lead in excess of 200 ug/ft^2.

Damaged suspect asbestos containing pipe fitting insulation was observed during the evaluation. The material was sampled and found to be non-asbestos containing.

Approximately one thousand five hundred square feet of damaged lead-based paint was observed on the basement floor, one hundred square feet of damaged red wall paint in the stairwell and two hundred square feet of damaged white wall paint in the stairwell.

No evidence of water intrusion or visible mold growth was observed during the survey.

There is no Heating Ventilation & Air Conditioning (HVAC) system that provides fresh air from the building exterior in administrative areas.

1.0 Facility Description and Operations

The York Readiness Center, constructed in 1914, is a two-story masonry structure. The building consists primarily of offices, training/classroom, locker/shower rooms, storage and administrative areas, and is finished with sheetrock walls, lay-in ceiling tiles and floor tile. The Drill Hall area, located at the west end of the 2nd floor, is finished with painted block walls and a hardwood floor. According to site personnel there is a former firing range in the basement of the facility that has been converted to storage space and the maintenance office. There is a separate garage building that is reportedly used for storage only.

The primary activity at the York Readiness Center is routine administrative duties and occasional use by units for support and training of soldiers. The York Readiness Center is currently staffed by six personnel. Vehicle maintenance activities are not undertaken at this facility.

2.0 Sampling in Readiness Centers

2.1.1 Wipe Sampling

Wipe sampling for lead was conducted following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost Wipes. AECOM did not observe dust accumulation on readily accessible horizontal surfaces within areas commonly used in the facility.

The following table presents the results of the lead wipe sampling conducted at the facility.

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
YO-01	Drill hall east – floor	<110 ug/ft^2
YO-02	Drill hall west – floor	<110 ug/ft^2
YO-03	Drill hall – top of locker	<110 ug/ft^2
YO-04	Kitchen – above stove	<110 ug/ft^2
YO-05	Conference room – counter	<110 ug/ft^2
YO-06	Administrative office – top of cabinet	<110 ug/ft^2
YO-07	1st floor corridor – floor	<110 ug/ft^2
YO-08	**Storage (Former firing range – old bullet trap area)**	**550 ug/ft^2**
YO-09	**Storage (Former firing range – light fixture)**	**1,000 ug/ft^2**
YO-10	Storage (Former firing range – stored item)	<110 ug/ft^2
YO-11	**Storage (Former firing range – floor)**	**480 ug/ft^2**
YO-12	**Outside of Storage (former firing range – floor)**	**680 ug/ft^2**

ug/ft^2 = Micrograms per square foot.

Wipe samples collected in association with the administrative areas, drill hall, and kitchen indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft^2 for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas. However, wipe samples collected from the storage area (former firing range and the floor outside of the former firing range) indicated levels of lead in excess of 200 ug/ft^2. Indoor firing ranges shall be converted in accordance with NG-PAM 240-15. Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

Per Shirley Chapman of NGB-IH, the requirement for Lead air sampling has been removed from the Statement of work. It was reported that historically, air samples collected at administrative facilities are typically below the limit of detection.

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls is generally in good condition. However, AECOM did observe damaged/peeling paint during this evaluation. Approximately one thousand five hundred square feet of damaged lead-based paint was observed on the basement floor, one hundred square feet of damaged red wall paint in the stairwell and two hundred square feet of damaged white wall paint in the stairwell. Laboratory analytical results are presented in Appendix C.

Sample Number	Sample Location	Lead Concentration
YO-13	Basement – floor	0.051% Pb
YO-14	Stairwell Wall (red)	0.073% Pb
YO-15	Stairwell Wall (white)	1.7% Pb

3.1.2 Suspect Asbestos Containing Materials

AECOM observed damaged, friable suspect asbestos-containing materials (ACM) in readily accessible areas of the York Readiness Center during this survey. The suspect ACM, mudded pipe fitting insulation located in the basement was analyzed by AMA analytical services and determined to be non-asbestos containing. Laboratory analytical results are presented in Appendix C.

Sample Number	Sample Location	Asbestos Content
YO-16	Basement - Pipe Fitting Insulation	No asbestos Detected

Typical miscellaneous building materials observed throughout the building but not sampled include drywall, floor tiles and associated mastic, cove base and associated mastic, ceiling tiles, carpet mastic, and window caulks. According to site personnel, approximately 3,200 square feet of ACM ceiling plaster is present above drop ceilings in office spaces on the first floor of the facility. The material appears to be in good condition and is not readily accessible. Site personnel also indicated that approximately 800 square feet of ceiling tile in the first floor corridor is asbestos containing, but were unable to produce analytical proof. The material is in generally good condition.

3.1.3 Water Damage/Mold

AECOM did not observe evidence of water intrusion or visible mold growth during this survey.

3.1.4 Housekeeping

The York Readiness Center was observed to be generally clean and orderly during this assessment. AECOM did not observe dust accumulation on readily accessible horizontal surfaces within areas commonly used in the facility.

3.1.5 Indoor Air Quality/ Ergonomics

The administration section contains general office space. The administration section is generally utilized by all of the York Readiness Center staff members. No Indoor Air Quality concerns were noted by the York Readiness Center personnel.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (^{o} Fahrenheit), and relative humidity (as percentage) are presented in the following table. The facility is not mechanically air conditioned. All readings were within acceptable guidelines.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (^{o}F)	Relative Humidity (%)
Outside – baseline	1.0	366	42.5	58.4
Conference room	1.1	474	71.3	41.0
Administrative office	0.9	582	70.9	42.6
Basement	0.9	485	69.8	44.9
Drill hall	0.9	518	68.8	42.1

Table 3-1 Guidelines:
Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard.
OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.
Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.
Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 5.10.1).
Temperature: Winter (clothing insulation = 1.0 clo) Relative humidity 30-60% - Temp - 68 – 75°F
Summer Temp - 73 – 79°F. (Derived from ASHRAE Standard 55-2010)

York Readiness Center personnel did not report any ergonomics issues or concerns. Office furniture and accessories designed to promote ergonomically correct behaviors were observed.

4.0 Ventilation and HVAC System

4.1.1 Ventilation Systems and Potential for Contamination of Clean Air Sources

No potential for contamination of clean air sources was observed at the facility.

There is no active ventilation system that provides fresh air to administrative spaces within the facility.

4.1.2 HVAC Maintenance

As there is no HVAC system, there is no maintenance schedule.

5.0 Lighting

Lighting levels in all areas were measured utilizing an Extech model 401-025 light meter that displays lighting levels in foot-candles. Lighting levels were adequate in all areas except the garage, the state maintenance office, the conference room, and the drill hall.

Table 5-1: Light Survey

Location		Results (Foot candles)	Met Standard (Y/N)	Standard*
	Garage – storage area	5-9	N	30
Basement	State maintenance area	53.9	Y	30
	State maintenance Office	16.1	N	50
	Storage Area	52.9	Y	30
	Boiler room	35.5	Y	30
First floor	Storage room	54.1	Y	30
	First Sergeant's office	51.0	Y	50
	Gym	78.0	Y	30
	Training office	84.0	Y	50
	Ladies room	42.2	Y	5
	Conference room	22.8	N	30
	Men's room	17.8	Y	5
	Kitchen	67.0	Y	50
	Administrative office	86.4	Y	50
	Hallway	44.7	Y	5
	Battery commander's office	91.7	Y	50
	Officer/warrant	65.6	Y	50
	Recruiter's office	54.5	Y	50
	Main corridor	39.0	Y	5
Second floor	Drill hall	6.9-10	N	30
	Conference/class room	73.3	Y	30
	Stairway	44.1	Y	5
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI/IESNA RP-7-01)				

6.0 Evaluation of Attached Garage

There is a garage located behind the York Readiness Center. According to site personnel it was previously a Field Maintenance Shop (FMS) but is no longer utilized in that capacity. It is reportedly used only for storage.

7.0 Conclusions and Limitations

AECOM has conducted this survey in accordance with applicable OSHA methods and standard industrial hygiene practice. The following conclusions were based on the observations and assessments of activities that occurred during the on-site evaluation:

Housekeeping is performed regularly at the York Readiness Center.

Lighting levels measured throughout the facility were generally adequate as per American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005, with the exception of the Drill Hall, Conference room, State Maintenance Office, and the garage behind the armory.

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U.S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 ug/ft^2 for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas. However, wipe samples collected in association with the former firing range indicated levels of lead in excess of 200 ug/ft^2.

Damaged suspect asbestos containing pipe fitting insulation was observed during the evaluation. The material was sampled and found to be non-asbestos containing.

Approximately one thousand five hundred square feet of damaged lead-based paint was observed on the basement floor, one hundred square feet of damaged red wall paint in the stairwell and two hundred square feet of damaged white wall paint in the stairwell.

No evidence of water intrusion or visible mold growth was observed during the survey.

There is no HVAC system that provides fresh air from the building exterior in administrative areas.

AECOM provided these services consistent with the level and skill ordinarily exercised by members of the profession currently providing similar services under similar circumstances at the time the services were provided. This statement is in lieu of other statements either expressed or implied. This report is intended for the sole use of National Guard Bureau – Army National Guard. The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, and use or re-use of this document, the findings, conclusions, or recommendations is at the risk of said user.

As with all such surveys, the results of the sampling represent conditions found on the date of the survey and may not represent conditions found at other times. Additionally, this survey was limited with respect to the specific parameters indicated above and should not be construed to be a comprehensive evaluation or a definitive representation of conditions within the facility. The information presented in this report is intended to be used as a guide to evaluate the need for further investigation or the need for modifications to the processes or procedures surveyed.

The Client recognizes and agrees that all testing and remediation methods have reliability limitations, no method nor number of sampling locations can guarantee that a condition will be discovered within the performance of the services as authorized by the Client. Additionally, the passage of time may result in a

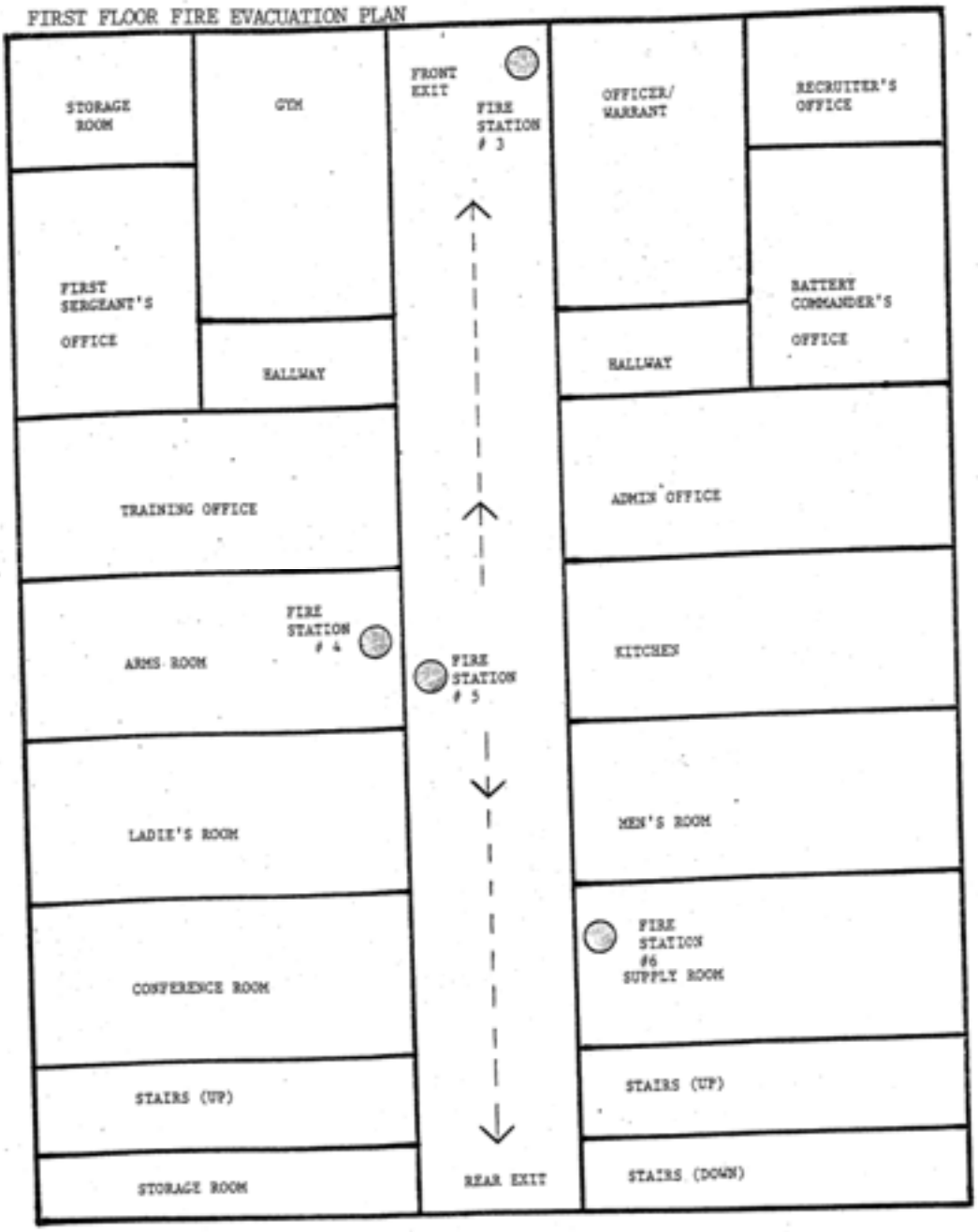
change in the environmental characteristics at this site. This report does not warrant against future operations or conditions that could affect the recommendations made. The results, findings, conclusions, and recommendations expressed in this report are based only on conditions that were observed during AECOM's inspection of the site.

Appendix A

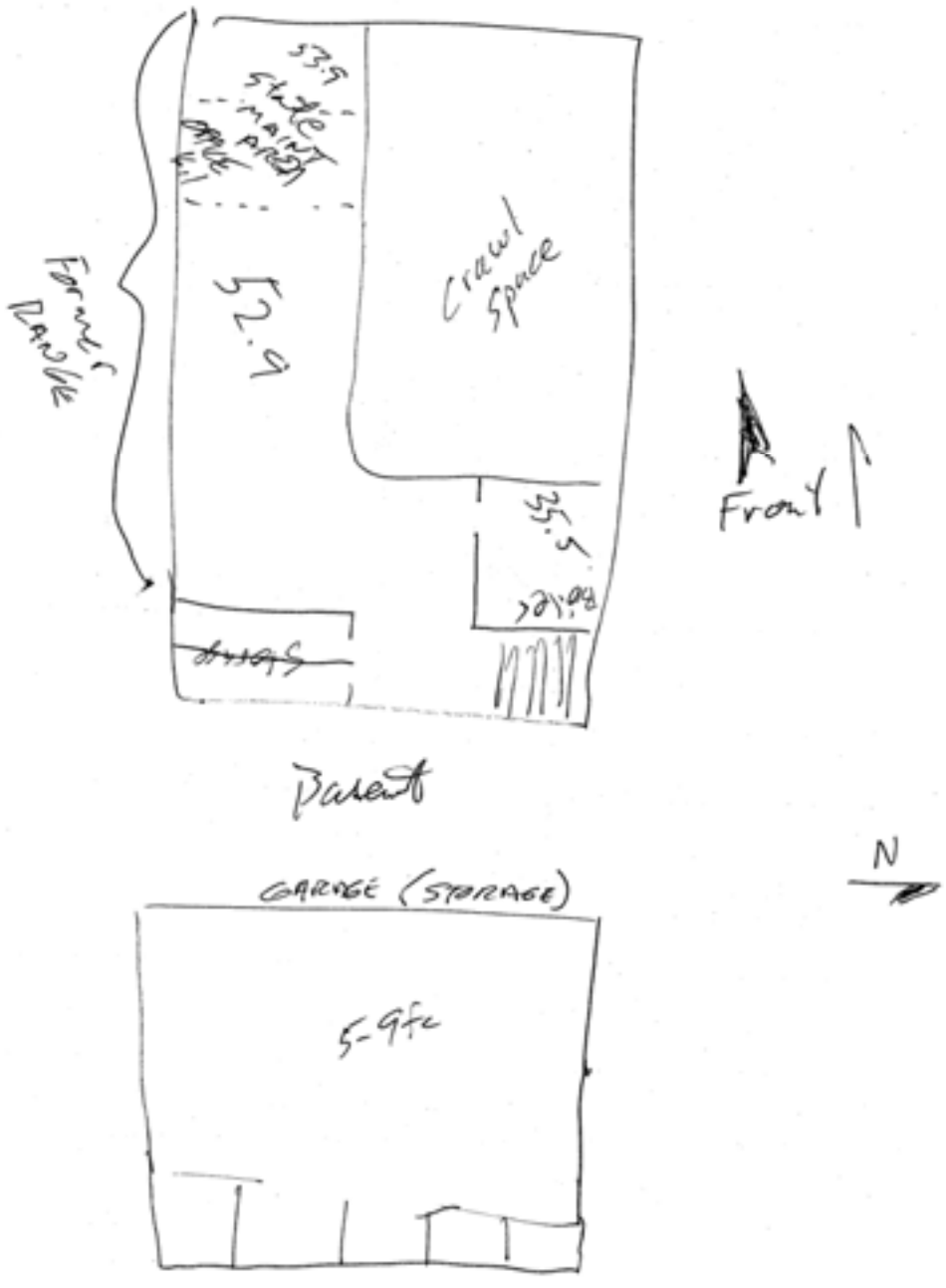
York Readiness Center Facility Layout

AECOM

FIRST FLOOR FIRE EVACUATION PLAN



AECOM



Appendix B

York Readiness Center Photographs

Photograph 1

View of facility front

Photograph 2

View of drill hall

Photograph 3

View of main corridor

Photograph 4

View of ceiling tile in main corridor

Photograph 5
 View of kitchen

Photograph 6
 View of former range

AECOM

Photograph 7
 View of boiler room

Photograph 10
 View of crawlspace

AECOM

Photograph 9
 View of basement floor – damaged gray paint

Photograph 10
 View of damaged non-asbestos pipe fitting insulation

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Photograph 11

View of non-asbestos pipe fitting insulation on floor

Photograph 12

View of damaged paint in stairwell

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Photograph 13

View of storage garage behind Armory, not attached to main building

Appendix C

Analytical Results

AECOM

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	PA-Group 4e BC's	Chain Of Custody:	514015
Address:	301-88 Old Bay Lane, Attn: ARNG-CIG-P, State Military Reservation	Job Location:	York-George Street BC	Date Submitted:	11/30/2012
	Havre de Grace, Maryland 21078	Job Number:	60276423.1	Person Submitting:	AECOM
		P.O. Number:	W912S6-08-A-0003	Date Analyzed:	12/6/2012
				Report Date:	12/6/2012

Attention: Non-

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	Total ug	Final Result	Comments
13018373	YO-01	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13018374	YO-02	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13018375	YO-03	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13018376	YO-04	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13018377	YO-05	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13018378	YO-06	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13018379	YO-07	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13018380	YO-08	Flame	Wipe	****	0.111	110 ug/ft²	62	560 ug/ft²	
13018381	YO-09	Flame	Wipe	****	0.111	110 ug/ft²	110	1000 ug/ft²	
13018382	YO-10	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13018383	YO-11	Flame	Wipe	****	0.111	110 ug/ft²	54	480 ug/ft²	
13018384	YO-12	Flame	Wipe	****	0.111	110 ug/ft²	76	690 ug/ft²	
13018385	YO-13	Flame	Paint Chip	****	N/A	0.0093 %Pb		0.351 %Pb	
13018386	YO-14	Flame	Paint Chip	****	N/A	0.0094 %Pb		0.393 %Pb	
13018387	YO-15	Flame	Paint Chip	****	N/A	0.0079 %Pb		1.7 %Pb	

An AIHA (#100478) and NVELAP (#101920) Accredited Laboratory

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AECOM

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	PA-Group 4e RC's	Chain Of Custody:	514615
Address:	301-HI Old Bay Lane, Attn: ARNG-CIG-P, State Military Reservation	Job Location:	York-George Street RC	Date Submitted:	11/30/2012
	Havre de Grace, Maryland 21078	Job Number:	60276421.1	Person Submitting:	AECOM
		P.O. Number:	W912G6-09-A-0003	Date Analyzed:	12/6/2012 Report Date: 12/6/2012

Attention: Non-Responsive

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	Total ug	Final Result	Comments

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B

N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)

%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)

Note: All samples were received in good condition unless otherwise noted.

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results.

Final results for air and wipe samples are based on client supplied information nor verified by this laboratory.

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

See QC Summary for analytical results of quality control samples associated with these samples.

Analyst: Non-Responsive

Technical Manager: Non-Responsive

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AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP 101143-0

Client:	National Guard Bureau	Job Name:	PA-Group 4a RCs	Chain Of Custody:	514615
Address:	301-H Old Bay Lane, Attn: ARNG-CGO-P, State Military Reservation	Job Location:	York-George Street RC	Date Analyzed:	12/7/2012
	Havre de Grace, Maryland 21078	Job Number:	60276421.1	Person Submitting:	AECOM
		P.O. Number:	W912DR-09-A-0065		

Attention: Non-Responsive

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 Type	Sample Color	Homogeneity	Analyst ID	Comments
1301388	YO-16	NAD	--	--	--	--	30	--	--	--	--	70	Fitting	Gray	Homogeneous	SW	

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 interferences 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 interferences 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"

Uncertainty: For samples containing asbestos in range of 1-10% the CV is 0.43, 11-10% CV=0.35, >10 CV=0.23

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

Technical Director: Non-Responsive

Analyst(s): Non-Responsive

NVLAP (101143-0) Accredited Laboratory

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AECOM

AMA Analytical Services, Inc.
Focused on Results www.amalab.com
AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)
4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This Number For Inquires) 514615

Mailing/Billing Information:

1. Client Name: National Guard Bureau
2. Address 1: 301-H Old Bay Lane
3. Address 2: Attn: NGB-AVN-SI, State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:

1. PA-Group He RC's
2. York - George St. RC
3. Job #: 60276121 W912K8-08-A-0001
4. Contact Person: [redacted] @ [redacted]
5. Submitted by: AECOM [redacted]

Reporting Info (Results provided as soon as technically feasible). If no TAT/Reporting Info is provided, AMA will assign defaults of 5-Day and conditions to contacts on file.

[redacted] [redacted]

ANALYSIS REQUESTED

*PCM Air - Please Indicate Filter Type:
- ☐ NIOSH 7400 ____ (QTY)
- ☐ Fiberglass ____ (QTY)

TEM Air* - Please Indicate Filter Type:
- ☐ AHERA ____ (QTY)
- ☐ NIOSH 7402 ____ (QTY)
- ☐ Other (specify ____) ____ (QTY)

PLM Bulk
- ☒ EPA 600 - Visual Estimate 1 (QTY)
- ☐ EPA Point Count ____ (QTY)
- ☐ NY State Friable 198.1 ____ (QTY)
- ☐ Grav. Reduction ELAP 198.6 ____ (QTY)
- ☐ Other (specify ____) ____ (QTY)

MISC
- ☐ Vermiculite
- ☐ Asbestos Soil PLM ...

TEM Bulk
- ☐ ELAP 198.4/Chatfield ____ (QTY)
- ☐ NY State PLM/TEM ____ (QTY)
- ☐ Residue Ash ____ (QTY)

TEM Dust*
- ☐ Qual. (presence) Vacuum/Dust ____ (QTY)
- ☐ Quan. (s/area) Vacuum D5755-95 ____ (QTY)
- ☐ Quan. (s/area) Dust D6480-99 ____ (QTY)

TEM Water
- ☐ Qual. (presence) ____ (QTY)
- ☐ ELAP 198.2/EPA 100.2 ____ (QTY)
- ☐ EPA 100.1 ____ (QTY)

☐ All samples received in good condition unless otherwise noted. (TEM Water samples ____ °C)

If field data sheets are submitted, there is no need to complete bottom section.

LEAD/METALS
- ☒ Pb Paint Chip 3 (QTY)
- ☒ Pb Dust Wipe (wipe type ghost) 12 (QTY)
- ☐ Pb Air ____ (QTY)
- ☐ Pb Soil/Solid ____ (QTY)
- ☐ Pb TCLP ____ (QTY)
- ☐ Drinking Water ☐ Pb ____ (QTY) ☐ Cu ____ (QTY) ☐ As ____ (QTY)
- ☐ Waste Water ☐ Pb ____ (QTY) ☐ Cu ____ (QTY) ☐ As ____ (QTY)
- ☐ Pb Persons (Media ____) ____ (QTY)

MICROBIOLOGY
Collection Apparatus for Spore Traps/Air Samples: ____
Collection Media ____
- ☐ *Spore-Trap ____ (QTY) ☐ Surface Vacuum Dust ____ (QTY)
- ☐ *Surface Swab ____ (QTY) ☐ Culturable ID Genus (Media ____) ____ (QTY)
- ☐ *Surface Tape ____ (QTY) ☐ Culturable ID Species (Media ____) ____ (QTY)
- ☐ Other (Specify ____) ____ (QTY)

CLIENT ID #	SAMPLE INFORMATION SAMPLE LOCATION/ID	DATE TIME	VOL (L)/ Wipe Area	ANALYSIS						MATRIX							CLIENT CONTACT LABORATORY STAFF ONLY
																	Date/Time: Contact: By:
	SEE ATTACHED FIELD DATA SHEETS																
																	Date/Time: Contact: By:
																	Date/Time: Contact: By:

LAB ADMIN STAFF ONLY / CUSTODY: 12-30-12 100 FEDEX Shirley/Leas ... Sweet Email 12-...-12 ... SW [redacted]

0944 6046 5381

January 2013

AECOM

Surface Sampling Field Data Sheet

Date Collected: 11/13/12
Job Number: 60276121.1
Contact Person: Non-Responsive

Job Name: PA - Group 4e RC's
Job Location: York - George ST RC
Address: 309 N. George ST
York, PA

Company: AECOM
Phone Number: 315 437 0506
Collected: Non-Respons
COC Number: —

Page 1 of 1

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in^2/ft^2)	Collection Media
Y0-01	Drill Hall ~~to~~ EAST	Floor	16 in^2	Ghost Wipe
Y0-02	Drill Hall West	Floor		
Y0-03	Drill Hall	Top of Locker		
Y0-04	Kitchen	Above Stove		
Y0-05	Conf. Room	Counter		
Y0-06	~~HCO~~ Admin Office	on cabinet		
Y0-07	1st Floor Corridor	Floor		
Y0-08	Former Range	old Bullet Trap Area		
Y0-09		Light Fixt.		
Y0-10		Stored Item		
Y0-11	↓ ↓	Floor		
Y0-12	Outside Former Range	Floor	↓	↓
Y0-13	Basement	Floor	NA	chip
Y0-14	Stairwell	wall Red	NA	chip
Y0-15	Stairwell	wall White	NA	chip

Please Return Samples To:
AMA Analytical Services, Inc., 4475 Forbes Blvd., Lanham, MD 20706, (800) 346-0961 (301) 459-2640 Fax, www.amalab.com, info@amalab.com

January 2013

AECOM

Bulk Sampling Survey Sheet

Date Collected: 11/13/12
Job Number: 60276471.1
Contact Pe[redacted]

Job Name: PA-Group 4e RC's
Job Location: York - George St. RC
Address: 369 N. George ST.
York, PA

Company: AECOM
Page 1 of 1
Phone Number: 315 432 0506
Collected [redacted]
COC Number: —

Sample Number	Homogeneous Area ID	Type of Material	Sample Location	Friable	Condition of Material	Accessibility	Photo	Comments
40-16	1	FTWG	Basement	☒ Yes ☐ No ☐ Potentially	☐ Good ☒ Fair ☐ Poor	☐ Low ☒ Medium ☐ High	☒ Yes ☐ No	
				☐ Yes ☐ No ☐ Potentially	☐ Good ☐ Fair ☐ Poor	☐ Low ☐ Medium ☐ High	☐ Yes ☐ No	
				☐ Yes ☐ No ☐ Potentially	☐ Good ☐ Fair ☐ Poor	☐ Low ☐ Medium ☐ High	☐ Yes ☐ No	
				☐ Yes ☐ No ☐ Potentially	☐ Good ☐ Fair ☐ Poor	☐ Low ☐ Medium ☐ High	☐ Yes ☐ No	
				☐ Yes ☐ No ☐ Potentially	☐ Good ☐ Fair ☐ Poor	☐ Low ☐ Medium ☐ High	☐ Yes ☐ No	
				☐ Yes ☐ No ☐ Potentially	☐ Good ☐ Fair ☐ Poor	☐ Low ☐ Medium ☐ High	☐ Yes ☐ No	
				☐ Yes ☐ No ☐ Potentially	☐ Good ☐ Fair ☐ Poor	☐ Low ☐ Medium ☐ High	☐ Yes ☐ No	
				☐ Yes ☐ No ☐ Potentially	☐ Good ☐ Fair ☐ Poor	☐ Low ☐ Medium ☐ High	☐ Yes ☐ No	
				☐ Yes ☐ No ☐ Potentially	☐ Good ☐ Fair ☐ Poor	☐ Low ☐ Medium ☐ High	☐ Yes ☐ No	
				☐ Yes ☐ No ☐ Potentially	☐ Good ☐ Fair ☐ Poor	☐ Low ☐ Medium ☐ High	☐ Yes ☐ No	

Please Return Samples To:
AMA Analytical Services, Inc., 4475 Forbes Blvd., Lanham, MD 20706, (800) 346-0961/(301) 459-2640 Fax, www.amalab.com, info@amalab.com

Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. http://www.osha.gov/comp-links.html

2. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998. http://www.dtic.mil/whs/directives/corres/pdf/605501p.pdf

3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF

4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://armypubs.army.mil/epubs/pdf/R40_5.PDF

5. AR 385-10, The Army Safety Program, 23 August 2007; Rapid Action Revision (RAR) issue date: 4 October 2011. http://armypubs.army.mil/epubs/pdf/R385_10.PDF

6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://armypubs.army.mil/epubs/pdf/P40_501.pdf

7. DA PAM 40-11, Preventive Medicine, 22 July 2005, RAR issue date: 19 October 2009. http://armypubs.army.mil/epubs/pdf/p40_11.pdf

8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://armypubs.army.mil/epubs/pdf/P40_503.PDF

9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf

10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current Ed.

11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.

12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.

13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.

14. ANSI/ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality.

15. RP-1-2004, Office Lighting, ANSI/IESNA.

16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.

17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.

18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.

19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf

Industrial Hygiene Survey

Pennsylvania Army National Guard (PA ARNG)

Prepared For: NGB ARNG– Region North IH Office

Survey Location:

Johnstown Walters Avenue Readiness Center (Hogg Armory)

565 Walters Avenue
Johnstown, PA 15904-1298

Prepared By: Aria Environmental, Inc. (AEI)
PO Box 286
Woodbine, MD 21797

Survey Date: September 16, 2011

AEI Project #: J11-590 3i PA Johnstown Walters Avenue RC

Non-Responsive, DrPH, CIH
Industrial Hygienist

Table of Contents

List of Tables and Appendices

Executive Summary

Aria Environmental, Inc. (AEI) was contracted to perform an industrial hygiene evaluation for the Pennsylvania Army National Guard (PA ARNG) Johnstown Walters Avenue (Hogg Armory) Readiness Center located at 565 Walters Avenue, Johnstown, PA 15904. Non-[redacted], DrPH, CIH performed the evaluation on September 16, 2011. The point of contact for the facility was SFC Non-Responsive. The purpose of the evaluation was to identify and measure the existence and extent of potentially hazardous operations or conditions at Army National Guard (ARNG) facilities. The survey included: (1) evaluations of operations including ventilation system evaluations, noise dosimetry if appropriate, lighting surveys, hazard control evaluations and any additional information pertinent to the operations; (2) an evaluation of the physical condition of the facility and personnel concerns including visual inspections for peeling potentially lead-based paint, damaged suspect asbestos-containing materials, water damage or mold problems; indoor air quality concerns; and housekeeping practices; and (3) photographs of the exterior and interior of the readiness center. The results of the evaluation indicated the following:

Paint Chip and Wipe Samples for Lead Contamination: A visual inspection was performed to determine if there were any areas of peeling paint at the facility that could pose a lead exposure hazard. No peeling paint was observed. Results of dust wipe samples taken throughout the facility were below the recommended maximum criterion for surface contamination of lead (200 micrograms per square foot (µg/ft^2)) in all areas sampled except for the samples collected from the floor in Vault 2 (420 µg/ft^2), the supply air vent in the Assembly Hall (1,900 µg/ft^2), the window sill in the Fitness Center (490 µg/ft^2) and from the floor in the East Storage Room (970 µg/ft^2). The Fitness Center and the East Storage Room were formerly an indoor firing range.

Visual Inspection for Damaged Asbestos-Containing Materials: A visual inspection was performed to determine if there were any suspect asbestos-containing material and its condition. No damaged suspect material was observed.

Visual Inspection for Water Damage and Mold Growth: A visual inspection was performed to determine if there was any water damage or visible mold growth at the facility. No evidence of water intrusion or mold growth was observed on the day on the inspection.

Visual Inspection for Housekeeping Concerns: A visual inspection was performed to assess the state of housekeeping in the facility. The housekeeping was good.

Lighting: A lighting survey was performed in all areas within the readiness center. The evaluation indicated illumination deficiencies in several areas. The illumination measurements indoors ranged from 12.2 foot candles (fc) to 119.7 fc.

Indoor Air Quality: Temperature and relative humidity measurements were within the summer comfort ranges in the areas monitored. Indoor concentrations of carbon dioxide (CO_2) and carbon monoxide (CO) were below the guidelines in all areas.

Material Safety Data Sheets: The Material Safety Data Sheet (MSDS) notebook was reviewed and found to be up to date and well organized per OSHA 29 CFR 1910.1200.

Overall, the Johnstown Walters Avenue (Hogg Armory) Readiness Center has few industrial hygiene issues, and programs are in place to protect, inform and train employees and maintain the facility.

1 Introduction

Aria Environmental, Inc. (AEI) was contracted to perform an industrial hygiene evaluation for the Pennsylvania Army National Guard (PA ARNG) Johnstown Walters Avenue (Hogg Armory) Readiness Center located at 565 Walters Avenue, Johnstown, PA 15904. Non-[redacted], DrPH, CIH performed the evaluation on September 16, 2011. The point of contact for the facility was SFC Non-Responsive. The purpose of the evaluation was to identify and measure the existence and extent of potentially hazardous operations or conditions at Army National Guard (ARNG) facilities.

Construction of the Johnstown Walters Avenue Readiness Center was built in the 1960's. The readiness center is staffed by 5 administrative personnel and 1 maintenance support staff. The operations conducted at the facility include supply and administrative duties. A diagram of the building layout is provided in Appendix A. All sampling sheets and laboratory certificates of analysis are provided in Appendix B. Selected photographs taken during the evaluation are provided in Appendix C. Indoor air quality and lighting survey measurement log sheets are provided in Appendix D. Lists of all references used during the evaluation are included in the main body of the report.

2 Evaluation Methods

The industrial hygiene survey of the Johnstown Walters Avenue Readiness Center consisted of visual inspections, interviews with employees, and sampling plan development in order to achieve the following: (1) evaluations of operations including operation description, sampling for lead in air or on surfaces if appropriate, ventilation system evaluations, noise measurements if appropriate, lighting surveys, hazard control evaluations and any additional information pertinent to the operations; (2) an evaluation of the physical condition of the facility and personnel concerns including visual inspections for peeling potentially lead-based paint, damaged suspect asbestos-containing materials, water damage or mold problems; indoor air quality concerns; and housekeeping practices; and (3) a building layout and photographic documentation of the interior of the facility.

The National Guard Bureau (NGB) Region North IH Office provided all industrial hygiene equipment for air sampling (equipment and media), ventilation, lighting, noise and indoor air quality (IAQ) survey instruments and paid for laboratory analytical fees. Laboratories were chosen or approved by the NGB IH office.

3 Operations

Operations conducted at the Johnstown Walters Avenue facility consist exclusively of supply and administrative duties. No other maintenance of vehicles or other physical tasks are performed at the facility. Ground maintenance and upkeep of the building are the responsibility of the state employed Armorer and not part of the duties of National Guard personnel.

4 Noise Hazards

No noise-generating activities were taking place on the day of the survey. Due to the nature of the tasks performed onsite, no activities requiring noise monitoring are anticipated to occur at the RC.

5 Hazard Controls

Ventilation Systems

No local exhaust ventilation systems were present in the facility.

6 Physical Condition of the Facility and Personnel Concerns

An evaluation of the physical condition of the facility and personnel concerns was performed including visual inspections for water damage or mold problems; potential ergonomic problems; and housekeeping practices. Lighting measurements were taken in all areas of the facility, and indoor air quality measurements were taken in select areas.

Paint Chip and Dust Wipe Samples for Lead Contamination

A visual inspection was performed to determine if there were any areas of peeling paint at the facility that could pose a lead exposure hazard. No peeling paint was observed. To determine if any cross contamination of lead from any source into areas of the facility existed, wipe samples were collected using ghost wipes and 10 centimeter (cm) x 10cm templets. The Environmental Protection Agency (EPA) and the Commonwealth of Pennsylvania limits for lead in dust are 40 micrograms per square foot (µg/ft^2) on floors, 250 µg/ft^2 on window sills, and 400 µg/ft^2 in window troughs. These limits apply to pre-1978 Army facilities only if children under 6 years of age occupy them for 60 or more hours per year. The NGB Region North Industrial Hygiene Office concurs with the US Army Public Health Command recommended maximum level for adult exposures of 200 µg/ft^2 on floors and frequently contacted surfaces, which is more stringent for window sills than the EPA/State standards. Dust wipe samples were submitted to AMA for atomic absorption spectrophotometry (AAS) following the analytical method ASTM D3335-85A. All wipe samples collected from the facility were below the recommended maximum except for the samples collected from the floor in Vault 2 (420 µg/ft^2), the supply air vent in the Assembly Hall (1,900 µg/ft^2), the window sill in the Fitness Center (490 µg/ft^2) and from the floor in the East Storage Room (970 µg/ft^2). The Fitness Center and the East Storage Room were formerly an indoor firing range. Results are given in Table 1 and certificates of analysis are included in Appendix B.

Table 1 – Results of Dust Wipe Sampling for PA ARNG
Johnstown Walters Avenue Readiness Center on September 16, 2011.

Wipe Sample #	Sample Location	Result (µg/ft^2)*
JWRC-1	Vault 2 – floor	**420**
JWRC-2	Vault 3 – floor	<110
JWRC-3	Assembly Hall – supply air vent	**1,900**
JWRC-4	Assembly Hall – floor	<110
JWRC-5	Fitness Center – Former Firing Range – window sill	**490**
JWRC-6	East Storage Room – Former Firing Range – floor	**970**
JWRC-7	Kitchen – window sill	<110
JWRC-8	Kitchen – radiator	120
JWRC-9	Lobby – floor	<110

Table 1 – Results of Dust Wipe Sampling for PA ARNG Johnstown Walters Avenue Readiness Center on September 16, 2011.

Wipe Sample #	Sample Location	Result (µg/ft²)*
JWRC-10	Break Room – window sill	<110
JWRC-11	Room 22 – window sill	<110
JWRC-12	Conference Room 22 – floor	<110
JWRC-13	Corridor near room 35 – top of radiator	<110
JWRC-14	Room 29 – top of wooden book shelf	<110
JWRC-15	Room 32 – top of desk	<110

*The recommended maximum level for adult exposures is 200 µg/ft² lead on surfaces.

Visual Inspection for Damaged Asbestos-Containing Materials

A visual inspection was performed to determine if there was any damaged suspect asbestos-containing material (ACM). No damaged suspect ACM was observed.

Visual Inspection for Water Damage and Mold Growth

A visual inspection was performed to determine if there was any water damage or visible mold growth at the facility. No evidence of water intrusion or mold growth was observed on the day of the inspection.

Visual Inspection for Housekeeping Concerns

A visual inspection was performed to assess the state of housekeeping in the facility. The housekeeping was good. Most areas were clean and tidy.

Lighting

Illumination levels were measured using a Cal-Light 400L, calibrated on March 9, 2011, and compared to minimum lighting requirements for various facilities and functions based on the following references: American National Standards Institute/Illumination Engineering Society of North America (ANSI/IESNA) Standard RP-1-04 (Office Lighting) and ANSI/IESNA Standard RP-7-01 (Lighting Industrial Facilities).

A lighting survey was performed in all areas within the readiness center. The evaluation indicated illumination deficiencies in the following areas: the cold storage area, the boiler room, the kitchen, the fitness center, the janitor's closet and office Room 28. The illumination measurements indoors ranged from 12.2 foot candles (fc) to 119.7 fc. The complete results of the evaluation are presented in Appendix D, including whether the results met minimum requirements for illumination.

Indoor Air Quality (IAQ)

Indoor air quality measurements (i.e., temperature, relative humidity, carbon dioxide and carbon monoxide) were taken using a TSI Q-Trak Plus Model 8554, factory calibrated in February, 2011. Temperature, relative humidity and carbon dioxide (CO_2) measurements were compared to the recommended levels established by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE). Carbon monoxide (CO) concentrations were compared to

the ACGIH Threshold Limit Value (TLV) for CO and the Environmental Protection Agency's (EPA's) National Ambient Air Quality Standard (NAAQS) for CO.

Industry guidelines or standards for seasonal temperature and humidity ranges for thermal comfort are established by ASHRAE standard 55-2010. These ranges are presented in Table 2. The U.S. EPA also recommends maintaining relative humidity below 60% and ideally between 30 and 50% to prevent mold growth. Complete results are provided in Appendix D with the lighting survey measurements.

Table 2 - Acceptable Ranges of Temperature and Relative Humidity in Summer and Winter[a]

Relative Humidity	Winter Temperature	Summer Temperature
30%	68.5°F – 76.0°F	74.0°F – 80°F
40%	68.5°F – 75.5°F	73.5°F – 79.5°F
50%	68.5°F – 74.5°F	73.0°F – 79.0°F
60%	68.0°F – 74.0°F	72.5°F – 78.0°F

[a]adapted from ASHRAE Standard 55-2010

Temperature and Relative Humidity
Indoor temperature and relative humidity (Rh) measurements in select areas of the facility ranged from 75.3 to 76.3° F and 34.6 to 40.9% Rh. Temperature and relative humidity measurements were within the comfort ranges for the summer season on the day of the survey. Outdoor temperature and relative humidity on the day of monitoring was 57.0 ° F and 60%.

Carbon Dioxide (CO_2) and Carbon Monoxide (CO)
Carbon dioxide and carbon monoxide measurements are used to assess ventilation system performance. The exhaled breath of building occupants is the main indoor source of carbon dioxide; therefore, the build up of CO_2 indicates inadequate ventilation. The concentration of concern for carbon dioxide is set by ASHRAE standard 62.1–2010 as 700 ppm above outdoor concentrations that typically range from 300 -500 ppm. The indoor level of CO_2 ranged from 467 to 712 parts per million (ppm). The measured CO_2 concentrations were below the guideline in area monitored, indicating adequate fresh air exchange.

Carbon monoxide is a byproduct of incomplete combustion. Indoor concentrations indicate contamination caused by improperly vented or malfunctioning boilers, furnaces or stoves or from vehicle exhaust entering the building from garages, loading docks, nearby roads or parking lots. The concentration of interest set by ASHRAE standard 62.1-2010 and the National Ambient Air Quality Standards (NAAQS) for carbon monoxide is an 8 hour average of 9 ppm. The ACGIH TLV for CO is 25 ppm. The indoor levels of CO ranged from 0.5 to 0.9 ppm; therefore, concentrations are below occupational exposure limits, ASHRAE and the NAAQS-recommended CO concentrations.

Additional Information

Material Safety Data Sheets
The Material Safety Data Sheet (MSDS) notebook was reviewed and found to be up to date and well organized per the OSHA Hazard Communication Standard: 29 CFR 1910.1200.

7 Conclusions

The results of the evaluation indicated no concerns with the following at the facility: contamination of clean air sources, water intrusion, peeling potentially lead-based paints, noise hazards, visible mold, the presence of damaged suspect asbestos-containing materials and housekeeping. The results of the evaluation indicated industrial hygiene concerns in the following areas: MSDS notebook maintenance, water intrusion, indoor air quality and lighting. Overall, the Johnstown Hogg Readiness Center has few industrial hygiene issues, and programs are in place to protect, inform and train employees and maintain the facility.

8 Limitations

This report has been prepared for the exclusive use of the U.S. Army National Guard (USARNG) and/or their agents. This service has been performed in accordance with generally accepted industrial hygiene and environmental practices. No other warranty, expressed or implied, is made. Our conclusions and recommendations are based, in part, upon information provided to us by others and our site observations. We have not verified the completeness or accuracy of the information provided to us by others, unless otherwise noted. Our observations and recommendations are based upon conditions readily visible at the site at the time of our site visit, and upon current industry standards.

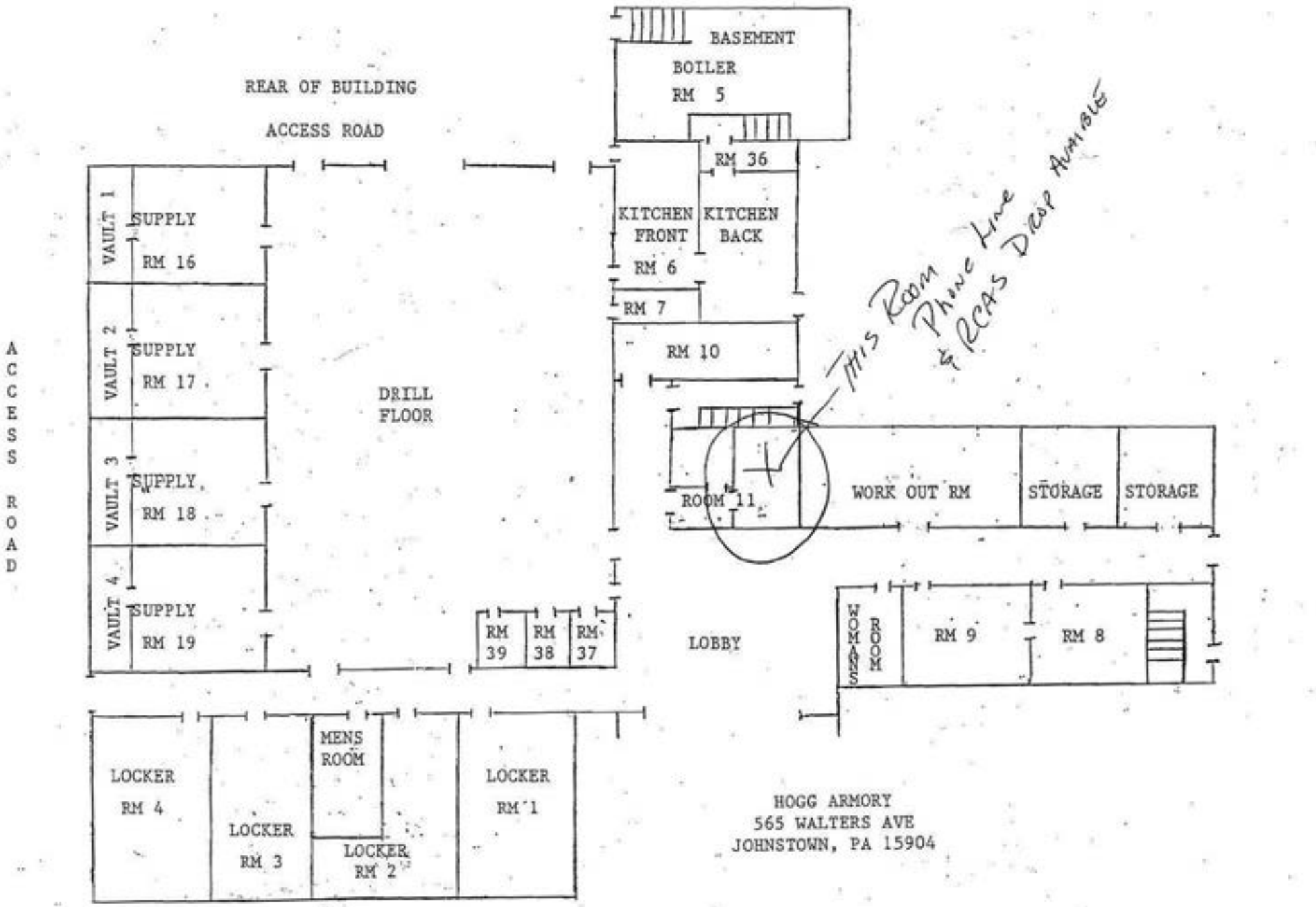
By virtue of providing the services described in this report, the preparer does not assume the responsibility of the person(s) in charge of the site, or otherwise undertake responsibility for reporting to any local, state, or federal public agencies any conditions at the site that my present a potential danger to public health, safety, or the environment. It is the Client's responsibility to notify the appropriate local, state, or federal public agencies as required by law, or otherwise to disclose, in a timely manner, any information that may be necessary to prevent any danger to public health, safety, or the environment. Under this scope of services, the preparer assumes no responsibility regarding response actions initiated as a result of these findings. Response actions are the sole responsibility of the Client and should be conducted in accordance with local, state, and/or federal requirements, and should be performed by appropriately licensed personnel as warranted.

9 References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current edition.
2. Title 24, Code of Federal Regulations (CFR), Part 35, Subpart B, Sections 35.110, Definitions of Lead-Based Paint, Housing and Urban Development, U.S. Department of Housing.
3. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998.
4. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, May 25, 2007.
5. Army Regulation (AR) 385-10, The Army Safety Program, 14 June 2010.
6. Army Regulation (AR) 420-70 Buildings and Structures, 10 October 1997.
7. Army Regulation (AR) 200-1 Environmental Protection and Enhancement, 13 December 2007.
8. Army Regulation (AR) 420-1 Army Facilities Management, 28 March 2009.

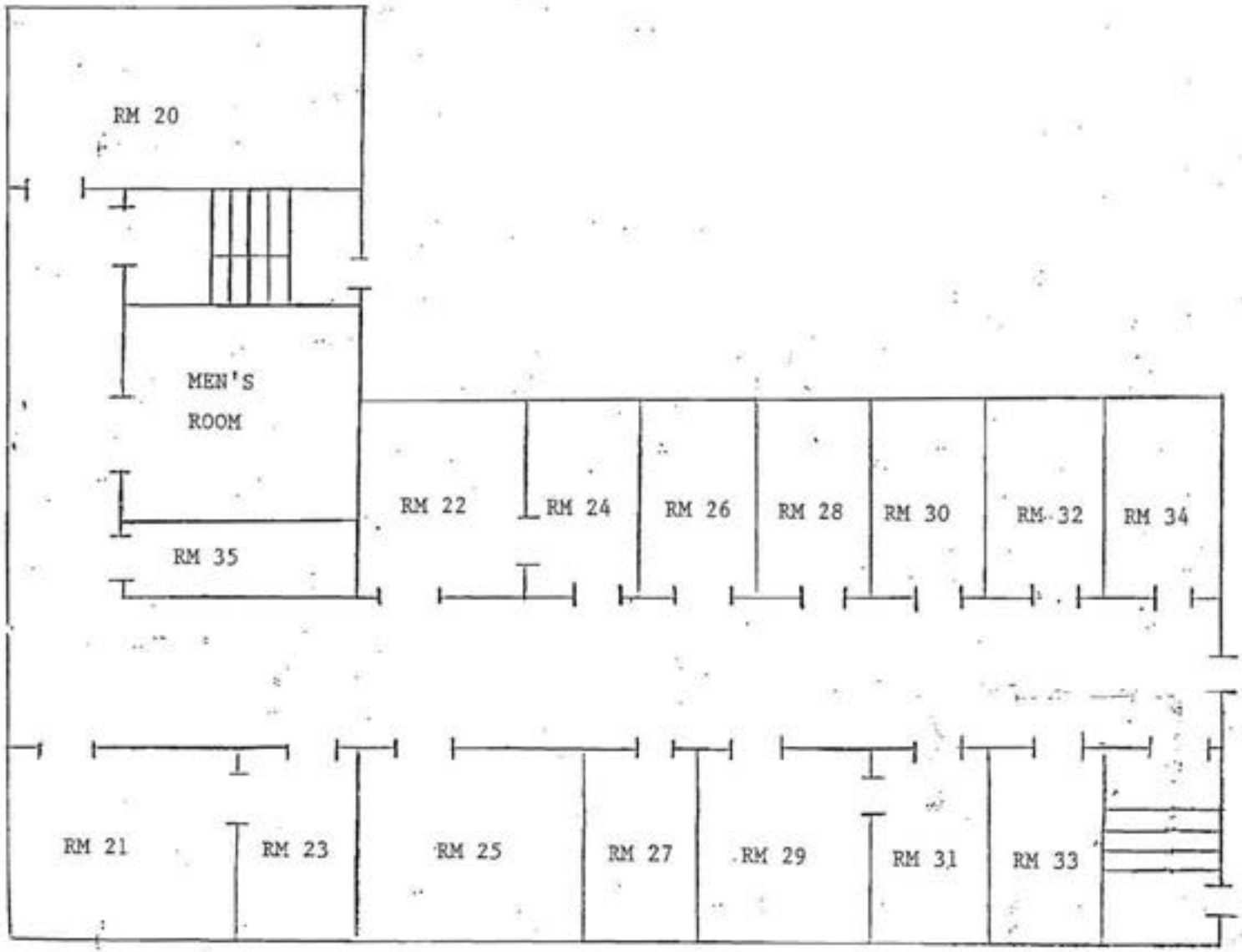
9. Department of the Army Pamphlet (DA PAM) 40-501, Medical Service, Hearing Conservation Program, December 15, 1998.
10. Department of the Army Pamphlet (DA PAM) 40-503, Medical Service, Industrial Hygiene Program, October 30, 2000.
11. Technical Manual (TM) 5-810-1, Mechanical Design, Heating, Ventilation, and Air Conditioning, June 1991.
12. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current edition.
13. RP-1-2004 (Office Lighting) and RP-7-2001 (Industrial Lighting), Illuminating Engineering Society of North America (IESNA)/ANSI.
14. The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), Standard 62.1-2010, "Ventilation for Acceptable Indoor Air Quality" and Standard 55-2010, "Thermal Environmental Conditions for Human Occupancy".
15. NIOSH website: http://www.cdc.gov/niosh/.
16. OSHA website: http://www.osha.gov/.
17. Army Public Health Command website: http://phc.amedd.army.mil/Pages/default.aspx.
18. EPA website: http://www.epa.gov.

Appendix A
Building Layout



HUGG ARMORY

2ND FLOOR



Appendix B
Certificates of Analysis for Dust Wipe and Bulk Samples

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE, ENVIRONMENTAL LEAD & ENVIRONMENTAL MICROBIOLOGY
ISO/IEC 17025:2005
www.aihaaccreditedlabs.org
LAP #100470

Client:	National Guard Bureau	**Job Name:**	Johnstown Walters Avenue RC	**Chain Of Custody:**	511428
Address:	301-IH Old Bay Lane, Attn: ARNG-CIG-P, State Military Reservation	**Job Location:**	Johnstown, PA	**Date Submitted:**	9/23/2011
	Havre de Grace, Maryland 21078	**Job Number:**	Not Provided	**Person Submitting:**	Non-R
		P.O. Number:	W912K6-09-A-0003	**Date Analyzed:**	10/11/2011

Report Date: 10/11/2011

Attention: Non-

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		Total ug	Final Result		Comments
12002603	JWRC-1	Flame	Wipe	****	0.108	110	ug/ft²	45	420	ug/ft²	
12002604	JWRC-2	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
12002605	JWRC-3	Flame	Wipe	****	0.111	110	ug/ft²	210	1900	ug/ft²	
12002606	JWRC-4	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
12002607	JWRC-5	Flame	Wipe	****	0.170	71	ug/ft²	84	490	ug/ft²	
12002608	JWRC-6	Flame	Wipe	****	0.108	110	ug/ft²	100	970	ug/ft²	
12002609	JWRC-7	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
12002610	JWRC-8	Flame	Wipe	****	0.278	43	ug/ft²	32	120	ug/ft²	
12002611	JWRC-9	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
12002612	JWRC-10	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
12002613	JWRC-11	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
12002614	JWRC-12	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
12002615	JWRC-13	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
12002616	JWRC-14	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
12002617	JWRC-15	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	

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ISO/IEC 17025:2005
www.aihaaccreditedlabs.org
LAP #100470

Client:	National Guard Bureau	**Job Name:**	Johnstown Walters Avenue RC	**Chain Of Custody:**	511428
Address:	301-4H Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation	**Job Location:**	Johnstown, PA	**Date Submitted:**	9/23/2011
	Havre de Grace, Maryland 21078	**Job Number:**	Not Provided	**Person Submitting:**	Non-Responsive
		P.O. Number:	W912K6-09-A-0003	**Date Analyzed:**	10/11/2011 **Report Date:** 10/11/2011

Attention: Non-Responsive

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft^2)	Reporting Limit	Total ug	Final Result	Comments

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B

N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)

%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)

Note: All samples were received in good condition unless otherwise noted.

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results

Final results for air and wipe samples are based on client supplied information nor verified by this laboratory.

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

See QC Summary for analytical results of quality control samples associated with these samples.

Analyst: Non-Responsive

Technical Manager: Non-Responsive

OWI (410) 247-0024

159202 210 REV. 6.06

AMA Analytical Services, Inc.
Focused on Results www.amalab.com
AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)
4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This Number For Inquires) 511428 pv2

Mailing/Billing Information:
1. Client Name: National Guard Bureau
2. Address 1: 301-IH Old Bay Lane
3. Address 2: Attn: NGB-AVN-SI, State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:
1. Job Name: JOHNSTOWN WALTERS AVE RC
2. Job Location: JOHNSTOWN PA
3. Job #: [redacted] #: W912K8-09-A-0003
4. Contact Person [redacted] @ phone #: (410) 942-0273
5. Submitted By: [redacted] gnature [redacted]

Reporting Information (Results will be provided as soon as technically feasible):

AFTER HOURS (must be pre-scheduled)	NORMAL BUSINESS HOURS			REPORT TO:
☐ Immediate Date Due: ___ ☐ 24 Hours Time Due: ___ Comments: ___	☐ Immediate ☐ Next Day ☐ 2 Day	☐ 3 Day ☒ 5 Day + Date Due: 9/30/11	☐ Results Required By Noon (Every Attempt Will Be Made to Accomodate)	☒ Include [redacted] Report ☒ [redacted] ARIAENVIRO.COM ☐ Fax: [redacted] s.army.mil ☐ Verb [redacted] army.mil

Asbestos Analysis

PCM Air – Please Indicate Filter Type:
- ☐ NIOSH 7400 ___ (QTY)
- ☐ Fiberglass ___ (QTY)

TEM Air – Please Indicate Filter Type:
- ☐ AHERA ___ (QTY)
- ☐ NIOSH 7402 ___ (QTY)
- ☐ Other (specify ___) ___ (QTY)

PLM Bulk
- ☐ EPA 600 – Visual Estimate ___ (QTY)
- ☐ EPA Point Count ___ (QTY)
- ☐ NY State Friable 198.1 ___ (QTY)
- ☐ Grav. Reduction ELAP 198.6 ___ (QTY)
- ☐ Other (specify ___) ___ (QTY)

MISC
- ☐ Vermiculite
- ☐ Asbestos: Soil PLM ___ (Qual) PLM ___ (Quan) PLM/TEM ___ (Qual) PLM/TEM ___ (Quan)

TEM Bulk
- ☐ ELAP 198.4/Chatfield ___ (QTY)
- ☐ NY State PLM/TEM ___ (QTY)
- ☐ Residual Ash ___ (QTY)

TEM Dust
- ☐ Qual. (pres/abs) Vacuum/Dust ___ (QTY)
- ☐ Quan. (s/area) Vacuum D5755-95 ___ (QTY)
- ☐ Quan. (s/area) Dust D6480-99 ___ (QTY)

TEM Water
- ☐ Qual. (pres/abs) ___ (QTY)
- ☐ ELAP 198.2/EPA 100.2 ___ (QTY)
- ☐ EPA 100.1 ___ (QTY)

☒ All samples received in good condition unless otherwise noted.
☐ PLM Water samples ___ °C)

Metals Analysis
- ☐ Pb Paint Chip ___ (QTY)
- ☒ Pb Dust Wipe (wipe type GHOST) 15 (QTY)
- ☐ Pb Air ___ (QTY)
- ☐ Pb Soil/Solid ___ (QTY)
- ☐ Pb TCLP ___ (QTY)
- ☐ Drinking Water ☐ Pb ___ (QTY) ☐ Cu ___ (QTY) ☐ As ___ (QTY)
- ☐ Waste Water ☐ Pb ___ (QTY) ☐ Cu ___ (QTY) ☐ As ___ (QTY)
- ☐ Pb Furnace (Media ___) ___ (QTY)

Fungal Analysis
Collection Apparatus for Spore Trap/Air Samples: ___
Collection Media ___
- ☐ Spore-Trap ___ (QTY) ☐ Surface Vacuum Dust ___ (QTY)
- ☐ Surface Swab ___ (QTY) ☐ Culturable ID Genus (Media ___) ___ (QTY)
- ☐ Surface Tape ___ (QTY) ☐ Culturable ID Species (Media ___) ___ (QTY)
- ☐ Other (Specify ___) ___ (QTY)

SAMPLE INFORMATION

CLIENT ID NUMBER	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPE AREA	TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	WIPE	SPORE TRAP	TAPE	SWAB
JWRC-1		9/16/11		100 cm²				X				X				
JWRC-2		↓		↓				↓				↓				
JWRC-3				16 in²												
JWRC-4				100 cm²												
JWRC-5				.17 ft²												
JWRC-6				100 cm²												
JWRC-7				16 in²												
JWRC-8				40 in²												
JWRC-9				102 in²												
JWRC-10																
JWRC-11																
JWRC-12		↓		↓				↓				↓				

CLIENT CONTACT
(LABORATORY STAFF ONLY)

Date/Time:	Contact:	By:
Date/Time:	Contact:	By:
Date/Time:	Contact:	By:

[redacted]

LABORATORY STAFF ONLY: (CUSTODY)
1. Date/Time RCVD: 9/23/11 @ 1030 Via: FedEx By (Print) [redacted]
2. Date/Time Analyzed: ___/___/___ @ ___ By (Print) ___
3. Results Reported To: ___ Via: ___ Date: ___/___/___ Time: ___ Initials: ___
4. Comments: 7950 7792 2000

OWI (410) 247-2024   159202   210 REV 6.08

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AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)
4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This Number For Inquires) 2 of 2 511426

Mailing/Billing Information:

1. Client Name: National Guard Bureau
2. Address 1: 301-IH Old Bay Lane
3. Address 2: Attn: NGB-AVN-SI, State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:

1. Job Name: Johnstown Walters Ave RC
2. Job Location: Johnstown
3. Job #: [redacted] W912K6-09-A-0003
4. Contact Person: [redacted] @ phone # (410) 942-0273
5. Submitted By: Signature:

Reporting Information (Results will be provided as soon as technically feasible):

AFTER HOURS (must be pre-scheduled)	NORMAL BUSINESS HOURS			REPORT TO:
☐ Immediate Date Due: ____	☐ Immediate	☐ 3 Day	☐ Results Required By Noon (Every Attempt Will Be Made to Accomodate)	☒ Include COC/Field Data Sheets with Report
☐ 24 Hours Time Due: ____	☐ Next Day	☐ 5 Day +		☒ Email: ____ @ ____
Comments: ____	☐ 2 Day	Date Due: ____		☐ Fax: shirley.chapman1@us.army.mil
				☐ Verbal: ken.forsythe@us.army.mil

Asbestos Analysis

PCM Air – Please Indicate Filter Type:
- ☐ NIOSH 7400 ____ (QTY)
- ☐ Fiberglass ____ (QTY)

TEM Air – Please Indicate Filter Type:
- ☐ AHERA ____ (QTY)
- ☐ NIOSH 7402 ____ (QTY)
- ☐ Other (specify ____) ____ (QTY)

PLM Bulk
- ☐ EPA 600 – Visual Estimate ____ (QTY)
- ☐ EPA Point Count ____ (QTY)
- ☐ NY State Friable 198.1 ____ (QTY)
- ☐ Grav. Reduction ELAP 198.6 ____ (QTY)
- ☐ Other (specify ____) ____ (QTY)

MISC
- ☐ Vermiculite
- ☐ Asbestos Soil PLM __(Qual) PLM __(Quant) PLM/TEM __(Qual) PLM/TEM __(Quant)

TEM Bulk
- ☐ ELAP 198.4/Chatfield ____ (QTY)
- ☐ NY State PLM/TEM ____ (QTY)
- ☐ Residual Ash ____ (QTY)

TEM Dust
- ☐ Qual. (pres/abs) Vacuum/Dust ____ (QTY)
- ☐ Quan. (s/area) Vacuum D5755-95 ____ (QTY)
- ☐ Quan. (s/area) Dust D6480-99 ____ (QTY)

TEM Water
- ☐ Qual. (pres/abs) ____ (QTY)
- ☐ ELAP 198.2/EPA 100.2 ____ (QTY)
- ☐ EPA 100.1 ____ (QTY)

☐ All samples received in good condition unless otherwise noted. (TEM Water samples ____ °C)

Metals Analysis
- ☐ Pb Paint Chip ____ (QTY)
- ☐ Pb Dust Wipe (wipe type ____) ____ (QTY)
- ☐ Pb Air ____ (QTY)
- ☐ Pb Soil/Solid ____ (QTY)
- ☐ Pb TCLP ____ (QTY)
- ☐ Drinking Water ☐ Pb ____ (QTY) ☐ Cu ____ (QTY) ☐ As ____ (QTY)
- ☐ Waste Water ☐ Pb ____ (QTY) ☐ Cu ____ (QTY) ☐ As ____ (QTY)
- ☐ Pb Furnace (Media ____) ____ (QTY)

Fungal Analysis

Collection Apparatus for Spore Traps/Air Samples: ____
Collection Media ____
- ☐ Spore-Trap ____ (QTY) ☐ Surface Vacuum Dust ____ (QTY)
- ☐ Surface Swab ____ (QTY) ☐ Culturable ID Genus (Media ____) ____ (QTY)
- ☐ Surface Tape ____ (QTY) ☐ Culturable ID Species (Media ____) ____ (QTY)
- ☐ Other (Specify ____) ____ (QTY)

SAMPLE INFORMATION / **ANALYSIS** / **METHOD**

CLIENT ID NUMBER	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPE AREA	TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	WIPE	SOIL/SOLID	TAPE	SWAB
JWRC-13		7/16/11		100 cm²				X				6				
JWRC-14		↓		↓				↓				↓				
JWRC-15																

CLIENT CONTACT (LABORATORY STAFF ONLY)

Date/Time:	Contact:	By:
Date/Time:	Contact:	By:
Date/Time:	Contact:	By:

[redacted]

LABORATORY STAFF ONLY: (CUSTODY)

1. Date/Time RCVD: ____/____/____ @ ____ Via: ____ By (Print): ____
2. Date/Time Analyzed: ____/____/____ @ ____ By (Print): ____ Sign: ____
3. Results Reported To: ____ Via: ____ Date: ____/____/____ Time: ____ Initials: ____
4. Comments: ____

Appendix C
Photo Documentation

Johnstown (Walters Ave) Readiness Center

Exterior

Drill Hall

Drill Hall

Drill Hall

Johnstown (Walters Ave) Readiness Center

Propane Powered Fork Lift Inside Drill Hall

Flammable Materials Cabinets

Flammable Materials Cabinet

Asbestos Containing Thermal System Insulation

Johnstown (Walters Ave) Readiness Center

Unit Storage Building

Inside Unit Storage Building

Appendix D
IAQ and Lighting Survey Log Sheets

National Guard Industrial Hygiene Survey For Indoor Air Quality and Light Level

State	Pennsylvania	City	Johnstown	IAQ							Light		
Date	9/16/2011	Inspector	Non-	Instrument		Q-Track 7565-X					Instrument		Cal-Light 400
Facility Description	Johnstown Walters Avenue RC			Serial Number		7565X0839020					Serial Number		K070003
Weather Conditions	57 degrees, 60% RH			Last Calibration		Feb-11					Last Calibration		9-Mar-11
Location	Function	No. Occupants	Time	Temp. (°F)	Exceeded	RH (%)	Exceeded	CO_2 (ppm)	Exceeded	CO (ppm)	Exceeded	Illuminance (fc)	Insufficient	Illuminance Reference (fc)
	Assembly Hall		14:00	75.3		34.6		467		0.9		105.1		30-50
Room 22			15:40	76.3		40.9		712		0.5		53.8		
	cold Storage		16:15									2.3-3.8	X	30
	Vault 1											66.1		10
	Vault 2											79.8		10
	Vault 3											101.1		10
	Vault 4											113.3		10
	Supply Room 16											30.9		30
	Supply Room 17											56.5		30
	Supply Room 18											41.8		30
	Supply Room 19											34		30
	Locker Room 1											40.9		7
	Locker Room 2											119.7		7
	Locker Room 3											37.9		7
	Locker Room 4											54.5		7
	Men's Latrine											65		5
Room 37	Office											49.8		30-50
Room 38	Office											95.1		30-50
Room 39	Office											49.8		30-50
Room 5	Boiler Room											27	X	30
Room 6	Kitchen											30.9-44.2	X	50
Room 7	Storage											82.7		30
Room 36	Storage											30		30
	Stairs											12.2		5
	Lobby											22.3		10
	Fitness Center											26.8	X	30

National Guard Industrial Hygiene Survey For Indoor Air Quality and Light Level

State	Pennsylvania	City	Johnstown	IAQ							Light		
Date	9/16/2011	Inspector	Non-	Instrument		Q-Track 7565-X					Instrument		Cal-Light 400
Facility Description	Johnstown Walters Avenue RC			Serial Number		7565X0839020					Serial Number		K070003
Weather Conditions	57 degrees, 60% RH			Last Calibration		Feb-11					Last Calibration		9-Mar-11
Location	Function	No. Occupants	Time	Temp. (°F)	Exceeded	RH (%)	Exceeded	CO_2 (ppm)	Exceeded	CO (ppm)	Exceeded	Illuminance (fc)	Insufficient	Illuminance Reference (fc)
	Storage Room											62.1		30
	Storage Room											41.8		30
Room 8	Classroom											41.9		30-50
Room 9	Classroom											40.8		30-50
	Women's Latrine											44		5
	Janitor's Closet											15.9	X	30
	Shower Room											16.2		5
	Corridor											18.5		5
Room 20	Conference Room											38.8		30-50
Room 21	Classroom											57.3		30-50
Room 22	Office											53.8		30-50
Room 23	Office											66.1		30-50
Room 24	Office											55.7		30-50
Room 25	Office											68.3		30-50
Room 26	Office											52.9		30-50
Room 27	Office											80.5		30-50
Room 28	Office											22.7	X	30-50
Room 29	Office											58		30-50
Room 30	Office											49.1		30-50
Room 31	Office											30.9		30-50
Room 32	Office											45.7		30-50
Room 33	Office											37.1		30-50
Room 34	Office											47.4		30-50
Room 35	Storage Room											72.2		30
	Corridor - 2nd Floor											57.6		5
	Men's Latrine											56.3		5
	Stairs - 2nd Floor											12.2		5

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland




Industrial Hygiene Survey
for PAARNG – Johnstown-Hogg Armory Readiness Center
565 Walters Avenue
Johnstown, Pennsylvania 15904

AECOM
January 2013
Document No.: 60276421/Johnstown-Hogg Armory Readiness Center

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland

Industrial Hygiene Survey for PAARNG – Johnstown-Hogg Armory Readiness Center 565 Walters Avenue Johnstown, Pennsylvania 15904

Non-Responsive
Industrial Hygienist

Non-Responsive
Project Manager

Non-Responsive
Northeast District Health & Safety Manager

AECOM Environment
January 2013
Document No.: 60276421/Johnstown-Hogg Armory Readiness Center

AECOM

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Executive Summary

On November 6, 2012, AECOM Technical Services Northeast, Inc. (AECOM) conducted an Industrial Hygiene (IH) survey of the Johnstown-Hogg Armory Readiness Center facility located at 565 Walters Avenue, Johnstown, Pennsylvania Non-Responsive, SFC was the point of contact for the facility. The facility Maintenance Repairman accompanied AECOM during the survey to provide access and information concerning the Johnstown-Hogg Armory Readiness Center operations.

The industrial hygiene survey was conducted in general accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings", dated January 2012.

The Johnstown-Hogg Armory Readiness Center is currently staffed by eight personnel. The facility is configured as an administrative area and a drill/assembly hall.

Personnel at the facility were undertaking normal daily activities, which are administrative in nature, at the time of the survey.

The activities undertaken during the industrial hygiene survey included facility descriptions, lead wipe sampling, evaluation of housekeeping, illumination studies, ventilation system evaluation, and a review of the physical building condition.

Housekeeping is performed regularly at the Johnstown-Hogg Armory Readiness Center.

AECOM did not observe any damaged, suspect asbestos-containing materials at the Johnstown-Hogg Armory Readiness Center.

AECOM did not observe peeling paint at the Johnstown-Hogg Armory Readiness Center.

AECOM did not observe evidence of water intrusion or visible mold growth at the Johnstown-Hogg Armory Readiness Center.

Lighting levels measured throughout the facility were generally adequate as per American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

Wipe samples collected in association with the facility indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft^2 for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of a boiler room that feeds radiant heaters throughout the building. There is no HVAC system that provides fresh air from the building exterior in administrative areas.

1.0 Facility Description and Operations

The Johnstown-Hogg Armory Readiness Center, constructed in 1960, is a two-story administrative facility slab on-grade masonry structure. The building consists primarily of offices, training/classroom, locker/shower rooms, storage and administrative areas, and is finished with painted block and sheetrock walls, lay-in ceiling tiles and floor tile. The Assembly/Drill Hall area, located in the center of the building, is finished with painted block walls and a concrete floor. According to site personnel there is no firing range at the facility.

The primary activity at the Johnstown-Hogg Armory Readiness Center is routine administrative duties and occasional use by units for support and training of soldiers. The Assembly Hall is periodically rented out for limited civic activities such as group meetings, community polling center, trade shows and to other related local groups and organizations. The Johnstown-Hogg Armory Readiness Center is currently staffed by eight personnel. Vehicle maintenance activities are not undertaken at the facility.

2.0 Sampling in Readiness Centers

2.1.1 Wipe Sampling

Wipe sampling for lead was conducted in the Drill Hall and administrative areas following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost wipes. Samples were collected in areas that are not frequently cleaned and showed signs of dust whenever possible.

The following table presents the results of the lead wipe sampling conducted at the facility.

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
JTH-01	Drill hall north – floor	<110 ug/ft^2
JTH-02	Drill hall south – floor	<110 ug/ft^2
JTH-03	Drill hall – top of vending machine	<110 ug/ft^2
JTH-04	Kitchen – top of paper towel dispenser	<110 ug/ft^2
JTH-05	Hall near break room – table	<110 ug/ft^2
JTH-06	Hall near break room – cabinet	<110 ug/ft^2
JTH-07	Corridor - floor	<110 ug/ft^2

ug/ft^2 = Micrograms per square foot.

Wipe samples collected in association with the facility indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft^2 for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas. Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

Per Non-Responsive of NGB-IH, the requirement for Lead air sampling has been removed from the Statement of work. It was reported that historically, air samples collected at administrative facilities are typically below the limit of detection.

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls appeared to be generally in good condition. Concrete flooring was generally tiled or unpainted. AECOM did not observe damaged or peeling paint during this evaluation.

3.1.2 Suspect Asbestos Containing Materials

AECOM did not observe damaged, friable suspect asbestos containing materials (ACM) in readily accessible areas of the Johnstown-Hogg Armory Readiness Center during this survey. Thermal system piping is typically covered in fiberglass insulation with associated fittings and appeared in good condition.

Typical miscellaneous building materials observed throughout the facility but not sampled include floor tiles and associated mastic, drywall, cove base and associated mastic, ceiling tiles, and window glazing compound and caulks.

3.1.3 Water Damage/Mold

AECOM did not observe evidence of water intrusion or visible mold growth during this survey.

3.1.4 Housekeeping

The Johnstown-Hogg Armory Readiness Center was observed to be generally clean and orderly during this assessment. AECOM did not observe dust accumulation on readily accessible horizontal surfaces within areas commonly used in the facility.

3.1.5 Indoor Air Quality/ Ergonomics

The administration section contains general office space. The administration section is generally utilized by all of the Johnstown-Hogg Armory Readiness Center staff members. No Indoor Air Quality concerns were noted by the Johnstown-Hogg Armory Readiness Center personnel.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (^{o} Fahrenheit), and relative humidity (as percentage) are presented in the following table. The facility is not mechanically air conditioned. All readings were within acceptable guidelines.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (^{o}F)	Relative Humidity (%)
Outside - Baseline	0.6	351	35.1	51.6
Drill Hall	1.0	481	68.5	21.1
Physical Fitness Area	0.8	468	69.0	23.2
Room 26	0.9	522	68.6	23.4
Room 25	0.6	593	69.2	24.6
Lobby	1.0	651	70.1	25.2

Table 3-1 Guidelines:
Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard.
OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.
Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.
Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 5.10.1).
Temperature: Winter (clothing insulation = 1.0 clo) Relative humidity 30-60% - Temp - 68 – 75°F
Summer Temp - 73 – 79°F. (Derived from ASHRAE Standard 55-2010)

Johnstown-Hogg Armory Readiness Center personnel did not report any ergonomics issues or concerns. Office furniture and accessories designed to promote ergonomically correct behaviors were observed.

4.0 Ventilation and HVAC System

4.1.1 Ventilation Systems and Potential for Contamination of Clean Air Sources

No potential for contamination of clean air sources was observed at the facility.

4.1.2 HVAC Maintenance

There is no HVAC system associated with the building.

5.0 Lighting

Lighting levels in all areas were measured utilizing an Extech model 401-025 light meter that displays lighting levels in foot-candles. Lighting levels were adequate in all areas.

Table 5-1: Light Survey

Location	Results (Foot candles)	Met Standard (Y/N)	Standard*
Drill Floor	37-60	Y	10
Supply Room 17	76.2	Y	30
Supply Room 18	70	Y	30
Supply Room 19	50	Y	30
Corridor – 1st Floor	75	Y	5
Locker Room 4	52.4	Y	7
Locker Room 3	40.8	Y	7
Men's Room – 1st Floor	68.7	Y	5
Locker Room 2	65.4	Y	7
Locker Room Hall	61.5	Y	5
Break Room – 1st Floor	80	Y	10
Boiler Room 5 – Basement	35.5	Y	30
Kitchen Front – Room 6	61.8	Y	50
Janitor Closet – Room 7	94.2	Y	30
Kitchen Back	88.6	Y	50
Room 36	35.2	Y	30
Maintenance Office – Room 10	54.2	Y	50
Lobby – First Floor	80-90	Y	10
Work Out Room	36.6	Y	30
Female Locker Room	44.6	Y	7
Locker Room - Room 8	86.5	Y	7
South East Stairwell – 1st Floor	40.1	Y	5
Men's Room – 2nd Floor	63.2	Y	5
Copy Room - Room 35	85.6	Y	10
Conference Room – Room 22	54.9	Y	30
Office, Room 24 – 2nd Floor	64.2	Y	50
Office, Room 26 – 2nd Floor	62.7	Y	50
Office, Room 28 – 2nd Floor	72.6	Y	50
Office, Room 30 – 2nd Floor	81.5	Y	50
Office, Room 32 – 2nd Floor	74.3	Y	50
Office, Room 34 – 2nd Floor	78.2	Y	50
Office, Room 25 – 2nd Floor	58.7	Y	50
Corridor – 2nd Floor	70	Y	5
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI RP-7-01)			

6.0 Evaluation of Attached Garage

There is no garage associated with the Johnstown-Hogg Armory Readiness Center.

7.0 Conclusions and Limitations

AECOM has conducted this survey in accordance with applicable OSHA methods and standard industrial hygiene practice. The following conclusions were based on the observations and assessments of activities that occurred during the on-site evaluation:

Housekeeping is performed regularly at the Johnstown-Hogg Armory Readiness Center.

AECOM did not observe any damaged, suspect asbestos-containing materials at the Johnstown-Hogg Armory Readiness Center.

AECOM did not observe peeling paint at the Johnstown-Hogg Armory Readiness Center.

AECOM did not observe evidence of water intrusion or visible mold growth at the Johnstown-Hogg Armory Readiness Center.

Lighting levels measured throughout the facility were generally adequate as per American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

Wipe samples collected in association with the facility indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft^2 for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of a boiler room that feeds radiant heaters throughout the building. There is no HVAC system that provides fresh air from the building exterior in administrative areas.

AECOM provided these services consistent with the level and skill ordinarily exercised by members of the profession currently providing similar services under similar circumstances at the time the services were provided. This statement is in lieu of other statements either expressed or implied. This report is intended for the sole use of National Guard Bureau – Army National Guard. The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, and use or re-use of this document, the findings, conclusions, or recommendations is at the risk of said user.

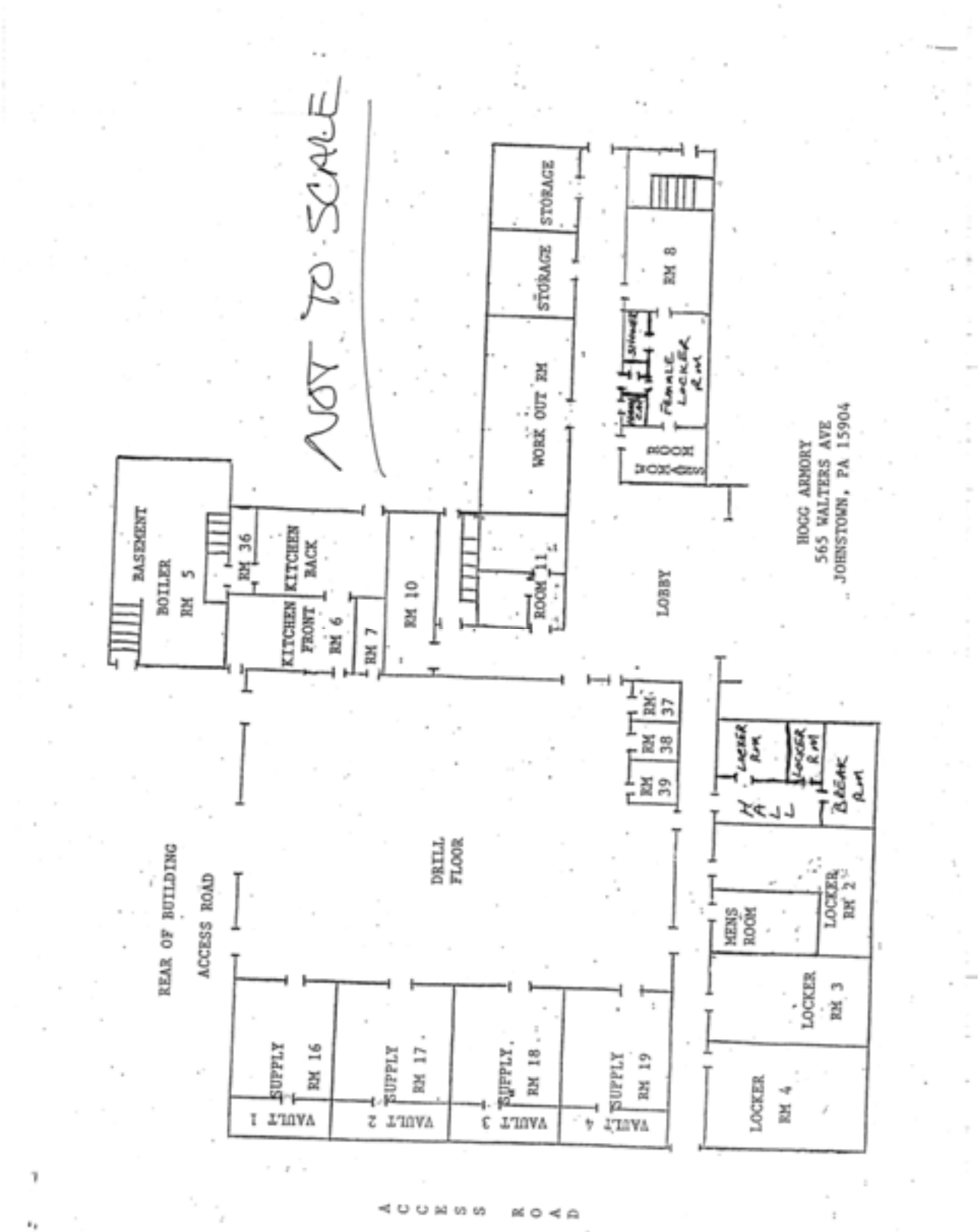
As with all such surveys, the results of the sampling represent conditions found on the date of the survey and may not represent conditions found at other times. Additionally, this survey was limited with respect to the specific parameters indicated above and should not be construed to be a comprehensive evaluation or a definitive representation of conditions within the facility. The information presented in this report is intended to be used as a guide to evaluate the need for further investigation or the need for modifications to the processes or procedures surveyed.

The Client recognizes and agrees that all testing and remediation methods have reliability limitations, no method nor number of sampling locations can guarantee that a condition will be discovered within the performance of the services as authorized by the Client. Additionally, the passage of time may result in a change in the environmental characteristics at this site. This report does not warrant against future operations or conditions that could affect the recommendations made. The results, findings, conclusions, and

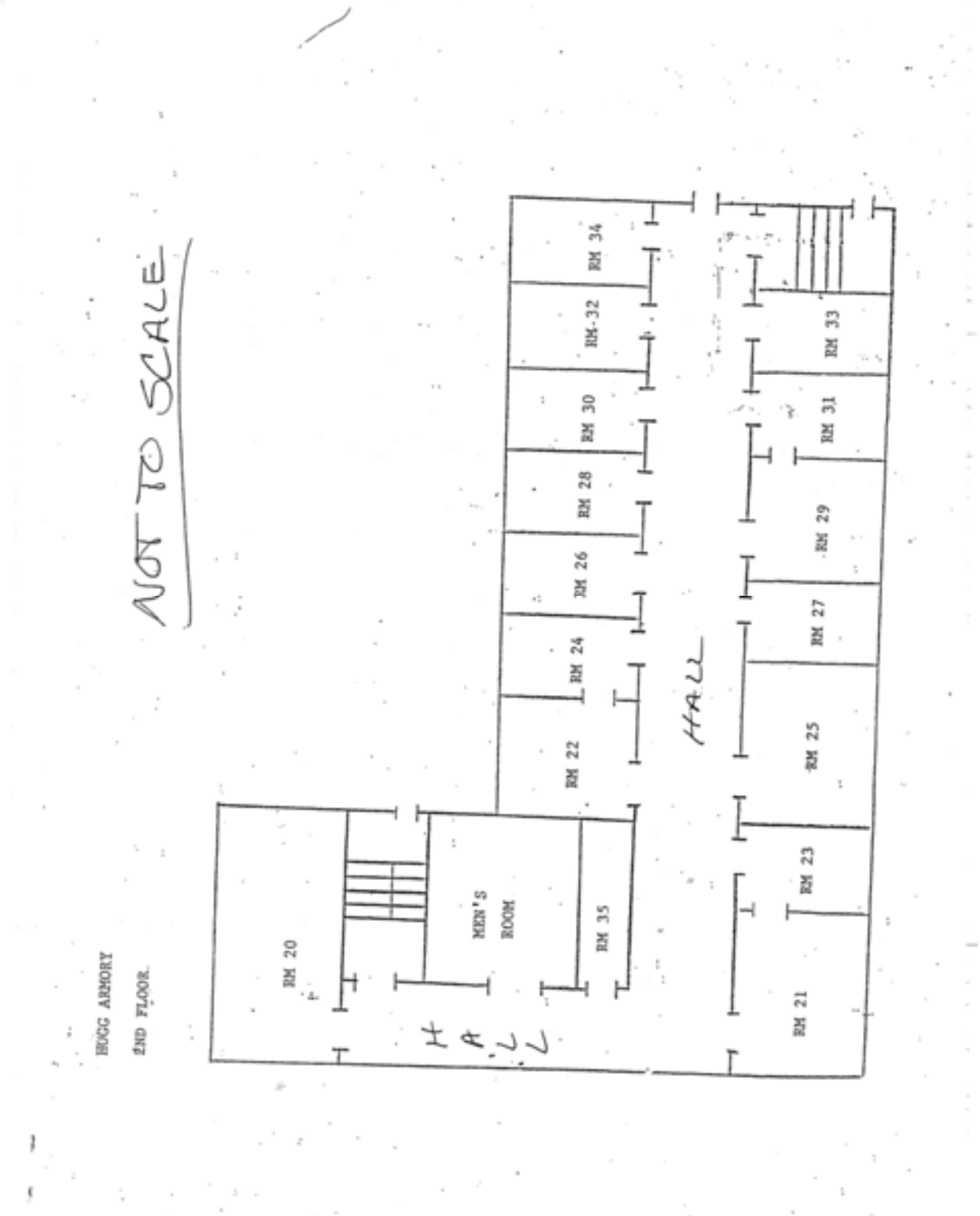
recommendations expressed in this report are based only on conditions that were observed during AECOM's inspection of the site.

Appendix A

Johnstown-Hogg Armory Readiness Center Facility Layout



AECOM



Appendix B

Johnstown-Hogg Armory Readiness Center Photographs

AECOM

Photograph 1
 Facility Front

Photograph 2
 Boiler Room

Photograph 3
 9”x9” Floor Tile

Photograph 4
 Corridor – Typical Building Materials

Photograph 5
 Drill Hall

Photograph 6
 Fiberglass Pipe Insulation with ACM Fittings

Photograph 7

Kitchen

Photograph 8

Typical Ceiling Tile

Appendix C

Analytical Results

AECOM

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	PA-Group 4c RC's	Chain Of Custody:	514463
Address:	301-11 Old Bay Lane, Attn: ARNG-CIG-P, State Military Reservation	Job Location:	Johnstown-Hoggs Armory	Date Submitted:	11/12/2012
	Havre de Grace, Maryland 21078	Job Number:	60276421.1	Person Submitting:	[redacted]
		P.O. Number:	W912K6-09-A-0003	Date Analyzed:	11/16/2012 Report Date: 11/16/2012

Attention: [redacted]

Summary of Atomic Absorption Analysis for Lead

Page 1 of 1

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Total ug	Final Result	Comments
13011088	JTH-01	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13011089	JTH-02	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13011090	JTH-03	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13011091	JTH-04	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13011092	JTH-05	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13011093	JTH-06	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13011094	JTH-07	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7010; Water: SM-3113B

N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)

%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)

Note: All samples were received in good condition unless otherwise noted.

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results.

Final results for air and wipe samples are based on client supplied information not verified by this laboratory.

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

See QC Summary for analytical results of quality control samples associated with these samples.

[redacted]

Technical Manager: [redacted]

AECOM

AMA Analytical Services, Inc.
Focused on Results www.amalab.com
AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)
4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This Number For Inquiries) 514463

Mailing/Billing Information:

1. Client Name: National Guard Bureau
2. Address 1: 301-H Old Bay Lane
3. Address 2: Attn: NGB-AVN-SI, State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0054

Submittal Information:

1. [illegible]: PA-Group 4e RC's
2. [illegible]: Johnson-Herz Armory
3. Job #: 60276121.1 P.O. #: W912QR-09-A-0003
4. Contact Person: [redacted] @ [redacted]
5. Submitted by: AECOM

Reporting Info (Results provided as soon as technically feasible). If no TAT/Reporting Info is provided, AMA will assign defaults of 5-Day and customer is contacts on file.

AFTER HOURS	NORMAL BUSINESS HOURS	REPORT TO
[illegible]	1Wk	[redacted]

Asbestos Analysis

*PCM Air – Please Indicate Filter Type:
- ☐ NIOSH 7400 ____ (QTY)
- ☐ Fiberglass ____ (QTY)

TEM Air* – Please Indicate Filter Type:
- ☐ AHERA ____ (QTY)
- ☐ NIOSH 7402 ____ (QTY)
- ☐ Other (specify ____) ____ (QTY)

PLM Bulk
- ☐ EPA 600 – Visual Estimate ____ (QTY)
- ☐ EPA Point Count ____ (QTY)
- ☐ NY State Friable 198.1 ____ (QTY)
- ☐ Grav. Reduction ELAP 198.6 ____ (QTY)
- ☐ Other (specify ____) ____ (QTY)

MISC
- ☐ Vermiculite
- ☐ Asbestos Soil [illegible]

TEM Bulk
- ☐ ELAP 198.4/Chatfield ____ (QTY)
- ☐ NY State PLM/TEM ____ (QTY)
- ☐ Residual Ash ____ (QTY)

TEM Dust*
- ☐ Qual. (possible) Vacuum/Dust ____ (QTY)
- ☐ Quan. (above) Vacuum D5755-95 ____ (QTY)
- ☐ Quan. (above) Dust D6480-99 ____ (QTY)

TEM Water
- ☐ Qual. (possible) ____ (QTY)
- ☐ ELAP 198.2/EPA 100.2 ____ (QTY)
- ☐ EPA 100.1 ____ (QTY)

☒ All samples received in good condition unless otherwise noted.
TEM Water samples: ____ °C

Lead Analysis
- ☐ Pb Paint Chip ____ (QTY)
- ☒ Pb Dust Wipe (wipe type [illegible]) 7 (QTY)
- ☐ Pb Air ____ (QTY)
- ☐ Pb Soil/Solid ____ (QTY)
- ☐ Pb TCLP ____ (QTY)
- ☐ Drinking Water ☐ Pb ____ (QTY) ☐ Cu ____ (QTY) ☐ As ____ (QTY)
- ☐ Waste Water ☐ Pb ____ (QTY) ☐ Cu ____ (QTY) ☐ As ____ (QTY)
- ☐ Pb Furnace (Media ____) ____ (QTY)

Biological Analysis

Collection Apparatus for Spore Trap/Air Samples: ____
Collection Media: ____
- ☐ *Spore Trap ____ (QTY)
- ☐ *Surface Swab ____ (QTY)
- ☐ *Surface Tape ____ (QTY)
- ☐ Other (Specify ____) ____ (QTY)
- ☐ Surface Vacuum Dust ____ (QTY)
- ☐ Culturable ID Genus (Media ____) ____ (QTY)
- ☐ Culturable ID Species (Media ____) ____ (QTY)

CLIENT ID #	SAMPLE INFORMATION SAMPLE LOCATION/ID	DATE/TIME	VOL./ELP/Wipe Area	ANALYSIS / MATRIX	CLIENT CONTACT (LABORATORY STAFF ONLY)
					Date/Time: Contact: By:
	SEE ATTACHED FIELD DATA SHEETS				
					Date/Time: Contact: By:
					Date/Time: Contact: By:
					[redacted]

LABORATORY STAFF ONLY: CUSTODY	
1) Date/Time Rec'd:	11 12 12 1000 [illegible]
2) Date/Time [illegible]	
3) [illegible]	
4) Courier:	7939 6620 3697

AECOM

Surface Sampling Field Data Sheet

Date Collected: 11/6/12
Job Number: 60276421.1
Contact Person: [redacted]

Job Name: PA Group 4e PCS Johnstown - Hogg Armory
Job Location: Johnstown - Hogg Armory
Address: 365 Walters Ave Johnstown, PA

Page 1 of 1
Company: AECOM
Phone Number: [redacted]
Collected By: [redacted]
COC Number:

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in²/ft²)	Collection Media
JTH-01	Drill Hall N	Floor	16 in²	Ghost
JTH-02	↓ ↓ S	Floor	↓	↓
JTH-03	↓ ↓	Top of Vending	↓	↓
JTH-04	Kitchen	Top of Paper Towel Dispenser	↓	↓
JTH-05	~~Office~~ Hall Near Break Rm	~~Desk~~ Table	↓	↓
JTH-06	Office ↓ ↓ ↓	Cabinet	↓	↓
JTH-07	Corridor	Floor	↓	↓

Please Return Samples To:
AMA Analytical Services, Inc., 4475 Forbes Blvd, Lanham, MD 20706, (800) 346-0961/(301) 459-2640 Fax, www.amalab.com, info@amalab.com

Appendix D

References

References

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16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.

17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.

18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.

19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf

NATIONAL GUARD BUREAU
111 SOUTH GEORGE MASON DRIVE
ARLINGTON VA 22204-1382

ARNG-CSG-P

1 May 2012

MEMORANDUM TO MAJ [redacted] Pennsylvania State Safety and Occupational Health Manager, FTIG Bldg 11-9, Annville, PA 17003

SUBJECT: Annual Survey of Hunt Readiness Center, 324 Emerson Street, Pittsburgh, PA 15206

1. Purpose. At the request of the Northeast Region Industrial Hygienist, an industrial hygiene survey was completed for the Hunt Readiness Center, Pittsburgh, PA. This IH survey was conducted to identify, assess and make recommendations for the reduction or elimination of potential health hazards present in the workplace.

2. Findings and Recommendations. The enclosed report contains findings and recommendations.

3. The technical point of contact is, [redacted] at 410-942-0273 ext 3, [redacted]@us.army.mil or [redacted] at 410-942-0273 ext 4, [redacted]army.mil.

[redacted]
Regional Industrial Hygienist

CF:
[redacted] HN
POM
Facility Manager

Hofman Safety & Industrial Hygiene Consulting, Inc.

OSHA Compliance
Exposure Monitoring
Facility Audits
Employee Training

Non-Responsive

NGB Region North IH Office
ATTN: ARNG-CSG-P
301-IH Old Bay Lane
Havre de Grace, MD 21078

April 30, 2012

Re: Hunt RC, PA- Recommendations

Dear Ms. Non-Responsive

As a result of the Industrial Hygiene Survey Conducted on September 20, 2011 at Hunt RC in Pittsburgh, PA we recommend the following:

1. A sample of dust on a flammable cabinet in the armory and a sample from the top of a locker in the basement by a decommissioned firing range were over the lead screening level. Cabinet and floors should be wet wiped/mopped to reduce dust levels. **(RAC 3 – Health (Lead))**, Reference - U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM), Derivation of Wipe Surface Screening Levels for Environmental Chemicals, Aug 4, 1999.

2. A lighting survey identified most (20 of 35) work areas in the Hunt Readiness Center that were tested did not meet the lighting standards. Due to the extent of the lighting issues and recent construction at the facility, a lighting upgrade plan should be developed and implemented to meet the lighting standards. **(RAC 4 – Safety (Illumination))**, Reference –American National Standards Institute, Inc. / Illuminating Engineering Society of North America (ANSI/IESNA) RP-7-01, Lighting Industrial Facilities 2001 and ANSI/IESNA RP-1-2004, Office Lighting, 2004.

3. Documentation of Hazard Communication Program employee training was not available for review. A training roster for the hazard communication program should be maintained at the facility and available for review. **(RAC 5 – Health (Hazard Communication))**, Reference - OSHA Hazard Communication 29 CFR 1910.1200.

4. A hazard assessment for Personal Protective Equipment use was not available for review and should be conducted. **(RAC 5 – Health (PPE))**, Reference - OSHA Personal Protective Equipment 29 CFR 1910.132.

5. There is a crack in the wall near the hot water heater that may indicate structural damage to the building. A structural engineer should inspect the wall structure for integrity to prevent further structural wall damage. **(RAC 3 – Safety (Building Structural Soundness))**, Reference - AR 385-10, The Army Safety Program, 23 August 2007, Rapid Action Revision (RAR) Issue Date: 4 Oct 2011.

Technical issues should be referred directly to Mr Non-Responsive or Non-Responsive
Thank you for your continued support and input.

Sincerely,

Non-Responsive

Vice President

Industrial Hygiene Report

Survey Performed by: Hofman
Safety & Industrial Hygiene
Consulting, Inc.
2 Pennwood Road
Lebanon, PA 17042
Phone: 717-274-1611

Facility: PA RC Hunt

Date of Survey: 20 SEP 2011
Location: Pittsburgh, PA
Address: 324 Emerson St.
Pittsburgh, PA 15206

Draft Report Submitted: 16 Apr 2012
Comments Received: 24 Apr 2012
Final Report Submitted: 30 Apr 2012

POC: SFC [redacted]
POC Phone: 412-204-8015

Report submitted to:
NGB Region North IH Office
301-IH Old Bay Lane
Havre de Grace, MD 21078
Phone: 410-942-0273

State OH Officer:
[redacted]
Phone: (717) 861-8895

Table of Contents

Industrial Hygiene Report of Findings
Pennsylvania Army National Guard
Hunt Readiness Center, Pittsburgh, PA
September 20, 2011

Executive Summary

An industrial hygiene evaluation was conducted at the Pennsylvania Army National Guard Readiness Center located at the Hunt Facility on Emerson Street in Pittsburgh, Pennsylvania on September 20, 2011. The facility was in fair to poor condition but a section is being renovated. There are five Industrial Hygiene/Safety areas of concern identified. Lead dust above the screening level was found on top of a flammable cabinet in the armory and on a basement locker across from a decommissioned firing range. Lighting did not meet standards in most (24 of 35) work areas tested. Hazard Communication training documentation was not available for inspection. There was no Personal Protective Equipment hazard assessment available for inspection. There was a crack in the wall near the water heater of concern to staff.

Operation Description

Up to eleven (11) full time employees and one state civilian maintenance person are located at the Hunt Readiness Center. Personnel include recruitment, supply, and trainers (see Personnel Roster for Duty Positions Appendix D). There is no work performed on vehicles and there is a decommissioned firing range.

The facility consists of at least 15 offices, 2 classrooms, a break room, kitchen (under renovation), supply rooms/areas, a drill floor, boiler room, locker rooms, mess hall, a briefing room. Flammable and combustible liquid storage is in flammable storage cabinets located on the drill floor. The floor diagram can be found in Appendix B. Photographs can be found in Appendix C. A chemical list can be found in Appendix D along with a roster of personnel and their duty position. During the day of the evaluation, employees worked in their offices. Contractors were working on renovations to the "Wedge Area". The second floor above the recruitment area had a fire within the past year and the area is gutted in preparation for renovations. Potential hazards include: noise when on drills. There is limited exposure to operational hazards at this facility.

Chemical and Physical Agents

This was a routine workday and hazardous chemicals are not used in durations or concentrations of concern. Quick Check surface indicators for cadmium, chromate, lead, and nickel were used to identify the presence of those contaminants as a residue from troop activities and to verify that the lead abatement of a basement firing range was effective. Quick Check Samples were collected on top of a locker in the basement near the old firing range, on top of the television cabinet in the mess hall, on a computer monitor in the computer lab, and on a flammable storage cabinet on the drill floor (see Table A). Quick Check swabs did not show a color change.

One hundred (100) square centimeter wipe samples were collected using Ghost-Wipe sample media and analyzed for lead by AMA Analytical Services, Inc., an American Industrial Hygiene Association Accredited laboratory. Wipe sample PARC-HMM-092011-01 was collected on top of the Armory Company D flammable cabinet, sample PARC-HMM-092011-02 was collected on top of a locker in the basement by the firing range, and sample PARC-HMM-092011-03 was

collected on top of a shelf above the television in the mess hall. Lead was detected (1000 micrograms per square foot ($\mu g/ft^2$)) on the wipe samples collected on the top of the Company D flammable storage locker located on the armory drill floor and on the wipe sample (3300 $\mu g/ft^2$) collected from the top of the locker in the basement near the old firing range. (See Table B.) These two samples were over the U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) screening level of 204 $\mu g/ft^2$. There was no indication of a lead source on the armory drill floor, however military equipment stored in the area during drill activities might account for the high lead dust concentration. It is believed that the dust on the lockers in the basement was from past use of the basement firing range which has been decommissioned. The decommissioned firing range reportedly had a lead abatement project completed and currently is a dirt floor in a basement crawl space. The range is not used nor scheduled for future use at this time due in part to the low ceiling. There is a low lead concentration (510 milligrams per kilogram of soil) in the soil in the firing range that could contribute to the contamination on top of the locker. **(Ref 22) (IRAC 3 – Health (Lead)**

A paint bulk sample PARC-EMM-092011-04 was collected from peeling paint in the Company D locker room, and paint bulk sample PARC-EMM-092011-05 was collected from old chipped wall paint in the future (area being renovated) supply room. Both paint samples were analyzed for lead. There was no lead detected from the locker room paint chip and a low 0.011% of lead found in the paint chip from the future supply room. Both samples were well below the Housing and Urban Development (HUD) Lead Standard (Ref. 29). Bulk lead dirt sample PARC-EMM-092011-06 was collected from the earthen floor of the firing range. (See Table C.)

Bulk samples were collected of suspected asbestos containing materials including sample PARC-EMM-092011-07 from floor tile and mastic from the loft and sample PARC-EMM-092011-08 from plaster in the Company D Locker room wall. The mastic was identified with trace (less than 1%) asbestos and all other sample results were "none detected". Results can be found in Table D. A sample was not collected from floor tile in the basement latrine with black and white floor tiles that reportedly contain asbestos. Staff reportedly was informed and trained on the hazards of asbestos.

Table A – Quick Check Surface Sampling Results

Location	Chromate	Nickel	Lead	Cadmium
Top of Locker in the Basement by the Old Firing Range	ND	ND	ND	ND
Top of the Television Cabinet in the Mess Hall	ND	ND	ND	ND
Top of a Computer Monitor in the Computer Lab	ND	ND	ND	ND
Top of Flammable Storage Cabinet on the Drill Floor	ND	ND	ND	ND
Color Change Detection Limit (µg)	3µg	1µg	2µg	1µg
USACHPPM Screening Level	12 µg/100cm^2	4100 µg/200cm^2	22 µg/100cm^2	2.9 µg/100cm^2

Sample Media: Quick Check Tubes. If Target Metal is present, the swab turns to teal/blue/green color.
µg/100 cm^2 = micrograms per 100 square centimeters ND = none detected

A copy of the chemical lists for flammable storage cabinets is attached in Appendix D. Chemicals were labeled and stored in designated flammable storage cabinets.

Table B – Wipe Sampling Results

Sample No.	Location	Lead $\mu g/ft^2$
PARC-EMM-092011-01	Top of the Armory Company D Flammable Cabinet	1000
PARC-EMM-092011-02	Top of a Locker in the Basement by the Firing Range	3300
PARC-EMM-092011-03	Top of a Shelf Above the Television in the Mess Hall.	<110
PARC-EMM-092011-Bl.	Blank - Reporting Limit 12 µg	ND
	USACHPPM Screening Level	204

Sample Media: Ghost Wipes
$\mu g/ft^2$ = micrograms per square foot
Shaded area exceeds USACHPPM Screening Level
< = less than or equal to the number shown
ND = none detected

Table C – Suspect Lead Bulk Sample Results

Sample No.	Description / Location	Lead (%)
PARC-EMM-092011-04	Peeling Paint in the Company D Locker Room	<0.009 %
PARC-EMM-092011-05	Chipped Wall Paint in the Future Supply Room	0.011 %
PARC-EMM-092011-06	Dirt from Dirt Floor of Firing Range	510 mg/kg or 510 ppm (parts of lead per million parts of dirt)
	HUD Bulk Lead Standard	0.5 %

< = less than or equal to the number shown
ND = none detected
HUD = Housing and Urban Development (Ref. 29)

Table D – Suspect Asbestos Bulk Sample Results

Sample No.	Location	Results % Asbestos
PARC-EMM-092011-07 FT	Floor Tile from the Loft	None Detected
PARC-EMM-092011-07 MS	Mastic on Floor Tile from the Loft	Trace (< 1%)
PARC-EMM-092011-08	Plaster from the Company D Locker Room Wall – Off White	None Detected
PARC-EMM-092011-08	Plaster from the Company D Locker Room Wall - White	None Detected

Ventilation
There are no maintenance bays and therefore no vehicle exhaust ventilation system to measure.

The kitchen is being renovated and the hood for the range and convection oven was not operational at the time of this inspection.

Noise
There are no high noise activities during routine activities at this facility. When staff go off-site to a firing range or for maneuvers they reportedly wear hearing protection and are in the PA ARNG Hearing conservation program.

Lighting
A lighting survey of the facility was conducted and found that most work areas did not meet lighting standards (See Table E). (Ref. 8 and Ref. 33) (RAC 4 – Safety (Illumination)). The references for this are (Ref 8) the American National Standards Institute, Inc. / Illuminating Engineering Society of North America (ANSI/IESNA) RP-7-01, Lighting Industrial Facilities, 2001 and (Ref 33) (ANSI/IESNA) RP-1-2004, Office Lighting, 2004.

Table E - Lighting Survey Results

Location of Measurement	Foot Candles	Standard (Ref. 8)
Office 4	11	30
Storage 2-10 (Light Bulb Missing)	2 - 10	30
Recruiter's Office	23	30
DLC	66	30
Gym	41	30
Locker Room	5 - 40	7
Supply Room	20 - 27	30
Storage Room	15 - 25	30
F Company Locker Room	8 - 20	7
E Company Locker Room – Back Storage	22	30
Communications Room	12	30
Basement Locker (Not Used)	22	7
Basement Locker Storage	16 - 21	30
Boiler Room	1-6	30
Mess Hall	15 - 30	30
IT Room	90	30
Wedge Back-up Generator	28	30
Maintenance Bays used as offices	39 - 55	30
Locker Room	6 – 8	7
Storage Room	6 - 8	10
Bathroom	25 - 45	7
Shower	11-15	7
Sargent Office	65	30
Office Near Bays	29	30
Cage COD	12 - 42	30

Table E - Lighting Survey Results, Continued

Cage COD at Desk (Uses Task Lighting)	12	30
Library	13 - 15	30
Classroom	18 - 25	30
Classroom Safe Storage Room	16	30
C Company Locker Room (#1)	15	7
C Company Locker Room (#2)	8 - 30	7
Hall	45	10
VEF Second Floor	8 – 20	30
COD Office	40 - 45	30
Armory – Drill Floor	20	30

(1) Area measurements taken approximately 4 ½ feet from floor level; measurements taken at desks were approximately 30 inches from floor level;
(2) Shaded areas are below the lighting standard.

Personal Protective Equipment & Other Controls
Several types of personnel protective equipment (PPE) were available for worker use. Each worker is required to wear steel-toe shoes. Each worker had PPE elements as part of their supplies. These generally consisted of safety glasses, goggles, ear muffs and/or ear plugs, and leather or other work glove.

There are no eyewash stations or drench showers. There were no corrosives identified during the site survey that would require the use of an eyewash.

Ergonomics
Employees were aware of their work surroundings and how to adjust their chairs to reduce stress. Workers were observed working safely.

Written Programs
1. Confined Spaces (29 CFR 1910.146) - There were no confined spaces identified at this facility so a Confined Space Program is not required.
2. Hearing Conservation (29 CFR 1910.95 and DA PAM 40-501) - There is no site-specific written Hearing Conservation Program. There is a general State Program and workers participate in the program. There were no noise hazards at this location. Annual audiograms are conducted and the records are stored in the state's occupational health office (not independently verified). Hearing protection is available.
3. Respiratory Protection (29 CFR 1910.134) - There is no need for a respiratory protection program at this facility since there is limited use of hazardous chemicals and no expectation that there would be a high enough exposure to require a respirator.
4. Hazard Communication (29 CFR 1910.1200) - There is a PA State Written Hazard Communication Program available at the facility. A list of chemicals is available for the facility and is included in Appendix D. Personnel were aware of material safety data sheets and where chemicals are stored. The Material Safety Data Sheet (MSDS) book appeared to

be current for chemicals that are used at the facility. A full chemical vs. MSDS audit was not conducted during this evaluation. Training records on elements of a hazard communication program were not available. (Ref. 20) (RAC 5– Health (Hazard Communication))

5. PPE (29 CFR 1910.132) - A Personal Protective Equipment (PPE) Program hazard assessment was not available for inspection. Employees stated that they use PPE including steel toe shoes, hearing protection and gloves as the situation requires. (Ref. 21) (RAC 4 – Health (PPE))
6. Other: There are no Brake Maintenance, Battery Charging, or Surface Lead Contamination programs required at this facility.

General comment on Pennsylvania's written programs: This Readiness Center had at least two very large binders of safety programs and procedures. These "programs" were all standard military (army) issue, Department of Defense issue, or Pennsylvania State Issue. These documents form the basis for a good reference library of information that could be consulted if issues arise and the facility personnel can locate the needed information in a timely manner. The site did not have a facility-specific safety program.

Indoor Air Quality

The indoor air quality was acceptable with carbon dioxide (CO_2) close to the outside CO_2 level. CO_2 concentrations were slightly higher in administrative areas, however below the recommended maximum level of 1184 parts of contaminant per million parts of air (ppm) (700 ppm greater than the outdoor background level) based on outdoor air levels of 414 ppm (Ref. 6).

The temperature was 71° F and the relative humidity (71%) high on the relative humidity comfort range for the day. The sky was mostly clear. Measurements taken on the day of the survey are shown below (see Table F.)

Other Issues

Housekeeping – Housekeeping was in fair condition in the work areas due in part to the age of the facility. Many areas were dusty and the floors were damaged making it more difficult to maintain.

Building Issues – The exterior of the building is stone, block and brick construction in fair condition. The interior of the building is showing it's 100-plus years of service with leaking roof, damaged floor tiles (non-asbestos), and old utilities. Some renovations were taking place along the back wall called the "Wedge". The second floor recruitment area had a fire that has left the second floor large hall gutted where offices were located. Asbestos floor tile removal took place during this clean-up of fire debris. This area will need to be reinvated before it is used.

There was a safety concern raised by facility personnel which was a crack in one of the walls in a hallway near a storage area by the hot water heater. (Ref. 50) (RAC 3 – Safety (Building Structural Soundness)).

During the survey several safety issues were reported to facility management that were a result of the fire damaged area and contractors working on the wedge and kitchen renovations. These items were being corrected and are listed in this report as a means for facility management to

ensure similar hazards do not occur. 1. An electric extension cord was being used as long-term temporary wiring to operate a computer, lights, radio, heater in the second floor office next to the fire damaged area and cords are hanging from the walls. 2. The contractor left the outer cover of the 240 volt electrical panel off with no electrician in the area. 3. The contractor used the entrance to the building as a work area obstructing egress to the exit.

Table F – Indoor Air Quality Survey Results

Outside Temp - 71° F RH = 71% CO_2 - 414 ppm CO = 0 ppm	**Inside (Office 4):** Temp - 74° F RH - 60% CO_2 - 470 ppm CO - 0 ppm	**Inside (Recruiters' Office):** Temp - 73° F RH - 52% CO_2 = 447 ppm CO = 0 ppm
Inside (DLC): Temp = 73° F RH = 52% CO_2 - 500 ppm CO - 0 ppm	**Inside (Gym):** Temp - 73° F RH - 63% CO_2 = 444 ppm CO - 0 ppm Slight Ammonia Odor-Rubber Flooring	**Inside (Locker Room):** Temp - 73° F RH = 61% CO_2 - 473 ppm CO - 0 ppm
Inside (Supply Room): Temp = 73° F RH - 56% CO_2 = 408 ppm CO = 0 ppm	**Inside (Storage Room):** Temp - 71° F RH = 58% CO_2 - 450 ppm CO - 0 ppm	**Inside (E Com. Locker):** Temp - 71° F RH - 58% CO_2 - 441 ppm CO = 0 ppm
Inside (Communication Room): Temp - 72° F RH - 65% CO_2 = 468 ppm CO - 0 ppm Basement	**Inside (Basement Locker):** Temp = 71° F RH = 66% CO_2 - 512 ppm CO - 0 ppm Not Used	**Inside (Boiler Room):** Temp - 71° F RH - 66% CO_2 - 491 ppm CO - 0 ppm
Inside (Mess Hall) Temp - 73° F RH - 66% CO_2 - 450 ppm CO - 0 ppm	**Inside (IT Room)** Temp - 77° F RH - 52% CO_2 - 530 ppm CO - 0 ppm	**Inside (Wedge Back-up Gen)** Temp - 72° F RH - 62% CO_2 - 453 ppm CO - 0 ppm

Table F – Indoor Air Quality Survey Results, Continued

Inside (Maintenance Bays): Temp = 75° F RH = 61% CO_2 = 482 ppm CO = 0 ppm	**Inside (Sargent Office):** Temp = 74° F RH = 51% CO_2 = 526 ppm CO = 0 ppm	**Inside (Ofc Near Bays):** Temp = 76° F RH = 57% CO_2 = 517 ppm CO = 0 ppm
Inside (Cage COD) Temp = 74° F RH = 58% CO_2 = 526 ppm CO = 0 ppm	**Inside (Library):** Temp = 75° F RH = 55% CO_2 = 502 ppm CO = 0 ppm	**Inside (Classroom):** Temp = 73° F RH = 58% CO_2 = 513 ppm CO = 0 ppm Water Infiltration Along Ceiling
Inside (C Com. Locker Room): Temp = 73° F RH = 58% CO_2 = 498 ppm CO = 0 ppm	**Inside (C Com. Locker Room):** Temp = 73° F RH = 59% CO_2 = 564 ppm CO = 0 ppm	**Inside (Loft):** Temp = 72° F RH = 57% CO_2 = 810 ppm CO = 0 ppm
Inside (VEF – Second Floor): Temp = 72° F RH = 59% CO_2 = 822 ppm CO = 0 ppm	**Inside (COD Office):** Temp = 72° F RH = 58% CO_2 = 803 ppm CO = 0 ppm 4 Work Stations	**Inside (Armory):** Temp = 73° F RH = 60% CO_2 = 463 ppm CO = 0 ppm

Conclusion

The Hunt Readiness Center is a multi-function facility that houses recruiting, and instructors managing training operations for Pennsylvania Army National Guard. The Industrial Hygiene Survey identified several areas of concern including a lead dust sample of 1000 µg/ft² on top of a flammable cabinet in the armory and a sample of 3300 µg/ft² on top of a locker in the basement next to an old firing range. The firing range reportedly was decontaminated but a soil sample in the range showed 510 mg/kg (0.051%) concentration which is less than the HUD Cleanup standards for lead of 0.5%. Lighting throughout most of the facility was below recommended standards. Training documentation of the Hazard Communication Program was not available for review. A personal Protective Equipment hazard assessment to identify specific PPE required for various tasks was not available for inspection.

Several safety issues were identified (electrical cord, electrical breaker box with a cover missing and blocked access through an exit way) which were addressed by site personnel.

On the positive side, a chemical list for the flammable storage cabinet met requirements for federal employees. Employees are part of the PA ARNG State hearing conservation program in the event they go on maneuvers or to a firing range where high noise activities may require hearing protection be worn. There is no noise level expected to exceed the action level under normal activities. When troops are on maneuvers, this may change. Annual audiograms and training is reportedly conducted. Hearing protection should continue to be worn when performing tasks where noise will exceed 85 dBA. There is a State written Hazard Communication Program to describe the chemical inventory system and use of MSDSs and label requirements. Renovation work will upgrade a section of the facility.

Appendix A

REFERENCES

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

2. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007.

3. DA PAM 40-501, Medical Services, Hearing Conservation Program, 10 December 1998.

4. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.

5. American Conference of Governmental Industrial Hygienists (ACGIH), Threshold Limit Values and Biological Exposure Indices, ACGIH, Cincinnati, OH, 2011.

6. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 62.1-2010, Ventilation for Acceptable Indoor Air Quality.

7. ANSI/ISEA Z358.1-2009, American National Standards Institute, Inc./International Safety Equipment Association "American National Standard for Emergency Eyewash and Shower Equipment.

8. ANSI/IESNA RP-7-01, American National Standards Institute, Inc. / Illuminating Engineering Society of North America, Lighting Industrial Facilities 2001.

9. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990.

10. AR 385-10, The Army Safety Program, 23 August 2007, Rapid Action Revision (RAR) Issue Date: 4 Oct 2011.

11. DA PAM 40-11, Preventive Medicine, 22 July 2005, RAR Issue Date: 19 Oct 2009.

12. UFC 3-410-01FA, Heating, Ventilation, and Air Conditioning, 15 May 2003, Change 4, January 2010.

13. CHPPM memorandum, subject: National Guard Criteria for Converting Indoor Ranges.

14. ACGIH, Industrial Ventilation: A Manual of Recommended Practices, 27th ed. 2010.

15. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupation Safety and Health Administration, Current Edition.

16. OSHA Regulations at 29 CFR 1910.146 on Confined Spaces.

17. Department of Defense (DOD) 4145.19-R-2, Storage & Handling of Liquefied and Gaseous Compressed Gases and Their Full and Empty Cylinders, 16 Jun 2000.

18. OSHA Regulations at 29 CFR 1910.95 on Hearing Conservation.

19. OSHA Regulations at 29 CFR 1910.134 on Respiratory Protection.

Appendix A

REFERENCES (Page 2)

20. OSHA Regulations at 29 CFR 1910.1200 on Hazard Communication.

21. OSHA Regulations at 29 CFR 1910.132 on Personal Protective Equipment.

22. U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM), Derivation of Wipe Surface Screening Levels for Environmental Chemicals, Aug 4, 1999.

23. OSHA Regulations at 29 CFR 1910.1000 - .1052 on air contaminant exposures.

24. Design Guide DG 415-2, Logistics Facilities, published by the National Guard Bureau Installation Division, 18 May 2006.

25. ANSI/ISEA Z87.1-2010, American National Standards Institute, Inc. American National Standard for Occupational and Educational Personal Eye and Face Protection Devices.

26. OSHA Regulations at 29 CFR 1910 Subpart D - Walking Working Surfaces.

27. OSHA Regulations at 29 CFR 1910.106 on Flammable and Combustible Liquids and 1910.307 concerning use of equipment in hazardous locations.

28. National Electrical Code, National Fire Protection Association, 2011.

29. HUD Lead Safe Housing Rule 24 CFR 35 Subpart B General Lead Paint Definitions.

30. USAPPM Technical Guides on Mold, TG 277 and TG 278

31. OSHA Regulations at 29 CFR 1910.160 on Fixed Extinguishing Systems, General.

32. OSHA Regulations at 29 CFR 1910.211 - 212 on Machine Guarding General Requirements

33. ANSI/IESNA RP-1-2004, American National Standards Institute, Inc. / Illuminating Engineering Society of North America, Office Lighting, 2004.

34. Industrial Mechanical Code 2006, International Code Council Inc. 2006

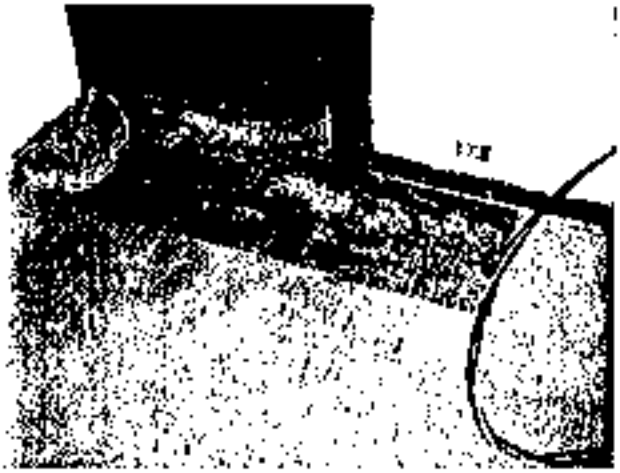
35. OSHA Regulations at 29 CFR 1910.1001 on Asbestos

Appendix B – Building Layout
Pittsburgh PA – Hunt Readiness Center

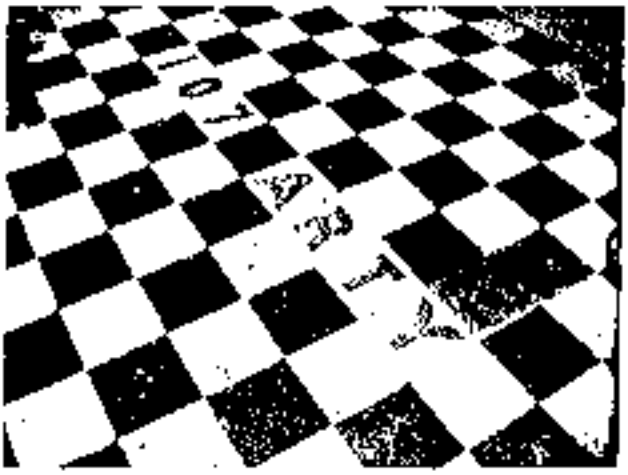
Appendix C
Photographs PA RC Hunt September 20, 2011

PA RC Hunt Readiness Center Front of Building Emerson Street

Second Floor Area Where Fire Occurred



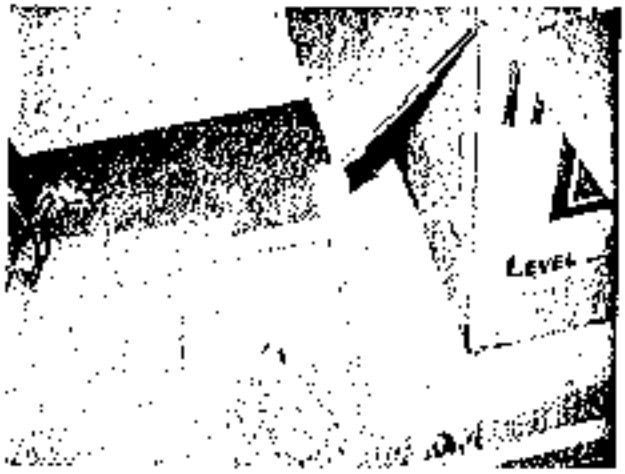
Floor Tile Not Asbestos in Fire Area



Bathroom Floor Tile is Asbestos

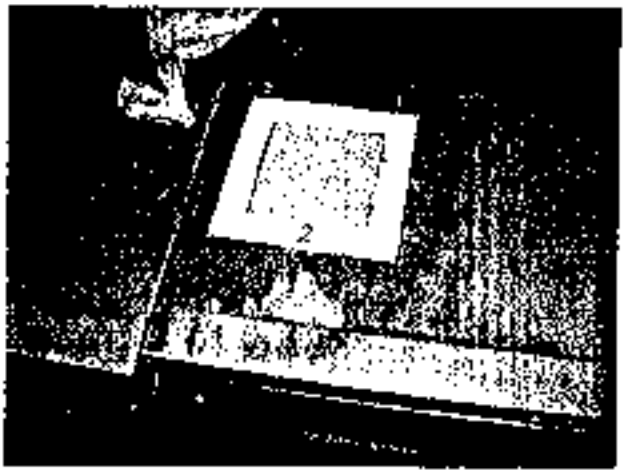
Appendix C – Continued
10cm x 10 Template for Wipe Samples

Flammable Cabinet on Armory Drill Floor



Sample #01 Top of Flammable Cabinet

Locker Room in Basement

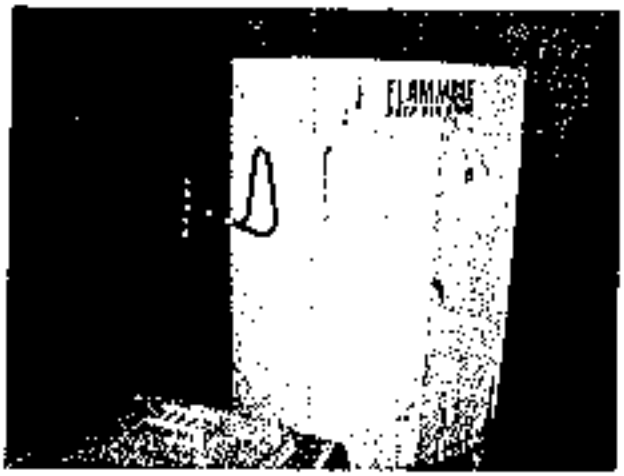


Sample #02 Top of Lockers

Break Room / Mess Hall

Sample #03 Television Shelf Break Room

Appendix C - Continued

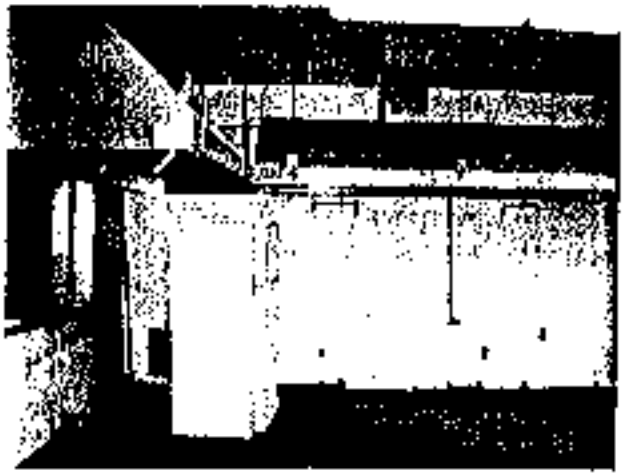


Flammable Cabinet on Drill Floor

Damaged Ceiling Plaster and Paint

Damaged Ceiling Paint in Locker Room

Damaged Floor Tile 2nd Floor



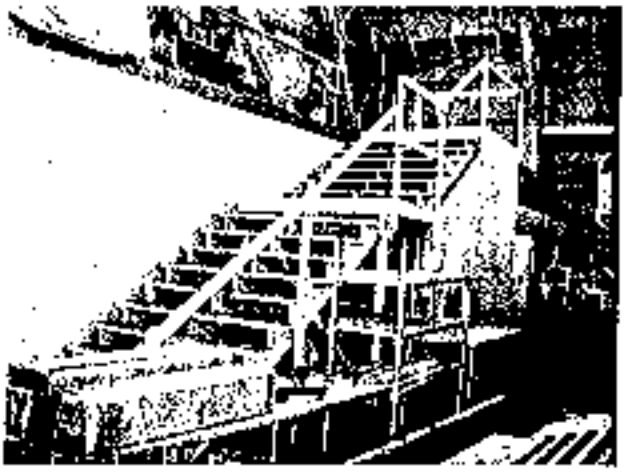
Kitchen Being Renovated

Office in First Floor Maintenance Bay

Exercise Room

Chemicals Not Labeled Properly

Safety – No Railing on Landing >4-Feet



Safety – Mid Rail Missing on Stair Railing

Appendix D – Personnel Roster – Hunt RC

Name	Rank	Job Title	Last 4	Present?
Non-Responsive	SFC	Co E 128th BSB Readiness NCO	4747	Yes
	SSG	Co E 128th BSB Training NCO	3073	Yes
	SSG	Co E 128th BSB Supply SGT	5624	Yes
	SFC	Co D I/110th INF Readiness NCO	3728	Yes
	SSG	Co D I/110th INF Training NCO	5354	Yes
	SSG	Co D I/110th INF Supply SGT	9968	Yes
	CPT	Recruiting and Retention Command Commander		
	SFC	Recruiting and Retention Command IT		
	SFC	Recruiting and Retention Command IT		
	SSG	Recruiting and Retention Command Recruiter		
	SGT	Recruiting and Retention Command Recruiter		

FLAMMABLE STORAGE CABINET #1

FLAMMABLE STORAGE CABINET #2

NOMENCLATURE	NSN	Q OH
	N/A	
	[illegible]	
	[illegible]	
	[illegible]	
	[illegible]	
	[illegible]	
	[illegible]	
	[illegible]	
	[illegible]	
	[illegible]	
	[illegible]	
	[illegible]	
	N/A	
	[illegible]	
	[illegible]	
	N/A	
	N/A	
	N/A	
	N/A	
	N/A	
	[illegible]	
	[illegible]	
	[illegible]	

Co D 1-110 IN BEST AVAILABLE COPY

3241 [illegible]
Pittsburgh PA 15200

MSDS Needs

[illegible] Material Safety Data Sheet

DS2 [illegible] 30

[illegible] 1

[illegible] (3.16 FL OZ) 1

[illegible]

Bore Cleaner 2(OZ) 17 17

LSA -- NSN [illegible] 4

CLP [illegible] 4

CLP [illegible] 17

CLP -- NSN 9150-01-054-6453 4

Tapping Cutting Oil 128(FL OZ) 1

[Cleaners]

Windex (32 Floz) 24

Carpet Cleaner (16Floz) - Skil Craft - 1

Glass/Utility (18oz) - Simple Green - 1

Windshield Washer Fluid (1Gal) - Austin's - 5

Detergent General Purpose - NSN - 7930-00-926-5280 1

[illegible] (15 Fl oz) - [illegible] - 1

Hand Spray (8Floz) - Murphy's - 1

[illegible] (15 oz) - [illegible] - 1

[illegible]

[illegible] Cleaner (Floz) - [illegible] - 1

[illegible] (Floz) - Advanced Auto - 1

[Paint]

[illegible] 1

[illegible] 1

[illegible]

Paint w/ Corrosion Preventive (1 Gal) -Duron- [illegible] Alkyd enamel		1
[illegible] compound R	MIL-C-4611?SD -Part# D-111-X-1214-	1
[illegible] Rubbing Alcohol 70%	(32 (1 oz) -[illegible]-	1
[illegible] Remover [illegible]	(32 fl oz) -Klean-Strip-	1
Camouflage Paint (12 oz)	-AERVOE-	2
Quick Color Spray Enamel (10 oz)		2
Spray Paint Gray (16 oz)	-[illegible]-	1
High Performance Enamel (15 oz)	-Rust-oleum-	1
Spray Paint (10 oz)	-Color Place-	1
Stencil Set, marking	7520-00-[illegible]-9063	1
" "	7520-00-[illegible]-9045	
" "	[illegible]-318-9044	
" "	7520-00-[illegible]-9012	
[illegible] (61 fl. oz)		1

AMA Analytical Services, Inc.
Focused on Results www.amalab.com
AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)
4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This Number For Inquiries) 511962

Mailing/Billing Information:

1. Client Name: National Guard Bureau
2. Address 1: 301-IH Old Bay Lane
3. Address 2: Attn: NGB-AVN-SL State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0754

Submittal Information:

1. Job Name:
2. Job Location:
3. Job #: [redacted] W912K6-09-A-0003
4. Contact Person: [redacted]
5. Submitted by: [redacted]

Reporting Information (Results will be provided as soon as technically feasible):

AFTER HOURS (must be pre-scheduled)	NORMAL BUSINESS HOURS			REPORT TO:
☐ Immediate Date Due: ☐ 24 Hours Time Due: Comments:	☐ Immediate ☐ Next Day ☐ 2 Day	☐ 3 Day ☒ 5 Day Date Due: 12/19/11	☐ Results Required By Noon (Every Attempt Will Be Made to Accommodate)	☒ Include ☒ Email [redacted] @gmail.com ☐ Fax ☐ Verbal

Asbestos Analysis

PLM Bulk (Please Indicate Filter Type)
☐ NIOSH 7400 ____ (QTY)
☐ Fiberglass ____ (QTY)
TEM Air (Please Indicate Filter Type)
☐ AHERA ____ (QTY)
☐ NIOSH 7402 ____ (QTY)
☐ Other (specify) ____ (QTY)
PLM Bulk
☒ EPA 600 – Visual Point Count ____ (QTY)
☐ EPA Point Count ____ (QTY)
☐ NY State Friable 198.1 ____ (QTY)
☐ Gav. Reduction ELAP 198.6 ____ (QTY)
☐ Other (specify) ____ (QTY)
Soil
☐ Vermiculite
☐ Asbestos Soil PLM ☐ ... ☐ ...

TEM Bulk
☐ ELAP 198.4/Chatfield ____ (QTY)
☐ NY State PLM/TEM ____ (QTY)
☐ Residual Ash ____ (QTY)
TEM Dust
☐ Qual. (presence/absence) Vacuum/Dust ____ (QTY)
☐ Quan. (structures) Vacuum D5755-95 ____ (QTY)
☐ Quan. (structures) Dust D6480-99 ____ (QTY)
TEM Water
☐ Qual. (presence) ____ (QTY)
☐ ELAP 198.2/EPA 100.2 ____ (QTY)
☐ EPA 100.1 ____ (QTY)

☒ All samples received in good condition unless otherwise noted.
TEM Water samples ____ °C

Metals Analysis
☐ Pb Paint Chip ____ (QTY)
☐ Pb Dust Wipe (wipe type ____) ____ (QTY)
☐ Pb Air ____ (QTY)
☐ Pb Soil/Solid ____ (QTY)
☐ Pb TCLP ____ (QTY)
☐ Drinking Water ☐ Pb ____ (QTY) ☐ Cu ____ (QTY) ☐ As ____ (QTY)
☐ Waste Water ☐ Pb ____ (QTY) ☐ Cu ____ (QTY) ☐ As ____ (QTY)
☐ Pb Furnace (Media ____) ____ (QTY)

Fungal Analysis
Collection Apparatus for Spore Trap/Air Samples: ____
Collection Media ____
☐ Spore Trap ____ (QTY) ☐ Surface Vacuum Dust ____ (QTY)
☐ Surface Swab ____ (QTY) ☐ Culturable ☐ Genus (Media ____) ____ (QTY)
☐ Surface Tape ____ (QTY) ☐ Culturable ☐ Spores (Media ____) ____ (QTY)
☐ Other (Specify) ____ (QTY)

SAMPLE INFORMATION

CLIENT ID NUMBER	SAMPLE LOCATION/IDENTIFICATION	DATE	VOLUME (LITERS)	WIPE AREA	ANALYSES / MATRIX	CLIENT CONTACT (LABORATORY STAFF ONLY)
[illegible]		[illegible]		[illegible]		Date/Time: Contact: By:
					✓	
					✓	
					✓	
					✓	Date/Time: Contact: By:
					✓	
	[illegible]				✓	
					✓	
					✓	[redacted]

LABORATORY STAFF ONLY (CUSTODY)

1. Date/Time RCV'D: 12/12/11 @ ____ Via: FedEx By (init): 9:10 AM
2. Date/Time Analyzed: 12/19/11 @ ____ By (init): Stuart Watson
3. Results Reported To: Shirley Chapman / Ken Forsythe Via: Email Date: 12/19/ [redacted]
4. Comments:

AMA Analytical Services, Inc.

a full chemical and microscopical laboratory

CERTIFICATE OF ANALYSIS

NVLAP
101143-0

Client:	National Guard Bureau	Job Name:	PARC Pittsburgh Veterans Hosp	Chain Of Custody:	511562
Address:	301-111 Old Bay Lane, Attn: ARNG-ILG-P, State Military Reservation	Job Location:	Pearson St, Pittsburgh, PA	Date Analyzed:	12/19/2011
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	[redacted]
		P.O. Number:	W912K6-09-A-6003		

Attention: [redacted]

Page 1 of 2

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 Type	Sample Color	Homogeneity	Analyst ID	Comments
12020782	PARCTAGM09 2011-07 FT	NAD	--	--	--	--	--	--	--	--	--	100	FT	Brown	Homogeneous	SW	
12020783	PARCFBSM09 2011-07 M	TR	TR	--	--	--	--	--	--	--	--	100	MS	Black	Homogeneous	SW	
12020784	PARCBMM09 2011-07 PL	NAD	--	--	--	--	--	--	--	--	--	100	PL	OffWhite	Homogeneous	SW	
12020785	PARCFSM09 2011-08	NAD	--	--	--	--	--	--	--	--	--	100	PL	White	Homogeneous	SW	

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AMA Analytical Services, Inc.

A [illegible] Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
101143-0

Client:	National Guard Bureau	Job Name:	PARC Pittsburgh Emerson Hunt	Chain Of Custody:	511562
Address:	5ol-4H Old Bay Lane, Attn: ARNG-CKI-P, State Military Reservation	Job Location:	Emerson St, Pittsburgh, PA	Date Analyzed:	12/19/2011
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	[redacted]
		P.O. Number:	W912K6-09-A-0093		
Attention:	[redacted]				

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 Type	Sample Color	Homogeneity	Analyst ID	Comments

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"

Uncertainty: For samples containing asbestos in range of 1-10% the CV is 0.43, 11-35% CV=0.55, >35 CV=0.23

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

Technical Director [redacted]   Analyst(s) [redacted]

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AMA Analytical Services, Inc.
Focused on Results www.amalab.com
AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)
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(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This Number For Inquiries) **511962**

210 REV. 6/08

Mailing/Billing Information:
1. Client Name: National Guard Bureau
2. Address 1: 301-IH Old Bay Lane
3. Address 2: Attn: NGB-AVN-SI, State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0264

Submittal Information:
1. Job Name: PARC Pittsburgh/Emerson-Hunt
2. Job Location: Emerson St - Pittsburgh PA
3. Job #: PO #: W91ZRS-09-A-0003
4. Contact Person: [redacted] @ phone # (410) 942-0273
5. Submitted by: [redacted] 717 861 8189

Reporting Information (Results will be provided as soon as technically feasible):

AFTER HOURS (must be pre-scheduled)	NORMAL BUSINESS HOURS	REPORT TO:
☐ Immediate Date Due: ☐ 24 Hours Time Due: Comments:	☐ Immediate ☐ Next Day ☐ 2 Day ☐ 3 Day ☒ 5 Day Date Due: 12/19/11 ☐ Results Required By Noon (Every Attempt Will Be Made to Accommodate)	☒ [redacted] @gmail.com ☒ [redacted] .mil ☐ Fax ☐ Verbal [redacted] .mil

Asbestos Analysis
PCM Air – Please Indicate Filter Type:
☐ NIOSH 7400 ____ (QTY)
☐ Fiberglass ____ (QTY)
TEM Air – Please Indicate Filter Type:
☐ AHERA ____ (QTY)
☐ NIOSH 7402 ____ (QTY)
☐ Other (specify) ____ (QTY)
PLM Bulk
☒ EPA 600 – Visual Estimate 2+1 (QTY) 1 = Mastic, 1 = Plaster, 1 = Tile
☐ EPA Point Count ____ (QTY)
☐ NY State Friable 198.1 ____ (QTY)
☐ Grav. Reduction ELAP 198.6 ____ (QTY)
☐ Other (specify) ____ (QTY)
MISC
☐ Vermiculite
☐ Asbestos Soil PLM ___ (Qual) PLM ___ (Quant) PLM/TEM ___ (Qual) PLM/TEM ___ (Quant)

TEM Bulk
☐ ELAP 198.4-Chatfield ____ (QTY)
☐ NY State PLM/TEM ____ (QTY)
☐ Residual Ash ____ (QTY)
TEM Dust
☐ Qual. (presence) Vacuum/Dust ____ (QTY)
☐ Quan. (wiper) Vacuum D5755-95 ____ (QTY)
☐ Quan. (wipe)/Dust D6480-99 ____ (QTY)
TEM Water
☐ Qual. (presence) ____ (QTY)
☐ ELAP 198.2/EPA 100.2 ____ (QTY)
☐ EPA 100.1 ____ (QTY)
☒ All samples received in good condition unless otherwise noted.
TEM Water samples ____ °C

Metals Analysis
☐ Pb Paint Chip 2 (QTY)
☐ Pb Dust Wipe (wipe type) [illegible] 4 (QTY)
☐ Pb Air ____ (QTY)
☐ Pb Soil/Solid 1 (QTY)
☐ Pb TCLP ____ (QTY)
☐ Drinking Water ☐ Pb ___ (QTY) ☐ Cu ___ (QTY) ☐ As ___ (QTY)
☐ Waste Water ☐ Pb ___ (QTY) ☐ Cu ___ (QTY) ☐ As ___ (QTY)
☐ Pb Furnace (Media ____) ____ (QTY)
Fungal Analysis
Collection Apparatus for Spore Trap/Air Samples: ____
Collection Media: ____
☐ Spore-Trap ____ (QTY) ☐ Surface Vacuum Dust ____ (QTY)
☐ Surface Swab ____ (QTY) ☐ Culturable ☐ Genus (Media ____) ____ (QTY)
☐ Surface Tape ____ (QTY) ☐ Culturable ☐ Species (Media ____) ____ (QTY)
☐ Other (Specify ____) ____ (QTY)

CLIENT ID NUMBER	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME LITERS	WIPE AREA	ANALYSIS [illegible]	ANALYSIS [illegible]	MATRIX [illegible]	MATRIX [illegible]	CLIENT CONTACT (LABORATORY STAFF ONLY)
PARC EMH 071211-01		071211		100cm²		✓		✓	Date/Time: Contact: By:
" -02						✓		✓	
" -03				↓		✓		✓	
" -04						✓	✓		
" -05				↓		✓	✓		
" -06						✓	✓		Date/Time: Contact: By:
" -07	Mastic + Plaster				✓		✓		
" -08					✓		✓		
" -BL		↓		Blank		✓		✓	Date/Time: Contact: By:

LABORATORY STAFF ONLY: (CUSTODY)
1. Date/Time RCVD: 12/12/11 @ 1000 Via: FedEx By (print): [illegible] Sign: [signature]
2. Date/Time Analyzed: ___/___/___ @ ___ By (print): ____ Sign: ____
3. Results Reported To: ____ Via: ____ Date: ___/___/___ Time: ____ Initials: ____
4. Comments: ____

AMA Analytical Services, Inc.

A Minority-owned Small Business Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY — INDUSTRIAL HYGIENE, ENVIRONMENTAL LEAD, ENVIRONMENTAL MICROBIOLOGY

Client:	National Guard Bureau	Job Name:	PARC Pittsburgh Emerson East	Chain Of Custody:	511962
Address:	301-a4 Old Bay Lane, Attn: ARNG-CIG-P, State Military Reservation	Job Location:	Emerson St, Pittsburgh, PA	Date Submitted:	12/12/2011
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	[redacted]
		P.O. Number:	W912K6-09-A-0003	Date Analyzed:	12/19/2011 Report Date: 12/19/2011
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		Total ug	Final Result		Comments
12020775	PARCEMM092011-01	Flame	Wipe	****	0.108	110	ug/ft²	110	1000	ug/ft²	
12020776	PARCEMM092011-02	Flame	Wipe	****	0.108	110	ug/ft²	360	3300	ug/ft²	
12020777	PARCEMM092011-03	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
12020778	PARCEMM092011-BL	Flame	Wipe Blank	****	N/A	12	ug		<12	ug	
12020779	PARCEMM092011-04	Flame	Paint Chip	****	N/A	0.009	%Pb		<0.009	%Pb	
12020780	PARCEMM092011-05	Flame	Paint Chip	****	N/A	0.0087	%Pb		0.011	%Pb	
12020781	PARCEMM092011-06	Flame	Soil/Solid	****	N/A	38	mg/Kg		510	mg/Kg	

AMA Analytical Services, Inc.

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	PARC Pittsburgh Emerson Head	Chain Of Custody:	511562
Address:	301-H Old Bay Lane, Attn: ARNG-CIG-P, State Military Reservation	Job Location:	Emerson St, Pittsburgh, PA	Date Submitted:	12/12/2011
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	[redacted]
Attention: [redacted]		P.O. Number:	W912K6-09-A-0003	Date Analyzed:	12/19/2011 Report Date: 12/19/2011

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	Total ug	Final Result	Comments

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B
Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B
N/A = Not Applicable   mg/Kg = parts per million (ppm) on a dry weight basis   mg/L = parts per million (ppm)
%Pb = percent lead on a dry weight basis   ug = micrograms   ug/L = parts per billion (ppb)
Note: All samples were received in good condition unless otherwise noted.
Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.
Air and Wipe results are not corrected for any blank results.
Final results for air and wipe samples are based on client supplied information not verified by this laboratory.
All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

See QC Summary for analytical results of quality control samples associated with these samples.

Analyst: [redacted]   Technical Manager: [redacted]

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland




Industrial Hygiene Survey
for PAARNG – Hunt Readiness Center
324 Emerson Street
Pittsburgh, Pennsylvania 15206

AECOM
January 2013
Document No.: 60276421.1/Hunt Readiness Center

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland

Industrial Hygiene Survey
for PAARNG – Hunt Readiness Center
324 Emerson Street
Pittsburgh, Pennsylvania 15206

Non-Responsive
Industrial Hygienist
Non-Responsive
Project Manager
Non-Responsive
ger

AECOM
January 2013
Document No.: 60276421.1/Hunt Readiness Center

AECOM

Contents

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Executive Summary

On November 7, 2012, AECOM conducted an Industrial Hygiene (IH) survey of the Hunt Readiness Center facility located at 324 Emerson Street in Pittsburgh, Pennsylvania. Non-[redacted], SFC was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Hunt Readiness Center operations.

The industrial hygiene survey was generally conducted in accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings", dated January 2012.

The Hunt Readiness Center is currently staffed by five personnel. None of the personnel (except for the State Maintenance Worker) were present at the time of the survey due to active duty assignments or other off-site responsibilities. The facility is configured as an administrative area and a Drill/Assembly Hall.

Personnel at the facility were undertaking normal daily activities, which are primarily administrative in nature, at the time of the survey.

The activities undertaken during the Industrial Hygiene survey included facility descriptions, lead wipe/air sampling, evaluation of housekeeping, illumination studies, ventilation system evaluation, and a review of the physical building condition.

The Hunt Readiness Center is housed in a two-story masonry building, and consists of approximately 30% administrative space and 70% Assembly Hall.

Lighting levels measured throughout the facility were generally inadequate as per ANSI/IESNA RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

Wipe samples collected for lead-containing dust throughout the facility did not indicate lead levels above the ARNG action level.

Peeling lead-based paint was observed at the Hunt Readiness Center during this survey. The peeling paint was observed in the lower office area. A bulk sample of the peeling paint was collected for analysis.

No visible damaged suspect friable asbestos-containing material (ACM) was observed.

Water damaged was not observed at the Hunt Readiness Center.

There is no Heating, Ventilation & Air Conditioning (HVAC) system that provides fresh air from the building exterior in administrative areas. The building consists of a boiler room that feeds radiant heaters throughout the building.

1.0 Facility Description and Operations

The Hunt Readiness Center, constructed in 1865, is a two-story administrative facility. The building is constructed primarily of masonry stone and block walls. Historically, the building supported a cavalry unit. The assembly hall was formerly the horse stable area. Administrative offices are located along the west side and rear of the building on both the upper and lower floors. Due to a 2010 fire the second floor offices on the western side of the Hunt Readiness Center were inaccessible at the time of the survey. The administrative area consists primarily of offices, training rooms, classroom, locker/shower rooms, storage and other administrative support areas, and is finished with sheetrock walls; lay-in ceiling tiles and floor tile. The two-story Assembly/Drill Hall area, located in the center of the building, is finished with painted block walls and a concrete floor. According to site personnel there is no firing range at the facility.

The primary activity at the Hunt Readiness Center is routine administrative duties, vehicular storage, and for support and training of soldiers. The Assembly Hall is occasionally rented out for civic activities. The Hunt Readiness Center is currently staffed by five personnel. No vehicle maintenance activities are undertaken at the facility.

2.0 Sampling in Readiness Centers

2.1.1 Wipe Sampling

Wipe sampling for lead was conducted in the Assembly Hall and administrative areas following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost wipes. Samples were collected in areas that are not frequently cleaned and showed signs of dust whenever possible.

The following table presents the results of the lead wipe sampling conducted at the facility.

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
PBW – 001	Assembly Hall - table	<110 ug/ft^2
PBW – 002	Kitchen - table	<110 ug/ft^2
PBW – 003	Office - desk top	<110 ug/ft^2
PBW – 004	Office - shelf	<110 ug/ft^2
PBW – 005	Assembly Hall - floor	<110 ug/ft^2

ug/ft^2 = Micrograms per square foot.

Wipe samples collected in association with the administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U. S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 ug/ft^2 for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas

The wipe samples collected throughout the facility did not detect levels of lead in excess of the ARNG action level of 200 micrograms per square foot (ug/ft^2). Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

Per Non-Responsive of NGB-IH, the requirement for Lead air sampling has been removed from the Statement of Work. It was reported that historically, air samples collected at administrative facilities are typically below the limit of detection.

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls appeared to be generally in good condition. Concrete flooring was generally tiled or unpainted. AECOM observed peeling paint in lower floor storage rooms of the building. A sample of the paint chips was collected and analyzed. The sample result indicated that both damaged/peeling paints were lead-containing but were below the EPA threshold of .5% PB. Approximately 3,800 square feet of damaged lead-based paint is present in the storage rooms. Analytical results are presented in Appendix C.

3.1.2 Suspect Asbestos Containing Materials

AECOM did not observe damaged, friable suspect asbestos containing materials (ACM) in readily accessible areas of the Hunt Readiness Center during this survey. Thermal system piping is typically covered in typical fiberglass insulation with associated fittings and appeared in good condition.

Other typical suspect miscellaneous building materials observed but not sampled include floor tiles and associated mastic, cove base and associated mastic, ceiling tiles, and window glazing compound and caulks.

3.1.3 Water Damage/Mold

AECOM did not observe evidence of water intrusion. However, according to site personnel the second floor office area along the west side of the building was damaged by a 2010 fire and limited water damage had occurred. The roof of the structure was damaged by the fire but has subsequently been temporarily repaired. However, due to structural uncertainty of the upper west office area, access was not allowed at the time of the survey. Water intrusion is a mold growth risk factor.

3.1.4 Housekeeping

The Hunt Readiness Center was observed to be generally clean and orderly during this assessment. AECOM did not observe dust accumulation on readily accessible horizontal surfaces within areas commonly used in the facility.

3.1.5 Indoor Air Quality/ Ergonomics

The administration section of the building contains general office space. The administration section is generally utilized by all of the Hunt Readiness Center staff members. There is no recruiter at the Hunt Readiness center. No Indoor Air Quality concerns were noted by the Hunt Readiness Center personnel.

Hunt Readiness Center personnel did not report any ergonomics issues or concerns. Office furniture and accessories designed to promote ergonomically correct behaviors were observed.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (^{o} Fahrenheit), and relative humidity (as percentage) are presented in the following table.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (^{o}F)	Relative Humidity (%)
Outside	0.0	382	67.2	25.3
Administrative Corridor	0.0	317	67.1	24.1

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (^{o}F)	Relative Humidity (%)
Physical Fitness Room	0.0	320	67.2	24.8
Empty Room	0.0	341	67.2	25.2
Empty Room	0.0	326	67.3	25.9
Assembly Hall	0.0	347	67.0	24.3
Break Room	0.0	413	68.1	25.5
Kitchen	0.1	387	68.6	26.4
Kitchen Office	0.0	380	68.9	26.7
Custodial Closet	0.0	479	67.8	23.8
Storage Room	0.0	461	67.4	28.2
Back Entrance/Foyer	0.0	405	67.5	24.0
State Maintenance Office	0.0	398	68.4	28.3
Empty Room	0.0	316	68.6	25.4
Men's Rest Room	0.0	407	68.6	23.7
Female Rest room	0.0	409	68.6	23.6
2nd Floor Corridor	0.0	423	69.8	24.8
2nd Floor Conference Room	0.6	461	69.5	24.7
2nd Floor Orderly Room	0.0	437	69.4	23.6
Old Boiler Room	0.0	388	72.3	25.9
Cage Supply/Storage Area	0.4	373	71.7	23.1
Boiler Room	0.5	412	72.0	25.8

Table 3-1 Guidelines:
Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard. OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.
Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.
Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 5.10.1).
Temperature: Winter (clothing insulation = 1.0 clo) Relative humidity 30-60% - Temp - 68 – 75°F
Summer Temp - 73 – 79°F. (Derived from ASHRAE Standard 55-2010)

4.0 Ventilation and HVAC System

4.1.1 Ventilation Systems and Potential for Contamination of Clean Air Sources

There is no Heating Ventilation Air Conditioning (HVAC) system or Field Maintenance Shop (FMS) facility located at the Hunt Readiness Center. As such, the Hunt Readiness Center does not have a potential for contamination of clean air sources.

The Hunt Readiness Center is heated by a natural gas boiler that feeds a radiant heating system. Supply and return air is not provided by mechanical means. Outdoor air is provided in the building through open windows and doors. As such, no potential for contamination of clean air sources was observed at the facility.

4.1.2 HVAC Maintenance

There is no HVAC system at the Hunt Readiness Center.

5.0 Lighting

Lighting levels in all areas were measured utilizing a Cal-Light 400 light meter that displays lighting levels in foot-candles. Lighting levels were generally inadequate.

Table 5-1: Light Survey

Location	Results – (Foot candles)	Met Standard (Y/N)	Standard*
Administrative Corridor	19.0	Y	5
Physical Fitness Room	48.3	Y	30
Empty Storage Room	8.4	N	10
Empty Storage Room	9.5	N	10
Assembly Hall	13.6	Y	10
Break Room	20.7	Y	10
Kitchen	42.6	N	50
Kitchen Office	43.8	N	50
Custodial Closet	3.1	N	30
Storage Room	4.8	N	10
Back Entrance/Foyer	39.5	Y	10
State Maintenance Office	22.6	N	50
Empty Storage Room	24.1	Y	10
Men's Rest Room	37.4	Y	5
Female Rest room	40.0	Y	5
2nd Floor Corridor	19.2	Y	5
2nd Floor Conference Room	58.6	Y	50
2nd Floor Orderly Room	53.7	Y	50
Old Boiler Room	15.3	N	30
Cage Supply/Storage Area	10.9	Y	10
Boiler Room	20.4	N	30
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI/IESNA RP-7-01)			

6.0 Evaluation of Attached Garage

There is no attached garage associated with the Hunt Readiness Center. There is a former maintenance bay which is used currently for storage.

7.0 Conclusions and Limitations

AECOM has conducted this survey in accordance with applicable OSHA methods and standard industrial hygiene practice. The following conclusions were based on the observations and assessments of activities that occurred during the on-site evaluation:

Housekeeping is performed regularly at the Hunt Readiness Center.

AECOM did not observe any damaged, friable suspect asbestos-containing materials at the Hunt Readiness Center.

AECOM observed approximately 3,800 square feet of peeling lead-based paint in empty lower floor storage rooms. A bulk sample was collected for analysis and revealed 0.14% PB, below the EPA threshold of .5% PB.

AECOM did not observe evidence of water intrusion at the Hunt Readiness Center.

Lighting levels measured throughout the facility were generally inadequate as per ANSI/IESNA RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

Wipe samples collected in association with the administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft^2 for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

AECOM provided these services consistent with the level and skill ordinarily exercised by members of the profession currently providing similar services under similar circumstances at the time the services were provided. This statement is in lieu of other statements either expressed or implied. This report is intended for the sole use of National Guard Bureau – Army National Guard. The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, and use or re-use of this document, the findings, conclusions, or recommendations is at the risk of said user.

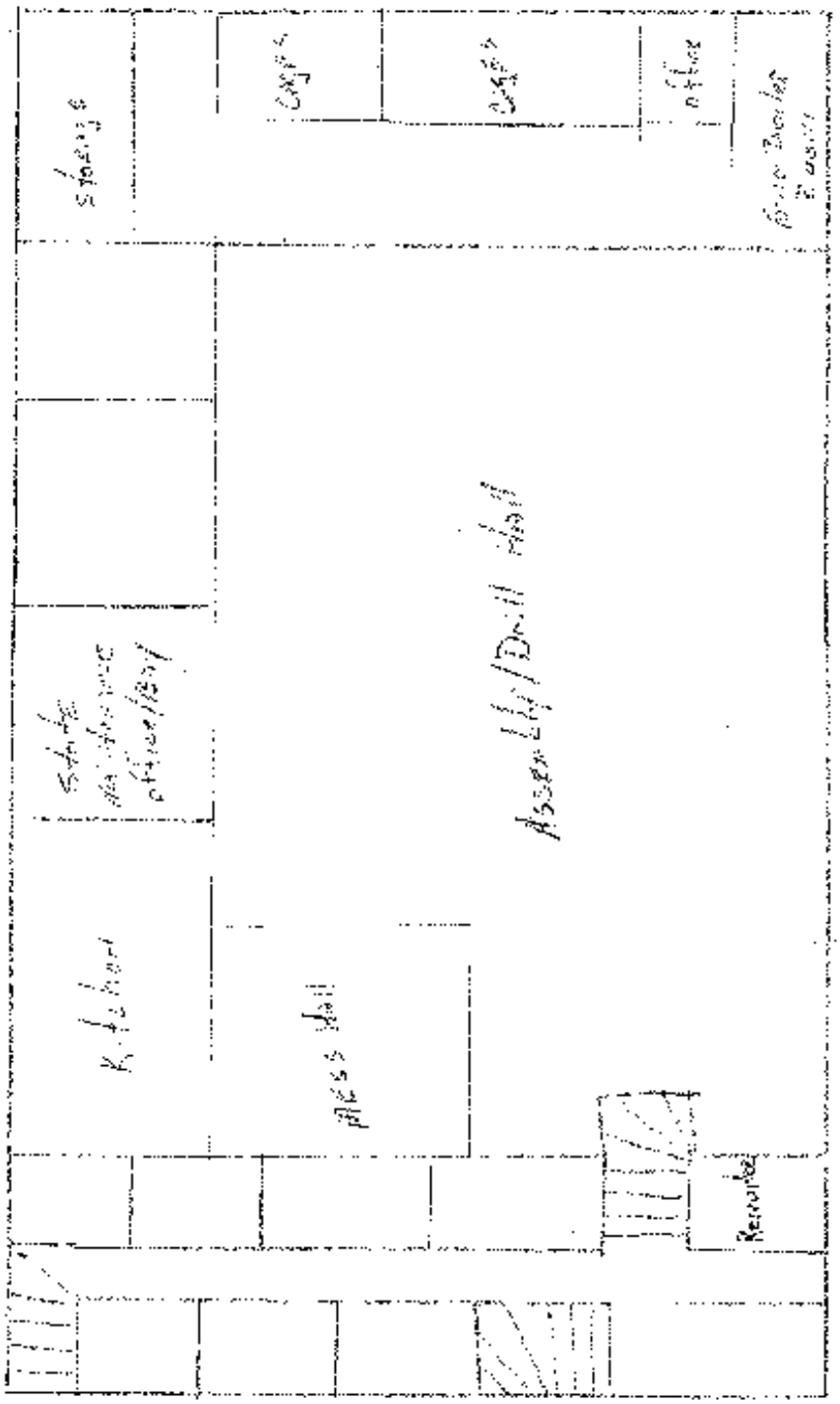
As with all such surveys, the results of the sampling represent conditions found on the date of the survey and may not represent conditions found at other times. Additionally, this survey was limited with respect to the specific parameters indicated above and should not be construed to be a comprehensive evaluation or a definitive representation of conditions within the facility. The information presented in this report is intended to be used as a guide to evaluate the need for further investigation or the need for modifications to the processes or procedures surveyed.

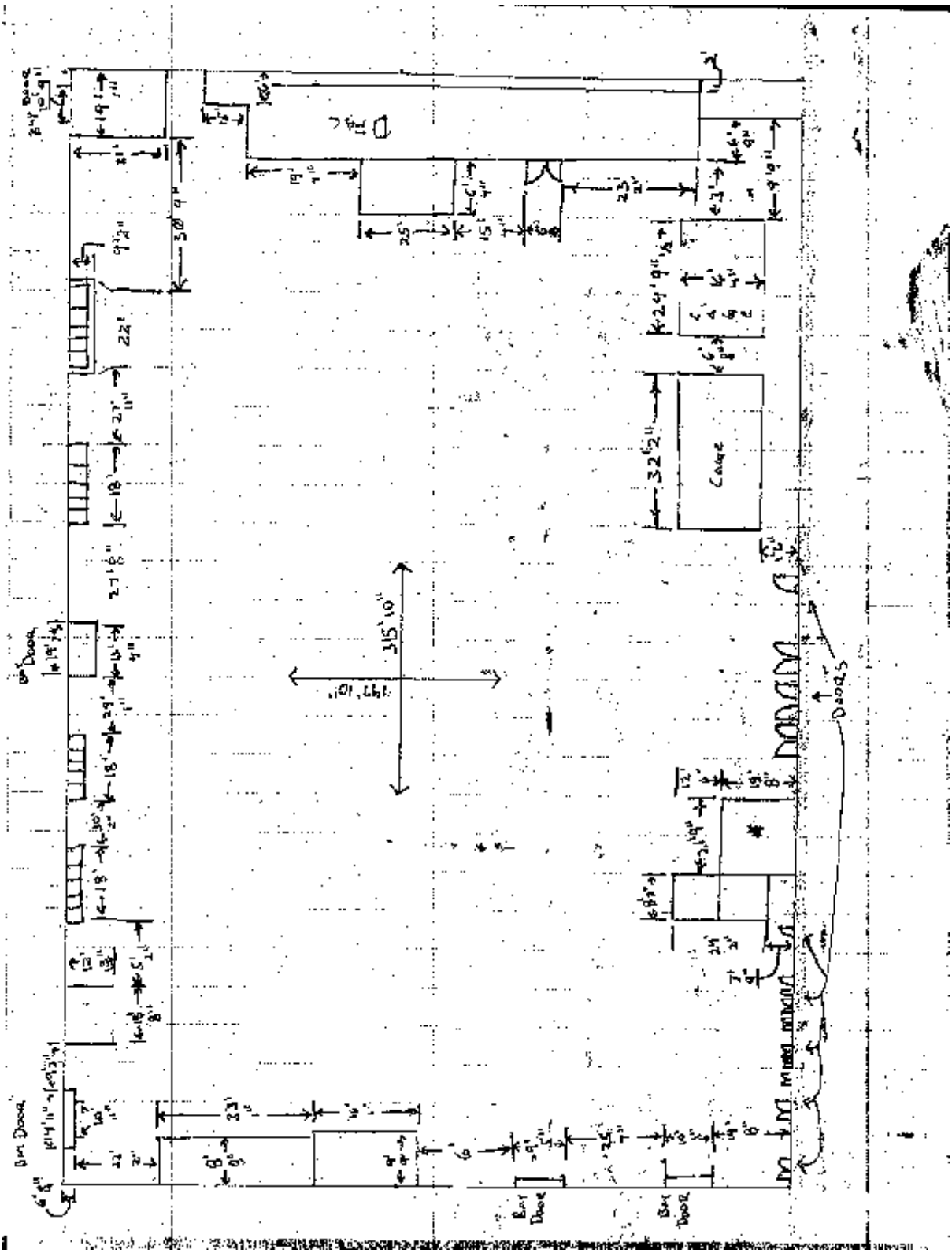
The Client recognizes and agrees that all testing and remediation methods have reliability limitations, no method nor number of sampling locations can guarantee that a condition will be discovered within the performance of the services as authorized by the Client. Additionally, the passage of time may result in a change in the environmental characteristics at this site. This report does not warrant against future operations or conditions that could affect the recommendations made. The results, findings, conclusions, and recommendations expressed in this report are based only on conditions that were observed during AECOM's inspection of the site.

Appendix A

Hunt Readiness Center Facility Layout

AECOM





Appendix B

Hunt Readiness Center Photographs

AECOM

Photograph 1

View of Building Exterior - front

Photograph 2

View of Building Exterior - side

Photograph 3

View of Administrative Corridor – first floor

Photograph 4

View of Assembly Hall

AECOM

Photograph 5

View of Caged Storage and Lockers in Assembly Hall

Photograph 6

View of Vacant Office

Photograph 7

View of Break Room

Photograph 8

View of Kitchen

Photograph 9

View of Physical Fitness Room in Assembly Hall

Photograph 10

View of Heating/Lighting System in Restroom

Photograph 11

View of Flammable Storage Cabinets in Service bay

Photograph 12

View of Administrative Corridor – second floor

Photograph 13

View of Orderly Room – second floor

Photograph 14

View of Conference Room – second floor

AECOM

Photograph 15

View of Former Maintenance Bay/Storage

Photograph 16

View of Boiler Room

Appendix C

Analytical Results

AECOM

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	Hunt PA	Chain Of Custody:	514624		
Address:	3501-B1 Old Bay Line, Attn: ARNG-CIG-P, State Military Reservation	Job Location:	Not Provided	Date Submitted:	11/30/2012		
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM		
		P.O. Number:	W912K6-09-A-8003	Date Analyzed:	12/6/2012	Report Date:	12/6/2012

Attention: Non-Responsive

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		Total ug	Final Result		Comments
13018414	W-001	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13018415	W-002	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13018416	W-003	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13018417	W-004	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13018418	W-005	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
13018419	Pchip-001	Flame	Paint Chip	****	N/A	0.01	%Pb		0.14	%Pb	

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B

See QC Summary for analytical results of quality control samples associated with these samples.

N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)

%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)

Note: All samples were received in good condition unless otherwise noted.

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results

Final results for air and wipe samples are based on client supplied information not verified by this laboratory.

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

Analyst: Non-Responsive

Technical Manager: Non-Responsive

An AIHA (#100478) and NVLAP (#200928) Accredited Laboratory

4475 Forbes Blvd. · Lanham, MD, 20706 · (301) 459-2640 · Toll Free (800) 346-0961 · Fax (301) 459-2643

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AMA Analytical Services, Inc.
Focused on Results www.amalab.com
AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)
4475 Forbes Blvd • Lanham, MD 20706
(301) 459-2640 • (800) 345-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This Number For Inquiries) 514624

Mailing/Billing Information:
1. Client Name: National Guard Bureau
2. Address 1: 301-IH Old Bay Lane
3. Address 2: Attn: NGB-AVN-SL State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:
(1) (Job Name) Hunt PA
(2) (Job Location)
3. Job #: PO #: W91ZRS-09-A-0003
4. Contact Person: [redacted] @ phone #:
5. Submitted by: AECOM (Signature)

Reporting Info (Results provided as soon as technically feasible). If no TAT/Reporting Info is provided, AMA will assign defaults of 5-Day and email/fax to contacts on file.

AFTER HOURS (must be pre-scheduled)	NORMAL BUSINESS HOURS			REPORT TO:
☐ Immediate Date Due:	☐ Immediate	☐ 3 Day	☐ Results Required By Noon	☒ Include COC/Field Data Summary Report
☐ 24 Hour Time Due:	☐ Next Day	☒ 5 Day		☒ Email [redacted]
Client:	☐ 2 Day	Date Due: 12/3/12		☐ Fax ☐ Verbal

Asbestos Analysis
*PCM Air – Please Indicate Filter Type:
☐ NIOSH 7400 ____ (QTY)
☐ Fiberglass ____ (QTY)
TEM Air* – Please Indicate Filter Type:
☐ AHERA ____ (QTY)
☐ NIOSH 7402 ____ (QTY)
☐ Other (specify ____) ____ (QTY)
PLM Bulk:
☐ EPA 600 – Visual Estimate ____ (QTY)
☐ EPA Point Count ____ (QTY)
☐ NY State Friable 198.1 ____ (QTY)
☐ Grav. Reduction ELAP 198.6 ____ (QTY)
☐ Other (specify ____) ____ (QTY)
MISC:
☐ Vermiculite
☐ Asbestos Soil PLM ___(Qual) PLM ___(Quant) PLM/TEM ___(Qual) PLM/TEM ___(Quant)
*It is recommended that blank samples be submitted with all air and surface samples

TEM Bulk:
☐ ELAP 198.4/Chatfield ____ (QTY)
☐ NY State PLM/TEM ____ (QTY)
☐ Residual Ash ____ (QTY)
TEM Dust*:
☐ Qual. (presence/absence) Vacuum/Dust ____ (QTY)
☐ Quant. (s/area) Vacuum D5755-95 ____ (QTY)
☐ Quant. (s/area) Dust D6480-99 ____ (QTY)
TEM Water:
☐ Qual. (presence) ____ (QTY)
☐ ELAP 198.2/EPA 100.2 ____ (QTY)
☐ EPA 100.1 ____ (QTY)

☒ All samples received in good condition unless otherwise noted.
(TEM Water samples ____ °C)

If field data sheets are submitted, there is no need to complete bottom section.

Metal Analysis
☒ Pb Paint Chip 1 (QTY)
☒ *Pb Dust Wipe (wipe type [illegible]) 5 (QTY)
☐ *Pb Air ____ (QTY)
☐ Pb Soil/Solid ____ (QTY)
☐ Pb TCLP ____ (QTY)
☐ Drinking Water ☐ Pb ____(QTY) ☐ Cu ____(QTY) ☐ As ____(QTY)
☐ Waste Water ☐ Pb ____(QTY) ☐ Cu ____(QTY) ☐ As ____(QTY)
☐ Pb Furnace (Media ____) ____ (QTY)

Fungal Analysis
Collection Apparatus for Spore Trap/Air Samples: ____
Collection Media: ____
☐ *Spore-Trap ____ (QTY) ☐ Surface Vacuum Dust ____ (QTY)
☐ *Surface Swab ____ (QTY) ☐ Culturable Genus (Media ____) ____ (QTY)
☐ *Surface Tape ____ (QTY) ☐ Culturable Species (Media ____) ____ (QTY)
☐ Other (Specify ____) ____ (QTY)

CLIENT ID #	SAMPLE LOCATION/ID	DATE/TIME	VOL (L)/Wipe Area	TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	WIPE	SOIL	PAPER	OTHER	CLIENT CONTACT (LABORATORY STAFF ONLY)
W-001	D.Hall - table	11/7	1 sq ft				X									Date/Time: Contact: By:
W-002	Kitchen - table	↓	↓				↓									
W-003	2nd floor desk	↓	↓				↓									
SEE ATTACHED FIELD DATA SHEETS																
W-004	2nd floor cabinet	↓	↓				↓									Date/Time: Contact: By:
W-005	1st floor Hallway	↓	↓				↓									
PCHip-001	Vacant Room	11/7					X			X						
																Date/Time: Contact: By:

LABORATORY STAFF ONLY (CUSTODY)
1. Date/Time RCVD: 11/30/12 @ RCVD Via FEDEX By [redacted]
2. Date/Time Analyzed: ___/___/___ @ ___ By ____ Sign ____
3. Results Reported To: ____ Via: ____ Date: ___/___/___ Time: ____ Initials: ____
4. Comments: 7941-7694-5331

Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. http://www.osha.gov/comp-links.html

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3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF

4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://armypubs.army.mil/epubs/pdf/R40_5.PDF

5. AR 385-10, The Army Safety Program, 23 August 2007; Rapid Action Revision (RAR) issue date: 4 October 2011. http://armypubs.army.mil/epubs/pdf/R385_10.PDF

6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://armypubs.army.mil/epubs/pdf/P40_501.pdf

7. DA PAM 40-11, Preventive Medicine, 22 July 2005, RAR issue date: 19 October 2009. http://armypubs.army.mil/epubs/pdf/p40_11.pdf

8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://armypubs.army.mil/epubs/pdf/P40_503.PDF

9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf

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11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.

12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.

13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.

14. ANSI/ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality.

15. RP-1-2004, Office Lighting, ANSI/IESNA.

16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.

17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.

18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.

19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf

INDUSTRIAL HYGIENE SURVEY

HHC 103RD ENGR BN
CO A 103RD ENGR BN
CO B 103RD ENGR BN
CO C 103RD ENGR BN
SPT PLT 103RD ENGR BN

LANCASTER AVENUE PHILADELPHIA, PA

March 28, 2003

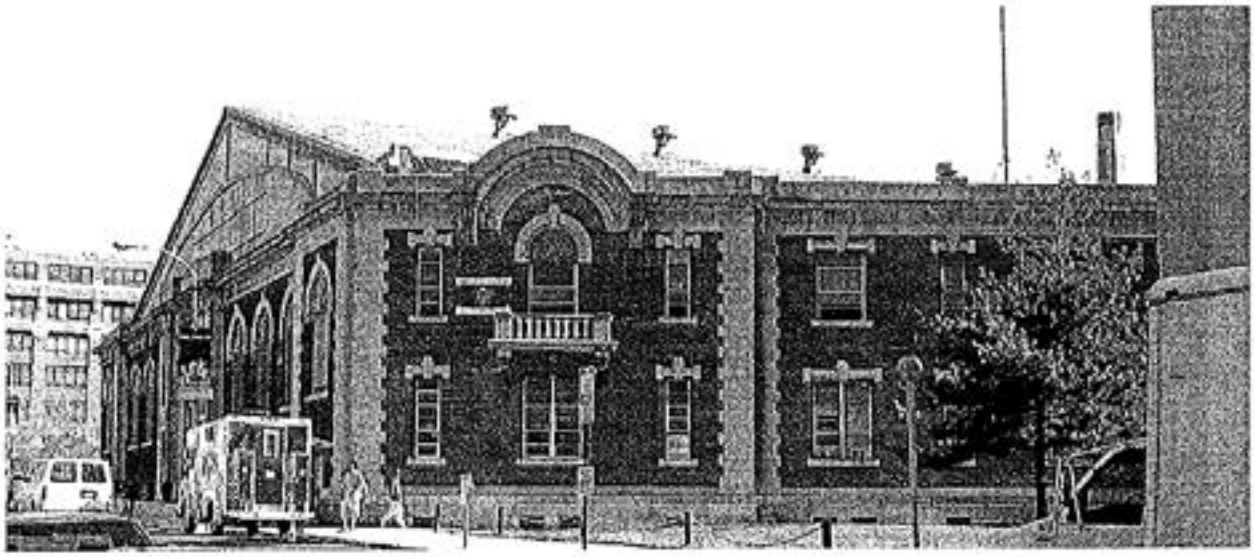
And

August 20, 2003

OPTECH

OPERATIONAL TECHNOLOGIES
CORPORATION

INDUSTRIAL HYGIENE SURVEY
HHC 103RD ENGR BN
LANCASTER AVENUE
PHILADELPHIA, PENNSYLVANIA



1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Lancaster Avenue Armory, Philadelphia, Pennsylvania on March 28, 2003 with a return visit on August 20, 2003. NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. [redacted] from OpTech, completed this survey. Peter Lurker, a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the IH Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D.

2.0. EXECUTIVE SUMMARY

2.1. No indoor air quality problems were noted.

2.2. Illumination levels were below recommended minimum standards in most areas of the facility.

2.3. Wipe samples for inorganic lead were collected. Sample results in the basement, assembly hall and former indoor firing range exceeded recommended levels.

2.4. Air sampling for inorganic lead was conducted. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building.

2.5. No present water intrusion problems were reported or observed within the building, however, damage to ceilings and walls from previous water leaks were present. Paint chip samples were collected in three water-damaged areas. A sample from peeling paint in the second floor passageway exceeded the EPA's 0.5 percent by weight lead criteria and is therefore, considered lead-contaminated.

2.6. An air sample for asbestos was conducted in the basement ROTC supply area. The analysis was below the OSHA standard, however, during high use times, such as drill weekends, airborne asbestos levels may be greatly increased.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	HHC 103RD ENGR BN CO A, CO B, CO C, SPT PLT		
ADDRESS	Drexel University ROTC		
	3205 Lancaster Avenue		
	Philadelphia, PA 19104		
CONTACT	MAJ [redacted]		
PHONE	215-823-4850		
DATE BUILT	1917	FACILITY SIZE	84,798 sq.ft.
INDOOR FIRING RANGE	Inactive / CLOSED		2-floors plus basement
ASSISTED	MAJ [redacted]		
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	30		
TRADITIONAL (MIL)	387		
CHILD ACTIVITIES	Rents out to the Drexel University Basketball team for practices. Rents to at least 2-large shows per year (such as antique shows)		
ADULT ACTIVITIES			

3.1.1. The exterior is brick and appears to be in good condition. Portions of the facility where full-time personnel work have been kept in very good condition. Some areas have water damage from broken hot water or steam lines. A steam furnace provides heat. The inactive indoor firing range was recently cleaned. The Drexel University ROTC Unit has offices plus supply storage areas in the facility. The Drexel University basketball team holds practices in the assembly hall. This is an historic facility with many military artifacts on display to educate ROTC students and the general public.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity (RH) in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 Indoor Air Quality Standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ASHRAE 62-2001, Section 6.1.3, states that concentrations up to 700 ppm CO_2, above outdoor concentrations will achieve an acceptable level of indoor air quality.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ASHRAE 55-1992 recommends that temperature ranges be 73 to 79 degrees Fahrenheit (°F) during the summer and 68 to 74°F during the winter. Relative humidity levels be maintained between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE 1
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO2 (ppm)	Temp. (°F)	RH (%)
0915	Outdoors Background	0.0	448	62.9	28.9
0945	2nd Floor Offices (occupied)	0.0	523	77.2	21.5
1000	Basement – ROTC Supply Area	3.0	600	78.5	29.0
1005	Basement – Corridor	2.0	558	82.7	20.7
1010	1st Floor – CO A Offices (occupied)	1.0	812	79.0	25.7
1025	Drill Floor	0.0	505	73.6	23.9
1035	1st Floor – Recruiter's Office (occupied)	1.0	534	77.8	20.6
1040	2nd Floor – Conference Room (occupied)	1.0	540	78.5	20.8
1045	2nd Floor – Break Room	1.0	510	79.1	20.7
1055	2nd Floor – Central Office Area (occupied)	0.0	511	77.3	20.0
1115	1st Floor – ROTC Office (occupied & window Open)	0.0	463	75.5	17.6
1120	1st Floor - ROTC Admin Offices (occupied)	0.0	461	74.9	18.6
1145	Basement - B CO Supply (occupied)	1.0	614	75.4	25.1
1205	Basement – SW Corner Storage	0.0	521	76.9	26.4
1250	Former Range	0.0	508	78.7	22.3

3.2.5. No indoor quality problems were noted.

3.3. ILLUMINATION

3.3.1. Illumination levels were measured in most areas of the facility. Sunlight was excluded, as much as possible for this survey, by closing doors and blocking windows. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 - 463). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
Basement				
Basement Corridor	10 – 28	19	7.5	YES
B CO Supply Office	22 - 44	34	70	NO
Desk	20	20	70	NO
Storage	20 – 36	28	30	NO
1st Floor				
CO A Office	28 - 66	55	70	NO
Desks	36 – 42	39	70	NO
Drill Floor – ½ lights out (areas w/lights)	24 – 68	47	75	NO
Drill Floor – areas w/o lights	<10	<10	75	NO
Recruiter's Office	38 - 48	44	70	NO
Desks	36 – 42	39	70	NO
ROTC Office	18 – 46	35	70	NO
Desks	38 – 42	40	70	NO
ROTC Admin Offices	10 - 32	22	70	NO
Desks	22 – 38	27	70	NO
2nd Floor				
Commander's Office	46 – 58	52	70	NO
Desk	56	56	70	NO
Conference Room	60 - 84	71	30	YES
Break Room	4 - 10	6	30	NO
BN XO's Office	14 – 40	27	70	NO
Desk	40	40	70	NO

Location	Luminance Range (fc)	Average	Standard	Standard Met
Office	20 – 22	21	70	NO
Desk	22	22	70	NO
Copier Room (most lights out)	6 – 10	9	75	NO
Office – being remodeled	30 – 38	33	70	NO
Desk	30	30	70	NO
Office	18 – 38	27	70	NO
Desk	32	32	70	NO
Corridor	6 – 26	11	7.5	YES

3.3.2. Levels were well below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3.4. WIPE SAMPLES

3.4.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples were collected at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot ($\mu g/ft^2$) and are listed in Table 3. The initial five samples had suspected laboratory error, which was confirmed by repeat sampling and analysis. Table 3 lists the results from the second visit. Additional samples were collected during the first visit. The results of these additional samples are listed in Table 4. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
LEAD WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead ($\mu g/ft^2$)
PA Phi-03232-07	Basement – ROTC Supply Area	1900
PA Phi-03232-08	Assembly Hall – East End	940
PA Phi-03232-09	1st Floor – Recruiting Office	BDL
PA Phi-03232-10	1st Floor – HQ Office	BDL
PA Phi-03232-11	2nd Floor – Hallway	BDL
PA Phi-03232-12	BLANK Sample	BDL

$\mu g/ft^2$ = micrograms per square foot BDL = Below Detection Limits

3.4.2. Additional wipe samples were collected during this survey. These samples were collected to further analyze the extent of contamination should the first five samples indicate a possible

hazard. Since samples taken in ROTC supply area and the assembly hall exceeded the 200 µg/ft^2 criterion (see Section 3.4.4 below), the additional samples were analyzed. The results are presented in Table 4.

TABLE 4
WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Phi-03087-13	2nd Floor – Break Room	BDL
PA Phi-03087-14	2nd Floor – Balcony – Overlooking Assembly Hall	**1728**
PA Phi-03087-15	1st Floor – ROTC Office	117
PA Phi-03087-16	Basement – BCO Supply Office	BDL
PA Phi-03087-17	Basement – SW Corner Storage Room	**304**
PA Phi-03087-18	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.3. CLOSED FIRING RANGE WIPE SAMPLING

3.4.3.1. Additional wipe samples were collected in the former indoor firing range. The range was recently cleaned. The area is not presently utilized. The laboratory analysis results are listed below in Table 5.

TABLE 5
FORMER FIRING RANGE LEAD WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Phi-03232-13	Bullet Trap Floor	**430**
PA Phi-03232-14	Light Fixture – Bullet Trap Area	**130**
PA Phi-03232-15	Top of Pipe – ½ Way Down Range	**480**
PA Phi-03232-16	Floor – Behind Firing Line	**270**
PA Phi-03232-17	Outside Range	**2400**
PA Phi-03232-18	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.4. WIPE SAMPLING RESULTS

3.4.4.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 µg/ft^2. This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. (See memorandum in Attachment E, Recommendations for Surface Lead Dust in Armories.) Samples in the assembly hall, balcony, the lower floor and the conference room are significantly greater than the 200 µg/ft^2 criteria. Samples in the assembly hall, ROTC supply area, assembly hall balcony, basement plus four of five samples in the former indoor firing range exceeded the 200 µg/ft^2 criteria. It was apparent that the lead-contamination is from a combination of lead-contaminated paint and the former

firing range activities. Lead-contaminated paint was confirmed by a paint chip sample taken in the second floor passageway. See Section 3.5.1. Also, vehicles are driven into the assembly hall daily. Suspect automobile exhaust from leaded gasoline prior to 1976 may also have contaminated assembly hall areas.

3.4.5. AIR SAMPLING

3.4.5.1. Air Sampling for inorganic lead was performed during this survey. Table 6 lists the results of these samples, and is reported in milligrams per cubic meter (mg/m^3) of air.

TABLE 6
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
Area – 2nd Floor Offices	PA Phi-03087-01	Lead	<0.002 mg/m^3	0.05 mg/m^3	YES
[redacted]	PA Phi-03087-02	Lead	<0.001 mg/m^3	0.05 mg/m^3	YES
Area – 1st Floor – Entry	PA Phi-03087-03	Lead	<0.002 mg/m^3	0.05 mg/m^3	YES
Area – Basement – ROTC Supply Area	PA Phi-03087-04	Lead	<0.002 mg/m^3	0.05 mg/m^3	YES

mg/m^3 = milligrams per cubic meter < = less than (below detection limits)

3.4.5.2. Air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this building.

3.5. OTHER OBSERVATIONS

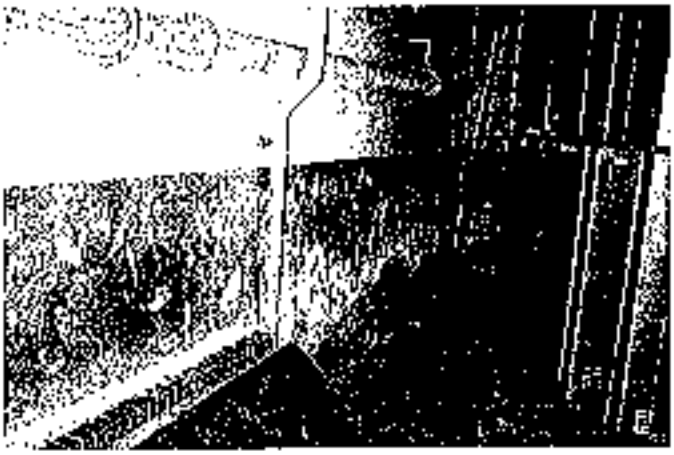
3.5.1. WATER INTRUSION DAMAGE

3.5.1.1. No present water intrusion problems were reported or observed within the building. Damage to ceilings and walls from previous water leaks are present. Chipped paint samples were collected in three water damaged areas plus one bulk sample for asbestos was collected. Sample results are listed in Tables 7 and 8.

TABLE 7
LEAD PAINT SAMPLING RESULTS

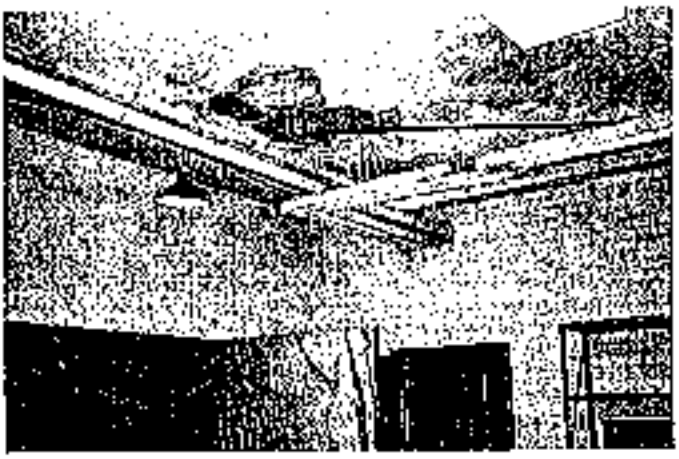
SAMPLE #	LOCATION	Lead (percent)
PA Phi-03087-25	Basement – SW Corner Storage Room Wall	0.11
PA Phi-03087-27	Basement – SE Corner Storage Room Ceiling	0.00023
PA Phi-03087-28	2nd Floor – Passageway Ceiling	2.3

3.5.1.2. The Environmental Protection Agency (EPA) considers paint with a lead content equal to or greater than 0.5% by weight as contaminated. Therefore, the two areas tested in the basement are not considered lead-contaminated paint. The peeling paint in the second floor passageway is considered lead-contaminated.



Basement SW Storage Room Paint Chip and Asbestos Sample Location

SE Storage Room Paint Chip Sample Location



Water Damaged Ceiling above 2nd Floor Passageway

3.5.2. ASBESTOS

3.5.2.1. Asbestos insulation has been removed from boiler room pipes. Six-inch floor tiles are present in some areas. A few areas are chipped, however, there is presently a good protective layer of wax on all areas. A portion of the wall in the southwest corner storage room is deteriorating due to a steam line burst. A sample of the powdery deteriorating wall was taken for asbestos content analysis. Results are listed in Table 8. An asbestos air sample was collected in the basement ROTC storage area. The results of this air sample are listed below in Table 9.

TABLE 8
ASBESTOS BULK SAMPLING RESULTS

SAMPLE #	LOCATION	Asbestos (percent)
PA Phi-03087-26	Basement – SW Corner Storage Room Wall	ND

ND – None Detected

TABLE 9
ASBESTOS AIR SAMPLING RESULTS

SAMPLE #	LOCATION	f/cc
PA Phi-03087-05	Basement – SW Corner Storage Room Wall	0.004

f/cc = fibers per cubic centimeter

3.5.2.2. The standards set forth by the American Conference of Governmental Industrial Hygienists (ACGIH) and Occupational Safety and Health Association (OSHA) set airborne levels of asbestos at 0.1 fibers per cubic centimeters (f/cc). This air sample was approximately 100 times lower than the standard. However, a local College ROTC Unit plus the basketball

team uses the facility on a daily basis. Environmental or public exposures to asbestos should be far lower than occupationally exposed workers.

3.5.3. PROGRAMS

3.5.3.1. There are no designated confined space areas within this facility. A need has not been established for a HAZCOM program, the need for personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.4. HOUSEKEEPING

3.5.4. A cleaning service is not provided. Each individual is responsible for his/her area. Due to deployments, some areas have not received normal housekeeping attention. Some areas were very dirty and cluttered, such as the ROTC supply area and other storage rooms in the basement.

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

E – Recommendations for Surface Lead in Armories

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
Philadelphia, PA	PENNSYLVANIA ARNG ARMORY	Lancaster Ave. Armory

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR (initials)
28 March / 20 August, 2003	JSS

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	NA	MAJ Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
215-823-4850	103RD ENG BN	3	9

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
30	387			

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	CONROLS 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			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	½ FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	¼ 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 WEATHR BOOTS/HATS	/
FULL FACE SHIELD	/	EARPLUGS	/	COLD WEATHR 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	/		

AEHA Form 271-R (Test), 1 Jan 92 (HSHB-MI-I)

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	3	C
1201-29-5	Asbestos	3	C

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

SECTION 6. COMMENTS

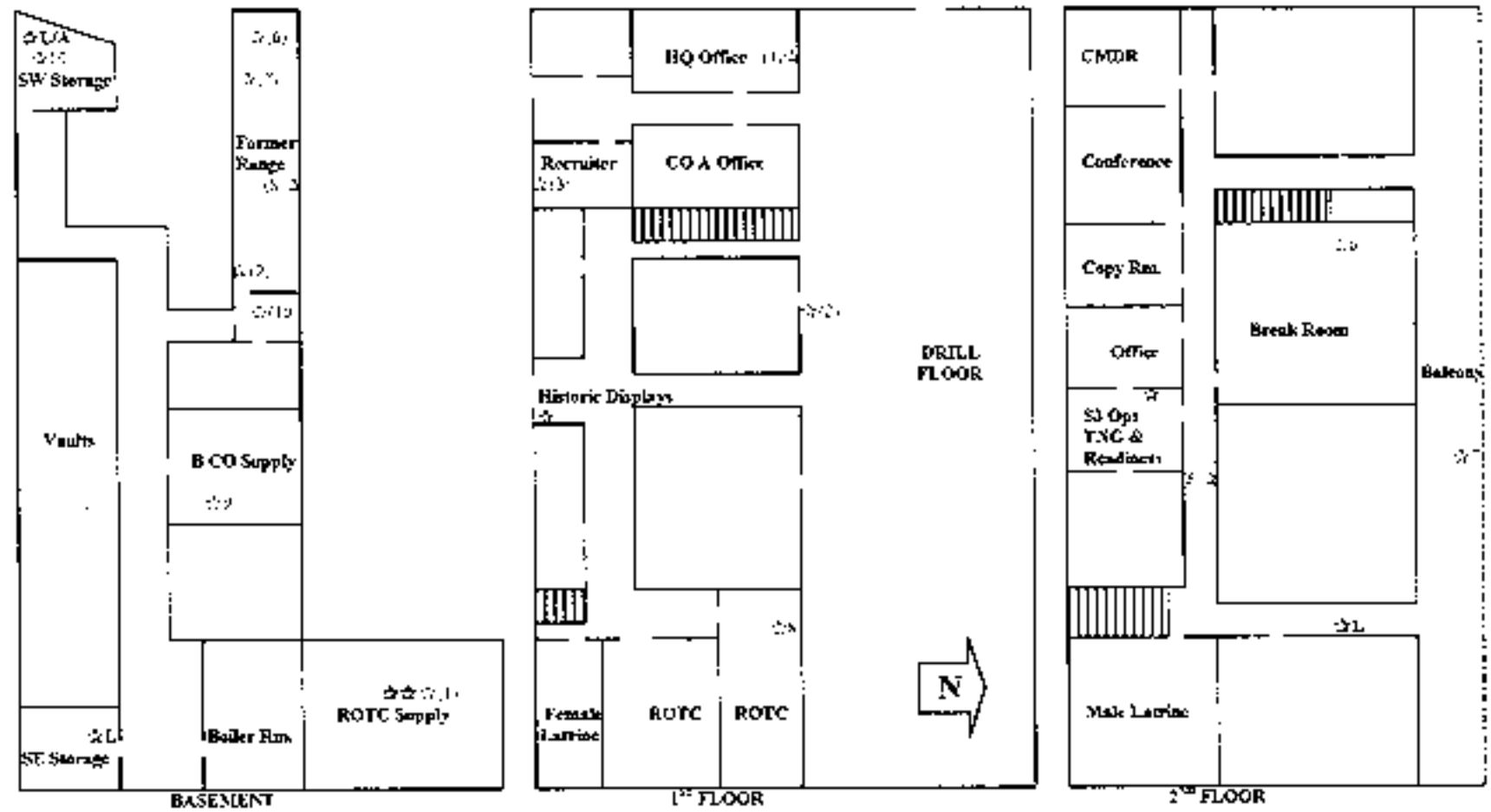
☐ No comments ☐ See attached sheet

PRIVACY ACT STATEMENT

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

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

LANCASTER AVE., PHILADELPHIA, PENNSYLVANIA

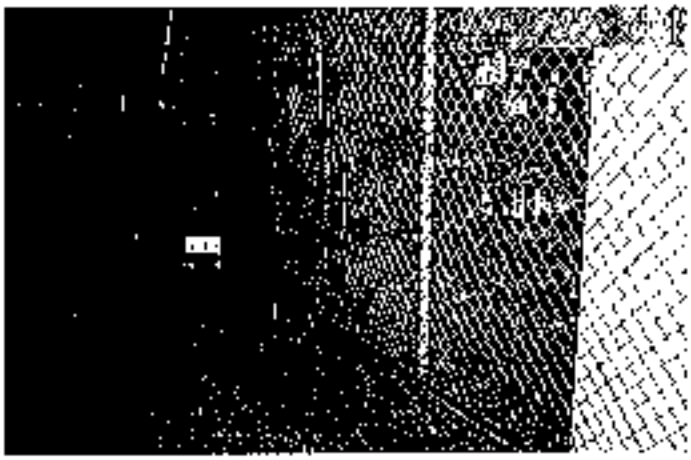


☆ = Wipe Sample ☆ = Bulk Samples (Lead and/or Asbestos) ☆ = Area Air Sample

(Floor Layouts are not accurate or to scale)

HHC 103RD ENGR BN – CO A, CO B, CO C, SPT PLT
LANCASTER AVENUE
PHILADELPHIA, PENNSYLVANIA
WIPE SAMPLING POINTS

(1) PA Phi-03232-07
Basement – ROTC Supply



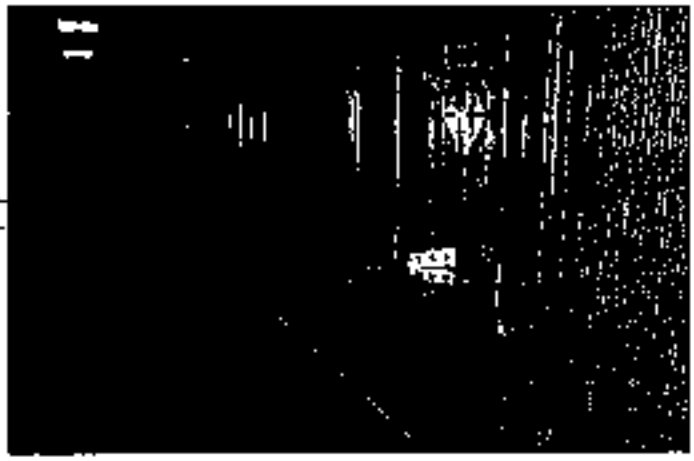
(2) PA Phi-03232-08
Assembly Hall – East End

(3) PA Phi-03232-09
1st Floor Recruiting Office

Attachment B

(4) PA Phi-03232-10
HQ Office

(5) PA Phi-03232-11
2nd Floor – Hallway



Attachment 9

ADDITIONAL SAMPLES

(6) PA Phi-03087-13
2nd Floor – Break Room

(7) PA Phi-03087-14
2nd Floor Balcony

(8) PA Phi-03087-15
1st Floor – ROTC Office

Attachment B

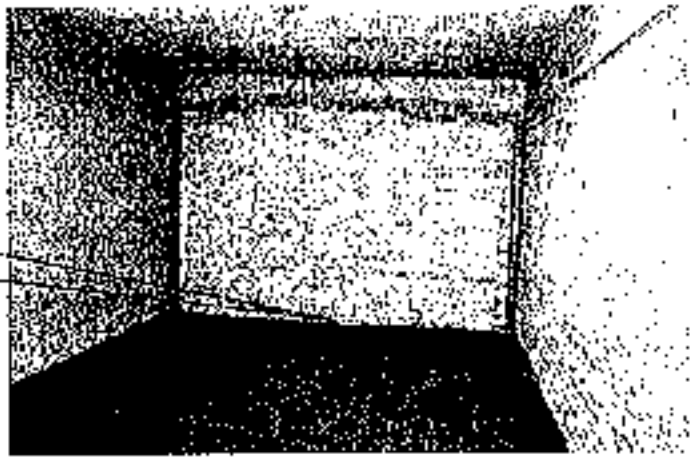
(9) PA Phi-03087-16
Basement – B CO Supply Office

(10) PA Phi-03087-17
Basement – SW Corner Storage Room

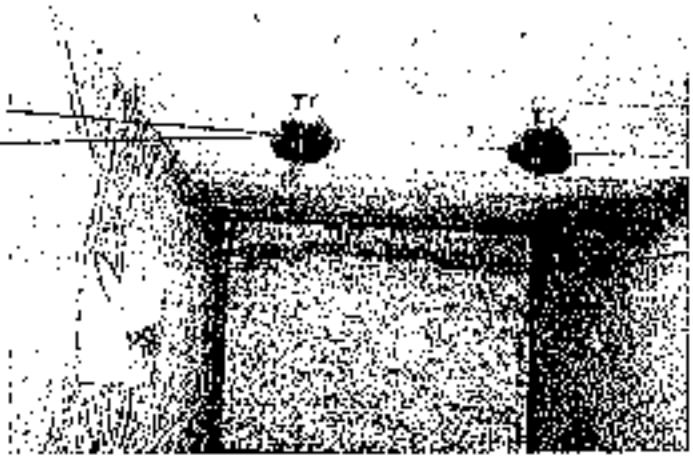
Attachment B

CLOSED RANGE SAMPLES

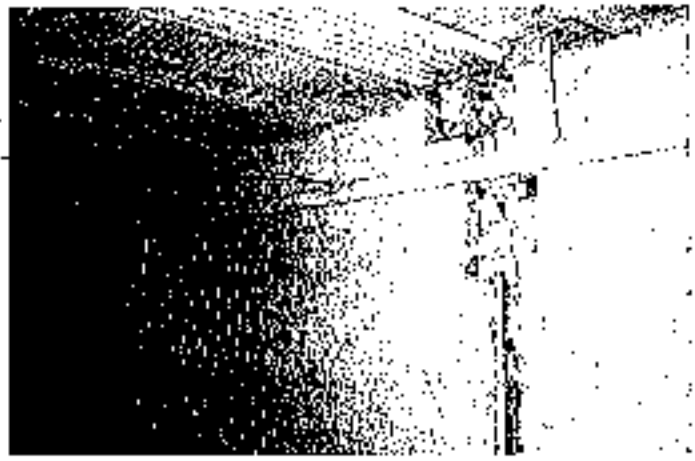
(6) PA Phi-03232-13
Former Range – Bullet Trap



(7) PA Phi-03232-14
Former Range – Light Fixture
¾ Way Down Range

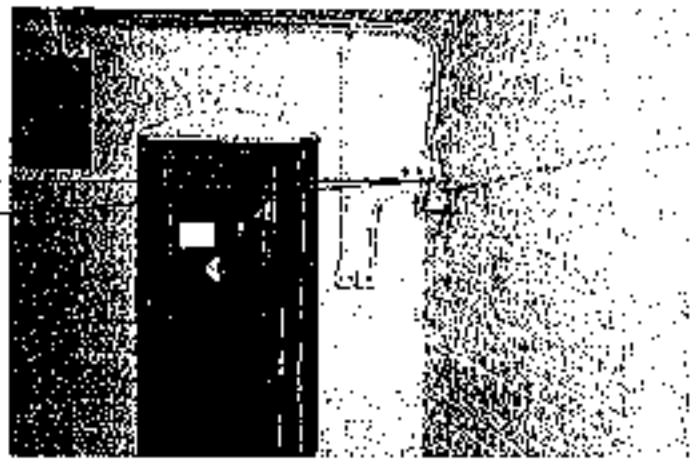


(8) PA Phi-03232-15
Former Range – Pipe
½ Way Down Range



Attachment B

(9) PA Phi-03232-16
Former Range – Behind Firing Line



(10) PA Phi-03232-17
Outside Former Range

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client:	National Guard Bureau	Job Name:	Pennsylvania Armories-Philadelphia Lancaster Ave.	Chain Of Custody:	117196
Address:	301-IH Old Bay Lane, Attn: NGB-AVN-SI, State Military Reservation	Job Location:	Not Provided	Date Analyzed:	9/12/2003
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	[redacted]
		P.O. Number:	Not Provided	Report Date:	12-Sep-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
0366530	PAPhi-03232-07	Flame	Wipe	****	0.111	108.00	ug/ft²	1900	ug/ft²	
0366531	PAPhi-03232-08	Flame	Wipe	****	0.111	108.00	ug/ft²	940	ug/ft²	
0366532	PAPhi-03232-09	Flame	Wipe	****	0.111	108.00	ug/ft²	< 110	ug/ft²	
0366533	PAPhi-03232-10	Flame	Wipe	****	0.111	108.00	ug/ft²	< 110	ug/ft²	
0366534	PAPhi-03232-11	Flame	Wipe	****	0.111	108.00	ug/ft²	< 110	ug/ft²	
0366535	PAPhi-03232-12	Flame	Wipe	****	0.111	108.00	ug/ft²	< 110	ug/ft²	
0366536	PAPhi-03232-13	Flame	Wipe	****	0.111	108.00	ug/ft²	430	ug/ft²	
0366537	PAPhi-03232-14	Flame	Wipe	****	0.111	108.00	ug/ft²	130	ug/ft²	
0366538	PAPhi-03232-15	Flame	Wipe	****	0.111	108.00	ug/ft²	480	ug/ft²	
0366539	PAPhi-03232-16	Flame	Wipe	****	0.111	108.00	ug/ft²	270	ug/ft²	
0366540	PAPhi-03232-17	Flame	Wipe	****	0.111	108.00	ug/ft²	2400	ug/ft²	
0366541	PAPhi-03232-18	Flame	Wipe	****	0.111	108.00	ug/ft²	< 110	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.

Analyst: [redacted]

Technical Manager: [redacted]

An AIHA (#863), NVLAP (# 101143), & New York ELAP (#10920) Accredited Laboratory
4475 Forbes Blvd. • Lanham, MD 20706 • (301) 459-2640 • Toll Free (800) 346-0961 • Fax (301) 459-2643

TEST REPORT
Page 4 of 4
03-S-2793

Results
Lead

Client #	DCL #	Total Area (in^2)	µg/Wipe	µg/in^2	ug/ft²
PA Was-03080-53	03-17674	16	ND	<0.625	
PA Was-03080-54	03-17675	16	ND	<0.625	
PA Phi-03084-10	03-17676	16	ND	<0.625	
PA Phi-03084-11	03-17677	16	ND	<0.625	
PA Phi-03084-12	03-17678	16	1000.	63. x144=	9072
PA Phi-03084-13	03-17679	16	36.	2.3 x 144=	331.2
PA Phi-03084-14	03-17680	16	15.	0.94 x144=	135.4
PA Phi-03084-15	03-17681	16	58.	3.6 x144=	518.4
PA Phi-03084-16	03-17682	16	ND	<0.625	
PA Ply-03086-09	03-17683	16	ND	<0.625	
PA Ply-03086-10	03-17684	16	ND	<0.625	
PA Ply-03086-11	03-17685	16	ND	<0.625	
PA Ply-03086-12	03-17686	16	ND	<0.625	
PA Ply-03086-13	03-17687	16	ND	<0.625	
PA Ply-03086-14	03-17688	16	ND	<0.625	
PA Phi-03087-13	03-17689	16	ND	<0.625	
PA Phi-03087-14	03-17690	16	190.	12. x144=	1728
PA Phi-03087-15	03-17691	16	13.	0.81 x144=	116.6
PA Phi-03087-16	03-17692	16	ND	<0.625	
PA Phi-03087-17	03-17693	16	34.	2.1 x144=	302.4
PA Phi-03087-18	03-17694	16	ND	<0.625	
	Prep Blank		ND		
% Recovery	LCS		84.		
% Recovery	LCS		84.		
RPL			10.		

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m³
PA Cha-03078-17	03-17810	434.6	ND	<0.002
PA Fri-03079-01	03-17811	313.2	ND	<0.003
PA Fri-03079-02	03-17812	334.6	ND	<0.003
PA Can-03080-01	03-17813	462.7	ND	<0.002
PA Can-03080-02	03-17814	457.2	ND	<0.002
PA Can-03080-03	03-17815	482.1	ND	<0.002
PA Was-03080-40	03-17816	334.2	ND	<0.003
PA Was-03080-41	03-17817	339.5	ND	<0.003
PA Was-03080-42	03-17818	360.1	ND	<0.003
PA Phi-03084-01	03-17819	292.5	ND	<0.003
PA Phi-03084-02	03-17820	295.2	ND	<0.003
PA Phi-03084-03	03-17821	310.2	ND	<0.003
PA Ply-03086-01	03-17822	363.6	ND	<0.003
PA Ply-03086-02	03-17823	384.2	ND	<0.003
PA Phi-03087-01	03-17824	636.7	ND	<0.002
PA Phi-03087-02	03-17825	672.3	ND	<0.001
PA Phi-03087-03	03-17826	593.1	ND	<0.002
PA Phi-03087-04	03-17827	522.9	ND	<0.002
PA Phi-03090-01	03-17828	351.3	ND	<0.003
PA Phi-03090-09	03-17829	190.8	ND	<0.005
	Prep Blank 3		ND	
% Recovery	LCS 5		110.	
% Recovery	LCS 6		109.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer

DataChem Laboratories Phase Contrast Microscopy Test Report

Client: Army National Guard IH-N

Sample Location: Pennsylvania Armories P.O. No.: 04-01

ANALYSIS INFORMATION								
Graticule Area (mm^2):	0.00817							
SAMPLE INFORMATION			*SAMPLE RESULTS*				*LOD*	
Client Sample Nos.	DCL Nos.	Vol. (L)	Fib/Field	Fib/mm^2	Fib/Filter	Fib/mL	*(Fib/mm^2)*	*(Fib/mL)*
PA Phi-03087-05	03-11321	636.40	0.000	<LOD	<LOD	<LOD	7	0.004
PA Can-03080-04	03-11322	307.70	0.075	9	3,534	0.011	7	0.009
PA Phi-03090-02	03-11323	312.10	0.065	8	3,063	0.010	7	0.009
PA Phi-03090-10	03-11324	224.10	0.050	<LOD	<LOD	<LOD	7	0.012
PA Phi-03091-11	03-11325	61.60	0.000	<LOD	<LOD	<LOD	7	0.044
PA Phi-03087-06	03-11326	NA	0.000	<LOD	<LOD	NA	7	NA

**Comments: none.*

*NOTES: "NA" indicates no volume was given or the sample is a blank.
All samples counted using the "A" rules.

Non-Responsive

Analyst

Non-Responsive

Reviewer

Results
Lead

Client #	DCL #	mg/Kg (ppm)
PA Col-03076-17	03-11327	15000.
PA Can-03080-18	03-11328	74.
PA Can-03080-19	03-11329	ND
PA Can-03080-20	03-11330	ND
PA Can-03080-22	03-11331	75000.
PA Can-03080-23	03-11332	64000.
PA Can-03080-24	03-11333	14000.
PA Phi-03087-28	03-11334	23000.
PA Phi-03087-27	03-11335	23.
PA Phi-03087-26	03-11336	ND
PA Phi-03087-25	03-11337	1100.
PA Phi-03090-21	03-11338	1000.
PA Phi-03091-09	03-11339	990.
PA Phi-03092-16	03-11340	2400.
PA Phi-03092-17	03-11341	460.
	Prep. Blank	ND
% Recovery	LCS/QC14866	88.
% Recovery	11748 Matrix Spike	97.
Reporting Limit		22.

ND indicates not detected at or above the reporting limit.
LCS= Laboratory Control Sample

Non-Responsive

Analyst

Non-Responsive

Reviewer

Results
Lead

Client #	DCL #	mg/Kg (ppm)
PA Col-03076-17	03-11327	15000.
PA Can-03080-18	03-11328	74.
PA Can-03080-19	03-11329	ND
PA Can-03080-20	03-11330	ND
PA Can-03080-22	03-11331	75000.
PA Can-03080-23	03-11332	64000.
PA Can-03080-24	03-11333	14000.
PA Phi-03087-28	03-11334	23000.
PA Phi-03087-27	03-11335	23.
PA Phi-03087-26	03-11336	ND
PA Phi-03087-25	03-11337	1100.
PA Phi-03090-21	03-11338	1000.
PA Phi-03091-09	03-11339	990.
PA Phi-03092-16	03-11340	2400.
PA Phi-03092-17	03-11341	460.
	Prep. Blank	ND
% Recovery	LCS/QC14866	88.
% Recovery	11748 Matrix Spike	97.
Reporting Limit		22.

ND indicates not detected at or above the reporting limit.
LCS= Laboratory Control Sample

Non-Responsive

Analyst

Non-Responsive

Reviewer

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:

National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non-Responsive @md.ngb.army.mil

Attachment D

REFERENCE LIST INDEX

1. General Regulations and National Consensus Standards
2. Specific Regulations and Guidance
   a. Abrasive Blasting
   b. Asbestos
   c. Battery Charging Room
   d. Bird and Bat Manure
   e. Bloodborne Pathogens
   f. Chemical Agent Resistant Coating (CARC) Paint
   g. Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE)
   h. Confined Space Entry Program
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   k. Flammable Storage Room
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   n. Indoor Air Quality
   o. Indoor Firing Ranges
   p. Lead
   q. Lighting
   r. Occupational Vision
   s. Paint Spray Booth
   t. Personal Protection
   u. Radiation Protection
   v. Respiratory Protection
   w. Sanitation
   x. Smoking
   y. Vehicle Exhaust
   z. Welding Operation

GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REFERENCE LIST

1. General Regulations and National Consensus Standards
   a. DODI 6055.1, DOD SOH Program, 19 August 1998.
   b. DODI 6055.5, DOD OEH. *[DRAFT]*
   c. DOD 6055.5-M, DOD Occupational Health Surveillance Manual, 13 May 1987.
   d. DODI 6050.5, DOD Hazard Communication, 29 Oct 90. Change 1, 6 May 1996.
   e. AR 40-5, Preventive Medicine, 15 October 1990. [05/2002 Being Updated]
   f. DA PAM 40-5, Preventive Medicine. *[DRAFT]*
   g. AR 385-10, The Army Safety Program, 29 February 2000.
   h. NGR 385-10, ARNG SOH Program, 7 October 1988, Change 1, 29 December 1989.
   i. Title 29, Part 1910, Occupational Safety and Health Standards. [Current Date]
   j. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 2002.
   k. ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th edition, 2001.
   l. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.
   m. TG 141, USACHPPM Industrial Hygiene Sampling Guide, November 1997.
   n. National Safety Council, Fundamentals of Industrial Hygiene, 5th Edition, 2002.
   o. NIOSH, Pocket Guide to Chemical Hazards, 2001.
   p. NFC, A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. [Current date]
   q. ASHRAE Standards. [Current Dates]
   r. ANSI Standards. [Current Dates]

2. Specific Regulations/Guidance
   a. **ABRASIVE BLASTING**
      (1) ANSI Z9.4 1997, Abrasive Blasting Operations - Ventilation and Safe Practices.
      (2) 29 CFR 1910.94 Ventilation
      (3) 42 CFR 84

   b. **ASBESTOS**
      (1) AR 40-5, Preventive Medicine, 15 October 1990. *[05/2002 Being Updated]*
      (2) AR 200-1, Environmental Protection and Enhancement, Chapter 8, 21 February 1997.
      (3) TB MED 513, Guidelines for the Evaluation and Control of Asbestos Exposure, 15 December 1986. *[05/2000 Under Revision as DA PAM 40-513]*
      (4) TG 157, USAEHA, The Installation Asbestos Management Program Assessment Checklists, July 1994.
      (5) 29 CFR 1910.1001
      (6) 29 CFR 1926.58 (prior to 1994 CFR)
      (7) 29 CFR 1926.1101

(8) MEMORANDUM SGPS-PSP, OTSG, subject: AMEDD Role Supporting Asbestos Abatement/Asbestos Management Programs, 19 Jan 89.

(9) EPA, Guidance for Controlling Asbestos-Containing Materials in Buildings, June 1985.

(10) DD Form 2493-1 (Asbestos Exposure, Part I--Initial Medical Questionnaire)

(11) DD Form 2493-2 (Asbestos Exposure, Part II--Periodic Medical Questionnaire)

(12) EPA NESHAPS Asbestos Regulation (40 CFR 61, Subpart M).

c. **BATTERY CHARGING ROOM**

(1) TG 022, USAEHA, page 81, Industrial Hygiene Evaluation Guide, October 1975. *[Out of Print]*

(2) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

d. **BIRD AND BAT MANURE**

(1) TG 142, USAEHA, Managing Health Hazards Associated with Bird and Bat Excrement, Dec 1992.

e. **BLOODBORNE PATHOGENS**

(1) 29 CFR 1910.1030

(2) TG 190, USAEHA, Guide to Managing Occupational Exposure to Bloodborne Pathogens, Jan 94.

f. **CHEMICAL AGENT RESISTANT COATING (CARC) PAINT**

(1) TG 144, USAEHA, Guidelines for Controlling Health Hazards in Painting Operations, 24 August 1987.

(2) DA LTR, USAEHA, HSHB-MI-WR, subject: Respiratory Protection When Spraying CARC, 19 November 1992.

(3) TM 43-0139, Painting Instructions for Army Material, 27 July 19881 Aug 86.

(4) MEMORANDUM SGPS-PSP, OTSG, subject AMEDD, Occupational Health Requirements in Support of Painting in the Army, 22 February 1985.

(5) AR 750-1, Army Materiel Maintenance Policy and Retail Maintenance Operations (Prohibits welding on CARC paint) 1 July 1996.

g. **CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR, EXPLOSIVE (CBRNE)**

(1) DODI 2000.gg, DOD Installation CBRNE Emergency Response Guidelines.

(2) DHHS, NIOSH Pub No. 2002 139, Guidance for Protecting Building Environments from Airborne Chemical, Biological, or Radiological Attacks, May 2002.

(3) TG 275, USACHPPM, Personal Protective Equipment Guide for Medical Treatment Facility Personnel Handling Casualties from Weapons of Mass Destruction and Terrorism Events. *[Draft]*

h. **CONFINED SPACE**

(1) 29 CFR 1910.146 (Confined Space Entry)
(2) 29 CFR 1910.147 (Lockout/Tagout)
(3) ANSI Z117.1-Safety Requirements for Confined Spaces, 1995.
(4) SOP for ARNG Confined Space Entry Program, 25 April 1991.
(5) Letter, US Dept of Labor (DOL) addressed to Vanessa Char, 22 Apr 1994.
(6) OSHA Instruction STD 1-7.3, US DOL, subject: 29 CFR 1910.147, the Control of Hazardous Energy (Lockout/Tagout)--Inspection Procedures and Interpretive Guidance, 11 Sep 90.
(7) DHHS, NIOSH Pub No. 87113, A Guide to Safety in Confined Spaces, July 1987.
(8) Confined Space Entry Program for Helicopters, 2003.

i. **DESIGN REVIEW**

(1) DG 415-1, Design Guide for Armories, current.
(2) DG 415-2, Design Guide for Logistics Facilities, current.
(3) DG 415-3, Design Guide for Training Site Facilities, current.
(4) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.
(5) TI-300, 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.
(6) UFGS 15940A, Overhead Vehicle Tailpipe (and welding Fume) Exhaust Removal Systems, December 2001.
(7) ASHRAE, Standard 62-2002, Ventilation for Acceptable Indoor Air Quality.
(8) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

j. **ERGONOMICS**

(1) DA PAM 40-21, Medical Services, Ergonomics Program, 15 May 2000.
(2) ANSI Z-365, Management of Work Related Musculoskeletal Disorders, 2000.
(3) 29 CFR 1910. *[PROPOSED STANDARD]*

k. **FLAMMABLE STORAGE ROOM**

(1) 29 CFR 1910.106
(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

l. **HAZARD COMMUNICATION**

(1) 29 CFR 1910.1200
(2) NGR 385-10, Chapter 6

m. **HEARING CONSERVATION**

(1) DA PAM 40-501, Medical Services, Hearing Conservation Program, 10 December 1998.

(2) TG 181, USAEHA, Noise Dosimetry and Risk Assessment, May 1999.

(3) TG 175, USAEHA, Readiness thru Hearing Conservation: Guide for Unit Commanders and Supervisors, June 1999.

(4) 29 CFR 1910.95

n. **INDOOR AIR QUALITY (IAQ)**

(1) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

(2) USACERL Technical Report P-91/42, IAQ Management for Operations and Maintenance Personnel, September 1991.

(3) EPA 400/1-91/003 or DHHS, NIOSH, Publication No. 91-114, Building IAQ, A Guide for Building Owners and Facility Managers, December 1991.

(4) ASHRAE, Standard 62-2002, Ventilation for Acceptable IAQ.

(5) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

(6) NIOSH, IAQ Selected References, Sep 1989.

(7) OSHA Instruction CPL 2-2.20B CH-1, Directorate of Technical Support, 13 Nov 90.

(8) DA PAM 25-52, Mail Facility Security and Handling Suspicious Mail, 6 November 2001.

(9) ASTM, D 5952-96, 10 May 1996.

o. **INDOOR FIRING RANGES**

(1) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(2) NGR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges, 30 March 1990. *[11/02 Under Revision]*

(3) CEHND 1110-1-18, USACE Design Manual for Indoor Firing Range, June 1990.

(4) HQDA LTR, Office of the Adjutant General, DACS-SF, subject: Inspection and Evaluation of US Army Indoor Firing Ranges, 26 March 1993.

(5) Departments of the Army and Air Force, NGB-ADE-OM, subject: All State Log Number (1920323) Indoor Range Clean-up at State Owned Armories, 28 July 1992.

(6) NIOSH, Technical Information, December 1975, subject: Lead Exposure and Design Considerations for Indoor Firing Ranges.

(7) All-States Ltr P01-0075, 5 December 2001.

(8) Information Paper, Alternative Ammunition, 15 March 1996.

(9) Information Paper, Bullet Traps, 26 April 1996.

(10) Information Paper, ARNG IFR Action Plan, 28 January 2002.

p. **LEAD**

(1) 29 CFR 1910.1025

(2) 29 CFR 1926.62

(3) 24 CFR 35.61 (HUD, Percentage of Lead in Paint)

(4) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(5) OSHA Instruction CPL 2-2.58, Office of Health Compliance Assistance, 13 December 1993.

(6) Federal Register, 18 April 1990, Vol. 55, No. 75, HUD, Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing, as amended, September 1990, Office of Public and Indian Housing, Department of Housing and Urban Development, 451 Seventh Street, SW, Washington, DC 20410.

(7) NIOSH, Request for Assistance in Preventing Lead Poisoning in Construction Workers, April 1992.

(8) EPA, Strategy for Reducing Lead Exposures, 21 Feb 91.

q. **LIGHTING**

(1) RP-1-1993, Office Lighting, ANSI/IESNA.

(2) RP-7-2001, Industrial Lighting, IES.

r. **OCCUPATIONAL VISION**

(1) DA PAM 40-506, Medical Services, The Army Vision Conservation and Readiness Program, 20 July 2001.

(2) ANSI Z87.1, Practice for Occupational and Educational Eye and Face Protection, 1989, Change A, REAF 1998.

(3) ANSI Z358.1 for Emergency Eyewash and Shower Equipment, 1998.

(4) OTSG Memorandum SGPS-PSP, subject: Acanthameoba Keratitis and Eyewash Stations, 8 May 89.

(4) 29 CFR 1910.133

s. **PAINT SPRAY BOOTH**

(1) NFPA No. 33, Standard for Spray Application Using Flammable and Combustible Materials, 1995.

(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

(3) 29 CFR 1910.94

(4) 29 CFR 1910.107

(5) ANSI Z9.3-1995 for Exhaust Systems - Spray Finishing Operations - Safety Code for Design, Construction, and Ventilation.

(6) ANSI Z9.2-2001, Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems.

t. **PERSONAL PROTECTIVE EQUIPMENT**

(1) Quick Selection Guide to Chemical Protective Clothing, 2nd edition, Forsberg, K and Mansdorf, S., 1993.

(2) Chemical Protective Clothing, Vol 1 and 2, Johnson, J. and Anderson, K., American Industrial Hygiene Association, 1990.

(3) Guidelines for the Selection of Chemical Protective Clothing, 3rd Edition, ACGIH, Inc., Feb 1987.

u. **RADIATION PROTECTION PROGRAM**

(1) NGR 385-11, Safety, Ionizing and Nonionizing Radiation Protection, 18 February 1999.

(2) AR 11-9, Army Radiation Safety Program, 28 May 1999.

(3) 29 CFR 1910.96

(4) 29 CFR 1910.97

v. **RESPIRATORY PROTECTION**

(1) AR 11-34, The Army Respiratory Protection Program, 15 February 1990. *[11/02 Being Updated]*

(2) 29 CFR 1910.134

(3) 42 CFR 84

(4) TB MED 502, Respiratory Protection Program, February 1992. *[11/02 Being Updated as DA PAM 40-502]*

(5) ANSI/CGA G-7.1-1997, Commodity Specification for Air.

(6) ANSI Z88.2-1992, Standard for Respiratory Protection.

w. **SANITATION**

(1) ANSI Z4.1-1986, Change REAF 1995, Sanitation in Places of Employment-Minimum Requirements.

(2) 29 CFR 1910.141

x. **SMOKING**

(1) AR 600-63, Army Health Promotion, 28 April 1996.

(2) DODI 1010.15, Smoke-Free DOD Facilities, 2 January 2001.

(3) DODD1010.10, Health Promotion, 11 March 1986.

y. **VEHICLE EXHAUST**

(1) ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th Edition, 2001.

(2) TI-300f 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

z. **WELDING OPERATION**

(1) 29 CFR 1910.252

(2) 29 CFR 1910.253

(3) 29 CFR 1910.254

(4) ANSI/AWS Z49.1-1999, Safety in Welding and Cutting and Allied Processes.

(5) TM 5-805-7, Welding Design, Procedures and Inspection, 20 May 85.

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 $\mu g/ft^2$) and windowsills (250 $\mu g/ft^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of 200 $\mu g/ft^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 $\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 $\mu g/ft^2$ on floors and 250 $\mu g/ft^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

Industrial Hygiene Survey Report

National Guard Facility
Philadelphia - Lancaster Armory

Prepared For:	**National Guard Bureau Region North IH** **301-IH Old Bay Lane** **Havre de Grace, MD 21078**
Survey Location:	**Philadelphia - Lancaster Armory** **3205 Lancaster Avenue** **Philadelphia, PA 19104**
Prepared By:	**ALS Environmental** **3544 North Progress Avenue** **Suite 100** **Harrisburg, PA 17110**
Survey Date:	**July 21, 2011**
Report Date:	**September 15, 2011**
ALSI Project #:	**1107489**

Non-Responsive

Director, Industrial Hygiene Services

ADDRESS 3544 North Progress Avenue, Suite 100, Harrisburg, PA 17110 PHONE +1 717 540 3424 FAX +1 717 540 3428
Analytical Laboratory Services, Inc. Part of the ALS Group A Campbell Brothers Limited Company
Environmental www.alsglobal.com

Table of Contents

Section 1.0
Executive Summary

Section 1.0 Executive Summary

An industrial hygiene survey was conducted on July 21, 2011, at the Philadelphia - Lancaster Armory located at 3205 Lancaster Avenue, Philadelphia, PA. The survey was performed by Ms. Non-Responsive

1. Lead surface, bulk and air samples were collected. Surface levels of lead exceeded 200 ug/ft^2 in four locations. Highest levels were found in the converted firing range area. Cleaning should be improved to maintain lead levels below 200 ug/ft^2. The firing range area should be professionally abated and access to this area should be restricted to properly trained and protected personnel.

2. Lighting levels did not meet the minimum recommended guideline in the small gym, room 25, room 53, museum, and Commander's office. Lighting should be improved in these areas.

3. Indoor air quality parameters of temperature, relative humidity, carbon monoxide and carbon dioxide (ventilation) were evaluated during the assessment. Temperature and relative humidity levels were higher than the American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) recommended guideline. For comfort, we recommend that temperature levels be maintained between 68-79 °F in occupied areas. Relative humidity should be maintained at 30-60%.

4. A few areas of water damage were observed through out the facility. All sources of water infiltration should be identified and repaired.

5. Suspect asbestos containing materials observed included: 9" x 9" vinyl floor tile, pipe insulation and fittings. Materials were observed to be in good condition.

Section 2.0
Operation Description & Observations

Section 2.0 Operation Description & Observations

The Philadelphia-Lancaster Armory is mainly an administrative facility with offices, training and storage areas. There are approximately thirty five full-time employees stationed at this facility.

The building was initially constructed in 1916. The building is two stories with basement and a brick exterior. The interior walls are terracotta, brick or plaster. Floors are wood, terrazzo or carpet.

There is no central heating, ventilating, or air conditioning system (HVAC) present. Window air-conditioners are utilized in some areas. Heat is provided via a boiler-fired heating system with radiators.

There is an area of the building that was previously an indoor firing range. It has been converted into a storage area. Abatement of the firing range occurred in 1980. Use as a firing range reportedly stopped in the 1970's. All firing range components have been removed.

There is no child-care facility in the building.

Overall housekeeping was fair. Cleaning procedures need improvement.

No ergonomic concerns were reported. Office areas have computer work stations. Work stations appeared properly designed. Personnel had supportive chairs.

The Drill Hall portion of this facility is used by Temple University.

Section 3.0
Lead Testing

Section 3.0 Lead Testing

Due to the age of the building there is the potential for lead based paint to be present. Paint was in poor condition in some areas of the building. Chipping and peeling paint was observed in these areas. Various surfaces within the facility were screened for lead using surface-wipe samples. Surface wipe samples were collected in accordance with the ASTM E 1792 protocols. A bulk sample was collected of peeling paint. Air samples were collected using 0.8 um mixed cellulose ester (MCE) filter cassettes attached to low volume air sampling pumps. Blank samples were submitted to the laboratory for quality control purposes. Samples were sent to AMA Analytical Services, Inc., in Lanham, Maryland, for lead analysis using EPA Method 600 R-93 200 (M)-7420. A copy of the laboratory analysis report can be found in Appendix A.

Lead Testing Results Summary

Sample #	Location	Air ug/m³	Surface ug/ft²	Paint Chip %Pb
1	Drill Hall	<5.8	*	*
2	2nd Floor Officers Assoc. Room	<5.9	*	*
3	Blank	<3 (ug)	*	*
4	Drill Hall Floor by Room 206	*	160	*
5	Drill Hall Floor By Exit (Gilbert Street)	*	150	*
6	Drill Hall Floor by Garage Door (33rd Street)	*	<120	*
7	Drill Hall Floor Center	*	<120	*
8	Basket Ball Court Gym Floor	*	<120	*
9	Room 25 - Table	*	<120	*
10	Room 26 - File Cabinet	*	<120	*
11	Museum - Display Case	*	<120	*
12	Basement Floor - Hallway by Room 18	*	1,200	*
13	Basement Room 1 - Shelf	*	140	*
14	2nd Floor Kitchen - Island Wood Table	*	<150	*
15	2nd Floor Officers Associate Room Top of Bar	*	<110	*
16	2nd Floor - Room 44 - Window Sill	*	<110	*
17	2nd Floor - Room 17 - File Cabinet	*	<110	*
18	Converted Firing Range - Light Fixture	*	610	*
19	Converted Firing Range – Stored Item Metal Box	*	150	*
20	Converted Firing Range - Floor	*	4,300	*
21	Outside Converted Firing Range - Floor in Hallway	*	7,800	*
22	Blank	*	<12 ug	*
23	VFW Storage Wall	*	*	7.9
Criteria		**50**	**200**	**0.5**

Key: **Bolded** results exceed listed criteria

Source: Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) & U.S. Department of Housing and Urban Development (HUD).

The National Guard Bureau currently utilizes 200 ug/ft^2 as a benchmark for identifying lead-contaminated surfaces. This guideline is referenced in NG PAM 420-15 "Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges" as a satisfactory surface contamination level unless the facility is utilized as a childcare facility. In such cases, U.S. Department of Housing and Urban Development (HUD) limit of 40 ug ft^2 on floors and 250 ug/ft^2 on windowsills should be observed. There is no child care provided at this facility.

Lead surface, air and bulk samples were collected.

- Surface levels of lead exceeded 200 ug ft^2 in the following areas:

    - Basement Floor- Hallway by Room 18
    - Converted Firing Range - Light Fixture
    - Converted Firing Range - Floor
    - Outside Converted Firing Range - Floor in Hallway

  Cleaning procedures should be improved to maintain lead levels on surfaces below 200 ug/ft^2. The firing range area should be professionally abated and access to this area should be restricted to properly trained and protected personnel.

- Air samples for lead were below the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit of 50 ug m^3. In fact, no detectable level of lead was identified in the air samples collected.

- Deteriorated paint was observed in a few locations throughout the facility. Delaminated paint was mostly due to water leaks, age and prolonged exposure to elevated relative humidity levels. A bulk samples was collected from VFW Storage Wall where paint was peeling and in poor condition. This paint was found to be 7.9% lead. The bulk sample was above the HUD definition of lead-based paint (0.5%). Peeling and chipping paint should be abated and repaired by properly trained and protected personnel.

Section 4.0
Lighting

Section 4.0 Lighting

A lighting assessment was conducted throughout the facility. Measurements were collected using a Cooke Cal-Light 400L Precision Light Meter (Serial No. K070155). The light meter was last calibrated on September 10, 2010. Measurements collected were compared to ANSI/IESNA RP-7-01 Lighting Industrial Facilities and RP-1-04 Office Lighting.

Light Survey Assessment Summary

Location	Foot Candles	Recommended Lighting	Sufficient Lighting
Converted Firing Range (Storage)	11.2	10	Yes
Basement Hallway by B Company Arms	12.9	5	Yes
Room 39 (Office)	115.7	30-50	Yes
ROTC Room Office	81.6	30-50	Yes
Room 42 (Office)	68.5	30-50	Yes
Room 44 (Office)	43.7	30-50	Yes
Room 46 (Office)	43.6	30-50	Yes
Kitchen	332.1	50	Yes
Small Gym	**3.4**	**30**	**No**
Room 25 (Classroom)	**15.5**	**30-50**	**No**
Room 53 (Office)	**19.0**	**30-50**	**No**
Latrine (Men's)	26.1	5	Yes
Room 26 (Office)	92.2	30-50	Yes
1st Floor ROTC Office	33.2	30-50	Yes
Museum (Storage)	**2.4**	**5**	**No**
VFW Storage	44.9	30	Yes
Commander's Office	**23.8**	**30-50**	**No**
HSC Supply Room	37.6	30	Yes

Bolded results did not meet criteria. Source: ANSI/IESNA RP-7-01 Lighting Industrial Facilities and RP-1-04 Office Lighting.

The lighting level did not meet the minimum recommended guideline in the small gym, room 25, room 53, museum, and Commander's office. Lighting should be improved in these areas. It should be noted that lighting could not be evaluated in the drill hall or the officer's associate room. The key to drill hall lights were not available and the lights in the officer's associate room were non-operational.

Section 5.0
Indoor Air Quality

Section 5.0 Indoor Air Quality

Survey measurements were made for ventilation and comfort parameters (carbon dioxide, temperature, and relative humidity). The air quality measurements were collected using direct reading instrumentation for comfort parameters using a QTRAK IAQ Meter, Model 7565X (Serial #7565X0839017). The IAQ Meter was last calibrated in Feb 2011.

The American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) have developed indoor air quality guidelines for mechanically ventilated office buildings and commercial settings (ASHRAE standard 62.1-2010). ASHRAE specifies temperature and relative humidity ranges for human comfort (ASHRAE 55-2010). The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation, recommends maintaining a relative humidity range between 30 to 60% in occupied areas.

The following table summarizes the measurements collected.

IAQ Assessment Summary

Location	Temperature (°F)	Relative Humidity (%)	Carbon Dioxide (ppm)	Carbon Monoxide (ppm)
Converted Firing Range (Storage)	78.4	76.1	484	0.5
Basement Hallway by B Company Areas	**80.5**	**78.6**	539	0.6
Room 39 (Office)	**83.7**	55.1	565	0.9
ROTC Room Office	**83.3**	51.1	541	1.0
Room 42 (Office)	**82.1**	54.7	549	0.7
Room 41 (Office)	**81.7**	**60.6**	789	1.0
Room 46 (Office)	**81.1**	**67.4**	531	0.7
Kitchen	**83.9**	57.4	693	2.0
Officers Associate Room	**81.8**	50.3	583	2.5
Drill Hall	**86.2**	**76.8**	638	0.6
Small Gym	**86.7**	**69.6**	423	0.9
Room 25 (Classroom)	**83.9**	47.0	487	0.4
Room 53 (Office)	**81.9**	51.0	648	0.5
Latrine (Men's)	**87.9**	**76.3**	392	0.3
Room 26 (Office)	**85.8**	50.9	632	0.7
1st Floor ROTC Office	**83.9**	50.5	629	1.0
Museum (Storage)	**79.3**	57.5	474	1.0
VFW Storage	**80.3**	**68.5**	730	0.9
Commander's Office	**86.2**	**70.8**	454	0.7
FSC Supply Room	**84.3**	53.4	443	1.0
Outdoors	96.2	73.4	367	0.3
Criteria	**68.0-79.0**	**30-60**	**<1,067**	**<9.0**

Key: **Bolded** results exceed listed criteria

Source: The American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) 55-2010, 62.1-2010 & The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation.
Summary of findings and recommendations:

- Temperature and relative humidity levels were above ASHRAE recommendations in most areas. Outdoor conditions were hot and humid at the time of this survey which is believed to have impacted indoor temperature and relative humidity levels. There is no central HVAC system in the facility however; a few window unit air conditioners were in use.

- Carbon dioxide levels did not exceed the recommended ceiling of 1,067 ppm. This suggests that outdoor air ventilation is adequate in this area.

- Carbon monoxide levels were less than the recommended ceiling of 9 ppm.

A visual inspection was conducted throughout visually accessible portions of the facility. The visual inspection was conducted to assess sources or pathways of factors potentially deleterious to IAQ. No notable observations were discovered.

Section 6.0

Suspect Asbestos Containing Building Materials

Section 6.0 Suspect Asbestos Containing Building Materials

Based on the age of the building asbestos containing materials (ACM) could be present in the building. General notes and observations were made at the time of the survey. Inaccessible areas were not inspected.

The following findings were made regarding suspect ACM at the time of this survey:

1. Approximately 500 ft^2 of 9" x 9" vinyl floor tile and associated mastic were present in the museum area. These materials appeared to be intact and in good condition.

2. Approximately 50 pipe fittings were observed in the basement. Additional fittings could be present in areas that could not be inspected. These materials appeared to be intact and in good condition. Approximately 40 Linear Feet (LF) of pipe insulation was observed in the Drill Hall. This was intact and in good condition.

Section 7.0
Limitations

Section 7.0 Limitations

This report summarizes our evaluation of the conditions observed at the above referenced location. Our findings are based upon our observations and sampling results obtained at the facility at the time of our visit. The report, results, and subsequent recommendations reported herein are also limited to the information available at the time it was prepared and investigated. Conditions may have been in effect prior to the sampling events that have changed over time and which cannot be predicted within the scope of this limited investigation. Any conditions discovered which deviate from the data contained in this report should be presented to us for our evaluation.

This report is intended for the exclusive use of the client. This report and the findings herein shall not, in whole or in part, be relied upon by any other parties, disseminated or conveyed to any other party without prior written consent of the National Guard Bureau, and ALS Environmental. The findings are relative to the dates of our site visits and should not be relied upon for substantially later dates.

Appendix A
Laboratory Analysis Report

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	RC-Philadelphia-Lancaster	Chain Of Custody:	510824
Address:	301-IH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation	Job Location:	Philadelphia, PA	Date Submitted:	7/25/2011
	Havre de Grace, Maryland 21078	Job Number:	RC-Philadelphia-Lancaster	Person Submitting:	[redacted]
		P.O. Number:	NGB-IHB	Date Analyzed:	7/27/2011 Report Date: 8/1/2011

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		Total ug	Final Result	
1182997	1107489-1	Flame	Air	515	N/A	5.8	ug/m³	<3	<5.8	ug/m³
1182998	1107489-2	Flame	Air	507	N/A	5.9	ug/m³	<3	<5.9	ug/m³
1182999	1107489-3	Flame	Air Blank	0	N/A	3	ug/m³		<3	ug
1183000	1107489-4	Flame	Wipe	****	0.108	110	ug/ft²	17	160	ug/ft²
1183001	1107489-5	Flame	Wipe	****	0.108	110	ug/ft²	16	150	ug/ft²
1183002	1107489-6	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²
1183003	1107489-7	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²
1183004	1107489-8	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²
1183005	1107489-9	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²
1183006	1107489-10	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²
1183007	1107489-11	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²
1183008	1107489-12	Flame	Wipe	****	0.108	110	ug/ft²	130	1200	ug/ft²
1183009	1107489-13	Flame	Wipe	****	0.108	110	ug/ft²	15	140	ug/ft²
1183010	1107489-14	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²
1183011	1107489-15	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²
1183012	1107489-16	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²
1183013	1107489-17	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²
1183014	1107489-18	Flame	Wipe	****	0.108	110	ug/ft²	65	610	ug/ft²
1183015	1107489-19	Flame	Wipe	****	0.108	110	ug/ft²	19	180	ug/ft²

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	RC-Philadelphia-Lancaster	Chain Of Custody:	510884
Address:	301-IH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation	Job Location:	Philadelphia, PA	Date Submitted:	7/25/2011
	Havre de Grace, Maryland 21078	Job Number:	RC-Philadelphia-Lancaster	Person Submitting:	[redacted]
		P.O. Number:	NGB-HNE	Date Analyzed:	7/27/2011 Report Date: 8/1/2011

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		Total ug	Final Result		Comments
1183016	1107489-20	Flame	Wipe	****	0.108	110	ug/ft²	460	4300	ug/ft²	
1183017	1107489-21	Flame	Wipe	****	0.108	110	ug/ft²	840	7800	ug/ft²	
1183018	1107489-22	Flame	Wipe Blank	****	N/A	12	ug		<12	ug	
1183019	1107489-23	Flame	Paint Chip	****	N/A	0.009	%Pb		7.9	%Pb	

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B

See QC Summary for analytical results of quality control samples associated with these samples.

N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)

%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)

Note: All samples were received in good condition unless otherwise noted.

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results

Final results for air and wipe samples are based on client supplied information nor verified by this laboratory.

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

Analyst: [redacted]

Technical Manager: [redacted]

An AIHA (#100470), NVLAP (101143-0), and NY ELAP (#10920) Accredited Laboratory

4475 Forbes Blvd. · Lanham, MD, 20706 · (301) 459-2640 · Toll Free (800) 346-0961 · Fax (301) 459-2643

AMA Analytical Services, Inc.

Focused on Results www.amalab.com
AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)
4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

Page 1 of 2

CHAIN OF CUSTODY

(Please Refer To This Number For Inquires) 5108881 p1/2

Mailing/Billing Information:

1. Client Name: National Guard Bureau
2. Address 1: 301-IH Old Bay Lane
3. Address 2: Attn: NGB-AVN-SI, State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:

1. Job Name: RC-Philadelphia-Lancaster
2. Job Location: Philadelphia, PA
3. Job #: RC-Philadelphia-Lancaster P.O. #: NGB-IHNE
4. Contact Person: [redacted] phone #: [redacted]
5. Submitted by: [redacted]

Reporting Information (Results will be provided as soon as technically feasible):

AFTER HOURS (must be pre-scheduled)	NORMAL BUSINESS HOURS		REPORT TO:
☐ Immediate Date Due: ___ ☐ 24 Hours Time Due: ___ Comments: ___	☐ Immediate ☐ Next Day ☐ 2 Day	☐ 3 Day ☒ 5 Day + Date Due: 8/1/11 ☐ Results Required By Noon (Every Attempt Will Be Made to Accommodate)	[redacted] @alabal.com, army.mil, army.mil

Asbestos Analysis
PCM Air – Please Indicate Filter Types
☐ NIOSH 7400 ___ (QTY)
☐ Fiberglass ___ (QTY)
TEM Air – Please Indicate Filter Type:
☐ AHERA ___ (QTY)
☐ NIOSH 7402 ___ (QTY)
☐ Other (specify) ___ (QTY)
PLM Bulk
☐ EPA 600 – Visual Estimate ___ (QTY)
☐ EPA Point Count ___ (QTY)
☐ NY State Friable 198.1 ___ (QTY)
☐ Grav. Reduction ELAP 198.6 ___ (QTY)
☐ Other (specify) ___ (QTY)
MISC
☐ Vermiculite
☐ Asbestos Soil ___

TEM Bulk
☐ ELAP 198.4 ___ (QTY)
☐ NY State PLM/TEM ___ (QTY)
☐ Residual Ash ___ (QTY)
TEM Dust
☐ Qual. (presence) Vacuum/Bust ___ (QTY)
☐ Quan. (microvac Vacuum D5755-95 ___ (QTY)
☐ Quan. (wipe) Dust D6480-99 ___ (QTY)
TEM Water
☐ Qual. (presence) ___ (QTY)
☐ ELAP 198.2/EPA 100.2 ___ (QTY)
☐ EPA 100.1 ___ (QTY)

☒ All samples received in good condition unless otherwise noted.
(TEM Water samples ___ °C)

Metal Analysis
☐ Pb Paint Chip ___ 1 ___ (QTY)
☒ Pb Dust Wipe (wipe type Ghost) 19 (QTY)
☒ Pb Air ___ 3 ___ (QTY)
☐ Pb Soil/Solid ___ (QTY)
☐ Pb TCLP ___ (QTY)
☐ Drinking Water ☐ Pb ___ (QTY) ☐ Cu ___ (QTY) ☐ As ___ (QTY)
☐ Waste Water ☐ Pb ___ (QTY) ☐ Cu ___ (QTY) ☐ As ___ (QTY)
☐ Pb Fingerprint (Metals) ___ (QTY)
Fungal Analysis
Collection Apparatus for Spore Trap/Air Samples: ___
Collection Media ___
☐ Spore-Trap ___ (QTY) ☐ Surface Vacuum Dust ___ (QTY)
☐ Surface Swab ___ (QTY) ☐ Viable ___ (QTY)
☐ Surface Tape ___ (QTY) ☐ Culturable ___ (QTY)
☐ Other (Specify) ___ (QTY)

SAMPLE INFORMATION / **ANALYSIS** / **MATRIX**

CLIENT ID NUMBER	SAMPLE LOCATION/ DESCRIPTION	DATE	VOLUME (LITERS)	WIPE AREA	Analysis	Matrix	Matrix
1107489-1		7/21	515		X	X	
1107489-2			507		X	X	
1107489-3			0		X	X	
1107489-4			100cm²		X		X
1107489-5					X		X
1107489-6					X		X
1107489-7					X		X
1107489-8					X		X
1107489-9					X		X
1107489-10					X		X
1107489-11					X		[redacted]
1107489-12					X		[redacted]

CLIENT CONTACT (LABORATORY STAFF ONLY)
Date/Time: ___ Contact: ___ By: ___
Date/Time: ___ Contact: ___ By: ___
Date/Time: ___ Contact: ___ By: ___

LABORATORY STAFF ONLY: (CUSTODY)
1. Date/Time RCVD: 7/25/11 @ 1000 Via: UPS By: [redacted]
2. Date/Time Analyzed ___/___/___ @ ___ By (date) ___
3. Results Reported To: ___ Via: ___ Date: ___/___/___ Time: ___ Initials: ___
4. Comments: 1Z X17 395 4628 0187

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Page 2 of 2

CHAIN OF CUSTODY

Please Refer To This Number For Inquiries

510884, p 2/2

210 REV. 6/08

Mailing/Billing Information:
1. Client Name: National Guard Bureau
2. Address 1: 301-IH Old Bay Lane
3. Address 2: Attn: NGB-AVN-SI, State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:
1. Job Name: RC-Philadelphia-Lancaster
2. Job Location:
3. Job #: P.O. #: W912K6-09-A-0003
4. Contact Person: Shirley Chapman/Ken Forsythe @ phone # (410) 942-0273
5. Submitted by: Signature:

Reporting Information (Results will be provided as soon as technically feasible):

AFTER HOURS (must be pre-scheduled)	NORMAL BUSINESS HOURS	REPORT TO:
☐ Immediate Date Due: ☐ 24 Hours Time Due: Comments:	☐ Immediate ☐ Next Day ☐ 2 Day ☐ 3 Day ☐ 5 Day + Date Due: ☐ Results Required By Noon (Every Attempt Will Be Made to Accommodate)	☒ Include COC/Field Data Sheets with Report ☒ [redacted] us.army.mil us.army.mil

Asbestos Analysis
PCM Air – Please Indicate Filter Type:
☐ NIOSH 7400 (QTY)
☐ Fiberglass (QTY)
TEM Air – Please Indicate Filter Type:
☐ AHERA (QTY)
☐ NIOSH 7402 (QTY)
☐ Other (specify) (QTY)
PLM Bulk
☐ EPA 600 – Visual Estimate (QTY)
☐ EPA Point Count (QTY)
☐ NY State Friable 198.1 (QTY)
☐ Grav. Reduction ELAP 198.6 (QTY)
☐ Other (specify) (QTY)
MISC
☐ Vermiculite
☐ Asbestos Soil (LM, (QTY) ...)

TEM Bulk
☐ ELAP 198.4 (Chatfield) (QTY)
☐ NY State PLM/TEM (QTY)
☐ Residual Ash (QTY)
TEM Dust
☐ Qual. (presence/absence) Vacuum/Dust (QTY)
☐ Quan. (direct) Vacuum D5755-95 (QTY)
☐ Quan. (direct) Dust D6480-99 (QTY)
TEM Water
☐ Qual. (presence/absence) (QTY)
☐ ELAP 198.2/EPA 100.2 (QTY)
☐ EPA 100.1 (QTY)

☐ All samples received in good condition unless otherwise noted. (TEM) Water samples °C)

Metals Analysis
☐ Pb Paint Chip (QTY)
☐ Pb Dust Wipe (wipe type) (QTY)
☐ Pb Air (QTY)
☐ Pb Soil/Solid (QTY)
☐ Pb TCLP (QTY)
☐ Drinking Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY)
☐ Waste Water ☐ Pb (QTY) ☐ Cr (QTY) ☐ As (QTY)
☐ Pb Forager (Media) (QTY)
Fungal Analysis
Collection Apparatus for Spore Traps/Air Samples:
Collection Media:
☐ Spore-Trap (QTY) ☐ Surface Vacuum Dust (QTY)
☐ Surface Swab (QTY) ☐ Culturable ID Genus (Media) (QTY)
☐ Surface Tape (QTY) ☐ Culturable ID Species (Media) (QTY)
☐ Other (Specify) (QTY)

CLIENT ID NUMBER	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPE AREA	Lead	Bulk	Dust
1107489-13		7/21		100cm²	X		X
1107489-14		↓		↓	X		X
1107489-15					X		X
1107489-16					X		X
1107489-17					X		X
1107489-18					X		X
1107489-19					X		X
1107489-20					X		X
1107489-21					X		X
1107489-22				0cm²	X		X
1107489-23		↓	—	—	X	X	

CLIENT CONTACT (LABORATORY STAFF ONLY)
Date/Time: Contact: By:
Date/Time: Contact: By:
Date/Time: Contact: By:

LABORATORY STAFF ONLY: (CUSTODY)
1. Date/Time RCVD: / / @ Via: By (Print): [redacted]
2. Date/Time Analyzed: / / @ By (Print): Sign:
3. Results Reported To: Via: Date: / / Time: Initials:
4. Comments:

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Appendix B
Photographs

Photo #1 RC Philadelphia – Lancaster – Old Firing Range

Photo #2 RC Philadelphia- Lancaster – Standing Water in Basement

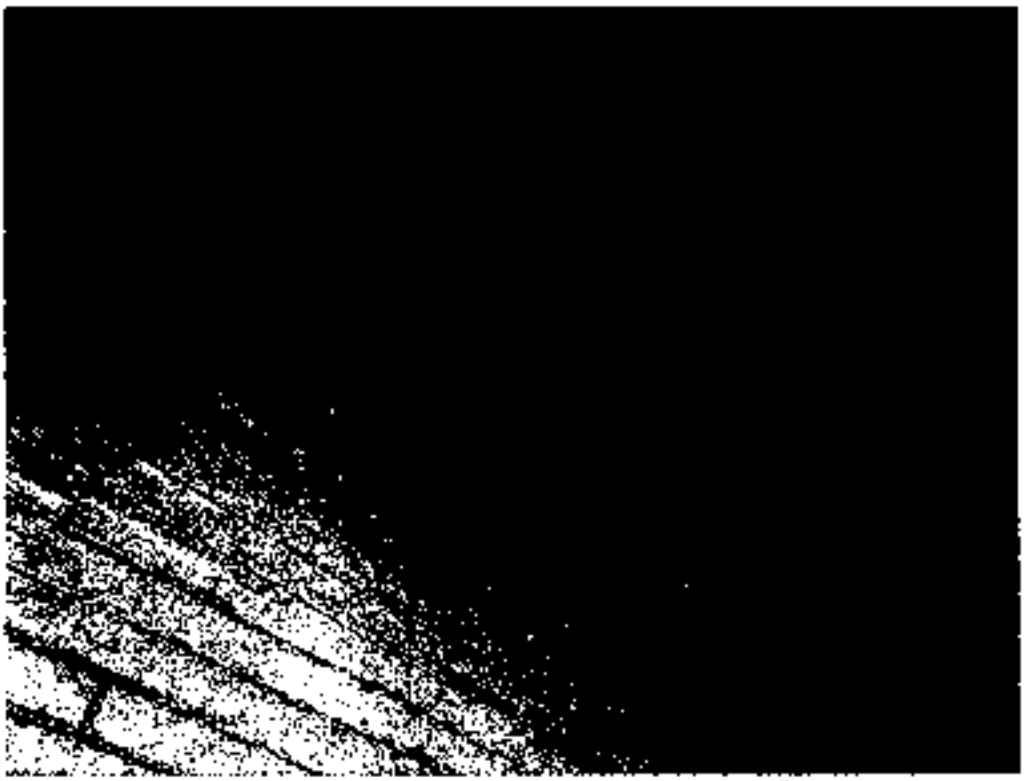


Photo #3 RC Philadelphia- Lancaster – Suspect Asbestos Pipe Insulation in Basement

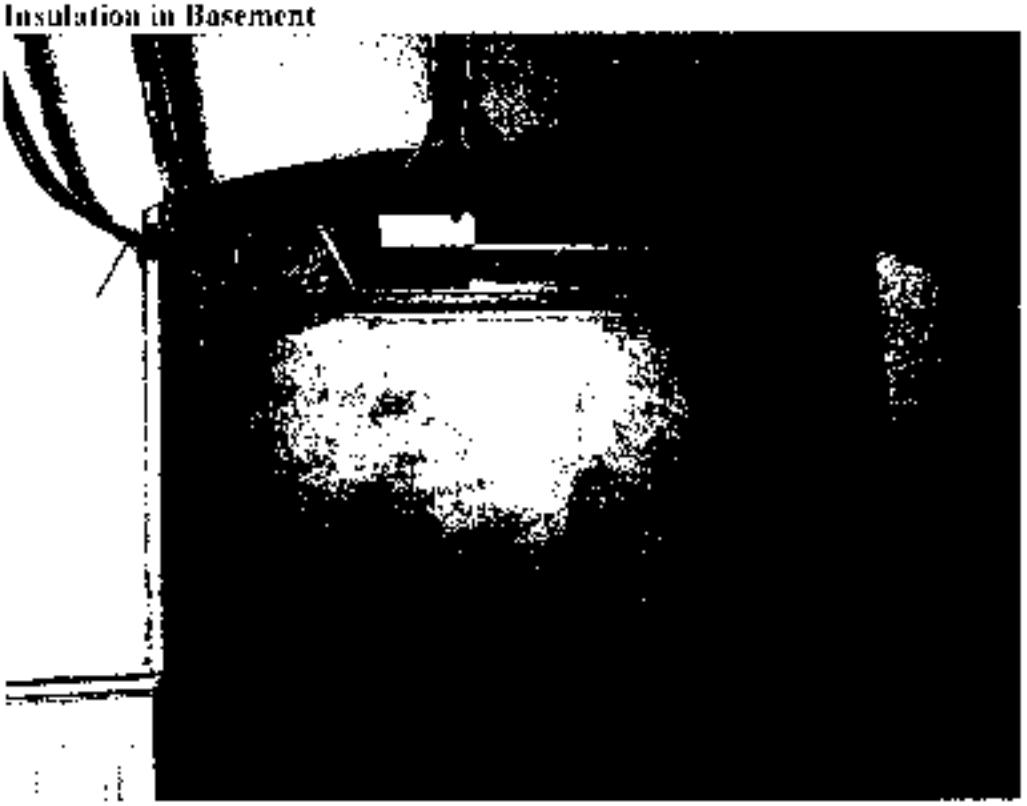


Photo #4 RC Philadelphia- Lancaster- Water Damage on Exterior Wall near Old Firing Range.

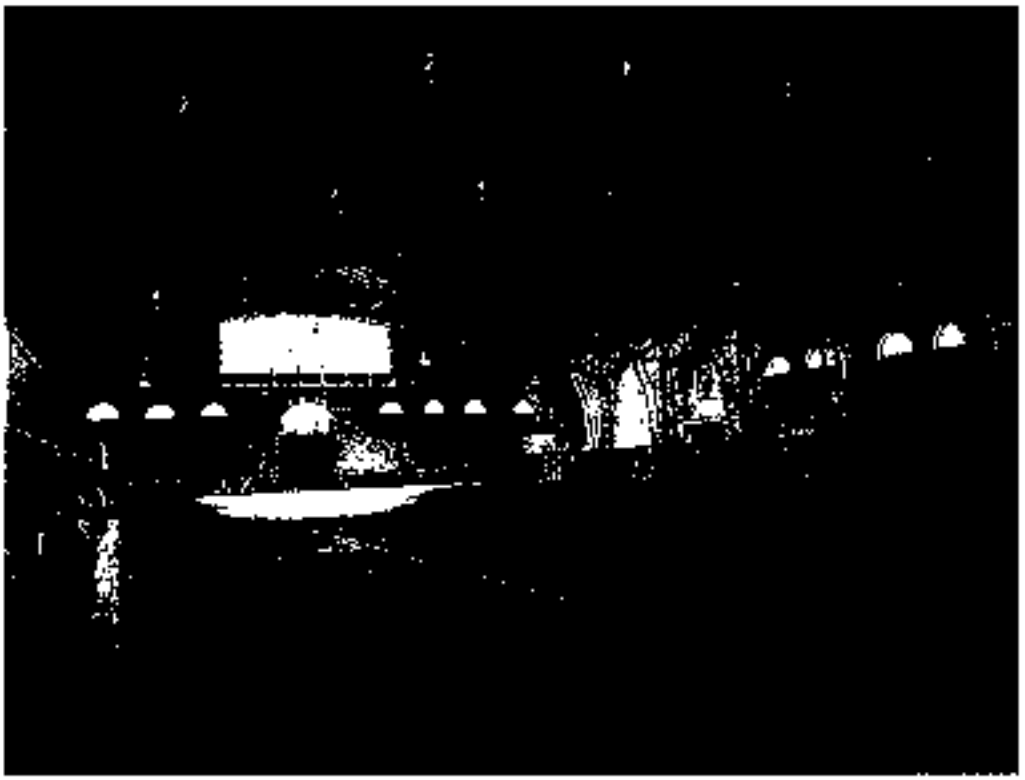


Photo #5 RC Philadelphia- Lancaster- Drill Hall

Photo #6 RC Philadelphia- Lancaster - Chipping/Peeling Paint in Kitchen

Photo #7 RC Philadelphia- Lancaster -- Chipping/ Peeling Paint in Basement Hallway

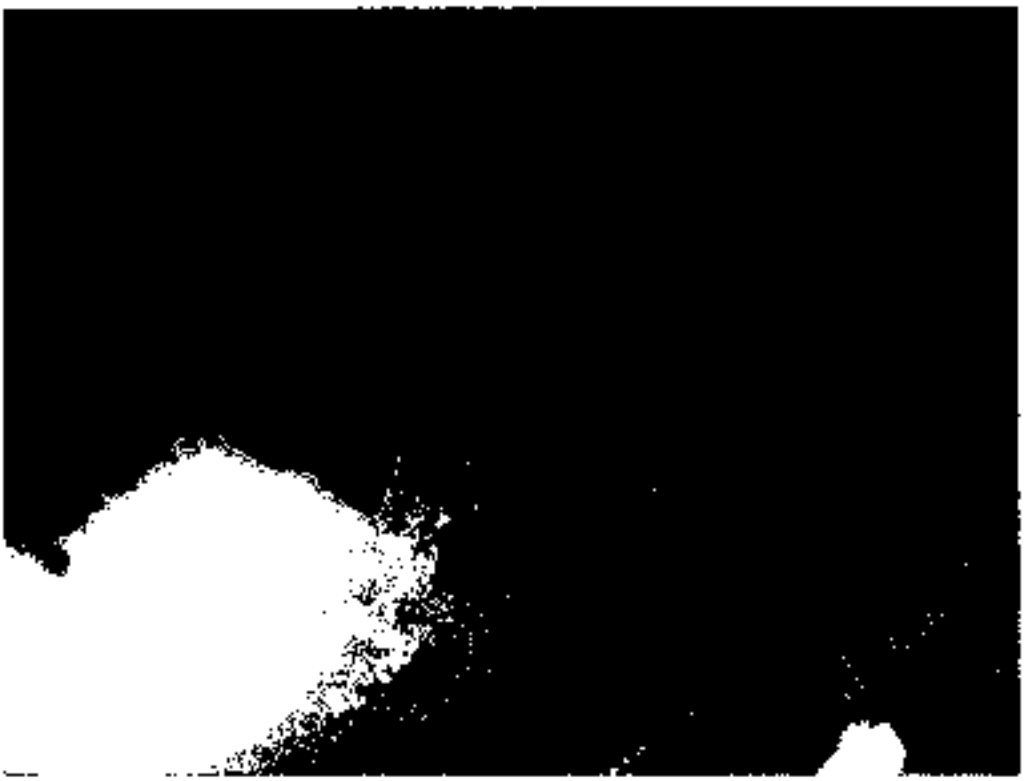
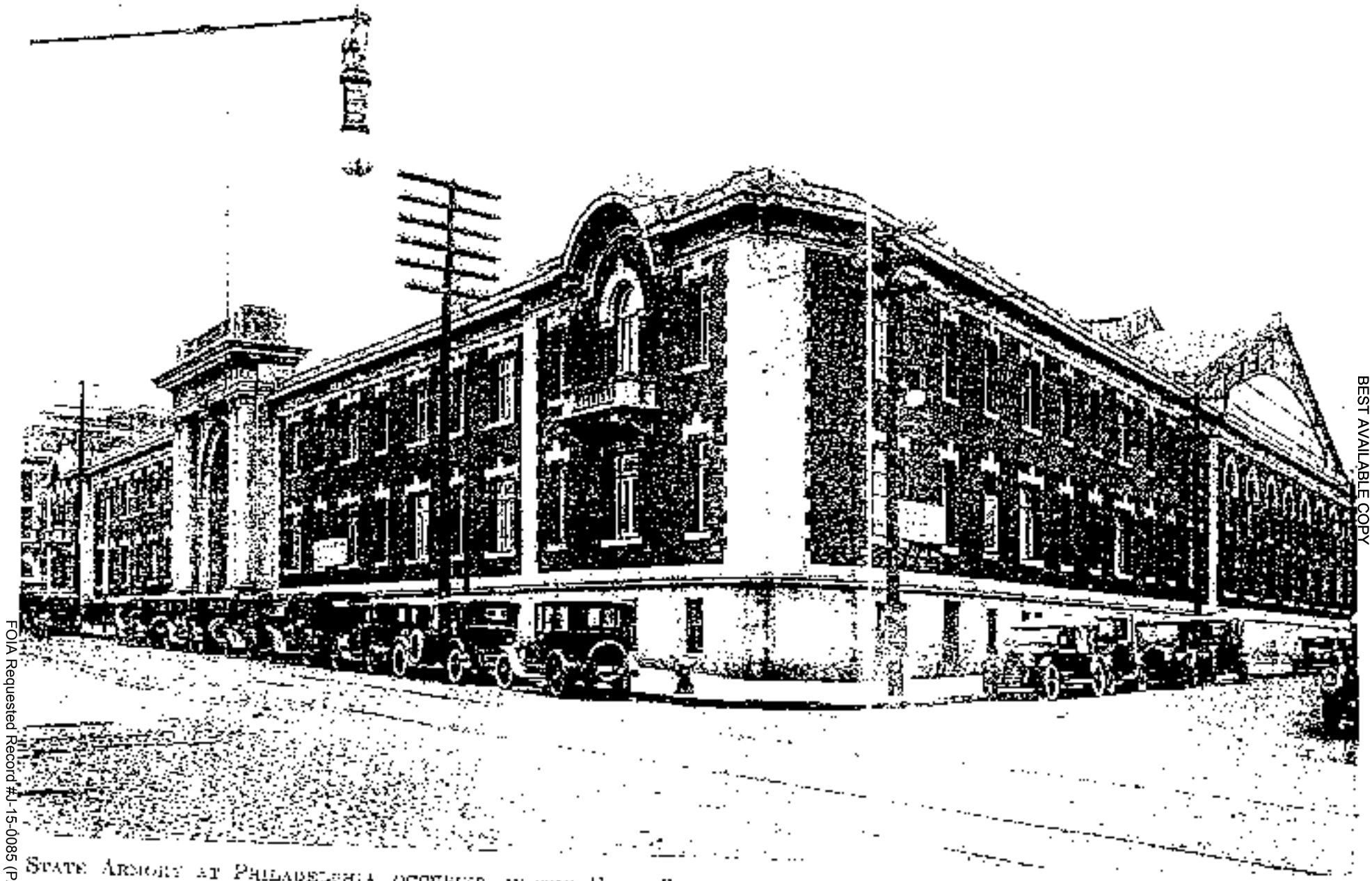


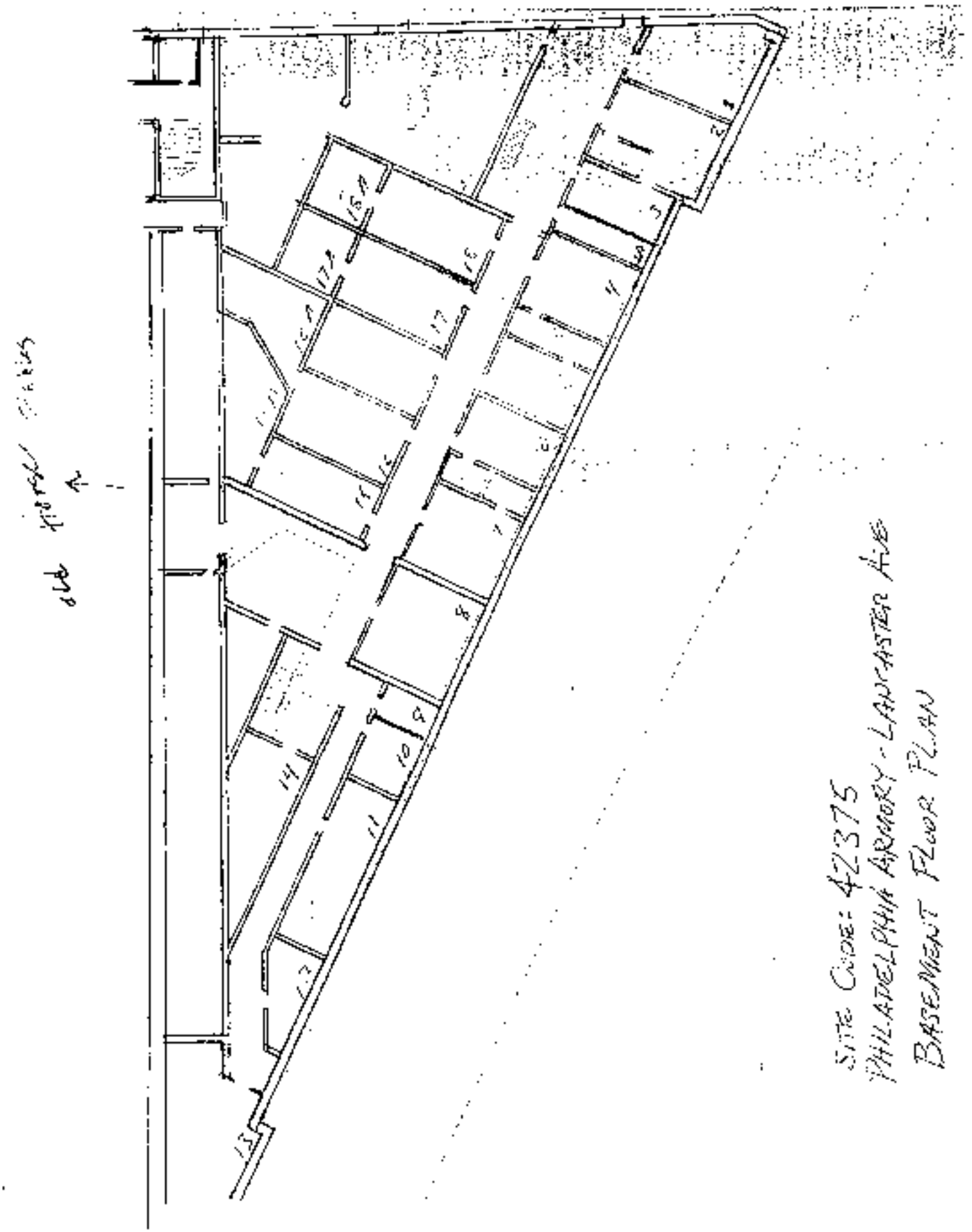
Photo #8 RC Philadelphia- Lancaster- Chipping/Peeling Paint in Basement

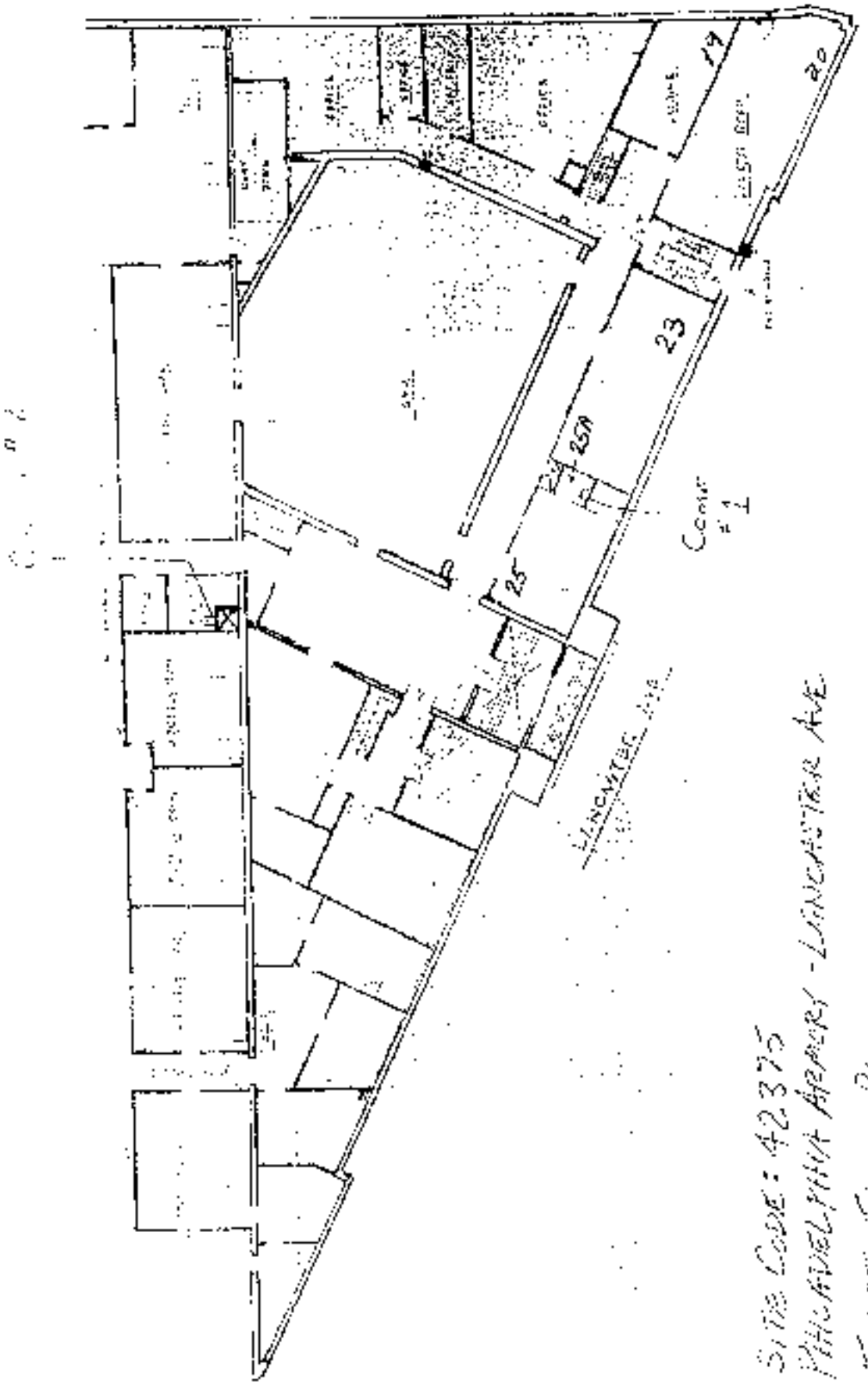
Photo #9 RC Philadelphia – Lancaster – Exterior of Building

Appendix C
Floor Plan

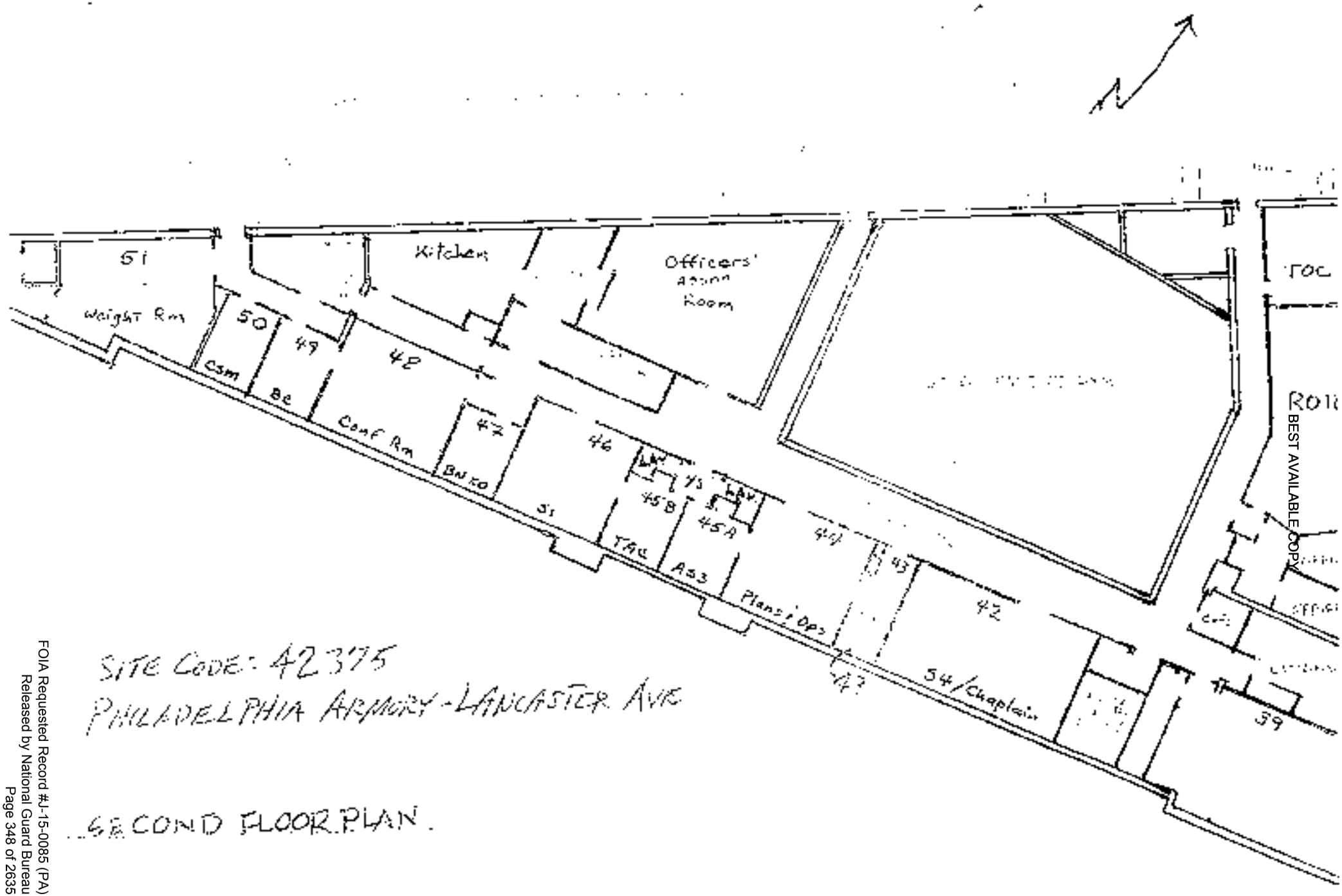


State Armory at Philadelphia, occupied by the First Pennsylvania Cavalry at the beginning of the World War
Now occupied by the Twenty-eighth Division Headquarters and Cavalry.





SITE CODE: 42375
PHILADELPHIA ARMORY - LANCASTER AVE.
FIRST FLOOR PLANS



SITE CODE: 42375

PHILADELPHIA ARMORY - LANCASTER AVE

SECOND FLOOR PLAN.

Appendix D
References

Appendix D. References

1. Title 29 Code of Federal Regulations (CFR), Part 1910.1025, Occupational Safety and Health Administration, Occupational Exposure to Lead

2. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values and Biological Exposure Indices. 2011 Edition.

3. Industrial Ventilation: A Manual of Recommended Practice for Design. 27th Edition

4. American Society of Heating, Refrigerating and Air-Conditioning Engineers, Ventilation for Acceptable Indoor Air Quality, 62.1-2010

5. RP-1-2004, Industrial Lighting, Illuminating Engineering Society of North America-ANSI

6. RP-7-2001, Industrial Lighting, Illuminating Engineering Society of North America ANSI

7. National Emission Standard Hazardous Air Pollutants (NESHAP) The standards for asbestos are contained in 40 CFR 61.140 through 61.157.

8. Environmental Protection Agency (EPA) standards [40 Code of Federal Regulations (CFR) 745.227(b)(3)]

9. Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM)

10. The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation

11. NGB PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 NOV 06.

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland




Industrial Hygiene Survey
for PAARNG – Lancaster Readiness Center
3205 Lancaster Avenue
Philadelphia, Pennsylvania 19104

AECOM
January 2013
Document No.: 60276421.1/Lancaster Readiness Center

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland

Industrial Hygiene Survey
for PAARNG – Lancaster Readiness Center
3205 Lancaster Avenue
Philadelphia, Pennsylvania 19104

Non-Responsive

Non-Responsive
Project Manager

Non-Responsive
Northeast District Health & Safety Manager

AECOM
January 2013
Document No.: 60276421.1/Lancaster Readiness Center

AECOM

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Contents

List of Appendices

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Executive Summary

On December 10, 2012, AECOM conducted an Industrial Hygiene (IH) survey of the Lancaster Readiness Center facility located at 3205 Lancaster Avenue in Philadelphia, Pennsylvania. Mr. [redacted] was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Lancaster Readiness Center operations.

The industrial hygiene survey was generally conducted in accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings", dated January 2012.

The Lancaster Readiness Center is currently staffed by thirty personnel. Some of the personnel were not present at the time of the survey due to active duty assignments or other off-site responsibilities. The facility is configured as an administrative area. The facility, in a lease agreement with nearby Drexel University, does not have access to the Assembly Hall until at least 2057. At that time, Drexel University has a 50 year lease extension option. The facility does not have a firing range.

Personnel at the facility were undertaking normal daily activities, which are primarily administrative in nature, at the time of the survey.

The activities undertaken during the Industrial Hygiene survey included facility descriptions, lead wipe/air sampling, evaluation of housekeeping, illumination studies, ventilation system evaluation, and a review of the physical building condition.

The Lancaster Readiness Center is housed in a two-story masonry building, and consists of approximately 60% administrative space and 40% Assembly Hall. However, as stated above, the Readiness Center personnel do not have access to the assembly hall.

Lighting levels measured throughout the facility were generally inadequate as per American National Standards Institute/ Illuminating Engineering Society of North America (ANSI/IESNA RP-1-2004), Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

Wipe samples collected for lead-containing dust throughout the facility did not indicate lead levels above the ARNG action level.

Peeling lead-based paint was observed at the Lancaster Readiness Center during this survey. The peeling paint, which was extensive throughout the basement, was primarily observed in the caged storage areas. Limited peeling paint was also observed in the basement corridor walkways, general storage areas, and former boiler room. A bulk sample of the peeling paint from the caged storage area was collected for analysis.

AECOM observed an area of visible damaged friable asbestos-containing material (ACM) in the basement near the electric circuit panel. A bulk sample was collected for analysis.

Water damage was not observed at the Lancaster Readiness Center.

There is no Heating, Ventilation & Air Conditioning (HVAC) system at the facility. Steam, for the radiant heaters and to heat domestic water, is provided by the City.

1.0 Facility Description and Operations

The Lancaster Readiness Center, constructed in 1916, is a two-story administrative facility with a basement. The basement, originally used as a horse stable for the Cavalry, has been improved over the years as platoon storage areas, offices, and general storage areas for the Drexel University and Drexel ROTC. The building is constructed primarily of brick and exterior stone block. Administrative offices, recruiter office, classrooms, gymnasium, locker rooms are located on the first floor. The second floor consists primarily of administrative offices, a kitchen/food service area, Officer's lounge, Chapel, physical fitness room, and Drexel ROTC. The administrative areas are finished with sheetrock walls; lay-in ceiling tiles and either hardwood flooring, carpet or floor tile. Access to the assembly hall which is leased and maintained by Drexel University was not granted at the time of the survey. According to site personnel there is no firing range at the facility.

The primary activity at the Lancaster Readiness Center is routine administrative duties and occasional use by units for support and training of soldiers. The Assembly Hall is leased to, maintained by, and exclusively used by nearby Drexel University. The Lancaster Readiness Center is currently staffed by thirty personnel. No vehicle maintenance activities are undertaken at the facility.

Due to heavy rains the morning of the survey, an exterior photograph of the Lancaster Readiness Center was not taken.

2.0 Sampling in Readiness Centers

2.1.1 Wipe Sampling

Wipe sampling for lead was conducted in the Assembly Hall and administrative areas following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost wipes. Samples were collected in areas that are not frequently cleaned and showed signs of dust whenever possible.

The following table presents the results of the lead wipe sampling conducted at the facility.

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
PbW – 001	Orderly Office - desk	<110 ug/ft^2
PbW – 002	Office - cabinet	<110 ug/ft^2
PbW – 003	Administrative Corridor - floor	<110 ug/ft^2

ug/ft^2 = Micrograms per square foot.

Wipe samples collected in association with the administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U. S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 micrograms per square foot (ug/ft^2) for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas. Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

Per Non-Responsive of NGB-IH, the requirement for Lead air sampling has been removed from the Statement of Work. It was reported that historically, air samples collected at administrative facilities are typically below the limit of detection.

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls appeared to be generally in good condition, except for the caged storage areas in the basement. Concrete flooring was generally tiled or unpainted. AECOM observed extensive areas of peeling paint in the basement caged storage areas. A paint chip sample was collected and analyzed from this area. The sample results indicate that the damaged/peeling paint was lead-containing. Approximately 2,800 square feet of damaged lead-based paint is present in the basement. Analytical results are presented in Appendix C.

Limited peeling paint was also observed in several other basement areas such as corridor walkways, general storage areas, and the former boiler room. This peeling paint appeared to be of the same vintage, type, and color (white) as the paint described above and sampled for analysis. As such, additional paint chips samples were not warranted at this time.

3.1.2 Suspect Asbestos Containing Materials

AECOM observed an area of damaged, friable suspect asbestos containing materials (ACM) in a readily accessible area of the Lancaster Readiness Center basement during this survey. A photograph of this area was taken, however, the flash failed and the picture is dark and effectively unusable. Approximately 5 linear feet of damaged thermal system pipe insulation was observed near the electrical panel that adjoins the boiler room. A bulk sample of the damaged pipe insulation was collected and analyzed. The sample results indicate that the damaged friable pipe insulation is asbestos-containing. Analytical results are presented in Appendix C.

Other typical miscellaneous building materials observed throughout the building but not sampled include floor tiles and associated mastic, cove base and associated mastic, ceiling tiles, and window glazing compound and caulks.

3.1.3 Water Damage/Mold

AECOM did not observe evidence of water intrusion during the survey.

3.1.4 Housekeeping

The Lancaster Readiness Center was observed to be generally clean and orderly during this assessment. AECOM did not observe dust accumulation on readily accessible horizontal surfaces within areas commonly used in the facility.

3.1.5 Indoor Air Quality/ Ergonomics

The administration section of the building contains general office space. The administration section is generally utilized by all of the Lancaster Readiness Center staff members. There is no recruiter at the Lancaster Readiness center. No Indoor Air Quality concerns were noted by the Lancaster Readiness Center personnel.

Lancaster Readiness Center personnel did not report any ergonomics issues or concerns. Office furniture and accessories designed to promote ergonomically correct behaviors were observed.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (^{o} Fahrenheit), and relative humidity (as percentage) are presented in the following table.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (^{o}F)	Relative Humidity (%)
Outside	0.8	314	66.8	52.1
Drexel Assembly Corridor	1.6	347	68.0	48.2
Foyer	0.0	507	68.3	59.6
Administrative Corridor	0.6	331	70.2	60.6
Drexel ROTC Office	1.1	527	73.9	57.4
Gymnasium	1.5	375	75.3	47.2
Restroom	1.4	311	74.0	53.3
Orderly Room	1.5	325	74.5	52.8
Classroom	1.2	335	74.7	52.9
Stairwell	1.2	370	75.1	53.4
Second Floor Corridor	0.7	360	76.7	47.2
Office	1.1	363	77.9	44.2
Kitchen	1.8	417	78.7	40.9
Command Office	1.9	308	74.2	48.6
Conference Room	1.3	423	77.8	37.3
Physical Fitness Room	1.4	418	77.3	48.7
Bunk Room	1.1	598	78.5	42.1
Maintenance Office - basement	0.6	465	80.9	40.2
Former Boiler Room	0.8	416	77.2	40.3
Old stables - caged storage	0.7	525	76.4	41.8
Old Stables - general storage	0.4	562	77.1	42.6

Table 3-1 Guidelines:
Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard. OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.
Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.
Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 5.10.1).
Temperature: Winter (clothing insulation = 1.0 clo) Relative humidity 30-60% - Temp - 68 – 75°F
Summer Temp - 73 – 79°F. (Derived from ASHRAE Standard 55-2010)

4.0 Ventilation and HVAC System

4.1.1 Ventilation Systems and Potential for Contamination of Clean Air Sources

There is no Field Maintenance Shop (FMS) facility located at the Lancaster Readiness Center. As such, potential for contamination of clean air sources was not observed in the facility.

The Lancaster Readiness Center is heated by a radiant heating system fed steam lines supplied by the City. Supply and return air is not provided by mechanical means. Outdoor air is provided in the building through open windows and doors. As such, no potential for contamination of clean air sources was observed at the facility.

4.1.2 HVAC Maintenance

There is no HVAC system at the Lancaster Readiness Center.

5.0 Lighting

Lighting levels in all areas were measured utilizing a Cal-Light 400 light meter that displays lighting levels in foot-candles. Lighting levels were generally inadequate.

Table 5-1: Light Survey

Location	Results – (Foot candles)	Met Standard (Y/N)	Standard*
Drexel Assembly Corridor	28.5	Y	5
Foyer	9.4	N	10
Administrative Corridor	52.9	Y	5
Drexel ROTC Office	20.5	N	50
Gymnasium	19.6	Y	10
Restroom	33.8	Y	5
Orderly Room	79.1	Y	50
Classroom	36.6	Y	30
Stairwell	7.5	Y	5
Second Floor Corridor	9.8	Y	5
Office	30.9	N	50
Kitchen	37.6	N	50
Command Office	17.2	N	50
Conference Room	66.3	Y	50
Physical Fitness Room	39.2	Y	30
Bunk Room	35.8	Y	10
Maintenance Office - basement	59.2	Y	50
Former Boiler Room	12.9	N	30
Old stables - caged storage	27.2	N	30
Old Stables - general storage	26.7	N	30
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI/IESNA RP-7-01)			

6.0 Evaluation of Attached Garage

There is no attached garage associated with the Lancaster Readiness Center.

7.0 Conclusions and Limitations

AECOM has conducted this survey in accordance with applicable OSHA methods and standard industrial hygiene practice. The following conclusions were based on the observations and assessments of activities that occurred during the on-site evaluation:

Housekeeping is performed regularly at the Lancaster Readiness Center.

AECOM observed one are of damaged, friable suspect asbestos-containing materials at the Lancaster Readiness Center. Approximately 5 linear feet of damaged thermal system piping was observed near the electrical panel that adjoins the boiler room. The sample results indicate that the damaged friable pipe insulation is asbestos-containing.

AECOM observed extensive areas of peeling paint in the basement caged storage areas. The sample results indicate that the damaged/peeling paint was lead-containing. Approximately 2,800 square feet of damaged lead-based paint is present in the basement. Limited peeling paint was also observed in several other basement areas such as corridor walkways, general storage areas, and the former boiler room. This peeling paint appeared to be of the same vintage, type, and color (white) as the paint described above and sampled for analysis. As such, additional paint chips samples were not warranted at this time.

No evidence of water intrusion of mold growth was observed at the Lancaster Readiness Center during the survey.

Lighting levels measured throughout the facility were generally inadequate as per ANSI/IESNA RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

Wipe samples collected in association with the administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft^2 for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

AECOM provided these services consistent with the level and skill ordinarily exercised by members of the profession currently providing similar services under similar circumstances at the time the services were provided. This statement is in lieu of other statements either expressed or implied. This report is intended for the sole use of National Guard Bureau – Army National Guard. The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, and use or re-use of this document, the findings, conclusions, or recommendations is at the risk of said user.

As with all such surveys, the results of the sampling represent conditions found on the date of the survey and may not represent conditions found at other times. Additionally, this survey was limited with respect to the specific parameters indicated above and should not be construed to be a comprehensive evaluation or a definitive representation of conditions within the facility. The information presented in this report is intended to be used as a guide to evaluate the need for further investigation or the need for modifications to the processes or procedures surveyed.

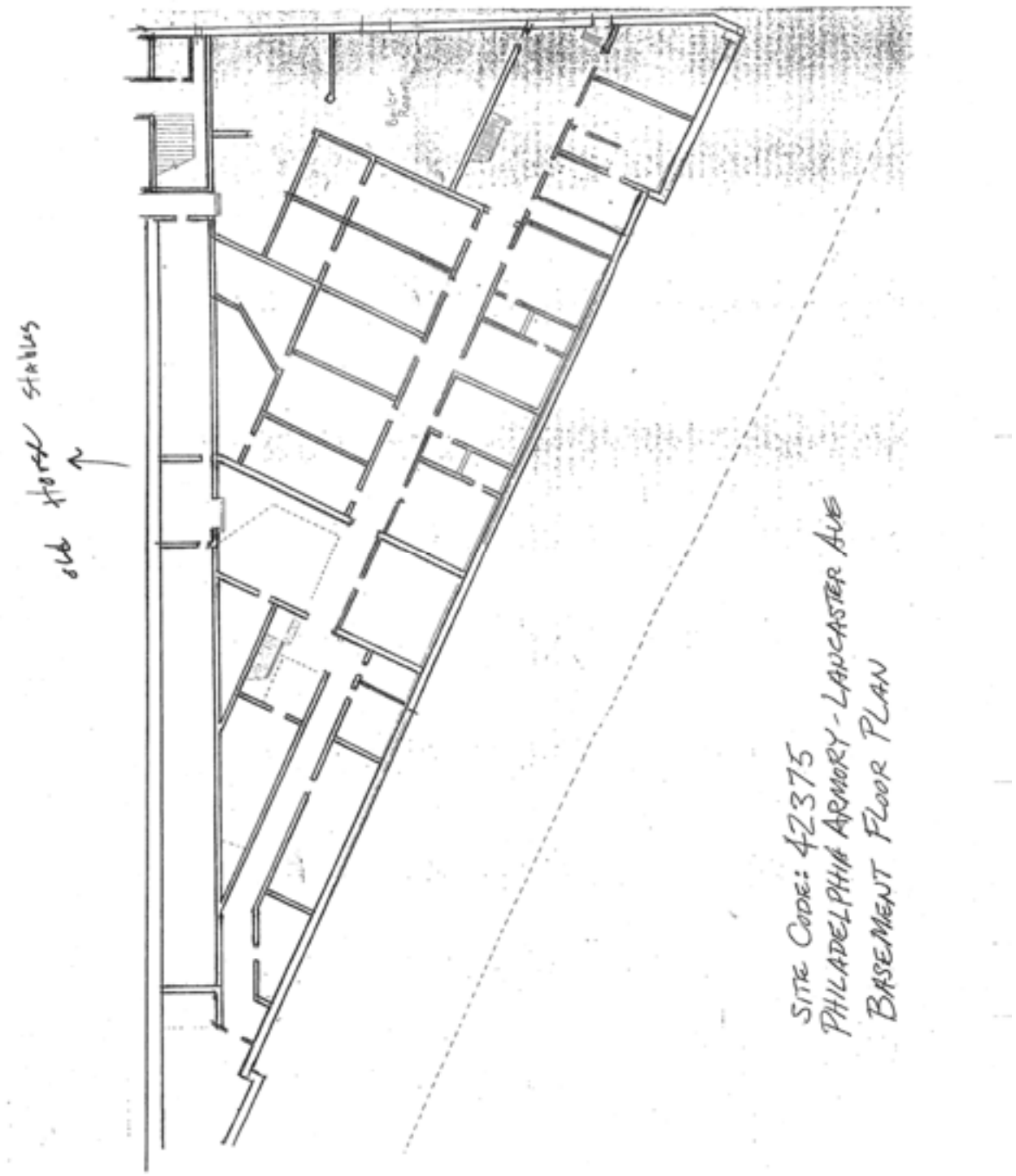
The Client recognizes and agrees that all testing and remediation methods have reliability limitations, no method nor number of sampling locations can guarantee that a condition will be discovered within the performance of the services as authorized by the Client. Additionally, the passage of time may result in a change in the environmental characteristics at this site. This report does not warrant against future operations or conditions that could affect the recommendations made. The results, findings, conclusions, and

recommendations expressed in this report are based only on conditions that were observed during AECOM's inspection of the site.

Appendix A

Lancaster Readiness Center Facility Layout

AECOM



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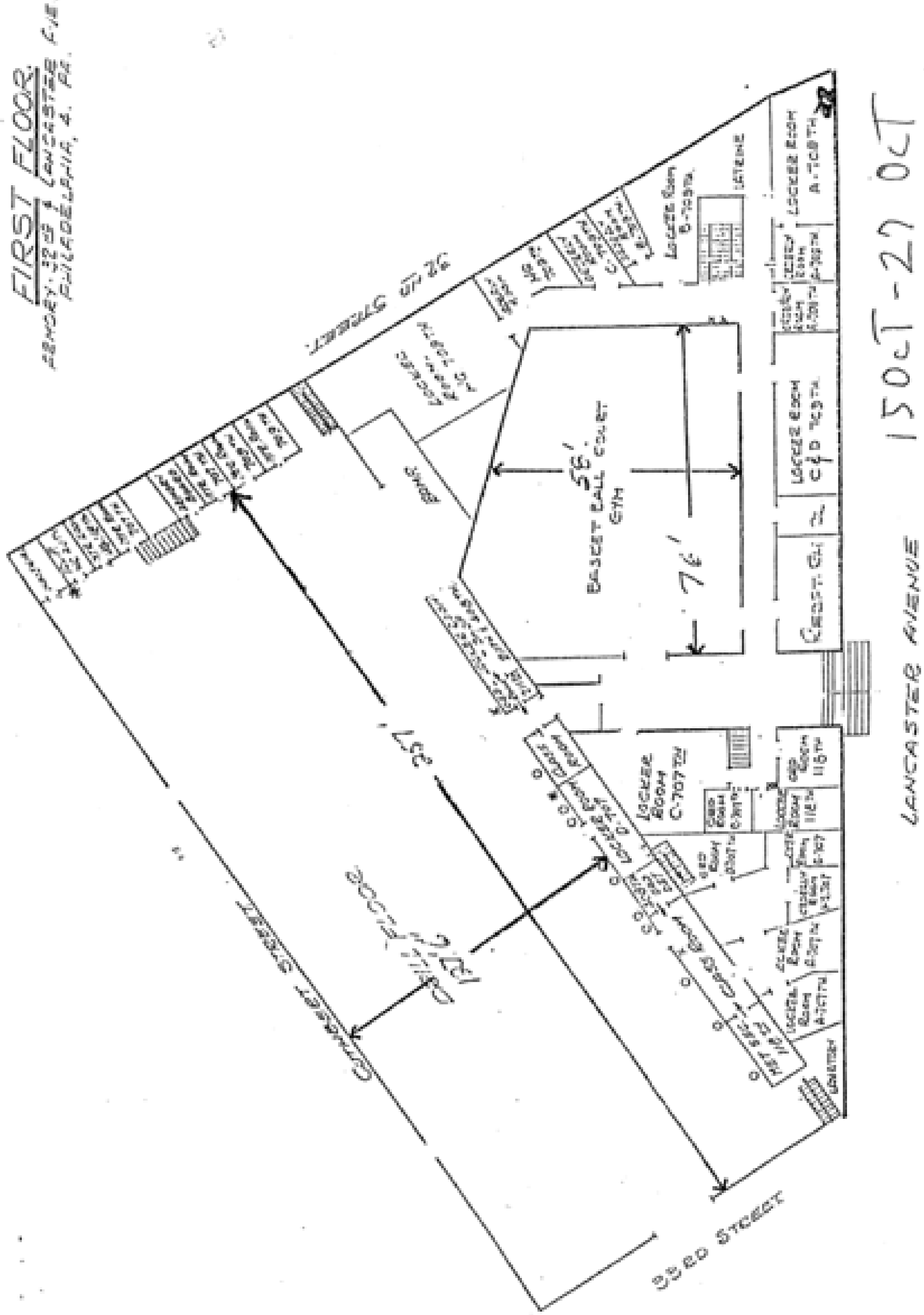

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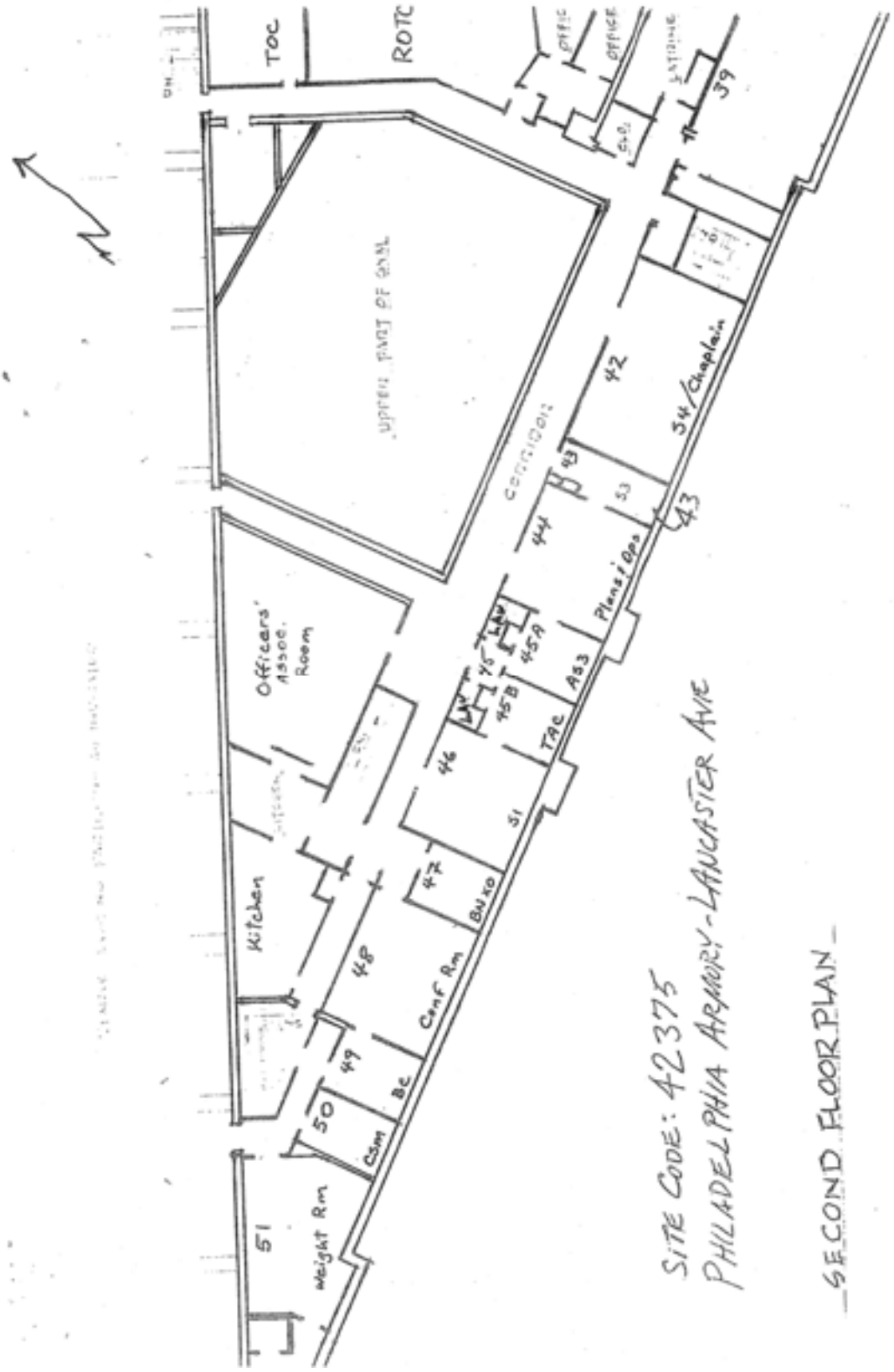


Appendix B

Lancaster Readiness Center Photographs

Photograph 1

View of Foyer

Photograph 2

View of Administrative Corridor – first floor

AECOM

Photograph 3

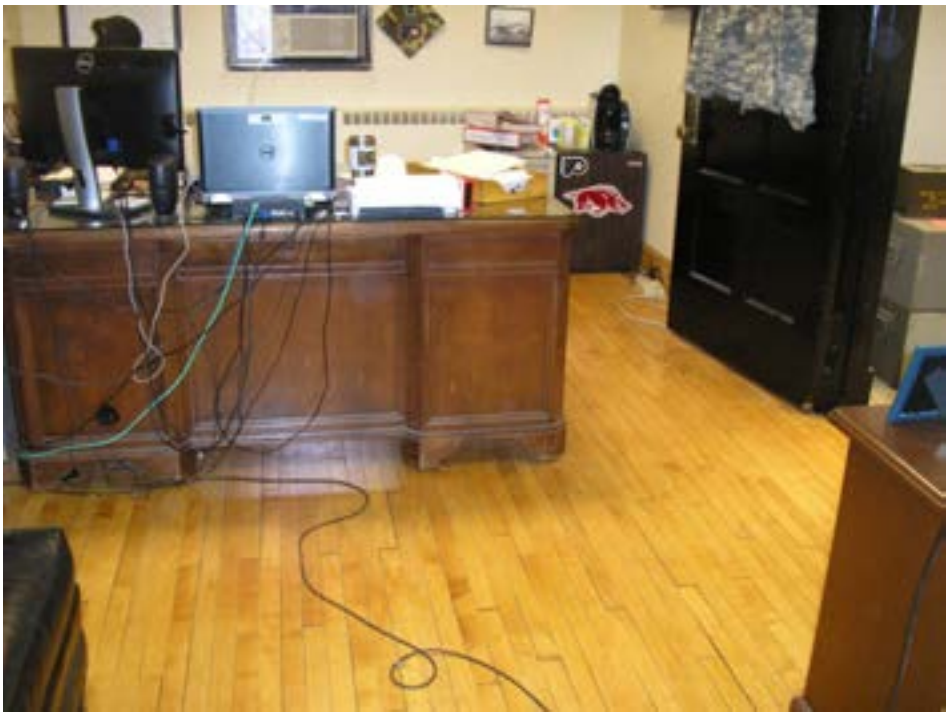
View of Classroom – first floor

Photograph 4

View of Administrative Office Area – first floor

AECOM

Photograph 5



View of Typical Office – second floor

Photograph 6

View of Kitchen – second floor

AECOM

Photograph 7

View of Conference Room – second floor

Photograph 8

View Physical Fitness Room – second floor

Photograph 9

View of Caged Storage Area - basement

Photograph 10

View of State Maintenance Office - basement

Photograph 11

View of Former Boiler Room - basement

Photograph 12

View of Peeling Paint - basement

Appendix C

Analytical Results

AECOM

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	Not Provided	Chain Of Custody:	514909		
Address:	301-81 Old Bay Lane, Attn: ARNG-CIG-P, State Military Reservation	Job Location:	Philly-Lancaster	Date Submitted:	1/3/2013		
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM		
		P.O. Number:	W912K6-03-A-8003	Date Analyzed:	1/9/2013	Report Date:	1/9/2013

Attention: Non-Responsive

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		Total ug	Final Result		Comments
13027306	PbW-001	Flame	Wipe	****	0.111	110	ug/ft²	<32	<110	ug/ft²	
13027307	PbW-002	Flame	Wipe	****	0.111	110	ug/ft²	<32	<110	ug/ft²	
13027308	PbW-003	Flame	Wipe	****	0.111	110	ug/ft²	<32	<110	ug/ft²	
13027309	PC-001	Flame	Paint Chip	****	N/A	0.0001	%Pb		0.079	%Pb	

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B

See QC Summary for analytical results of quality control samples associated with these samples.

N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)

%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)

Note: All samples were received in good condition unless otherwise noted.

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results

Final results for air and wipe samples are based on client supplied information not verified by this laboratory.

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

Non-Responsive

Technical Manager: Non-Responsive

An AIHA (#100478) and NY ELAP (#10920) Accredited Laboratory

4475 Forbes Blvd. · Lanham, MD, 20706 · (301) 459-2640 · Toll Free (800) 346-8961 · Fax (301) 459-2643

AECOM

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

NY ELAP
10920

CERTIFICATE OF ANALYSIS

Client:	National Guard Bureau	Job Name:	Not Provided	Chain Of Custody:	514929
Address:	301-81 Old Bay Lane, Attn: ARNG-CIG-P, State Military Reservation	Job Location:	Philly-Lancaster	Date Analyzed:	1/9/2013
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM
		P.O. Number:	W912K5-09-A-8003		
Attention:	Non-Responsive				

Summary of Point Count Results by Polarized Light Microscopy

AMA Sample Number	Client Sample #	Total Asbestos	Chrysotile Percent	Amosite Percent	Crocidolite Percent	Other Asbestos Percent	Glass Fibers Percent	Organic Percent	Synthetic Percent	Other Percent	Particulate Percent	Sample Type	Sample Color	Homogeneity	Point Count Method	Comments
1302710	AC36-001	11.50%	1.00%	10.50%	--	--	--	--	--	--	88.50%	FI	Gray	Homogeneous	EPA	

* 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.

** 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 and/or NY State ELAP 198.1

EPA - 400 Point Count STA - Stratified Point Count SNO - Screening Negative Option

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

Technical Director: Non-Responsive

Analyst(s): Non-Responsive

NY ELAP (#10920) Accredited Laboratory

4475 Forbes Blvd. - Lanham, MD, 20706 - (301) 459-3640 - Toll Free (800) 346-0961 - Fax (301) 459-2643

AECOM

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Focused on Results www.amalab.com
AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)
4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This Number For Inquiries)

514909

Mailing/Billing Information:

1. Client Name: National Guard Bureau
2. Address 1: 301-IH Old Bay Lane
3. Address 2: Attn: NGB-AVN-SI, State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:

1. [illegible]
2. [illegible] Philly - Aviation Fac
3. Job #: PO #: W912K8-09-A-0003
4. Contact Person: [redacted]
5. Submitted by: AECOM [illegible] [redacted]

Reporting Info (Results provided as soon as technically feasible). If no TAT/Reporting Info is provided, AMA will assign defaults of 5-Day and email/fax to contacts on file.

[illegible shaded section: turnaround / NORMAL BUSINESS HOURS / REPORTING] 1/10/15

[illegible]

*PCM Air – Please Indicate Filter Type:
- ☐ NIOSH 7400 ____ (QTY)
- ☐ Fiberglass ____ (QTY)

TEM Air* – Please Indicate Filter Type:
- ☐ AHERA ____ (QTY)
- ☐ NIOSH 7402 ____ (QTY)
- ☐ Other (specify ____) ____ (QTY)

PLM Bulk:
- ☐ EPA 600 – Visual Estimate ____ (QTY)
- ☒ EPA Point Count 1 (QTY)
- ☐ NY State Friable 198.1 ____ (QTY)
- ☐ Grav. Reduction ELAP 198.6 ____ (QTY)
- ☐ Other (specify ____) ____ (QTY)

MISC:
- ☐ Vermiculite
- ☐ Asbestos Soil PLM ___ (Qual) PLM ___ (Quant) PLM/TEM ___ (Qual) PLM/TEM ___ (Quant)

*[illegible fine print]

TEM Bulk:
- ☐ ELAP 198.4/Chatfield ____ (QTY)
- ☐ NY State PLM/TEM ____ (QTY)
- ☐ Residual Ash ____ (QTY)

TEM Dust*:
- ☐ Qual. (pos/abs) Vacuum/Dust ____ (QTY)
- ☐ Quan. (s/area) Vacuum D5755-95 ____ (QTY)
- ☐ Quan. (s/area) Dust D6480-99 ____ (QTY)

TEM Water:
- ☐ Qual. (pos/abs) ____ (QTY)
- ☐ ELAP 198.2/EPA 100.2 ____ (QTY)
- ☐ EPA 100.1 ____ (QTY)

☒ All samples received in good condition unless otherwise noted. (TEM Water samples ____ °C)

If field data sheets are submitted, there is no need to complete bottom section.

[illegible]
- ☒ Pb Paint Chip 1 (QTY)
- ☐ *Pb Dust Wipe (wipe type: Ghost) 3 (QTY)
- ☐ *Pb Air ____ (QTY)
- ☐ Pb Soil/Solid ____ (QTY)
- ☐ Pb TCLP ____ (QTY)
- ☐ Drinking Water ☐ Pb ___ (QTY) ☐ Cu ___ (QTY) ☐ As ___ (QTY)
- ☐ Waste Water ☐ Pb ___ (QTY) ☐ Cu ___ (QTY) ☐ As ___ (QTY)
- ☐ Pb Remove (Media ____) ____ (QTY)

[illegible]

Collection Apparatus for Spore Trap/Air Sampling: ____
Collection Media ____
- ☐ *Spore-Trap ____ (QTY)
- ☐ *Surface Swab ____ (QTY)
- ☐ *Surface Tape ____ (QTY)
- ☐ Other (Specify ____) ____ (QTY)
- ☐ Surface Vacuum Dust ____ (QTY)
- ☐ Culturable ID Genus (Media ____) ____ (QTY)
- ☐ Culturable ID Species (Media ____) ____ (QTY)

CLIENT ID #	SAMPLE LOCATION/ID	DATE/TIME	VOL (L)/Wipe Area	ANALYSIS / MATRIX	CLIENT CONTACT (LABORATORY STAFF ONLY)
PBW-001	Office Desk	12/15	16	X	Date/Time: Contact: By:
PBW-002	Office Cabinet		↓		
PBW-003	Admin Hall Floor		↓	↓	
	SEE ATTACHED FIELD DATA SHEETS				
		↓			Date/Time: Contact: By:
ACM-001	Pipe-Basement			X	
PC-001					
					Date/Time: Contact: By:
					[redacted]

LABORATORY STAFF ONLY: CUSTODY

1. [illegible] 3 15 900 [illegible]
2. [illegible]
3. [illegible]
4. Comments [illegible]

Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. http://www.osha.gov/comp-links.html

2. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998. http://www.dtic.mil/whs/directives/corres/pdf/605501p.pdf

3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF

4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://armypubs.army.mil/epubs/pdf/R40_5.PDF

5. AR 385-10, The Army Safety Program, 23 August 2007; Rapid Action Revision (RAR) issue date: 4 October 2011. http://armypubs.army.mil/epubs/pdf/R385_10.PDF

6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://armypubs.army.mil/epubs/pdf/P40_501.pdf

7. DA PAM 40-11, Preventive Medicine, 22 July 2005, RAR issue date: 19 October 2009. http://armypubs.army.mil/epubs/pdf/p40_11.pdf

8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://armypubs.army.mil/epubs/pdf/P40_503.PDF

9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf

10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current Ed.

11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.

12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.

13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.

14. ANSI/ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality.

15. RP-1-2004, Office Lighting, ANSI/IESNA.

16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.

17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.

18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.

19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf

Industrial Hygiene Survey

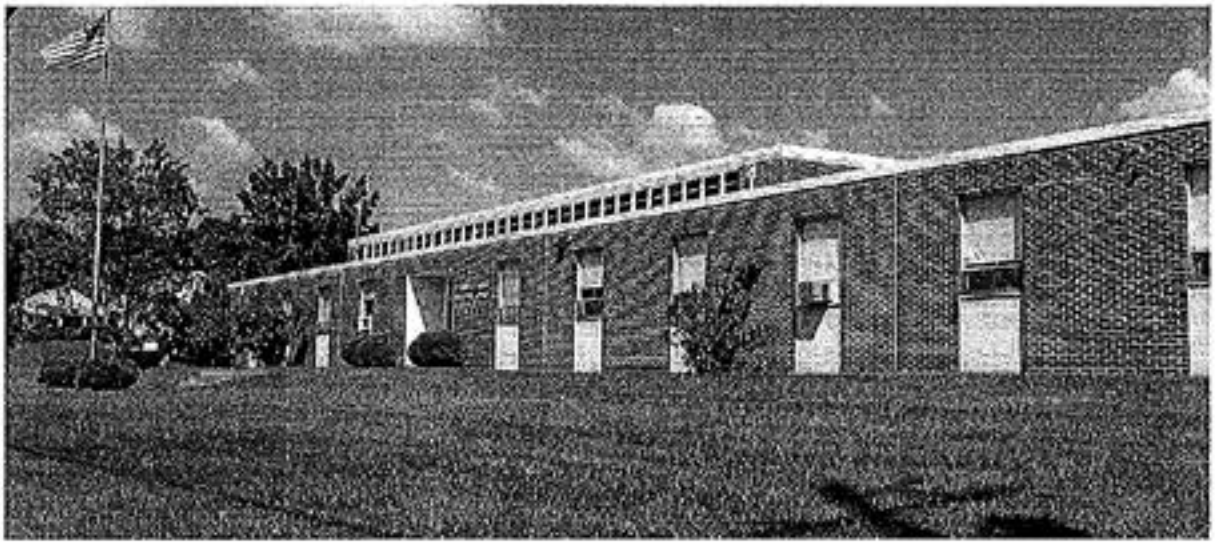
BTRY A (-) 213TH ADA BN

LEHIGHTON, PENNSYLVANIA

July 1, 2003

OPTECH
OPERATIONAL TECHNOLOGIES
CORPORATION

BTRY A (-) 213TH ADA BN
LEHIGHTON, PENNSYLVANIA
INDUSTRIAL HYGIENE SURVEY



1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Lower Building in Lehighton, Pennsylvania on July 01, 2003. The NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. Non-Responsive from OpTech, completed this survey. Non-Responsive a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the IH Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D.

2.0. EXECUTIVE SUMMARY

2.1. Carbon monoxide and carbon dioxide readings were within recommended ranges. The temperature indoors was slightly higher than recommended temperature ranges in one classroom. Relative humidity reading were above the acceptable range in all areas of the facility. Humidity should be maintained below 60% relative humidity for occupant comfort and controlling mold growth. No mold was observed during the survey.

2.2. Illumination levels were below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

2.3. Wipe samples for inorganic lead were collected throughout the facility. All sample results were below the 200 $\mu g/ft^2$ criterion. Lower levels of lead were detected in some areas.

2.4. Air sampling for inorganic lead was accomplished. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	BTRY A (-) 1/213TH ADA BN		
ADDRESS	1000 Bridge Street (Lower Building)		
	Lehighton, PA 18235		
CONTACT	SFC [redacted]		
PHONE	610-377-9373		
DATE BUILT	1962	FACILITY SIZE	14,450 sq. ft.
INDOOR FIRING RANGE	CLOSED		1-floor
ASSISTED			
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	4		
TRADITIONAL (MIL)	60		
CHILD ACTIVITIES	Facility not rented or used by outside groups.		
ADULT ACTIVITIES			

3.1.1. The exterior of the building is brick and appears to be in good condition. The interior has been kept in good condition. The facility is heated with a natural gas steam furnace and is cooled with window air conditioners.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity (RH) in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 Indoor Air Quality Standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ASHRAE 62-2001, Section 6.1.3, states that concentrations up to 700 ppm CO_2, above outdoor concentrations will achieve an acceptable level of indoor air quality.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ASHRAE 55-1992 recommends that temperature ranges be 73 to 79 degrees Fahrenheit (°F) during the summer and 68 to 74°F during the winter. Relative humidity levels be maintained between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE 1
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO_2 (ppm)	Temp. (°F)	RH (%)
1105	Outdoors – Background	0.0	450	85.7	68.5
1110	Classroom	0.0	524	83.1	67.3
1114	Orderly Room	0.0	508	75.4	65.1
1119	Classroom	0.0	518	78.3	64.2
1124	Recruiting Office	0.0	508	76.2	63.8
1131	Female Latrine	0.0	510	74.1	64.6
1134	Fitness Center	0.0	511	72.6	65.1
1138	Break Room	0.0	513	73.1	66.2

3.2.5. Carbon monoxide and carbon dioxide readings were within recommended ranges. The temperature indoors was slightly higher than recommended temperature ranges in one classroom. Relative humidity reading were above the acceptable range in all areas of the facility. Humidity should be maintained below 60% relative humidity for occupant comfort and controlling mold growth. No mold was observed during the survey.

3.3. ILLUMINATION

3.3.1. Illumination levels were measured in most areas of the facility. Sunlight was excluded, as much as possible for this survey, by closing doors and blocking windows. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 – 463). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
Orderly Room	30 – 42	38	70	NO
Classroom	38 – 50	43	75	NO
Locker Room	36 – 42	40	40	YES
Shower Room	32 – 46	40	20	YES
Bty CDR	42 – 50	47	70	NO
Fitness Center	36 – 42	39	50	NO
Break Room	36 – 50	42	30	YES
Kitchen	36 – 54	44	75	NO
Assembly Hall	34 – 46	40	75	NO

3.3.2. Illumination levels were below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3.4. WIPE SAMPLES

3.4.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples were taken at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot ($\mu g/ft^2$) and are listed in Table 3. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead ($\mu g/ft^2$)
PA Leh-03182-03	Classroom – Windowsill	BDL
PA Leh-03182-04	Orderly Room – Windowsill	BDL
PA Leh-03182-05	Kitchen – Windowsill	BDL
PA Leh-03182-06	Assembly Hall – Snack Machine	77
PA Leh-03182-07	Male Latrine	30
PA Leh-03182-08	BLANK Sample	BDL

$\mu g/ft^2$ = micrograms per square foot BDL = Below Detection Limits

3.4.2. Additional wipe samples were collected during this survey. These samples were collected to further analyze the extent of contamination should the first five samples indicate a possible hazard. Since the first series of analyzed samples did not exceed the 200 µg/ft² criterion (see Section 3.4.4), these additional samples were not analyzed.

3.4.3. CLOSED FIRING RANGE WIPE SAMPLING

3.4.3.1. Additional wipe samples were collected in the former indoor firing range. This area is presently being utilized for storage. The laboratory analysis results are listed in Table 4.

TABLE 4
FORMER FIRING RANGE WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Leh-03182-15	Floor – Behind Former Firing Line	35
PA Leh-03182-16	Floor – By Gear Storage	132
PA Leh-03182-17	Floor – By 4th PLT Storage	91
PA Leh-03182-18	Cage – 2nd PLT Storage	65
PA Leh-03182-19	Floor – By 1st PLT Storage	BDL
PA Leh-03182-20	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.4. WIPE SAMPLING RESULTS

3.4.4.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 µg/ft². This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. (See memorandum in Attachment E, Recommendations for Surface Lead Dust in Armories.) All sample results were below the 200 µg/ft² criterion. Lower levels of lead were detected in some areas.

3.4.5. AIR SAMPLING

3.4.5.1. Air Sampling for inorganic lead was performed during this survey. Table 6 lists the results of these samples, and is reported in milligrams per cubic meter (mg/m³) of air.

TABLE 6
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
Non-R 1	PA Leh-03182-01	Lead	<0.004 mg/m³	0.05 mg/m³	YES
Area – Kitchen	PA Leh-03182-02	Lead	<0.003 mg/m³	0.05 mg/m³	YES

mg/m³ = milligrams per cubic meter < = less than (below detection limits)

3.4.5.2. Air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(e)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this building.

3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION DAMAGE

3.5.1.1. There was no visible water intrusion damage in the facility.

3.5.2. LEAD PAINT

3.5.2.1. No peeling paint was observed and no samples were collected.

3.5.3. ASBESTOS

3.5.3.1. There is no known asbestos containing material in the facility.

3.5.4. PROGRAMS

3.5.4.1. There are no designated confined space areas within this facility. There are no exhaust ventilation systems to control a hazard. No chemicals besides normal cleaning materials are present. Therefore, a need has not been established for a HAZCOM program, the need for personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.5. HOUSEKEEPING

3.5.5.1 The facility is kept impressively clean and orderly. The ventilation ductwork was also very clean with very little dust build up.

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

E – Recommendations for Surface Lead in Armories

F – Field Notes
- Equipment Listing

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
Lehighton, PA	PENNSYLVANIA ARNG ARMORY	Lower Building

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR (Initials)
1 July 2003	JSS

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	NA	SFC Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
610-377-9373	BTRY A(-) 213TH ADA BN	4	9

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
4	60			

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	CONROLS 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			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	½ FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	¼ 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 WEATHR 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	/		

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	0	2

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

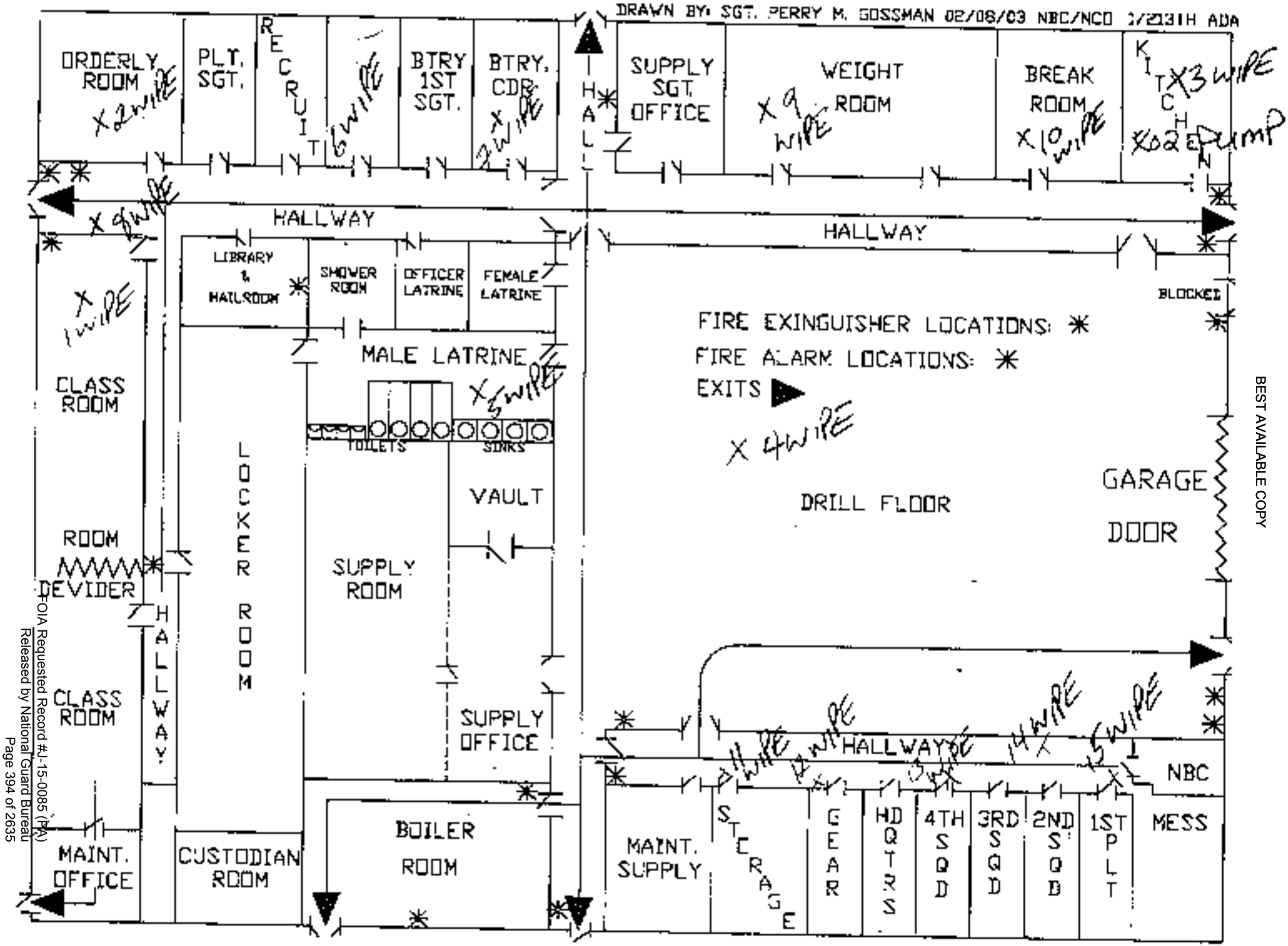
SECTION 6. COMMENTS

☐ No comments ☐ See attached sheet

PRIVACY ACT STATEMENT

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

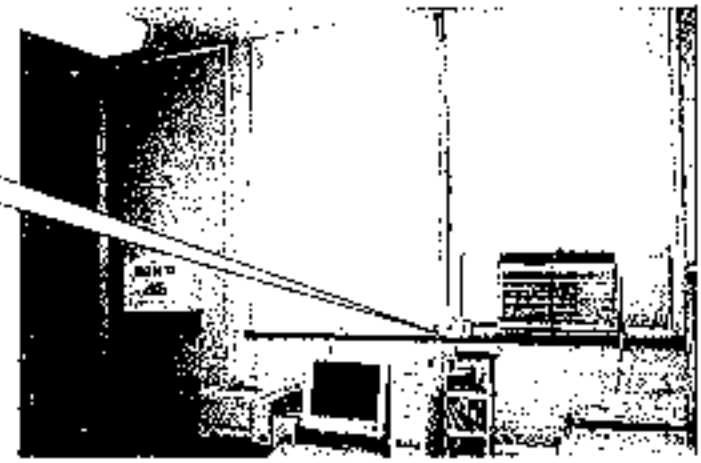
Disclosure of your Social Security Number is not mandatory; however, nondisclosures may result in untimely provision of proper medical monitoring.



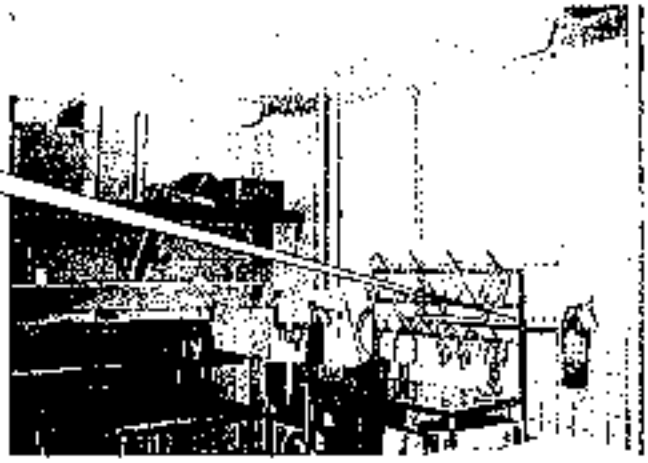
BTRY A (-) 1/213TH ADA BN
LEHIGHTON, PENNSYLVANIA
Lower Building

(1) PA Leh-03182-03
Classroom

(2) PA Leh-03182-04
Orderly Room



(3) PA Leh-03182-05
Kitchen



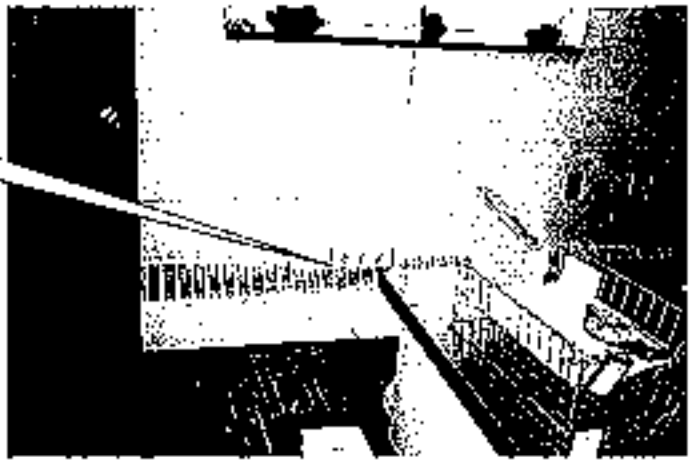
Attachment B

(4) PA Leh-03182-06
Assembly Hall

(5) PA Leh-03182-07
Male Latrine

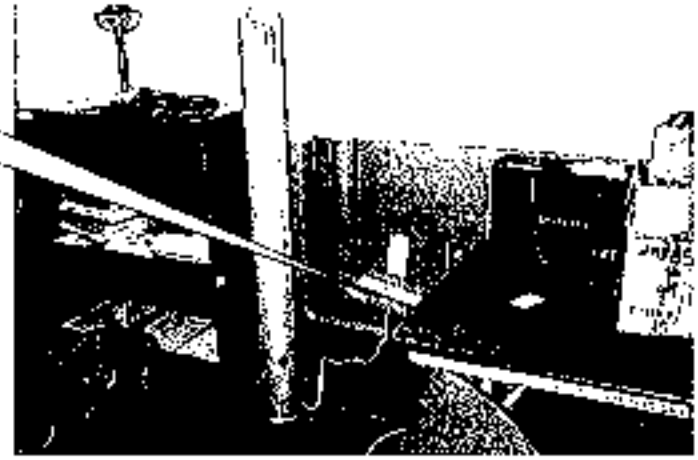
ADDITIONAL SAMPLES

(6) PA Leh-03182-09
Office



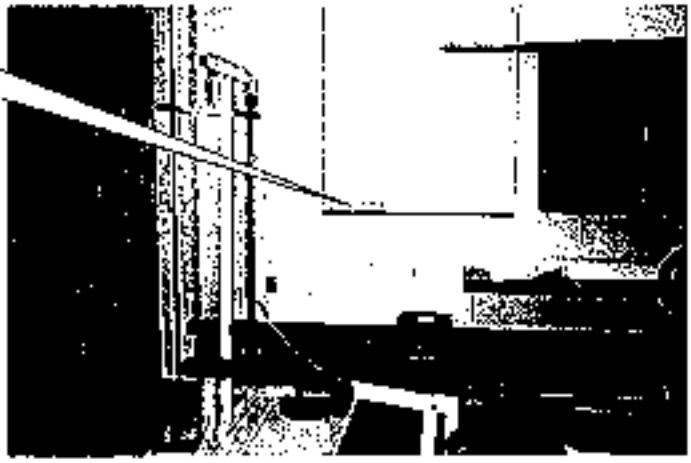
Attachment 3

(7) PA Leh-03182-10
Classroom



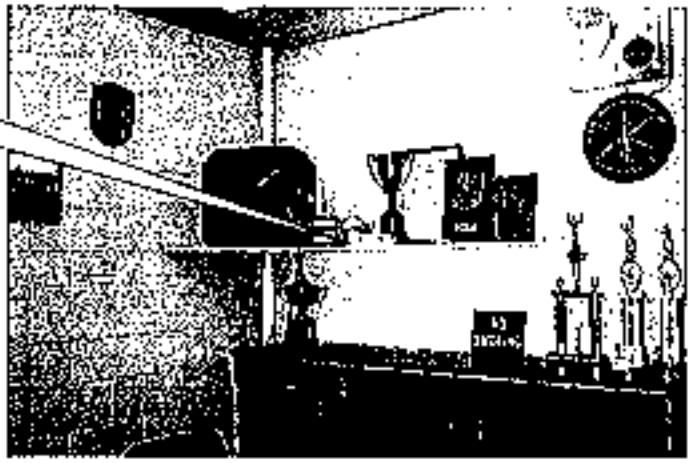
(8) PA Leh-03182-11
Lobby

(9) PA Leh-03182-12
Fitness Room



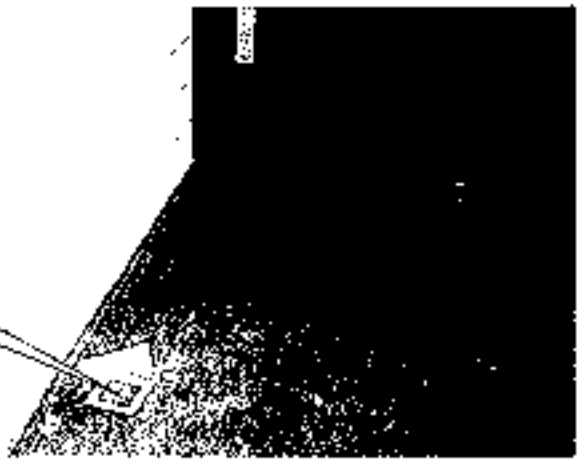
Attachment B

(10) PA Leh-03182-13
Break Room

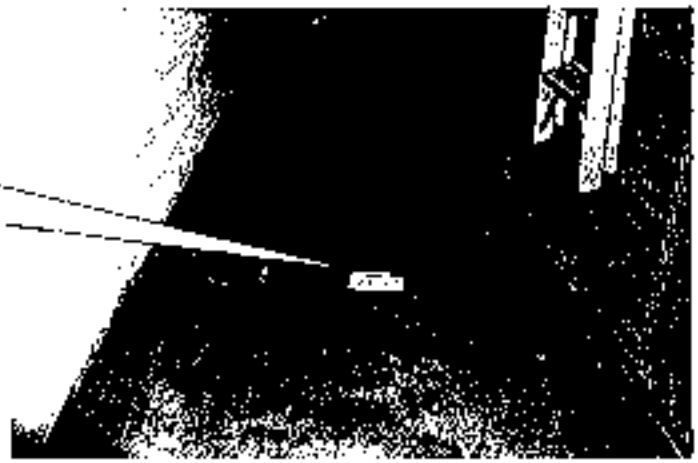


FORMER INDOOR FIRING RANGE SAMPLES

(11) PA Leh-03182-15
Former Range
Behind Firing Line

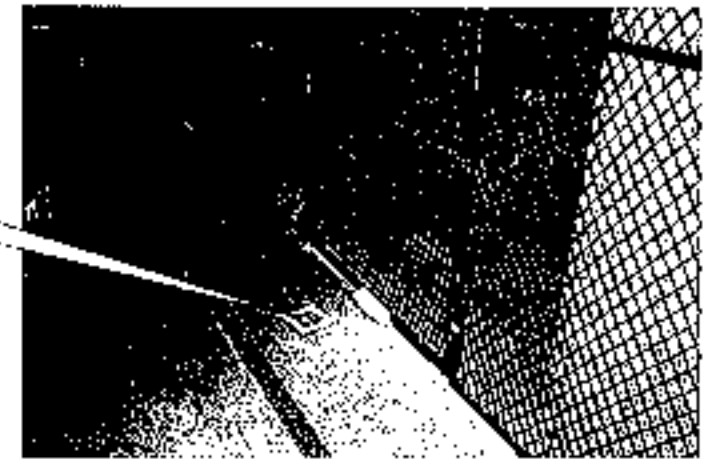


(12) PA Leh-03182-16
Former Range
Gear Storage



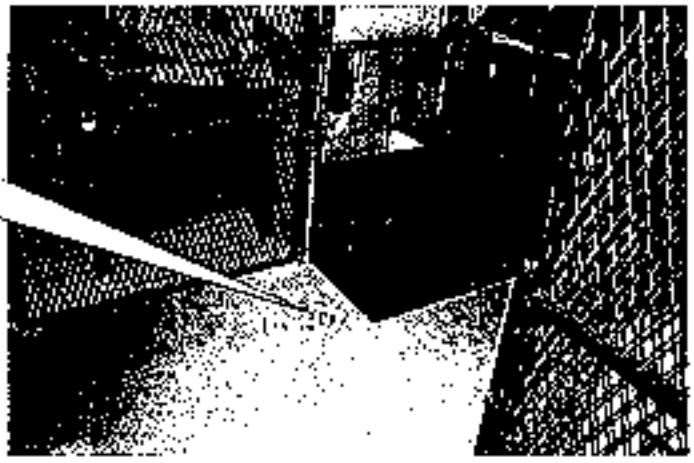
Attachment B

(13) PA Leh-03182-17
Former Range
4th PLT Storage



(14) PA Leh-03182-18
Former Range
2nd PLT Storage

(15) PA Leh-03182-19
Former Range
1st PLT Storage



Attachment B

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
AIHA Certificate of Accreditation #480 LAB ID 101533

TABLE ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	RES 95353-1R
Client:	Operational Technologies, Corp.
Client Project Number / P.O.:	06 03
Client Project Description:	Armories//Pennsylvania
Date Samples Received:	July 11, 2003
Analysis Type:	USEPA SW846 3050B / AA(7420)
Turnaround:	3-5 Day
Date Samples Analyzed:	July 15, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA WES-03178-03	EM 794725	0.11	226.0	23	2055
PA WES-03178-04	EM 794726	0.11	14.0	23	127
PA WES-03178-05	EM 794727	0.11	37.6	23	342
PA WES-03178-06	EM 794728	0.11	56.1	23	510
PA WES-03178-07	EM 794729	0.11	8.0	23	73
PA WES-03178-08	EM 794730	0.11	3.5	23	32
PA WES-03178-15	EM 794731	0.11	60.1	23	546
PA WES-03178-16	EM 794732	0.11	19.2	23	175
PA WES-03178-17	EM 794733	0.11	59.5	23	541
PA WES-03178-18	EM 794734	0.11	39.4	23	358
PA WES-03178-19	EM 794735	0.11	825.0	23	7500
PA WES-03178-20	EM 794736	0.11	BDL	23	BDL
PA SEL-03181-03	EM 794737	0.11	14.3	23	130
PA SEL-03181-04	EM 794738	0.11	8.0	23	73
PA SEL-03181-05	EM 794739	0.11	34.5	23	314
PA SEL-03181-06	EM 794740	0.11	223.0	23	2027
PA SEL-03181-07	EM 794741	0.11	16.6	23	151
PA SEL-03181-08	EM 794742	0.11	BDL	23	BDL
PA SEL-03181-15	EM 794743	0.11	561.0	23	5100
PA SEL-03181-16	EM 794744	0.11	245.0	23	2227
PA SEL-03181-17	EM 794745	0.11	9.0	23	82
PA SEL-03181-18	EM 794746	0.11	15.0	23	136
PA SEL-03181-19	EM 794747	0.11	44.0	23	400
PA SEL-03181-20	EM 794748	0.11	BDL	23	BDL
PA LEH-03182-03	EM 794749	0.11	BDL	23	BDL
PA LEH-03182-04	EM 794750	0.11	BDL	23	BDL
PA LEH-03182-05	EM 794751	0.11	BDL	23	BDL
PA LEH-03182-06	EM 794752	0.11	8.5	23	77
PA LEH-03182-07	EM 794753	0.11	3.3	23	30
PA LEH-03182-08	EM 794754	0.11	BDL	23	BDL

BDL = Below Detection Limit

Data Qa

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
AIHA Certificate of Accreditation #100 LAB ID 101533

TABLE ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	RES 95353-1R
Client:	Operational Technologies, Corp.
Client Project Number / P.O.:	06 03
Client Project Description:	Armories//Pennsylvania
Date Samples Received:	July 11, 2003
Analysis Type:	USEPA SW846 3050B / AA(7420)
Turnaround:	3-5 Day
Date Samples Analyzed:	July 15, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA LEH-03182-15	EM 794755	0.11	3.9	23	35
PA LEH-03182-16	EM 794756	0.11	14.5	23	132
PA LEH-03182-17	EM 794757	0.11	10.0	23	91
PA LEH-03182-18	EM 794758	0.11	7.2	23	65
PA LEH-03182-19	EM 794759	0.11	13.7	23	125
PA LEH-03182-20	EM 794760	0.11	BDL	23	BDL
PA LEH-03182-24	EM 794761	0.11	5.2	23	47
PA LEH-03182-25	EM 794762	0.11	3.5	23	32
PA LEH-03182-26	EM 794763	0.11	5.0	23	45
PA LEH-03182-27	EM 794764	0.11	28.5	23	259
PA LEH-03182-28	EM 794765	0.11	4.0	23	36
PA LEH-03182-29	EM 794766	0.11	BDL	23	BDL
PA HAZ-03182-39	EM 794767	0.11	BDL	23	BDL
PA HAZ-03182-40	EM 794768	0.11	17.5	23	159
PA HAZ-03182-41	EM 794769	0.11	BDL	23	BDL
PA HAZ-03182-42	EM 794770	0.11	BDL	23	BDL
PA HAZ-03182-43	EM 794771	0.11	160.0	23	1455
PA HAZ-03182-44	EM 794772	0.11	BDL	23	BDL
PA JOH-03183-03	EM 794773	0.11	BDL	23	BDL
PA JOH-03183-04	EM 794774	0.11	BDL	23	BDL
PA JOH-03183-05	EM 794775	0.11	BDL	23	BDL
PA JOH-03183-06	EM 794776	0.11	2.6	23	24
PA JOH-03183-07	EM 794777	0.11	4.5	23	41
PA JOH-03183-08	EM 794778	0.11	BDL	23	BDL
PA JOH-03183-18	EM 794779	0.11	BDL	23	BDL
PA JOH-03183-19	EM 794780	0.11	BDL	23	BDL
PA JOH-03183-20	EM 794781	0.11	BDL	23	BDL
PA JOH-03183-21	EM 794782	0.11	BDL	23	BDL
PA JOH-03183-22	EM 794783	0.11	BDL	23	BDL
PA JOH-03183-23	EM 794784	0.11	BDL	23	BDL

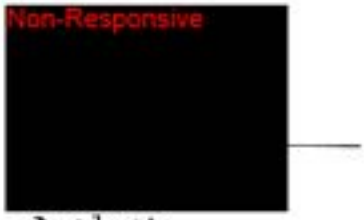
BDL = Below Detection Limit

Data Qa RK

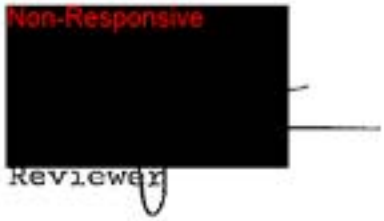
Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m^3
PA Wes-03178-01	03-20724	343.0	ND	<0.003
PA Wes-03178-02	03-20725	394.0	ND	<0.003
PA Sel-03181-01	03-20726	213.5	ND	<0.005
PA Sel-03181-02	03-20727	219.2	ND	<0.005
PA Leh-03182-01	03-20728	277.8	ND	<0.004
PA Leh-03182-02	03-20729	291.4	ND	<0.003
PA Leh-03182-22	03-20730	232.7	ND	<0.004
PA Leh-03182-23	03-20731	196.7	ND	<0.005
PA Haz-03182-37	03-20732	178.7	ND	<0.006
PA Haz-03182-38	03-20733	188.9	ND	<0.005
PA Joh-03183-01	03-20734	202.7	ND	<0.005
PA Joh-03183-02	03-20735	212.3	ND	<0.005
PA Joh-03183-16	03-20736	258.1	ND	<0.004
PA Joh-03183-17	03-20737	271.6	ND	<0.004
	Prep Blank		ND	
% Recovery	LCS 7		96.	
% Recovery	LCS 8		97.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.



Analyst



Reviewer

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non-[redacted]@md.ngb.army.mil

Attachment D

REFERENCE LIST INDEX

1. General Regulations and National Consensus Standards
2. Specific Regulations and Guidance
   a. Abrasive Blasting
   b. Asbestos
   c. Battery Charging Room
   d. Bird and Bat Manure
   e. Bloodborne Pathogens
   f. Chemical Agent Resistant Coating (CARC) Paint
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   q. Lighting
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   s. Paint Spray Booth
   t. Personal Protection
   u. Radiation Protection
   v. Respiratory Protection
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   z. Welding Operation

GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REFERENCE LIST

1. General Regulations and National Consensus Standards
   a. DODI 6055.1, DOD SOH Program, 19 August 1998.
   b. DODI 6055.5, DOD OEH. *[DRAFT]*
   c. DOD 6055.5-M, DOD Occupational Health Surveillance Manual, 13 May 1987.
   d. DODI 6050.5, DOD Hazard Communication, 29 Oct 90. Change 1, 6 May 1996.
   e. AR 40-5, Preventive Medicine, 15 October 1990. [05/2002 Being Updated]
   f. DA PAM 40-5, Preventive Medicine. *[DRAFT]*
   g. AR 385-10, The Army Safety Program, 29 February 2000.
   h. NGR 385-10, ARNG SOH Program, 7 October 1988, Change 1, 29 December 1989.
   i. Title 29, Part 1910, Occupational Safety and Health Standards. [Current Date]
   j. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 2002.
   k. ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th edition, 2001.
   l. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.
   m. TG 141, USACHPPM Industrial Hygiene Sampling Guide, November 1997.
   n. National Safety Council, Fundamentals of Industrial Hygiene, 5th Edition, 2002.
   o. NIOSH, Pocket Guide to Chemical Hazards, 2001.
   p. NFC, A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. [Current date]
   q. ASHRAE Standards. [Current Dates]
   r. ANSI Standards. [Current Dates]

2. Specific Regulations/Guidance
   a. **ABRASIVE BLASTING**
      (1) ANSI Z9.4 1997, Abrasive Blasting Operations - Ventilation and Safe Practices.
      (2) 29 CFR 1910.94 Ventilation
      (3) 42 CFR 84

   b. **ASBESTOS**
      (1) AR 40-5, Preventive Medicine, 15 October 1990. *[05/2002 Being Updated]*
      (2) AR 200-1, Environmental Protection and Enhancement, Chapter 8, 21 February 1997.
      (3) TB MED 513, Guidelines for the Evaluation and Control of Asbestos Exposure, 15 December 1986. *[05/2000 Under Revision as DA PAM 40-513]*
      (4) TG 157, USAEHA, The Installation Asbestos Management Program Assessment Checklists, July 1994.
      (5) 29 CFR 1910.1001
      (6) 29 CFR 1926.58 (prior to 1994 CFR)
      (7) 29 CFR 1926.1101

(8) MEMORANDUM SGPS-PSP, OTSG, subject: AMEDD Role Supporting Asbestos Abatement/Asbestos Management Programs, 19 Jan 89.

(9) EPA, Guidance for Controlling Asbestos-Containing Materials in Buildings, June 1985.

(10) DD Form 2493-1 (Asbestos Exposure, Part I--Initial Medical Questionnaire)

(11) DD Form 2493-2 (Asbestos Exposure, Part II--Periodic Medical Questionnaire)

(12) EPA NESHAPS Asbestos Regulation (40 CFR 61, Subpart M).

c. **BATTERY CHARGING ROOM**

(1) TG 022, USAEHA, page 81, Industrial Hygiene Evaluation Guide, October 1975. *[Out of Print]*

(2) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

d. **BIRD AND BAT MANURE**

(1) TG 142, USAEHA, Managing Health Hazards Associated with Bird and Bat Excrement, Dec 1992.

e. **BLOODBORNE PATHOGENS**

(1) 29 CFR 1910.1030

(2) TG 190, USAEHA, Guide to Managing Occupational Exposure to Bloodborne Pathogens, Jan 94.

f. **CHEMICAL AGENT RESISTANT COATING (CARC) PAINT**

(1) TG 144, USAEHA, Guidelines for Controlling Health Hazards in Painting Operations, 24 August 1987.

(2) DA LTR, USAEHA, HSHB-MI-WR, subject: Respiratory Protection When Spraying CARC, 19 November 1992.

(3) TM 43-0139, Painting Instructions for Army Material, 27 July 19881 Aug 86.

(4) MEMORANDUM SGPS-PSP, OTSG, subject AMEDD, Occupational Health Requirements in Support of Painting in the Army, 22 February 1985.

(5) AR 750-1, Army Materiel Maintenance Policy and Retail Maintenance Operations (Prohibits welding on CARC paint) 1 July 1996.

g. **CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR, EXPLOSIVE (CBRNE)**

(1) DODI 2000.gg, DOD Installation CBRNE Emergency Response Guidelines.

(2) DHHS, NIOSH Pub No. 2002 139, Guidance for Protecting Building Environments from Airborne Chemical, Biological, or Radiological Attacks, May 2002.

(3) TG 275, USACHPPM, Personal Protective Equipment Guide for Medical Treatment Facility Personnel Handling Casualties from Weapons of Mass Destruction and Terrorism Events. *[Draft]*

h. **CONFINED SPACE**

(1) 29 CFR 1910.146 (Confined Space Entry)
(2) 29 CFR 1910.147 (Lockout/Tagout)
(3) ANSI Z117.1-Safety Requirements for Confined Spaces, 1995.
(4) SOP for ARNG Confined Space Entry Program, 25 April 1991.
(5) Letter, US Dept of Labor (DOL) addressed to Vanessa Char, 22 Apr 1994.
(6) OSHA Instruction STD 1-7.3, US DOL, subject: 29 CFR 1910.147, the Control of Hazardous Energy (Lockout/Tagout)--Inspection Procedures and Interpretive Guidance, 11 Sep 90.
(7) DHHS, NIOSH Pub No. 87113, A Guide to Safety in Confined Spaces, July 1987.
(8) Confined Space Entry Program for Helicopters, 2003.

i. **DESIGN REVIEW**

(1) DG 415-1, Design Guide for Armories, current.
(2) DG 415-2, Design Guide for Logistics Facilities, current.
(3) DG 415-3, Design Guide for Training Site Facilities, current.
(4) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.
(5) TI-300, 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.
(6) UFGS 15940A, Overhead Vehicle Tailpipe (and welding Fume) Exhaust Removal Systems, December 2001.
(7) ASHRAE, Standard 62-2002, Ventilation for Acceptable Indoor Air Quality.
(8) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

j. **ERGONOMICS**

(1) DA PAM 40-21, Medical Services, Ergonomics Program, 15 May 2000.
(2) ANSI Z-365, Management of Work Related Musculoskeletal Disorders, 2000.
(3) 29 CFR 1910. *[PROPOSED STANDARD]*

k. **FLAMMABLE STORAGE ROOM**

(1) 29 CFR 1910.106
(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

l. **HAZARD COMMUNICATION**

(1) 29 CFR 1910.1200
(2) NGR 385-10, Chapter 6

m. **HEARING CONSERVATION**

(1) DA PAM 40-501, Medical Services, Hearing Conservation Program, 10 December 1998.

(2) TG 181, USAEHA, Noise Dosimetry and Risk Assessment, May 1999.

(3) TG 175, USAEHA, Readiness thru Hearing Conservation: Guide for Unit Commanders and Supervisors, June 1999.

(4) 29 CFR 1910.95

n. **INDOOR AIR QUALITY (IAQ)**

(1) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

(2) USACERL Technical Report P-91/42, IAQ Management for Operations and Maintenance Personnel, September 1991.

(3) EPA 400/1-91/003 or DHHS, NIOSH, Publication No. 91-114, Building IAQ, A Guide for Building Owners and Facility Managers, December 1991.

(4) ASHRAE, Standard 62-2002, Ventilation for Acceptable IAQ.

(5) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

(6) NIOSH, IAQ Selected References, Sep 1989.

(7) OSHA Instruction CPL 2-2.20B CH-1, Directorate of Technical Support, 13 Nov 90.

(8) DA PAM 25-52, Mail Facility Security and Handling Suspicious Mail, 6 November 2001.

(9) ASTM, D 5952-96, 10 May 1996.

o. **INDOOR FIRING RANGES**

(1) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(2) NGR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges, 30 March 1990. *[11/02 Under Revision]*

(3) CEHND 1110-1-18, USACE Design Manual for Indoor Firing Range, June 1990.

(4) HQDA LTR, Office of the Adjutant General, DACS-SF, subject: Inspection and Evaluation of US Army Indoor Firing Ranges, 26 March 1993.

(5) Departments of the Army and Air Force, NGB-ADE-OM, subject: All State Log Number (I920323) Indoor Range Clean-up at State Owned Armories, 28 July 1992.

(6) NIOSH, Technical Information, December 1975, subject: Lead Exposure and Design Considerations for Indoor Firing Ranges.

(7) All-States Ltr P01-0075, 5 December 2001.

(8) Information Paper, Alternative Ammunition, 15 March 1996.

(9) Information Paper, Bullet Traps, 26 April 1996.

(10) Information Paper, ARNG IFR Action Plan, 28 January 2002.

p. **LEAD**

(1) 29 CFR 1910.1025

(2) 29 CFR 1926.62

(3) 24 CFR 35.61 (HUD, Percentage of Lead in Paint)

(4) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(5) OSHA Instruction CPL 2-2.58, Office of Health Compliance Assistance, 13 December 1993.

(6) Federal Register, 18 April 1990, Vol. 55, No. 75, HUD, Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing, as amended, September 1990, Office of Public and Indian Housing, Department of Housing and Urban Development, 451 Seventh Street, SW, Washington, DC 20410.

(7) NIOSH, Request for Assistance in Preventing Lead Poisoning in Construction Workers, April 1992.

(8) EPA, Strategy for Reducing Lead Exposures, 21 Feb 91.

q. **LIGHTING**

(1) RP-1-1993, Office Lighting, ANSI/IESNA.

(2) RP-7-2001, Industrial Lighting, IES.

r. **OCCUPATIONAL VISION**

(1) DA PAM 40-506, Medical Services, The Army Vision Conservation and Readiness Program, 20 July 2001.

(2) ANSI Z87.1, Practice for Occupational and Educational Eye and Face Protection, 1989, Change A, REAF 1998.

(3) ANSI Z358.1 for Emergency Eyewash and Shower Equipment, 1998.

(4) OTSG Memorandum SGPS-PSP, subject: Acanthameoba Keratitis and Eyewash Stations, 8 May 89.

(4) 29 CFR 1910.133

s. **PAINT SPRAY BOOTH**

(1) NFPA No. 33, Standard for Spray Application Using Flammable and Combustible Materials, 1995.

(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

(3) 29 CFR 1910.94

(4) 29 CFR 1910.107

(5) ANSI Z9.3-1995 for Exhaust Systems - Spray Finishing Operations - Safety Code for Design, Construction, and Ventilation.

(6) ANSI Z9.2-2001, Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems.

t. **PERSONAL PROTECTIVE EQUIPMENT**

(1) Quick Selection Guide to Chemical Protective Clothing, 2nd edition, Forsberg, K and Mansdorf, S., 1993.

(2) Chemical Protective Clothing, Vol 1 and 2, Johnson, J. and Anderson, K., American Industrial Hygiene Association, 1990.

(3) Guidelines for the Selection of Chemical Protective Clothing, 3rd Edition, ACGIH, Inc., Feb 1987.

u. **RADIATION PROTECTION PROGRAM**

(1) NGR 385-11, Safety, Ionizing and Nonionizing Radiation Protection, 18 February 1999.

(2) AR 11-9, Army Radiation Safety Program, 28 May 1999.

(3) 29 CFR 1910.96

(4) 29 CFR 1910.97

v. **RESPIRATORY PROTECTION**

(1) AR 11-34, The Army Respiratory Protection Program, 15 February 1990. *[11/02 Being Updated]*

(2) 29 CFR 1910.134

(3) 42 CFR 84

(4) TB MED 502, Respiratory Protection Program, February 1992. *[11/02 Being Updated as DA PAM 40-502]*

(5) ANSI/CGA G-7.1-1997, Commodity Specification for Air.

(6) ANSI Z88.2-1992, Standard for Respiratory Protection.

w. **SANITATION**

(1) ANSI Z4.1-1986, Change REAF 1995, Sanitation in Places of Employment-Minimum Requirements.

(2) 29 CFR 1910.141

x. **SMOKING**

(1) AR 600-63, Army Health Promotion, 28 April 1996.

(2) DODI 1010.15, Smoke-Free DOD Facilities, 2 January 2001.

(3) DODD1010.10, Health Promotion, 11 March 1986.

y. **VEHICLE EXHAUST**

(1) ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th Edition, 2001.

(2) TI-300f 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

z. **WELDING OPERATION**

(1) 29 CFR 1910.252

(2) 29 CFR 1910.253

(3) 29 CFR 1910.254

(4) ANSI/AWS Z49.1-1999, Safety in Welding and Cutting and Allied Processes.

(5) TM 5-805-7, Welding Design, Procedures and Inspection, 20 May 85.

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 $\mu g/ft^2$) and windowsills (250 $\mu g/ft^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of 200 $\mu g/ft^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 $\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 $\mu g/ft^2$ on floors and 250 $\mu g/ft^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

PA 765

INDUSTRIAL HYGIENE SURVEY
PENNSYLVANIA

SURVEY DATE	07-01-03

FACILITY	Lower Building		
ADDRESS	1000 Bridge Street		
	Lehighton, PA 18235		
CONTACT	SFC [redacted] Non-Responsive		
PHONE	610-377-9373		
DATE BUILT	1962	FACILITY SIZE	SqFt
RANGE	CLOSED		
ASSISTED			

STAFF - 4 DRILL - 60
RENTAL -

PAINT CONDITION:			
INDOORS	BLOCK	Sample?	N
OUTDOORS	BRICK	Sample?	N

ASBESTOS		
Area/condition	NO	
Area/condition	NO	

WATER DAMAGE		
Area/condition	NO	
Area/condition	NO	

HOUSEKEEPING	GOOD

TIME	AREA	CO	CO_2	TEMP	RH
1105	OUTSIDE AIR	0.0	430	85.7°F	68.5 %
1110	CLASS RM	0.0	524	83.1°F	67.3 %
1114	ORDERLY	0.0	508	75.4°F	65.1 %
1119	CLASS RM	0.0	518	78.3°F	64.2 %
1124	RECRUIT	0.0	508	76.2°F	63.8 %
1131	(W) LATRINE	0.0	510	74.1°F	64.6 %
1134	WT RM	0.0	511	72.6°F	65.1 %
1138	BREAK RM	0.0	513	73.1°F	66.2 %
				°F	%
				°F	%
				°F	%
				°F	%
				°F	%
				°F	%
				°F	%
				°F	%
				°F	%

INDUSTRIAL HYGIENE SURVEY
PENNSYLVANIA

WIPE SAMPLES	ARMORY	Picture #
PA Leh-03 182 03	~~HVAC supply side of filter~~ CLASS RM WINDOW SILL	1
PA Leh-03 " " 04	~~HVAC on fan side of filter~~ ORDERLY OFF WINDOW SIL	2
PA Leh-03 " " 05	~~Assembly Hall~~ KITCHEN WINDOW SILL	3
PA Leh-03 " " 06	~~Kitchen~~ DRILL FLR SNACK MACHINE	4
PA Leh-03 " " 07	Supply fan grille in occupied office M) LATRINE	5
PA Leh-03 " " 08	BLANK	
PA Leh-03 " " 09	RM 4 HEATER VENT	6
PA Leh-03 " " 10	RM 6 PIPE	7
PA Leh-03 " " 11	LOBBY MAIN ENTRANCE AIR VENT	8
PA Leh-03 " " 12	RM 9 WEIGHT RM WINDOW SILL	9
PA Leh-03 " " 13	BREAK ROOM TV STAND	10
PA Leh-03 " " 14	BLANK	
PA Leh-03		
PA Leh-03		
PA Leh-03		
PA Leh-03		
PA Leh-03		
PA Leh-03	BLANK	

AIR SAMPLING

Sample #	Pump #	Person/Area	Preset Rate	Posteal Rate	Time On	Time Off	Run Time	Volume (Liters)
PA Leh-03 181 01	618349	Person	3.09	3.02	0958	1230	92	277.8
PA Leh-03 182 02	618393	Kitchen	3.311	3.249	1101	1229	88	291.4
PA Leh-03								

INDUSTRIAL HYGIENE SURVEY
PENNSYLVANIA

CONVERTED INDOOR FIRING RANGE WIPE SAMPLES		
PA Leh-03 [illegible] 15	Inside any ~~remaining ventilation duct~~work FLR [illegible]	11
PA Leh-03 " " 16	~~Exhaust ventilation~~ system FLR outside [illegible] Storage	12
PA Leh-03 " " 17	~~Bullet trap~~ FLR outside 4th PLT Storage	13
PA Leh-03 " " 18	Light fixtures CAGE 2nd PLT Storage	14
PA Leh-03 " " 19	Overhead heaters FLR 1st PLT Storage	15
PA Leh-03 " " 20	~~Stored items~~ BLANK	
PA Leh-03	Floor	
PA Leh-03	Outside the range	
PA Leh-03	Blank	

HVAC SYSTEM: evaluate maintenance schedule and quality of maintenance for HVAC syst.

PROGRAMS		
CONFINED SPACES?	Y – N	
HEARING CONSERVATION?	Y – N	
RESPIRATORY PROTECTION?	Y – N	
HAZCOM?	Y – N	
PPE?	Y – N	
TRAINING?	Y – N	

VENTILATION:

NOISE:

ORDERLY RM
40, 42, 30, 38, 40 — 38.0 Sc Avg

CLASS RM
50, 42, 40, 44, 38 — 42.8

LOCKER RM
40, 36, 38, 42, 40 — 39.2

SHOWER RM
40, 32, 46, 42 — 40.0

BTRY CDR
50, 42, 46, 48 — 46.5

WT RM
40, 40, 42, 36, 38 — 39.2

BREAK RM
36, 42, 40, 44, 50 — 42.4

KITCHEN
50, 54 34, 44, 36 — 43.6

DRILLER
40, 34, 36, 42, 46 — 39.6

PENNSYLVANIA ARMORY
INDUSTRIAL HYGIENE SURVEY
EQUIPMENT LISTING

Air Sampling Pumps
SKC Aircheck Samplers 224-44XR
S/N: 647609, 647610, 647626, 647627, 647654, 648324, 648349, 648393

Air Pump Calibrator
DryCal Base m: DC-1B Rev 2.06P S/N B 1827
DryCal Med Cell: m: DC-MC-1 Rev E S/N 1745

Indoor Air Quality
TSI Q-Trak m: 8550 S/N 11050
Metrosonics Carbon Monoxide Logger m: pm7700 S/N 1129
Metrosonics CO Sensor m: gs 7701 S/N 5073

Noise
Quest Sound Level Meter m: 2800 S/N HS4090023
Quest Octave Filter Set m: OB-300 S/N HV4070020
Quest Acoustic Calibrator m: QC-10 S/N QE4090140
Metrosonics db-3080 Noise Dosimeters S/N 4667, 4685
Microphones

ATTACHMENT E

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland




Industrial Hygiene Survey
for PAARNG – Lehighton (Lower Building) Readiness Center
1000 Bridge Street
Lehighton, Pennsylvania 18235

AECOM
January 2013
Document No.: 60276421.1/Lehighton (Lower Building) Readiness Center

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland

Industrial Hygiene Survey for PAARNG – Lehighton (Lower Building) Readiness Center 1000 Bridge street Lehighton, Pennsylvania 18235

Non-Responsive
Industrial Hygienist

Non-Responsive
Project Manager

Non-Responsive
Northeast District Health & Safety Manager

AECOM
January 2013
Document No.: 60276421.1/Lehighton (Lower Building) Readiness Center

AECOM

Contents

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Executive Summary

On November 16, 2012, AECOM conducted an Industrial Hygiene (IH) survey of the Lehighton (Lower Building) Readiness Center facility located at 1000 Bridge Street in Lehighton, Pennsylvania. Non-[redacted], SSG was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Lehighton (Lower Building) Readiness Center operations.

The industrial hygiene survey was generally conducted in accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings", dated January 2012.

The Lehighton (Lower Building) Readiness Center is currently staffed by two personnel. Some of the personnel were not present at the time of the survey due to active duty assignments or other off-site responsibilities. The facility is configured as an administrative area and a Drill/Assembly Hall.

Personnel at the facility were undertaking normal daily activities, which are primarily administrative in nature, at the time of the survey.

The activities undertaken during the Industrial Hygiene survey included facility descriptions, lead wipe/air sampling, evaluation of housekeeping, illumination studies, ventilation system evaluation, and a review of the physical building condition.

The Lehighton (Lower Building) Readiness Center is housed in a one-story masonry building, and consists of approximately 70% administrative space and 30% Assembly Hall.

Lighting levels measured throughout the facility were generally inadequate as per American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

Wipe samples collected for lead-containing dust throughout the facility did not indicate lead levels above the ARNG action level.

No peeling lead-based paint was observed at the Lehighton Readiness Center during this survey.

No visible damaged suspect asbestos-containing material (ACM) was observed.

No visible water damaged or visible signs of mold growth were observed.

There is no Heating, Ventilation & Air Conditioning (HVAC) system at the Lehighton (Lower Building) Readiness Center. Natural gas boilers feed radiant heaters throughout the building including storage areas, the assembly hall as well as provide heat for the facilities domestic water.

1.0 Facility Description and Operations

The Lehighton (Lower Building) Readiness Center was constructed in early 1950, and improved with the reclamation of the former firing range in mid-1990 into supply/storage rooms. The site building is a one-story slab on-grade administrative masonry structure. The building consists of two main sections. The larger one-story section, consists primarily of offices, training/classroom, locker/shower rooms, storage and administrative areas, and is finished with sheetrock walls, lay-in ceiling tiles and floor tile. The two-story Assembly Hall area is finished with painted block walls and a concrete floor. According to site personnel there is a former firing range at the facility; however it has been converted into supply/storage rooms.

The primary activity at the Lehighton (Lower Building) Readiness Center is routine administrative duties and occasional use by units for support and training of soldiers. The Assembly Hall is rented out for limited civic activities such as group meetings, school activities, trade shows and to other related local groups and organizations. The Lehighton (Lower Building) Readiness Center is currently staffed by two personnel. Vehicle maintenance activities are not conducted at the facility.

2.0 Sampling in Readiness Centers

2.1.1 Wipe Sampling

Wipe sampling for lead was conducted in the Assembly Hall and administrative areas following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost wipes. Samples were collected in areas that are not frequently cleaned and showed signs of dust whenever possible.

The following table presents the results of the lead wipe sampling conducted at the facility.

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
Wipe – 001	Assembly Hall – table	<110 ug/ft^2
Wipe – 002	Kitchen – counter	<110 ug/ft^2
Wipe – 003	Office – desk	<110 ug/ft^2
Wipe – 004	Office – file cabinet	<110 ug/ft^2
Wipe – 005	Administrative Corridor – floor	<110 ug/ft^2
Wipe – 006	Former Firing Range (Caged Storage) - cage	<110 ug/ft^2
Wipe – 007	Former Firing Range (Caged Storage) - floor	<110 ug/ft^2
Wipe - 008	Storage Room/Fire Range Corridor - floor	<110 ug/ft^2

ug/ft^2 = Micrograms per square foot.

Wipe samples collected in association with the administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U.S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 micrograms per square foot (ug/ft^2) for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas. Indoor firing ranges shall be converted in accordance to NG PAM 420-15. Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

Per Shirley Chapman of NGB-IH, the requirement for Lead air sampling has been removed from the Statement of Work. It was reported that historically, air samples collected at administrative facilities are typically below the limit of detection.

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls appeared to be generally in good condition. Concrete flooring was generally tiled or unpainted.

3.1.2 Suspect Asbestos Containing Materials

AECOM did not observe damaged, friable suspect asbestos containing materials (ACM) in readily accessible areas of the Lehighton (Lower Building) Readiness Center during this survey. Thermal system piping is typically covered in typical fiberglass insulation with associated fittings and appeared in good condition.

Other typical miscellaneous building materials observed throughout the building but not sampled include floor tiles and associated mastic, cove base and associated mastic, ceiling tiles, and window glazing compound and caulks.

3.1.3 Water Damage/Mold

AECOM did not observe evidence of water intrusion during this survey.

3.1.4 Housekeeping

The Lehighton (Lower Building) Readiness Center was observed to be generally clean and orderly during this assessment. AECOM did not observe dust accumulation on readily accessible horizontal surfaces within areas commonly used in the facility.

3.1.5 Indoor Air Quality/ Ergonomics

The administration section of the building contains general office space. The administration section is generally utilized by all of the Lehighton (Lower Building) Readiness Center staff members including a recruiter. No Indoor Air Quality concerns were noted by the Lehighton (Lower Building) Readiness Center personnel.

The Lehighton (Lower Building) Readiness Center personnel did not report any ergonomics issues or concerns. Office furniture and accessories designed to promote ergonomically correct behaviors were observed.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (^{o} Fahrenheit), and relative humidity (as percentage) are presented in the following table.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (^{o}F)	Relative Humidity (%)
Outside	0.0	282	64.6	29.4
Foyer	0.0	751	67.9	29.8
Break Room	0.0	342	68.7	21.2
Mechanical Room	0.4	421	63.7	20.7
Orderly Room	0.4	290	66.3	25.4
Administrative Corridor	0.0	339	67.2	22.6
Classroom	0.0	318	69.0	24.9

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (^{o}F)	Relative Humidity (%)
Document Storage Office	0.1	391	69.3	21.8
Boiler Room	0.8	386	65.3	21.9
Facility Maintenance Office	0.0	363	67.9	23.4
Assembly Hall	0.2	267	67.8	21.8
Physical Fitness Room	0.1	280	68.1	22.7
Men's Restroom	0.3	254	69.6	19.8
Men's Locker Room	0.1	375	68.6	23.0
Caged Supply Storage (former fire range)	0.3	304	67.5	24.5
Kitchen	0.1	326	66.5	25.3
Maintenance Bay	0.4	456	65.6	29.1

Table 3-1 Guidelines:
Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard. OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.
Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.
Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 5.10.1).
Temperature: Winter (clothing insulation = 1.0 clo) Relative humidity 30-60% - Temp - 68 – 75°F
Summer Temp - 73 – 79°F. (Derived from ASHRAE Standard 55-2010)

4.0 Ventilation and HVAC System

4.1.1 Ventilation Systems and Potential for Contamination of Clean Air Sources

There is no Field Maintenance Shop (FMS) facility located at the Lehighton (Lower Building) Readiness Center. As such, the Readiness Center does not have a potential for contamination of clean air sources.

4.1.2 HVAC Maintenance

There is no HVAC system at the Lehighton (Lower Building) Readiness Center. Natural gas boilers feed radiant heaters throughout the administrative areas of the building including the Assembly Hall and provide heat for the facilities domestic water.

5.0 Lighting

Lighting levels in all areas were measured utilizing a Cal-Light 400 light meter that displays lighting levels in foot-candles. Lighting levels were generally inadequate.

Table 5-1: Light Survey

Location	Results – (Foot candles)	Met Standard (Y/N)	Standard*
Foyer	76.9	Y	10
Break Room	61.5	Y	10
Mechanical Room	10.8	N	30
Orderly Room	14.4	N	50
Administrative Corridor	80.1	Y	5
Classroom	52.8	Y	50
Document Storage Room	38.7	Y	30
Boiler Room	47.2	Y	30
Facility Maintenance Office	37.3	N	50
Assembly Hall	50.1	Y	10
Physical Fitness Room	46.8	Y	30
Men's Restroom	48.7	Y	5
Men's Locker Room	47.5	Y	7
Caged Supply Storage (former fire range)	39.7	Y	30
Kitchen	33.5	N	50
Maintenance Bay/Storage	45.6	Y	30
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI RP-7-01)			

6.0 Evaluation of Attached Garage

There is no attached garage associated with the Lehighton (Lower Building) Readiness Center. There is a Maintenance Bay which is currently used for storage.

7.0 Conclusions and Limitations

AECOM has conducted this survey in accordance with applicable OSHA methods and standard industrial hygiene practice. The following conclusions were based on the observations and assessments of activities that occurred during the on-site evaluation:

Housekeeping is performed regularly at the Lehighton (Lower Building) Readiness Center.

AECOM did not observe any damaged, friable suspect asbestos-containing materials at the Lehighton (Lower Building) Readiness Center.

AECOM did not observe peeling paint at the Lehighton (Lower Building) Readiness Center.

AECOM did not observe evidence of water intrusion at the Lehighton (Lower Building) Readiness Center.

Lighting levels measured throughout the facility were generally inadequate as per ANSI/IESNA RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

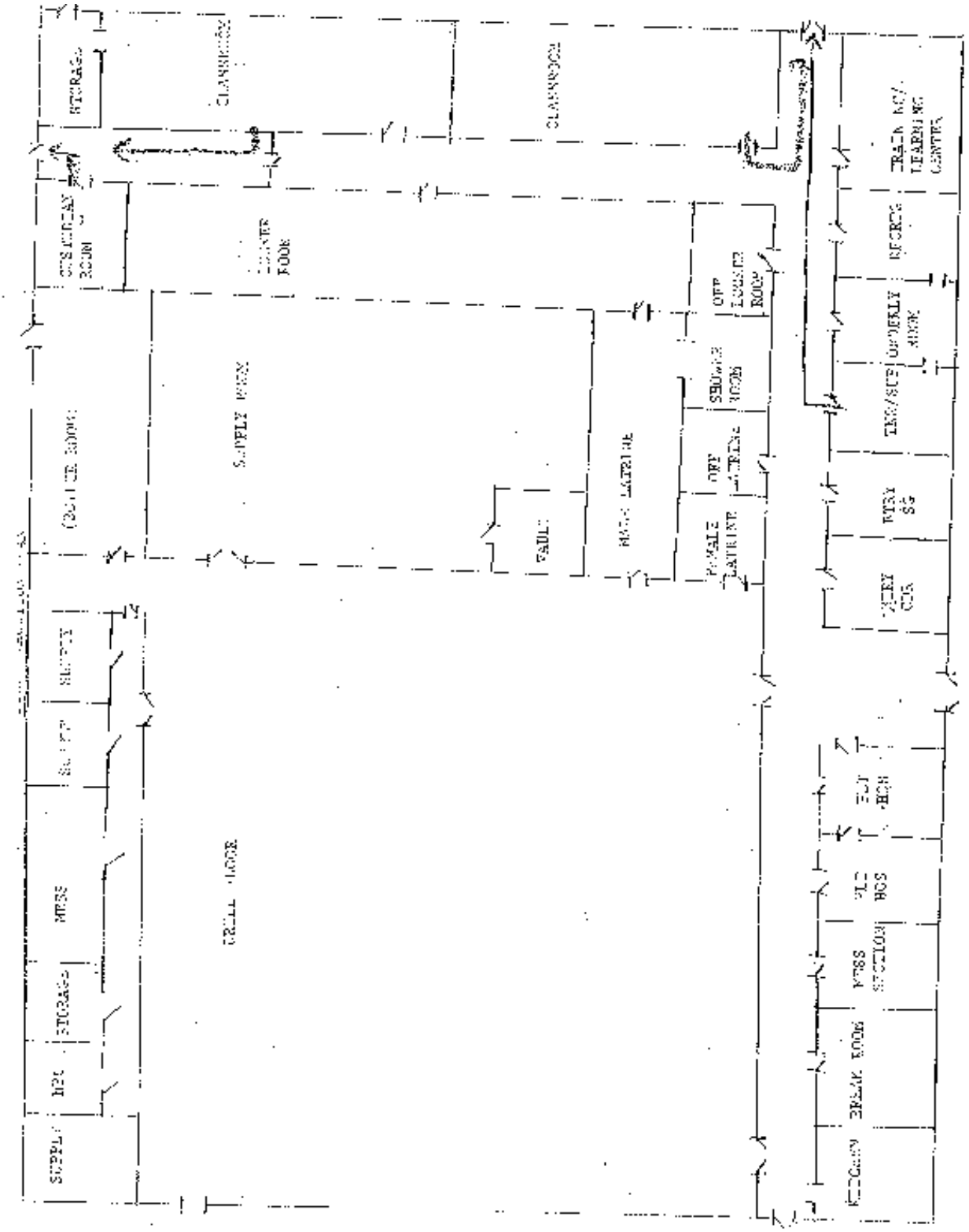
AECOM provided these services consistent with the level and skill ordinarily exercised by members of the profession currently providing similar services under similar circumstances at the time the services were provided. This statement is in lieu of other statements either expressed or implied. This report is intended for the sole use of National Guard Bureau – Army National Guard. The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, and use or re-use of this document, the findings, conclusions, or recommendations is at the risk of said user.

As with all such surveys, the results of the sampling represent conditions found on the date of the survey and may not represent conditions found at other times. Additionally, this survey was limited with respect to the specific parameters indicated above and should not be construed to be a comprehensive evaluation or a definitive representation of conditions within the facility. The information presented in this report is intended to be used as a guide to evaluate the need for further investigation or the need for modifications to the processes or procedures surveyed.

The Client recognizes and agrees that all testing and remediation methods have reliability limitations, no method nor number of sampling locations can guarantee that a condition will be discovered within the performance of the services as authorized by the Client. Additionally, the passage of time may result in a change in the environmental characteristics at this site. This report does not warrant against future operations or conditions that could affect the recommendations made. The results, findings, conclusions, and recommendations expressed in this report are based only on conditions that were observed during AECOM's inspection of the site.

Appendix A

Lehighton (Lower Building) Readiness Center Facility Layout



Appendix B

Lehighton (Lower Building) Readiness Center Photographs

AECOM

Photograph 1

View of Building Exterior

Photograph 2

View of Foyer

AECOM

Photograph 3

View of Assembly Hall

Photograph 4

View of Radiant Heater in Assembly Hall

Photograph 5

View of Kitchen

Photograph 6

View of Office

Photograph 7

View of Physical Fitness Room

Photograph 8

View of Locker Room

AECOM

Photograph 9

View of Flammable Storage Cabinet in Service Bay

Photograph 10

View of Boiler Room

Photograph 11

View of Classroom

Photograph 12

View of Caged Storage Area (former firing range)

Photograph 13

View of Break Room

Photograph 14

View of Administrative Corridor

Appendix C

Analytical Results

AECOM

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	Not Provided	Chain Of Custody:	514649
Address:	301-81 Old Bay Lane, Attn: ARNG-CXG-P, State Military Reservation	Job Location:	Lehighton, PA	Date Submitted:	11/30/2012
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM
		P.O. Number:	W912K6-09-A-0003	Date Analyzed:	12/7/2012 Report Date: 12/10/2012

Attention: Non-Responsive

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	Total ug	Final Result	Comments
1301669	Wipe-001	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
1301671	Wipe-002	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
1301672	Wipe-003	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
1301673	Wipe-004	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
1301674	Wipe-005	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
1301675	Wipe-006	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
1301676	Wipe-007	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
1301677	Wipe-008	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	

An AIHA (#100478) and NY ELAP (#10920) Accredited Laboratory

4475 Forbes Blvd. · Lanham, MD, 20706 · (301) 459-2640 · Toll Free (800) 346-9961 · Fax (301) 459-2643

AECOM

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	Not Provided	Chain Of Custody:	51464P		
Address:	301-81 Old Bay Lane, Attn: ARNG-CSG-P, State Military Reservation	Job Location:	Lehighton, PA	Date Submitted:	11/30/2012		
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM		
		P.O. Numbers:	W912K6-09-A-3003	Date Analyzed:	12/7/2012	Report Date:	12/10/2012

Attention: Non-[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	Total ug	Final Result	Comments

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(Mod-7000); Water: SM-3111B

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 500/R-93/200(10)-7010; Water: SM-3113B

See QC Summary for analytical results of quality control samples associated with these samples.

N/A = Not Applicable mg/Kg = parts per million (ppm) or a dry weight basis mg/L = parts per million (ppm)

%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)

Note: All samples were received in good condition unless otherwise noted.

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results

Final results for air and wipe samples are based on client supplied information nor verified by this laboratory.

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

Non-Responsive [redacted]

Analyst

Non-Responsive [redacted]

Technical Manager

An AIHA (#100478) and NY ELAP (#10920) Accredited Laboratory

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(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This Number For Inquires)

514649

Mailing/Billing Information:

1. Client Name: National Guard Bureau
2. Address 1: 301-H Old Bay Lane
3. Address 2: Attn: NGB-AVN-SIL State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:

(1) (Job Name):
(2) (Job Location): Lehighton PA
3. Job #: [illegible] P.O. #: W91ZRS-05-A-0003
4. Contact Person: Non-Responsive [redacted]
5. Submitted by: AECOM (Signature) Non-Responsive [redacted]

Reporting Info (Results provided as soon as technically feasible). If no TAT/Reporting Info is provided, AMA will assign defaults of 5-Day and email/fax to contacts on file.

AFTER HOURS (must be pre-scheduled)	NORMAL BUSINESS HOURS	REPORT TO:
☐ Hours/Date: Date Due: ____ ☐ 24 Hour Time Due: ____ Comments:	☐ Same Day ☐ Next Day ☐ 2 Day ☐ 3 Day ☒ 5 Day+ Date Due: 12/3/12 ☐ Results Required By Noon	Non-Responsive [redacted]

(Asbestos Analysis)

*PCM Air – Please Indicate Filter Type:
- ☐ NIOSH 7400 ____ (QTY)
- ☐ Fiberglass ____ (QTY)

TEM Air* – Please Indicate Filter Type:
- ☐ AHERA ____ (QTY)
- ☐ NIOSH 7402 ____ (QTY)
- ☐ Other (specify ____) ____ (QTY)

PLM Bulk
- ☐ EPA 600 – Visual Estimate ____ (QTY)
- ☐ EPA Point Count ____ (QTY)
- ☐ NY State Friable 198.1 ____ (QTY)
- ☐ Grav. Reduction ELAP 198.6 ____ (QTY)
- ☐ Other (specify ____) ____ (QTY)

MISC
- ☐ Vermiculite
- ☐ Asbestos Soil [illegible]

TEM Bulk
- ☐ ELAP 198.4/Chatfield ____ (QTY)
- ☐ NY State PLM/TEM ____ (QTY)
- ☐ Residual Ash ____ (QTY)

TEM Dust*
- ☐ Qual. (presence) Vacuum/Dust ____ (QTY)
- ☐ Quan. (structures) Vacuum D5755-95 ____ (QTY)
- ☐ Quan. (structures) Dust D6480-99 ____ (QTY)

TEM Water
- ☐ Qual. (presence) ____ (QTY)
- ☐ ELAP 198.2/EPA 100.2 ____ (QTY)
- ☐ EPA 100.1 ____ (QTY)

☒ All samples received in good condition unless otherwise noted. (TEM Water samples ____ °C)

If field data sheets are submitted, there is no need to complete bottom section.

(Metals Analysis)
- ☐ Pb Paint Chip ____ (QTY)
- ☒ *Pb Dust Wipe (wipe type: Lexspec) 8 (QTY)
- ☐ *Pb Air ____ (QTY)
- ☐ Pb Soil/Solid ____ (QTY)
- ☐ Pb TCLP ____ (QTY)
- ☐ Drinking Water ☐ Pb ____ (QTY) ☐ Cu ____ (QTY) ☐ As ____ (QTY)
- ☐ Waste Water ☐ Pb ____ (QTY) ☐ Cu ____ (QTY) ☐ As ____ (QTY)
- ☐ Pb Furnace (Media ____) ____ (QTY)

(Fungal Analysis)

Collection Apparatus for Spore Traps/Air Samples: ____
Collection Media ____
- ☐ *Spore Trap ____ (QTY) ☐ Surface Vacuum Dust ____ (QTY)
- ☐ *Surface Swab ____ (QTY) ☐ Culturable ID Genus (Media ____) ____ (QTY)
- ☐ *Surface Tape ____ (QTY) ☐ Culturable ID Species (Media ____) ____ (QTY)
- ☐ Other (Specify ____) ____ (QTY)

SAMPLE INFORMATION

CLIENT ID #	SAMPLE LOCATION/ID	DATE/TIME	VOL (L)/Wipe Area	PCM	PLM	TEM	LEAD	MOLD	AIR	BULK	DUST	WIPE	SOIL	TAPE	SWAB	CLIENT CONTACT (LABORATORY STAFF ONLY*)
wipe 001	DHall table	11/16	Lexspec				✓									Date/Time: Contact: By:
wipe 002	kitchen counter															
wipe 003	office desk															
	SEE ATTACHED FIELD DATA SHEETS															
wipe 004	office cabinet															Date/Time: Contact: By:
wipe 005	Admin Hall floor															
wipe 006	F.Range cage															
wipe 007	F.Range floor															
wipe 008	Adj Corridor floor	↓	↓				↓									Date/Time: Contact: By:

LABORATORY STAFF ONLY (CUSTODY)

1. Date/Time RCVD 11 / 30 / 12 @ 1000 Via FEDEX By: Non-Responsive [redacted]
2. Date/Time Analyzed: ___ / ___ / ___ @ ___ By: ___ Sign: ___
3. Results Reported To: ___ Via: ___ Date: ___ / ___ / ___ Time: ___ Initials: ___
4. Comments: 7941 7694 5331

Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. http://www.osha.gov/comp-links.html

2. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998. http://www.dtic.mil/whs/directives/corres/pdf/605501p.pdf

3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF

4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://armypubs.army.mil/epubs/pdf/R40_5.PDF

5. AR 385-10, The Army Safety Program, 23 August 2007; Rapid Action Revision (RAR) issue date: 4 October 2011. http://armypubs.army.mil/epubs/pdf/R385_10.PDF

6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://armypubs.army.mil/epubs/pdf/P40_501.pdf

7. DA PAM 40-11, Preventive Medicine, 22 July 2005, RAR issue date: 19 October 2009. http://armypubs.army.mil/epubs/pdf/p40_11.pdf

8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://armypubs.army.mil/epubs/pdf/P40_503.PDF

9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf

10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current Ed.

11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.

12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.

13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.

14. ANSI/ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality.

15. RP-1-2004, Office Lighting, ANSI/IESNA.

16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.

17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.

18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.

19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf

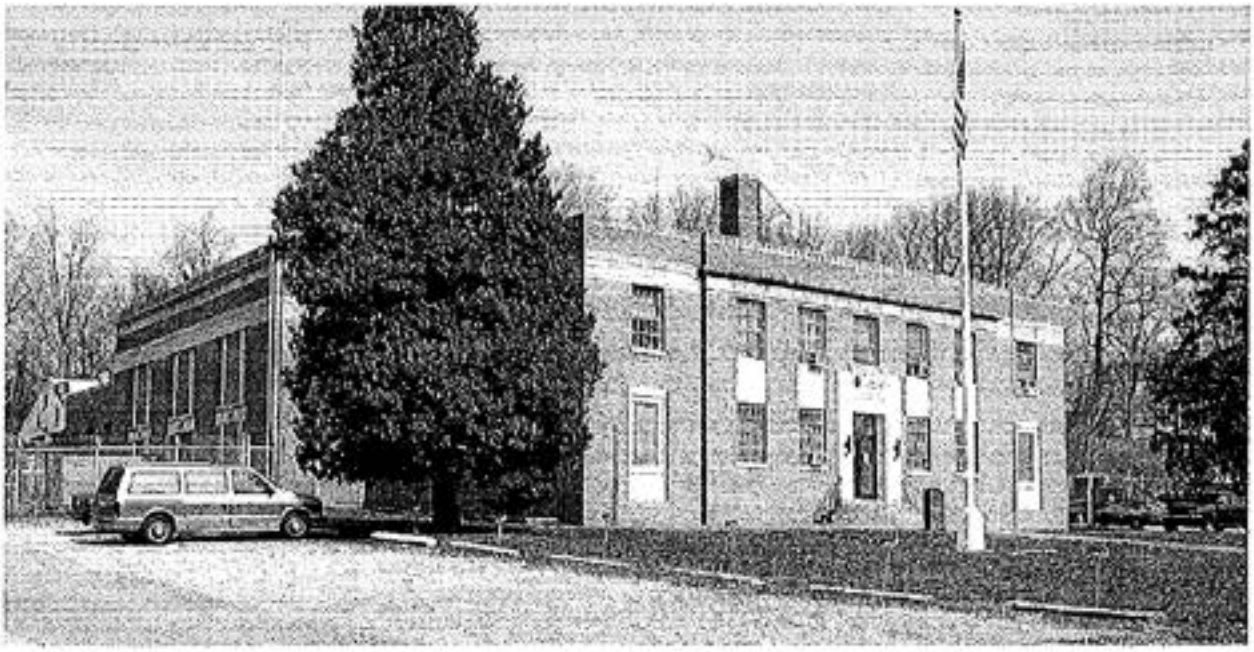
INDUSTRIAL HYGIENE SURVEY

TRP B 1ST SQDN 104TH CAV
OGONTZ AVENUE
PHILADELPHIA, PA

April 2, 2003

OPTECH
OPERATIONAL TECHNOLOGIES
CORPORATION

TRP B 1ST SQDN 104TH CAV
OGONTZ AVENUE
PHILADELPHIA, PENNSYLVANIA
INDUSTRIAL HYGIENE SURVEY



1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Ogontz Avenue Armory in Philadelphia, Pennsylvania on April 2, 2003. NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. Non-Responsive from OpTech, completed this survey. Non-Responsive a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the IH Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D. A copy of the field notes and a list of industrial hygiene equipment utilized during this survey are presented in Attachment E.

2.0. EXECUTIVE SUMMARY

2.1. No significant indoor air quality problems were noted. Illumination levels were below recommended minimum standards in most areas of the facility. Wipe samples for inorganic lead were taken. Sample results did not exceed recommended levels. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 $\mu g/ft^2$. This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. Air sampling for inorganic lead was taken. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building. Paint is pealing in the north stairs and on a basement wall. Samples were taken and analyzed for lead content. The Environmental Protection Agency (EPA) considers paint with a lead content equal to or greater than 0.5% by weight as contaminated. Therefore, the pealing paint in both locations is not considered lead contaminated.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	**TRP B 1ST SQDN 104TH CAV**		
ADDRESS			
	5350 Ogontz Avenue		
	Philadelphia, PA 19141		
CONTACT	**LTC** Non-Responsive		
PHONE	**215-329-2622**		
DATE BUILT	**1938**	**FACILITY SIZE**	**22,665 sq.ft.**
INDOOR FIRING RANGE	**CLOSED**		**2 floors plus basement**
ASSISTED	**SGT** Non-R		
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	**9**		
TRADITIONAL (MIL)	**190**		
CHILD ACTIVITIES	**Parties and receptions held almost every weekend.**		
ADULT ACTIVITIES			

3.1.1. The exterior of the building is brick and appears to be in good condition. The interior has been kept in good condition. The former indoor firing range was awaiting to be cleaned and is used as a locker room.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 indoor air quality standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ANSI/ASHRAE 62-2001 states that concentrations of 1,000 ppm CO_2 are not considered a health risk. However, USAF Armstrong Laboratories and other independent studies have concluded that health complaints begin at levels greater than 600 ppm, with significantly greater complaints above 800 ppm.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ANSI/ASHRAE 62-2001 recommends that the temperature range should be between 73 to 77 degrees Fahrenheit (°F) during the summer and 68 to 75°F during the winter. Relative humidity levels should remain between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE 1
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO2 (ppm)	Temp. (°F)	RH (%)
0900	Outdoors - Background	0.0	410	60.2	35.6
0930	Entry	0.0	445	72.4	36.0
0945	Basement - Corridor	0.0	433	67.1	40.8
0955	Basement – Supply (occupied)	0.0	499	65.5	42.3
1000	Basement – N-S Corridor	0.0	421	65.2	44.3
1010	Basement - Locker Room – Former Range	0.0	428	66.5	41.3
1015	Basement - Male Locker Room	0.0	417	68.2	40.5
1020	1ST Floor – Orderly Room (occupied - spectators)	0.0	486	74.7	32.7
1035	1ST Floor - Recruiting (occupied)	0.0	431	77.8	29.6
1040	1ST Floor - Kitchen	0.0	435	79.2	29.4
1045	Drill Floor	0.0	404	604	76.7
1055	Outdoors – Background	0.0	338	66.2	35.2
1100	2ND Floor - Copier Room (occupied)	0.0	548	75.5	33.3
1105	S3 Office (occupied)	0.0	486	78.9	30.2
1110	1ST Squadron	0.0	402	78.6	32.3

3.2.5. No significant indoor air quality problems were noted. Carbon monoxide and carbon dioxide levels were within recommended levels.

3.3. ILLUMINATION

3.3.1. Illumination levels were taken in most areas of the facility. Outdoor sunlight was excluded, as much as possible for this survey, by closing doors and blocking sunlight. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 – 463); and Industrial Lighting, ANSI/IES RP7, 1991, (pages 33 – 38). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
1ST FLOOR				
Orderly Room	30 – 56	44	70	NO
Desks	32 – 42	37	70	NO
Commander's Office	42 – 52	46	70	NO
Desk	48 – 50	49	70	NO
Corridor	8 – 26	18	7.5	YES
Entry	24 – 42	33	15	YES
Recruiting Office	50 – 60	55	70	NO
Desk	46 – 48	47	70	NO
Kitchen	18 – 32	28	75	NO
Fitness Area	10 – 18	14	50	NO
Chair/Table Storage	10 – 18	14	30	NO
N. Stairs (skylight influenced)	64 – 110	93	7.5	YES
S. Stairs (skylight influenced)	18 – 38	26	7.5	YES
2ND FLOOR				
Copier Room	48 – 90	70	75	NO
Conference Room	44 – 76	59	30	YES
S3 Office	48 – 74	65	70	NO
Desks	38 – 54	46	70	NO
1st Squadron (front area)	30 – 32	31	70	NO
Office	46 – 64	55	70	NO
Desks	52	52	70	NO
Corridor (1/2 lights turned off)	8 – 22	15	7.5	YES
Office A	40 – 58	48	70	NO
Desks	40 – 78	59	70	NO
Desk – supplemental	110	110	70	YES

Location	Luminance Range (fc)	Average	Standard	Standard Met
Room 13 – Office	42 – 52	47	70	NO
Desk	42	42	70	NO
Room 14 – Commander	68 – 96	83	70	YES
Desk	92	92	70	YES
Room 16 – Office	42 – 68	53	70	NO
Desks	42 – 62	52	70	NO
BASEMENT				
Stairs to Basement	14 – 28	20	7.5	YES
HET Supply Office	16 – 40	27	70	NO
Desks	22 – 32	26	70	NO
Corridor N – S	4 – 24	15	7.5	YES
Locker Room	6 – 56	34	40	NO
Male Latrine	22 – 44	30	40	NO
Showers	12 – 18	15	20	NO

3.3.2. Levels were below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting would improve some areas.

3.4. LEAD STUDIES

3.4.1. LEAD WIPE SAMPLES

3.4.1.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples were taken at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot ($\mu g/ft^2$) and are listed below in Table 3. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
LEAD WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Phi-03092-04	Basement Supply Office	143
PA Phi-03092-05	Orderly Room	35
PA Phi-03092-06	Assembly Hall NE – Top of Soda Machine	BDL
PA Phi-03092-07	Kitchen Shelf above Stove	BDL
PA Phi-03092-08	2nd Floor Room 16	25
PA Phi-03092-09	BLANK Sample	BDL

µg = micrograms per sample BDL = Below Detection Limits

3.4.2. ADDITIONAL LEAD SAMPLING

3.4.2.1. Air sampling for inorganic lead plus additional wipe samples were taken during this survey. These samples were taken to further analyze the extent of contamination should the first five samples indicate a possible hazard.

3.4.3. WIPE SAMPLING RESULTS

3.4.3.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 µg/ft². This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. All samples were below the 200 µg/ft² criteria.

3.4.3.1.1. EPA standards (40 CFR 745.227(e)(8)(viii)) are not directly applicable because they are developed for floors (40 µg/ft²), windowsills (250 µg/ft²) and window troughs (400 µg/ft²) in residential and childcare facilities. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards. In addition, the armories are not residential facilities and rarely have childcare activities associated with them.

3.4.3.1.2. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead. In workplaces where lead is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

3.4.3.1.3. OSHA used to cite a level of 200 µg/ft² in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

3.4.3.1.4. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, USACHPPM has determined that 200 $\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

3.4.3.1.5. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

3.4.4. AIR SAMPLING

3.4.4.1. Air Sampling for inorganic lead was performed during this survey. Table 4 lists the results of these samples, and is reported in milligrams per cubic meter (mg/m^3) of air.

TABLE 4.
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
Area – Basement	PA Phi-03092-01	Lead	<0.002 mg/m^3	0.05 mg/m^3	YES
Non-Responsive	PA Phi-03092-02	Lead	<0.002 mg/m^3	0.05 mg/m^3	YES
Area – Drill Floor	PA Phi-03092-03	Lead	<0.002 mg/m^3	0.05 mg/m^3	YES

mg/m^3 = milligrams per cubic meter < = less than (below detection limit)

3.4.4.2. Air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this building.

3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION DAMAGE

3.5.1.1. No water intrusion problems were reported or observed within the building.

3.5.2. LEAD PAINT

3.5.2.1. Chipping paint was noted in two areas of the building, in the supply room and the first floor latrine. Samples were taken and analyzed for lead content. The laboratory results are listed below in Table 5.

TABLE 5
PAINT CHIP SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (percent)
PA Phi-03092-16	S. Stairs 2nd Floor Wall	0.24
PA Phi-03092-17	Basement Wall	0.046

3.5.2.2. The Environmental Protection Agency (EPA) considers paint with a lead content equal to or greater than 0.5% by weight as contaminated. Therefore, both areas are not considered lead-contaminated paint.

N. Stairs – Pealing Paint

Basement – Pealing Paint

3.5.3. PROGRAMS

3.5.3.1. There are no designated confined space areas within this facility. A need has not been established for a HAZCOM program, the need for personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.4. HOUSEKEEPING

3.5.4.1. The facility is kept very clean, orderly and is being kept in very good condition.

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
Philadelphia, PA	PENNSYLVANIA ARNG ARMORY	Ogontz Ave.

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR (initials)
2 April 2003	JSS

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	NA	LTC Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
215-329-2622	TRPB 1ST SQDN 104TH CAV	3	9

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
9	190			

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	CONROLS 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			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	½ FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	¼ 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	/		

AEHA Form 271-R (Test), 1 Jan 92 (HSHB-MI-I)

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	3	C

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

SECTION 6. COMMENTS

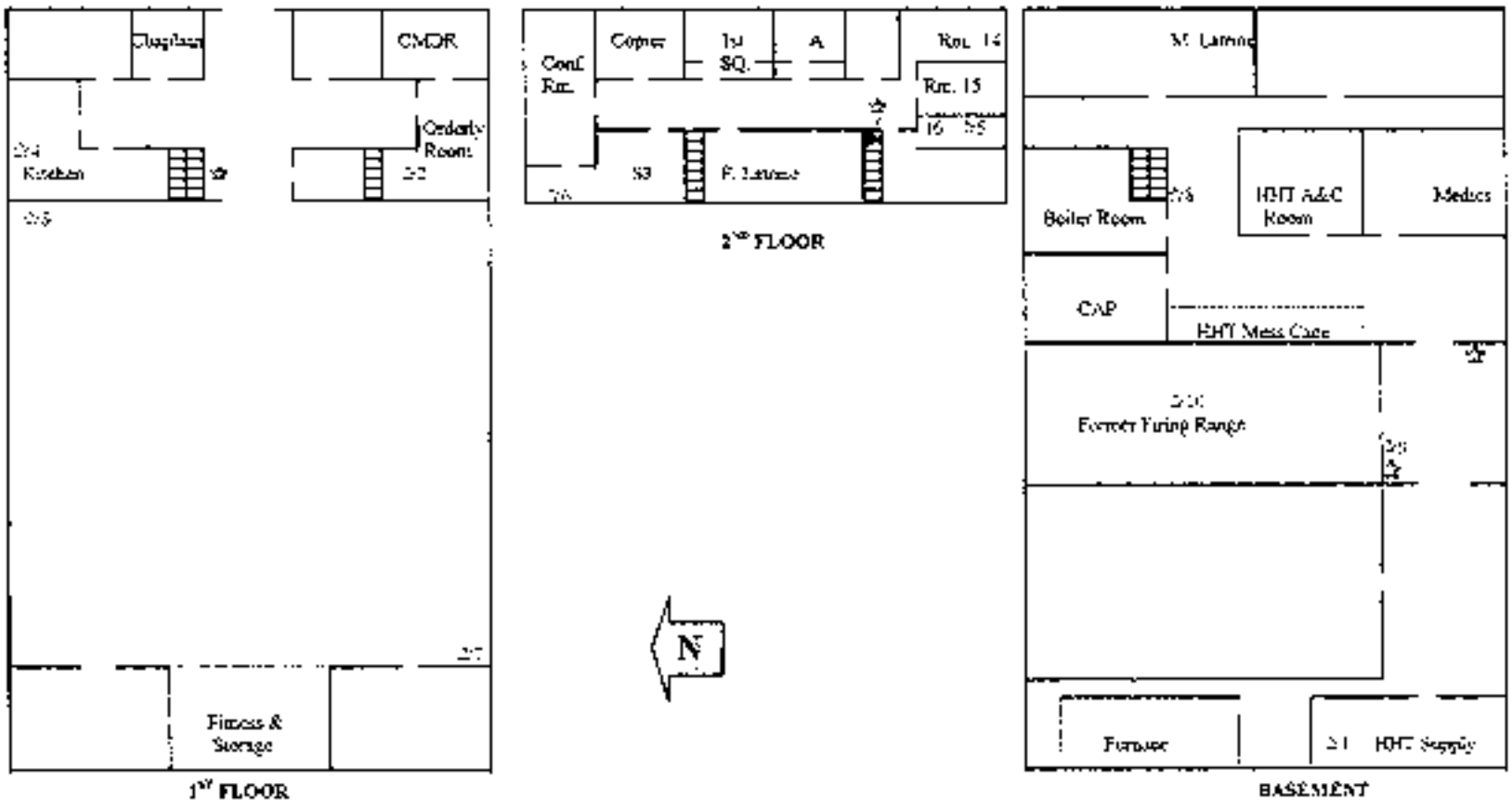
☐ No comments ☐ See attached sheet

PRIVACY ACT STATEMENT

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

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

OGONTZ AVENUE
PHILADELPHIA, PENNSYLVANIA



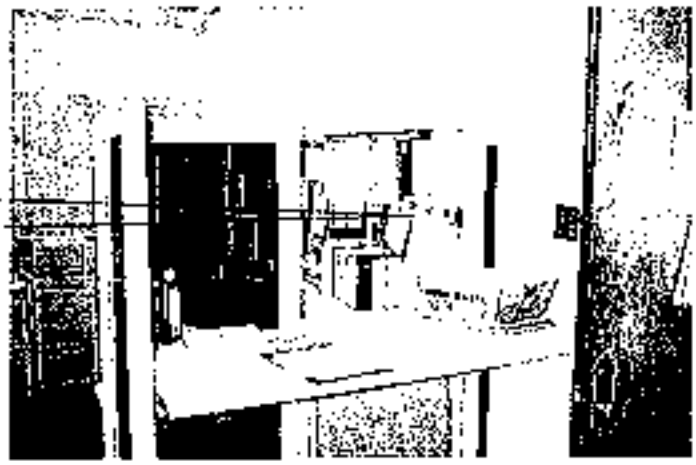
= Wipe Sample ☆ = Bulk Samples (Lead) ☆ = Area Air Sample

BEST AVAILABLE COPY

OGONTZ AVENUE
PHILADELPHIA, PENNSYLVANIA
WIPE SAMPLING POINTS

PA Ann-03092-04
Basement – Supply Office

PA Ann-03092-05
Orderly Room



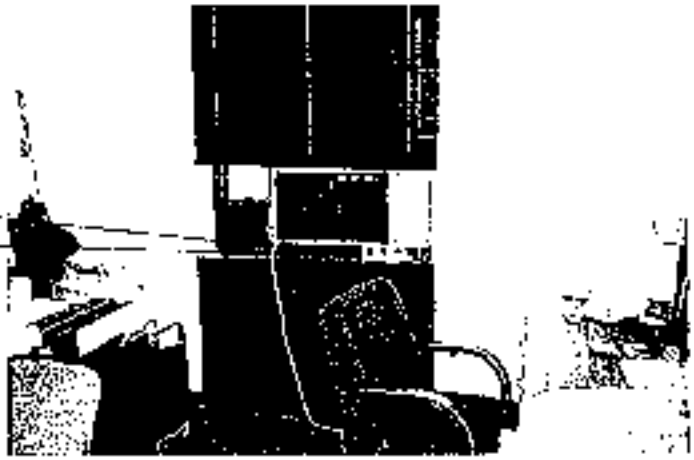
PA Ann-03092-06
Assembly Hall – NE End

PA Ann-03092-07
Kitchen

PA Ann-03092-08
2nd Floor – Room 16

SECONDARY SAMPLES

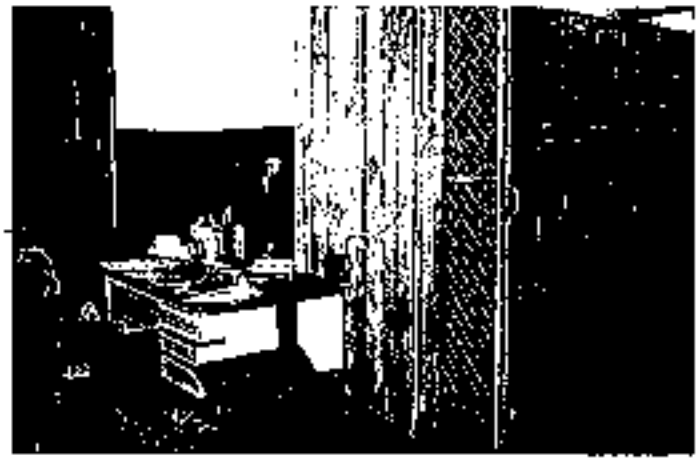
PA Ann-03092-10
2nd Floor - S3 Office



PA Ann-03092-11
Drill Floor – SW End

PA Ann-03092-12
Basement – By Boiler Room

PA Ann-03092-13
Basement – Outside Former Range



PA Ann-03092-14
Basement – Locker in Former Range

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
ADEA Certificate of Accreditation #480 LAP,LLC 101533

TABLE I. ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	RES 92066-I
Client:	Operational Technologies, Corp.
Client Project Number / P.O.:	04 02
Client Project Description:	Armories/Pennsylvania
Date Samples Received:	April 11, 2003
Analysis Type:	USEPA SW846 3050B / AA(7420)
Turnaround:	3-5 Day
Date Samples Analyzed:	

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA Phl-03092-04	EM 761843	0.11	15.7	23	143
PA Phl-03092-05	EM 761844	0.11	3.8	23	35
PA Phl-03092-06	EM 761845	0.11	BDL	23	BDL
PA Phl-03092-07	EM 761846	0.11	BDL	23	BDL
PA Phl-03092-08	EM 761847	0.11	2.7	23	25
PA Phl-03092-09	EM 761848	0.11	BDL	23	BDL

*Calculations Based On A 1 sq.ft. Sample Area Unless Otherwise Noted

BDL = Below Detection Limit

Date On _____

RESI Job #: 92066

Phone: (303) 984-1906 Fax: (303) 477-1276 WATS: 1-866-RESI ENV (737-4368)
PAGER: ONCALL Pager number available at Lab. Alternate Pagers: PLM/TEM 609-2587 PCM/Metals 609-2098 (AFTER HOURS USE ONLY)

SAMPLES SUBMITTED BY:	INVOICE TO: (IF DIFFERENT)
Company: Operational Technologies, Corp.	Army National Guard Bld-N
Address: 1370 N. Fairfield Road, Suite A	301-91 Old Bay Ln, Havre de Grace, MD 21078
Beavercreek, OHio 45432	
Contact: Non-Responsive Phone: 410-942-0273 x18 Fax: 410-942-0254 Pager:	
Contact: Non-Responsive Phone: cell 937-831-3333 Fax: Pager: 800-951-4067	
Project Number and/or P.O. #: 04-02	
Project Description/Location: Armories / Pennsylvania	

After Hours/Weekend CHARGE: Amount $_____ Authorized by: _____

Additional fees apply for after hours and holidays for all analysis types. Samples will be analyzed during normal laboratory hours unless otherwise arranged and specified on the chain of custody. Turnaround is subject to laboratory volume. You will be notified if delays are expected.

ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm

PCM/PLM	___ 2 Hour RUSH	_____ 24 hour	3-5 weekdays
TEM	___ 6 Hour RUSH	_____ 24 hour	___ 3-5 weekdays

Prior Notice REQUIRED for TEM 6 Hour RUSH

AA			3-5 Day
RCRA 8		___ 5 Day	___ 10 Day
TCLP	___ SPECIAL RUSH	___ 5 Day	___ 10 Day

Prior Notice REQUIRED for SPECIAL RUSH AA, RCRA or TCLP
RCRA and TCLP SPECIAL RUSH is 3 Day Turnaround

ANALYTICAL METHOD

AIR	[ ]	PCM 7400A, 7400B, OSHA
	[ ]	TEM AHERA, Level II, 7402, ISO, Pres/Abs ISO-Indirect Preps Chatfield
	[ ]	AA / ICP _____ Metal ____ RCRA 8
	[ ]	Dust Total, Respirable
BULK:	[ ]	PLM Short report, Long report, Point Count
	[ ]	TEM +/-, Quant, Semi-quant
	[8 6]	AA / ICP __ X PB
		Paint, Soil, Dust, Wipe, TCLP (ASTM E 1792 approved wipes only.)
WATER	[ ]	TEM Drinking, Waste Water
	[ ]	AA Water _____ Metal ____ RCRA 8 Drinking, Waste Water
OTHER	[ ]	Specify Wipes - Lead

Special Instructions: Contract # 04-02 Email results to kenneth.forsythe@md.ngb.army.mil

	Client Sample Number	Volume	EM #
1.	PA PN-03092-04		76184343
2.	PA PN-03092-05		44
3.	PA PN-03092-06		45
4.	PA PN-03092-07		46
5.	PA PN-03092-08		47
6.	PA PN-03092-09		48
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			

Number of samples received: 6 (Use as many additional sheets as needed.)

NOTE: If the package has sustained substantial damage or the custody seal is broken, stop and contact project manager and shipper. RESI will analyze according samples based upon information received with those samples. RESI is not responsible for errors or omissions in calculations resulting from the inaccuracy of original data. Turnaround times are based upon times of receipt by Laboratory. Call Laboratory for number of samples guaranteed in short turnaround.

Relinquished By: John E. Earson Date/Time: April 8, 2003 / 1600

Laboratory Use Only
Received By: Non-Responsive Date/Time: 4-11-03 10:15
Carrier: Condition of package/custody seal upon receipt:
RESULTS: Contact: Page Phone Fax Date Time Initials

SPLITS: Authorization By/Time
Analytical Method/Turnaround:
Results Due: Results Out:

Lab Bench/Count Sheets Received By:
Time Date

rev 5/2/01

Reservoirs Environmental, Inc.

2059 Bryant St. Denver, CO 80211
(303) 964-1986 Fax (303) 477-4275 Toll Free (866) RESI-ENV

April 22, 2003

Project Description:
RES 92065-1
04 02
Armories/Pennsylvania

Non-Responsive
Operational Technologies, Corp.
1370 N. Fairfield Road, Suite A
Beavercreek OH 45432

Dear Customer,

Reservoirs Environmental, Inc. is an environmental analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the American Industrial Hygiene Association, Lab ID 101533 - Accreditation Certificate #480. The laboratory is currently proficient in both PAT & ELPAT programs respectively.

Reservoirs has analyzed the following sample(s) using Atomic Absorption (AA) / Atomic Emission Spectroscopy - Inductively Coupled Plasma (AES-ICP) per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in Table I. Results have been faxed to your office.

RES 92065-1 is the job number assigned to this study. This report is considered highly confidential and property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those authorized by the client. Samples will be disposed of after sixty days unless longer storage is requested. If you should have any questions about this report, please feel free to call me at 303-964-1986.

Sincerely,

Non-Responsive

President

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m³
PA Phi-03090-16	03-17830	160.3	ND	<0.006
PA Phi-03091-01	03-17831	226.0	ND	<0.004
PA Phi-03091-02	03-17832	222.2	ND	<0.005
PA Phi-03091-10	03-17833	54.6	ND	<0.02
PA Phi-03092-01	03-17834	476.7	ND	<0.002
PA Phi-03092-02	03-17835	501.0	ND	<0.002
PA Phi-03092-03	03-17836	464.1	ND	<0.002
PA Way-03105-01	03-17837	280.4	ND	<0.004
PA Way-03105-02	03-17838	262.2	ND	<0.004
PA Con-03106-01	03-17839	501.0	ND	<0.002
PA Con-03106-02	03-17840	458.8	ND	<0.002
PA Con-03106-03	03-17841	412.6	ND	<0.002
PA Mtp-03106-25	03-17842	335.1	ND	<0.003
PA Lig-03107-01	03-17843	266.0	ND	<0.004
PA Lig-03107-02	03-17844	302.8	ND	<0.003
PA Tor-03107-17	03-17845	462.5	ND	<0.002
PA Tor-03107-18	03-17846	549.5	ND	<0.002
PA Ind-03108-01	03-17847	275.2	ND	<0.004
PA Ind-03108-02	03-17848	326.3	ND	<0.003
PA Eve-03112-01	03-17849	250.1	ND	<0.004
	Prep Blank 4		ND	
% Recovery	LCS 7		104.	
% Recovery	LCS 8		106.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer

Results
Lead

Client #	DCL #	mg/Kg (ppm)
PA Col-03076-17	03-11327	15000.
PA Can-03080-18	03-11328	74.
PA Can-03080-19	03-11329	ND
PA Can-03080-20	03-11330	ND
PA Can-03080-22	03-11331	75000.
PA Can-03080-23	03-11332	64000.
PA Can-03080-24	03-11333	14000.
PA Phi-03087-28	03-11334	23000.
PA Phi-03087-27	03-11335	23.
PA Phi-03087-26	03-11336	ND
PA Phi-03087-25	03-11337	1100.
PA Phi-03090-21	03-11338	1000.
PA Phi-03091-09	03-11339	990.
PA Phi-03092-16	03-11340	2400.
PA Phi-03092-17	03-11341	460.
	Prep. Blank	ND
% Recovery	LCS/QC14066	88.
% Recovery	11748 Matrix Spike	97.
Reporting Limit		22.

ND indicates not detected at or above the reporting limit.
LCS= Laboratory Control Sample

Non-Responsive [redacted]

Analyst

Non-Responsive [redacted]

Reviewer

DATA CHEM LABORATORIES

ANALYTICAL REQUEST FORM

1. REGULAR Status

RUSH Status Requested - ADDITIONAL CHARGE

RESULTS REQUIRED BY _____ DATE

CONTACT DATACHEM LABS PRIOR TO SENDING SAMPLES.

2. Date 4/9/03 Purchase Order No. 04-01

3. Company Name Army National Guard IH-N

Address 301-IH Old Bay Ln.

Havre de Grace MD 21078

Person to Contact [redacted]

Telephone (410) 942-0273 x16

Fax Telephone (410) 942-0254

Billing Address (if different from above)

4. Quote No. _____

DCL Project Manager _____

5. Sample Collection

Sampling Site Pennsylvania Armories

Industrial Process _____

Date of Collection _____

Time Collected _____

Date of Shipment 4/4/03

Chain of Custody No. _____

Co [redacted]

6. REQUEST FOR ANALYSES

Laboratory Use Only	Client Sample Number	Media Type*	Sample Volume (Liters)	ANALYSES REQUESTED - Use Method Number If Known
11340	AA PA-03092-16	Bulk		Lead
11341	AA PA-03092-17	Paint Chips		↓

*Specify: Solid sorbent tube, e.g. Charcoal; Filter type; Impinger solution; Bulk Sample; Blood; Urine; Tissue; Soil; Water; Other

7. QC REQUIREMENTS
MUST BE COMPLETED FOR ENVIRONMENTAL SAMPLES - See General Services Terms and Conditions. QC samples billed at regular sample rate

☐ METHOD QC SAMPLES
(Lab QC according to published methods)

☐ PROJECT PLAN QC SAMPLES
(Lab QC according to provided QA/QC Plan)

☐ NO QC SAMPLES REQUESTED
(May not conform to Agency requirements)

☐ OTHER (as specified below)

[redacted]

Comments _____

Possible Contamination and/or Chemical Hazards _____

8. Requested by _____

960 West Levoy Drive / Salt Lake City, UT 84123 800-356-9135 or 801-266-7700 / Fax: 801-268-9992
4466 Glendale-Milford Road / Cincinnati, OH 45242 800-458-1460 or 513-733-5336 / Fax: 513-733-5347

DATACHEM LABORATORIES - A SORENSON COMPANY

DISTRIBUTION: WHITE - LABORATORY COPY CANARY - CUSTOMER COPY

DATA CHEM LABORATORIES
A SOVERSON COMPANY

Submitted To: Non-Responsive
Army National Guard IH-N
301- IH Old Bay Lane
Havre de Grace, MD 21078

Reference Data:	**Lead**
Client Sample No.:	PA Col-03076-17 through PA Phi-03092-17
P.O. No.:	04-01
Sample Location:	Pennsylvania Armories
Sample Type:	Paint Chip
Method Reference:	3050B/6010B
DCL Set ID No.:	03-S-1724
DCL Sample ID No.:	03-11327 through 03-11341
Sample Receipt Date:	4/11/2003
Preparation Date:	4/16/2003
Analysis Date:	4/18/2003

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.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Non-Responsive
Analyst

Non-Responsive
Reviewer

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 415.883.9468

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non-Responsive @md.ngb.army.mil

Attachment D

1. General Regulations and National Consensus Standards
2. Specific Regulations and Guidance
    a. Abrasive Blasting
    b. Asbestos
    c. Battery Charging Room
    d. Bird and Bat Manure
    e. Bloodborne Pathogens
    f. Chemical Agent Resistant Coating (CARC) Paint
    g. Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE)
    h. Confined Space Entry Program
    i. Design Review
    j. Ergonomics
    k. Flammable Storage Room
    l. Hazard Communication
    m. Hearing Conservation
    n. Indoor Air Quality
    o. Indoor Firing Ranges
    p. Lead
    q. Lighting
    r. Occupational Vision
    s. Paint Spray Booth
    t. Personal Protection
    u. Radiation Protection
    v. Respiratory Protection
    w. Sanitation
    x. Smoking
    y. Vehicle Exhaust
    z. Welding Operation

GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REFERENCE LIST

1. General Regulations and National Consensus Standards
   a. DODI 6055.1, DOD SOH Program, 19 August 1998.
   b. DODI 6055.5, DOD OEH. *[DRAFT]*
   c. DOD 6055.5-M, DOD Occupational Health Surveillance Manual, 13 May 1987.
   d. DODI 6050.5, DOD Hazard Communication, 29 Oct 90. Change 1, 6 May 1996.
   e. AR 40-5, Preventive Medicine, 15 October 1990. [05/2002 Being Updated]
   f. DA PAM 40-5, Preventive Medicine. *[DRAFT]*
   g. AR 385-10, The Army Safety Program, 29 February 2000.
   h. NGR 385-10, ARNG SOH Program, 7 October 1988, Change 1, 29 December 1989.
   i. Title 29, Part 1910, Occupational Safety and Health Standards. [Current Date]
   j. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 2002.
   k. ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th edition, 2001.
   l. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.
   m. TG 141, USACHPPM Industrial Hygiene Sampling Guide, November 1997.
   n. National Safety Council, Fundamentals of Industrial Hygiene, 5th Edition, 2002.
   o. NIOSH, Pocket Guide to Chemical Hazards, 2001.
   p. NFC, A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. [Current date]
   q. ASHRAE Standards. [Current Dates]
   r. ANSI Standards. [Current Dates]

2. Specific Regulations/Guidance
   a. **ABRASIVE BLASTING**
      (1) ANSI Z9.4 1997, Abrasive Blasting Operations - Ventilation and Safe Practices.
      (2) 29 CFR 1910.94 Ventilation
      (3) 42 CFR 84

   b. **ASBESTOS**
      (1) AR 40-5, Preventive Medicine, 15 October 1990. *[05/2002 Being Updated]*
      (2) AR 200-1, Environmental Protection and Enhancement, Chapter 8, 21 February 1997.
      (3) TB MED 513, Guidelines for the Evaluation and Control of Asbestos Exposure, 15 December 1986. *[05/2000 Under Revision as DA PAM 40-513]*
      (4) TG 157, USAEHA, The Installation Asbestos Management Program Assessment Checklists, July 1994.
      (5) 29 CFR 1910.1001
      (6) 29 CFR 1926.58 (prior to 1994 CFR)
      (7) 29 CFR 1926.1101

(8) MEMORANDUM SGPS-PSP, OTSG, subject: AMEDD Role Supporting Asbestos Abatement/Asbestos Management Programs, 19 Jan 89.

(9) EPA, Guidance for Controlling Asbestos-Containing Materials in Buildings, June 1985.

(10) DD Form 2493-1 (Asbestos Exposure, Part I--Initial Medical Questionnaire)

(11) DD Form 2493-2 (Asbestos Exposure, Part II--Periodic Medical Questionnaire)

(12) EPA NESHAPS Asbestos Regulation (40 CFR 61, Subpart M).

c. **BATTERY CHARGING ROOM**

(1) TG 022, USAEHA, page 81, Industrial Hygiene Evaluation Guide, October 1975. *[Out of Print]*

(2) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

d. **BIRD AND BAT MANURE**

(1) TG 142, USAEHA, Managing Health Hazards Associated with Bird and Bat Excrement, Dec 1992.

e. **BLOODBORNE PATHOGENS**

(1) 29 CFR 1910.1030

(2) TG 190, USAEHA, Guide to Managing Occupational Exposure to Bloodborne Pathogens, Jan 94.

f. **CHEMICAL AGENT RESISTANT COATING (CARC) PAINT**

(1) TG 144, USAEHA, Guidelines for Controlling Health Hazards in Painting Operations, 24 August 1987.

(2) DA LTR, USAEHA, HSHB-MI-WR, subject: Respiratory Protection When Spraying CARC, 19 November 1992.

(3) TM 43-0139, Painting Instructions for Army Material, 27 July 1988I Aug 86.

(4) MEMORANDUM SGPS-PSP, OTSG, subject AMEDD, Occupational Health Requirements in Support of Painting in the Army, 22 February 1985.

(5) AR 750-1, Army Materiel Maintenance Policy and Retail Maintenance Operations (Prohibits welding on CARC paint) 1 July 1996.

g. **CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR, EXPLOSIVE (CBRNE)**

(1) DODI 2000.gg, DOD Installation CBRNE Emergency Response Guidelines.

(2) DHHS, NIOSH Pub No. 2002 139, Guidance for Protecting Building Environments from Airborne Chemical, Biological, or Radiological Attacks, May 2002.

(3) TG 275, USACHPPM, Personal Protective Equipment Guide for Medical Treatment Facility Personnel Handling Casualties from Weapons of Mass Destruction and Terrorism Events. *[Draft]*

h. **CONFINED SPACE**

(1) 29 CFR 1910.146 (Confined Space Entry)
(2) 29 CFR 1910.147 (Lockout/Tagout)
(3) ANSI Z117.1-Safety Requirements for Confined Spaces, 1995.
(4) SOP for ARNG Confined Space Entry Program, 25 April 1991.
(5) Letter, US Dept of Labor (DOL) addressed to Vanessa Char, 22 Apr 1994.
(6) OSHA Instruction STD 1-7.3, US DOL, subject: 29 CFR 1910.147, the Control of Hazardous Energy (Lockout/Tagout)--Inspection Procedures and Interpretive Guidance, 11 Sep 90.
(7) DHHS, NIOSH Pub No. 87113, A Guide to Safety in Confined Spaces, July 1987.
(8) Confined Space Entry Program for Helicopters, 2003.

i. **DESIGN REVIEW**

(1) DG 415-1, Design Guide for Armories, current.
(2) DG 415-2, Design Guide for Logistics Facilities, current.
(3) DG 415-3, Design Guide for Training Site Facilities, current.
(4) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.
(5) TI-300, 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.
(6) UFGS 15940A, Overhead Vehicle Tailpipe (and welding Fume) Exhaust Removal Systems, December 2001.
(7) ASHRAE, Standard 62-2002, Ventilation for Acceptable Indoor Air Quality.
(8) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

j. **ERGONOMICS**

(1) DA PAM 40-21, Medical Services, Ergonomics Program, 15 May 2000.
(2) ANSI Z-365, Management of Work Related Musculoskeletal Disorders, 2000.
(3) 29 CFR 1910. *[PROPOSED STANDARD]*

k. **FLAMMABLE STORAGE ROOM**

(1) 29 CFR 1910.106
(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

l. **HAZARD COMMUNICATION**

(1) 29 CFR 1910.1200
(2) NGR 385-10, Chapter 6

m. **HEARING CONSERVATION**

(1) DA PAM 40-501, Medical Services, Hearing Conservation Program, 10 December 1998.

(2) TG 181, USAEHA, Noise Dosimetry and Risk Assessment, May 1999.

(3) TG 175, USAEHA, Readiness thru Hearing Conservation: Guide for Unit Commanders and Supervisors, June 1999.

(4) 29 CFR 1910.95

n. **INDOOR AIR QUALITY (IAQ)**

(1) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

(2) USACERL Technical Report P-91/42, IAQ Management for Operations and Maintenance Personnel, September 1991.

(3) EPA 400/1-91/003 or DHHS, NIOSH, Publication No. 91-114, Building IAQ, A Guide for Building Owners and Facility Managers, December 1991.

(4) ASHRAE, Standard 62-2002, Ventilation for Acceptable IAQ.

(5) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

(6) NIOSH, IAQ Selected References, Sep 1989.

(7) OSHA Instruction CPL 2-2.20B CH-1, Directorate of Technical Support, 13 Nov 90.

(8) DA PAM 25-52, Mail Facility Security and Handling Suspicious Mail, 6 November 2001.

(9) ASTM, D 5952-96, 10 May 1996.

o. **INDOOR FIRING RANGES**

(1) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(2) NGR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges, 30 March 1990. *[11/02 Under Revision]*

(3) CEHND 1110-1-18, USACE Design Manual for Indoor Firing Range, June 1990.

(4) HQDA LTR, Office of the Adjutant General, DACS-SF, subject: Inspection and Evaluation of US Army Indoor Firing Ranges, 26 March 1993.

(5) Departments of the Army and Air Force, NGB-ADE-OM, subject: All State Log Number (I920323) Indoor Range Clean-up at State Owned Armories, 28 July 1992.

(6) NIOSH, Technical Information, December 1975, subject: Lead Exposure and Design Considerations for Indoor Firing Ranges.

(7) All-States Ltr P01-0075, 5 December 2001.

(8) Information Paper, Alternative Ammunition, 15 March 1996.

(9) Information Paper, Bullet Traps, 26 April 1996.

(10) Information Paper, ARNG IFR Action Plan, 28 January 2002.

p. **LEAD**

(1) 29 CFR 1910.1025

(2) 29 CFR 1926.62

(3) 24 CFR 35.61 (HUD, Percentage of Lead in Paint)

(4) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(5) OSHA Instruction CPL 2-2.58, Office of Health Compliance Assistance, 13 December 1993.

(6) Federal Register, 18 April 1990, Vol. 55, No. 75, HUD, Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing, as amended, September 1990, Office of Public and Indian Housing, Department of Housing and Urban Development, 451 Seventh Street, SW, Washington, DC 20410.

(7) NIOSH, Request for Assistance in Preventing Lead Poisoning in Construction Workers, April 1992.

(8) EPA, Strategy for Reducing Lead Exposures, 21 Feb 91.

q. **LIGHTING**

(1) RP-1-1993, Office Lighting, ANSI/IESNA.

(2) RP-7-2001, Industrial Lighting, IES.

r. **OCCUPATIONAL VISION**

(1) DA PAM 40-506, Medical Services, The Army Vision Conservation and Readiness Program, 20 July 2001.

(2) ANSI Z87.1, Practice for Occupational and Educational Eye and Face Protection, 1989, Change A, REAF 1998.

(3) ANSI Z358.1 for Emergency Eyewash and Shower Equipment, 1998.

(4) OTSG Memorandum SGPS-PSP, subject: Acanthameoba Keratitis and Eyewash Stations, 8 May 89.

(4) 29 CFR 1910.133

s. **PAINT SPRAY BOOTH**

(1) NFPA No. 33, Standard for Spray Application Using Flammable and Combustible Materials, 1995.

(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

(3) 29 CFR 1910.94

(4) 29 CFR 1910.107

(5) ANSI Z9.3-1995 for Exhaust Systems - Spray Finishing Operations - Safety Code for Design, Construction, and Ventilation.

(6) ANSI Z9.2-2001, Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems.

t. **PERSONAL PROTECTIVE EQUIPMENT**

(1) Quick Selection Guide to Chemical Protective Clothing, 2nd edition, Forsberg, K and Mansdorf, S., 1993.

(2) Chemical Protective Clothing, Vol 1 and 2, Johnson, J. and Anderson, K., American Industrial Hygiene Association, 1990.

(3) Guidelines for the Selection of Chemical Protective Clothing, 3rd Edition, ACGIH, Inc., Feb 1987.

u. **RADIATION PROTECTION PROGRAM**

(1) NGR 385-11, Safety, Ionizing and Nonionizing Radiation Protection, 18 February 1999.

(2) AR 11-9, Army Radiation Safety Program, 28 May 1999.

(3) 29 CFR 1910.96

(4) 29 CFR 1910.97

v. **RESPIRATORY PROTECTION**

(1) AR 11-34, The Army Respiratory Protection Program, 15 February 1990. *[11/02 Being Updated]*

(2) 29 CFR 1910.134

(3) 42 CFR 84

(4) TB MED 502, Respiratory Protection Program, February 1992. *[11/02 Being Updated as DA PAM 40-502]*

(5) ANSI/CGA G-7.1-1997, Commodity Specification for Air.

(6) ANSI Z88.2-1992, Standard for Respiratory Protection.

w. **SANITATION**

(1) ANSI Z4.1-1986, Change REAF 1995, Sanitation in Places of Employment-Minimum Requirements.

(2) 29 CFR 1910.141

x. **SMOKING**

(1) AR 600-63, Army Health Promotion, 28 April 1996.

(2) DODI 1010.15, Smoke-Free DOD Facilities, 2 January 2001.

(3) DODD1010.10, Health Promotion, 11 March 1986.

y. **VEHICLE EXHAUST**

(1) ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th Edition, 2001.

(2) TI-300f 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

z. **WELDING OPERATION**

(1) 29 CFR 1910.252

(2) 29 CFR 1910.253

(3) 29 CFR 1910.254

(4) ANSI/AWS Z49.1-1999, Safety in Welding and Cutting and Allied Processes.

(5) TM 5-805-7, Welding Design, Procedures and Inspection, 20 May 85.

Industrial Hygiene Survey Report

National Guard Facility
Philadelphia - Southampton Armory

Prepared For:	**National Guard Bureau Region North IH** **301-IH Old Bay Lane** **Havre de Grace, MD 21078**
Survey Location:	**Philadelphia - Southampton Armory** **2700 Southampton Road** **Philadelphia, PA 19154**
Prepared By:	**ALS Environmental** **3544 North Progress Avenue** **Suite 100** **Harrisburg, PA 17110**
Survey Date:	**July 19, 2011**
Report Date:	**September 14, 2011**
ALS Project #:	**1107484**

Non-Responsive

[redacted]

Director, Industrial Hygiene Services

Table of Contents

Section 1.0
Executive Summary

Section 1.0 Executive Summary

An industrial hygiene survey was conducted on July 19, 2011, at the Philadelphia - Southampton Armory located at 2700 Southampton Road, Philadelphia, PA 19154. The survey was performed by Ms. Non-Responsive and Mr. Non-Responsive

1. Lead surface and air samples were collected. Surface levels of lead exceeded 200 micrograms per square foot (ug/ft^2) in four locations. Cleaning procedures should be improved to maintain lead levels below 200 ug/ft^2.

2. Lighting levels did not meet the ANSI/IESNA recommended guideline in the Drill Hall.

3. Indoor air quality parameters of temperature, relative humidity, carbon monoxide and carbon dioxide (ventilation) were evaluated during the assessment. Relative humidity in all areas was above The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation, recommendation of 30 - 60 %. Maintain relative humidity between 30 - 60% in occupied areas. The HVAC system should be inspected to ensure it is working properly.

4. A few water stained ceiling tiles were observed through out the facility. All sources of water infiltration should be identified and repaired. The heating, ventilating, and air conditioning system (HVAC) supply grills located in some of the offices were observed to be dirty. These should be cleaned. Do not permit dirt, debris, microbial growth, etc. to accumulate in any portion of the HVAC system.

Section 2.0
Operation Description & Observations

Section 2.0 Operation Description & Observations

The Philadelphia - Southampton Armory is mainly an administrative facility with offices, training and storage areas. There were approximately 57 full-time employees stationed at this facility at the time of this survey.

The building was initially constructed in 1975 with a renovation in 2009. The building is 3 stories with a brick exterior. The interior walls are primarily concrete block and drywall. The floors are concrete with vinyl floor tile.

There is a central heating, ventilating, and air conditioning system (HVAC) present in the facility. It was renovated in 2009. There are six HVAC units that service the building. It was reported that at the time of the survey the HVAC system was not operating correctly.

There is an area in the basement that was used as an indoor firing range. It was converted into a locker room and storage area in 2010. All firing range components have been removed.

There is no child-care facility in the building.

Overall housekeeping was fair. Cleaning procedures should be improved.

No ergonomic concerns were reported. Office areas have computer work stations. Work stations appeared properly designed. Personnel had supportive chairs.

Some areas of the building were locked and inaccessible at the time of this survey.

Section 3.0
Lead Testing

Section 3.0 Lead Testing

Due to the age of the building there is the potential for lead based paint to be present. Various surfaces within the facility were screened for lead using surface wipe samples. Surface wipe samples were collected in accordance with the ASTM E 1792 protocols. Air samples were collected using 0.8 um mixed cellulose ester (MCE) filter cassettes attached to low volume air sampling pumps. Blank samples were submitted to the laboratory for quality control purposes. Samples were sent to AMA Analytical Services, Inc., in Lanham, Maryland, for lead analysis using EPA Method 600 R-93 200 (NJ-7420. A copy of the laboratory analysis report can be found in Appendix A.

Lead Testing Results Summary

Sample #	Location	Air ug/m³	Surface ug/ft²
1	Drill Hall	<5.4	*
2	Room 118	<5.4	*
3	HVAC Unit, Supply Side Filter (AC#1)		**390**
4	Drill Hall - Center Floor	*	<110
5	Drill Hall – Floor by Exit Door	*	<110
6	Drill Hall – Kitchen Table	*	<110
7	Drill Hall - Room 123 Table	*	<110
8	Drill Hall – Supply Vent	*	<110
9	Converted Firing Range – Light Fixture	*	**1,100**
10	Converted Firing Range – Stored Item	*	<110
11	Converted Firing Range - Floor	*	**250**
12	Outside Converted Firing Range - Hallway Floor	*	<110
13	Converted Firing Range – Overhead Heater	*	**170**
14	Converted Firing Range – Supply Grill	*	<110
15	Room 200 - Table	*	<110
16	Room 212 - Table	*	<110
17	Room 227 – Cubicle Sill	*	<110
18	Room 239 – File Cabinet	*	<110
19	Blank	*	<1.2 (ug)
20	Blank	<3 (ug)	*
21	Room 118 - Table	*	<110
22	Lobby - Floor	*	<110
23	Room 111 – File Cabinet	*	200
24	Room 027 - Floor	*	**300**
25	Room 134 - Table	*	<110
26	Room 003 – Metal Shelf	*	<110
Criteria		**50**	**200**

Key: **Bolded** results exceed listed criteria

Source: Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) & U.S. Department of Housing and Urban Development (HUD).

The National Guard Bureau currently utilizes 200 ug ft^2 as a benchmark for identifying lead-contaminated surfaces. In the "Derivation of Wipe Surface Screening Levels for Environmental Chemicals," the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 ug/ft^2 is a satisfactory surface contamination level unless the facility is utilized as a childcare facility. In such cases, U.S. Department of Housing and Urban Development (HUD) limit of 40 ug ft^2 on floors and 250 ug ft^2 on windowsills should be observed. There is no child care provided at this facility.

Lead surface and air samples were collected.

- Surface levels of lead exceeded 200 ug ft^2 in the following areas:
    - HVAC unit, Supply Side Filter (AC#1)
    - Converted Firing Range – Light Fixture
    - Converted Firing Range – Floor
    - Room 027 – Floor
- Cleaning procedures should be improved to maintain lead levels on surfaces below 200 ug ft^2.
- Air samples for lead were below the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit of 50 ug m^3. In fact, no detectable level of lead was identified in the air samples collected.
- No chipping or peeling paint was observed in the facility. Paint was in good condition.

Section 4.0
Lighting

Section 4.0 Lighting

A lighting assessment was conducted throughout the facility. Measurements were collected using a Cooke Cal-Light 400L Precision Light Meter (Serial No. K070155). The light meter was last calibrated on September 10, 2011. Measurements collected were compared to ANSI/IESNA RP-7-01 Lighting Industrial Facilities and RP-1-04 Office Lighting.

Light Survey Assessment Summary

Location	Foot Candles	Recommended Lighting	Sufficient Lighting
Converted Firing Range – Supply Room	30.0	30	Yes
Room 200 (Office)	125.3	30-50	Yes
Room 207 (Classroom)	89.5	30-50	Yes
Room 206 (Office)	47.3	30-50	Yes
Room 208 (Office)	93.8	30-50	Yes
Room 221 (Classroom)	159.3	30-50	Yes
Room 213 C (Office)	118.4	30-50	Yes
Room 227D (Office)	91.6	30-50	Yes
Room 235 (Office)	157.7	30-50	Yes
2nd Floor Latrine (Ladies)	31.1	5	Yes
Drill Hall	26.6	30-50	No
Room 117 (Office)	107.7	30-50	Yes
Room 118 (Office)	57.4	30-50	Yes
1st Floor Hallway	31.8	5	Yes
Room 105 (Office)	94.5	30-50	Yes
Room 101 (Office)	96.1	30-50	Yes
Room 027 (Locker Room)	97.7	7	Yes
Room 003 (Supply Room)	47.6	30	Yes
Room 014 (Classroom)	80.5	30-50	Yes
Hallway by 008	55.7	5	Yes

Lighting met the minimum recommended guidelines in all areas except the drill hall. Lighting should be improved in this area.

Section 5.0
Indoor Air Quality

Section 5.0 Indoor Air Quality

Survey measurements were made for ventilation and comfort parameters (carbon dioxide, temperature, carbon monoxide and relative humidity). The air quality measurements were collected using direct reading instrumentation for comfort parameters using a QTRAK IAQ Meter, Model 7565 (Serial #7565X0839077). The IAQ Meter was last calibrated in February 11, 2011.

The American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) have developed indoor air quality guidelines for mechanically ventilated office buildings and commercial settings (ASHRAE standard 62.1-2010). ASHRAE specifies temperature and relative humidity ranges for human comfort (ASHRAE 55-2010). The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation, recommends maintaining a relative humidity range between 30 to 60% in occupied areas.

The following table summarizes the measurements collected.

IAQ Assessment Summary

Location	Temperature (°F)	Relative Humidity (%)	Carbon Dioxide (ppm)	Carbon Monoxide (ppm)
Converted Firing Range Supply Room	78.0	79.3	445	0.6
Room 200 (Office)	71.3	82.5	397	0.5
Room 207 (Classroom)	71.7	82.2	403	0.2
Room 206 (Office)	72.0	81.8	436	0.5
Room 208 (Office)	72.1	81.9	495	0.5
Room 221 (Classroom)	72.8	81.1	478	0.6
Room 212 C (Office)	72.9	83.7	400	0.6
Room 227D (Office)	73.5	83.5	424	0.5
Room 235 (Office)	72.9	83.0	356	0.8
Drill Hall	72.5	77.6	377	0.2
Room 117 (Office)	72.8	78.3	403	0.5
Room 118 (Office)	72.4	77.6	365	0.5
1st Floor Hallway	72.4	78.9	441	0.2
Room 105 (Office)	73.1	78.9	367	0.6
Room 101 (Office)	73.4	78.4	374	0.4
Room 627 (Locker Room)	77.5	76.4	473	0.1
Room 603 (Supply Room)	77.6	73.0	433	0.4
Room 614 (Classroom)	75.6	74.5	374	0.4
Hallway by 608	76.3	74.2	432	0.4
Outdoors	90.9	80.1	324	1.0
Criteria	**68.0-79.0**	**30-60**	**<1,024**	**<9.0**

Key: **Bolded** results exceed listed criteria

Source: The American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) 55-2010 & The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation.

Summary of findings and recommendations:

- Relative humidity was above the recommended criteria of 30-60%. Maintain Relative humidity levels between 30-60%.
- Carbon dioxide levels did not exceed the recommended ceiling of 1,024 ppm. This indicates that outdoor air ventilation is adequate in all areas.
- Carbon monoxide levels were less than the recommended ceiling of 9 ppm.
- A visual inspection was conducted throughout visually accessible portions of the facility. The visual inspection was conducted to assess sources or pathways of factors potentially deleterious to IAQ. Some water damaged ceiling tile was observed throughout the facility. Identify and repair the source of the water infiltration. Replace any water stained ceiling tiles.

Section 6.0

Suspect Asbestos Containing Building Materials

Section 6.0 Suspect Asbestos Containing Building Materials

Based on the age of the building (e.g., constructed in 1975) asbestos containing materials (ACM) could be present in the facility. However, no suspect ACM was observed. Inaccessible areas such as behind walls or crawlspaces were not inspected. No bulk samples were collected.

Section 7.0
Limitations

Section 7.0 Limitations

This report summarizes our evaluation of the conditions observed at the above referenced location. Our findings are based upon our observations and sampling results obtained at the facility at the time of our visit. The report, results, and subsequent recommendations reported herein are also limited to the information available at the time it was prepared and investigated. Conditions may have been in effect prior to the sampling events that have changed over time and which cannot be predicted within the scope of this limited investigation. Any conditions discovered which deviate from the data contained in this report should be presented to us for our evaluation.

This report is intended for the exclusive use of the client. This report and the findings herein shall not, in whole or in part, be relied upon by any other parties, disseminated or conveyed to any other party without prior written consent of the National Guard Bureau, and ALS Environmental. The findings are relative to the dates of our site visits and should not be relied upon for substantially later dates.

Appendix A
Laboratory Analysis Report

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

LAS #100470

Client:	National Guard Bureau	**Job Name:**	RC-Philadelphia-Southampton	**Chain Of Custody:**	510882
Address:	301-IH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation	**Job Location:**	Philadelphia, PA	**Date Submitted:**	7/25/2011
	Havre de Grace, Maryland 21078	**Job Number:**	RC-Philadelphia-Southampton	**Person Submitting:**	[redacted]
		P.O. Number:	NGB-IBNB	**Date Analyzed:**	7/29/2011 **Report Date:** 8/2/2011
Attention:	[redacted]			**Revision Number:**	1 **Revised Date:** 8/2/2011

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		Total ug	Final Result		Comments
1183030	1107484-1	Flame	Air	556	N/A	5.4	ug/m³	<3	<5.4	ug/m³	
1183031	1107484-2	Flame	Air	559	N/A	5.4	ug/m³	<3	<5.4	ug/m³	
1183032	1107484-3	Flame	Wipe	****	0.108	110	ug/ft²	42	390	ug/ft²	
1183033	1107484-4	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1183034	1107484-5	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1183035	1107484-6	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1183036	1107484-7	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1183037	1107484-8	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1183038	1107484-9	Flame	Wipe	****	0.108	110	ug/ft²	120	1100	ug/ft²	
1183039	1107484-10	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1183040	1107484-11	Flame	Wipe	****	0.108	110	ug/ft²	27	250	ug/ft²	
1183041	1107484-12	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1183042	1107484-13	Flame	Wipe	****	0.108	110	ug/ft²	18	170	ug/ft²	
1183043	1107484-14	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1183044	1107484-15	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1183045	1107484-16	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1183046	1107484-17	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1183047	1107484-18	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1183048	1107484-19	Flame	Wipe Blank	****	N/A	12	ug		<12	ug	

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

LAB #100429

Client:	National Guard Bureau	Job Name:	RC-Philadelphia-Southampton	Chain Of Custody:	510882
Address:	301-HI Old Bay Lane, Attn: ARNO-CJC-P, State Military Reservation	Job Location:	Philadelphia, PA	Date Submitted:	7/25/2011
	Havre de Grace, Maryland 21078	Job Number:	RC-Philadelphia-Southampton	Person Submitting:	[redacted]
		P.O. Number:	NGB-IHNR	Date Analyzed:	7/29/2011
Attention:	[redacted]			Revision Number:	1

Report Date: 8/2/2011

Revised Date: 8/2/2011

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		Total ug	Final Result		Comments
1183049	1107484-20	Flame	Air Blank	0	N/A	3	ug/sa		<3	ug	
1183050	1107484-21	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1183051	1107484-22	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1183052	1107484-23	Flame	Wipe	****	0.108	110	ug/ft²	21	200	ug/ft²	
1183053	1107484-24	Flame	Wipe	****	0.108	110	ug/ft²	32	300	ug/ft²	
1183054	1107484-25	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1183055	1107484-26	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B

See QC Summary for analytical results of quality control samples associated with these samples.

N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)

%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)

Note: All samples were received in good condition unless otherwise noted.

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results

Final results for air and wipe samples are based on client supplied information not verified by this laboratory.

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

Analyst: [redacted] Non-Responsive

Technical Manager: [redacted] Non-Responsive

AMA Analytical Services, Inc.
Focused on Results www.amalab.com
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(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

Page 1 of 3

CHAIN OF CUSTODY

(Please Refer To This Number For Inquiries) 510882
p 1/3

Mailing/Billing Information:
1. Client Name: National Guard Bureau
2. Address 1: 301-H Old Bay Lane
3. Address 2: Attn: NGB-AVN-SI, State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:
1. Job Name: RC- Philadelphia- Southampton
2. Job Location: Philadelphia, PA
3. Job #: Philadelphia-Southampton P.O. #: ~~W9133G-09-A-0009~~ NGB-IHNE
4. Contact Person: [redacted]
5. Submitted by: [redacted]

Reporting Information (Results will be provided as soon as technically feasible):

AFTER HOURS (must be pre-scheduled)	NORMAL BUSINESS HOURS	REPORT TO:
☐ Immediate Date Due: ☐ 24 Hours Time Due: Comments:	☐ Immediate ☐ Next Day ☐ 2 Day ☐ 3 Day ☒ 5 Day + Date Due: 8/1/11 ☐ Results Required By Noon (Every Attempt Will Be Made to Accommodate)	☒ Include COC/Field Data Sheets with Report ☒ [redacted] cubglobal.com ☐ [redacted] us.army.mil ☐ [redacted] us.army.mil

Asbestos Analysis
PCM Air – Please Indicate Filter Type:
☐ NIOSH 7400 ___ (QTY)
☐ Fiberglass ___ (QTY)
TEM Air – Please Indicate Filter Type:
☐ AHERA ___ (QTY)
☐ NIOSH 7402 ___ (QTY)
☐ Other (specify ___) ___ (QTY)
PLM Bulk
☐ EPA 600 – Visual Estimate ___ (QTY)
☐ EPA Point Count ___ (QTY)
☐ NY State Friable 198.1 ___ (QTY)
☐ Grav. Reduction (ELAP 198.6) ___ (QTY)
☐ Other (specify ___) ___ (QTY)
MISC
☐ Vermiculite
☐ Asbestos Soil PLM ___ (Qnt) PLM ___ (Qual) TEM/PLM ___ (Qnt) TEM/TEM ___ (Qnt)

TEM Bulk
☐ ELAP 198.4/Chatfield ___ (QTY)
☐ NY State PLM/TEM ___ (QTY)
☐ Residual Ash ___ (QTY)
TEM Dust
☐ Qual. (presence) Vacuum/Dust ___ (QTY)
☐ Quan. (s/area) Vacuum D5755-95 ___ (QTY)
☐ Quan. (s/area) Dust D6480-99 ___ (QTY)
TEM Water
☐ Qual. (presence) ___ (QTY)
☐ ELAP 198.2/EPA 100.2 ___ (QTY)
☐ EPA 100.1 ___ (QTY)

☐ All samples received in good condition unless otherwise noted. (TEM Water samples ___ °C)

Metals Analysis
☐ Pb Paint Chip ___ (QTY)
☒ Pb Dust Wipe (wipe type: Ghost) 23 (QTY)
☒ Pb Air 3 (QTY)
☐ Pb Soil/Solid ___ (QTY)
☐ Pb TCLP ___ (QTY)
☐ Drinking Water ☐ Pb ___ (QTY) ☐ Cu ___ (QTY) ☐ As ___ (QTY)
☐ Waste Water ☐ Pb ___ (QTY) ☐ Cu ___ (QTY) ☐ As ___ (QTY)
☐ Pb Furnace (Media ___) ___ (QTY)

Fungal Analysis
Collection Apparatus for Spore Trap/Air Samples: ___
Collection Media ___
☐ Spore-Trap ___ (QTY) ☐ Surface Vacuum Dust ___ (QTY)
☐ Surface Swab ___ (QTY) ☐ Culturable ID Genus (Media ___) ___ (QTY)
☐ Surface Tape ___ (QTY) ☐ Culturable ID Species (Media ___) ___ (QTY)
☐ Other (Specify ___) ___ (QTY)

SAMPLE INFORMATION / ANALYSIS / MATRIX

CLIENT ID NUMBER	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPE AREA	TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	[illegible]	[illegible]	[illegible]	[illegible]
1107484-1		7/19	556					X		X						
1107484-2		↓	559					X		X						
1107484-3				100in²				X				X				
1107484-4				↓				X				X				
1107484-5								X				X				
1107484-6								X				X				
1107484-7								X				X				
1107484-8								X				X				
1107484-9								X				X				
1107484-10								X				X				
1107484-11								X				X				
1107484-12		↓		↓				X				X				

CLIENT CONTACT (LABORATORY STAFF ONLY)
Date/Time: Contact: By:
Date/Time: Contact: By:
Date/Time: Contact: By:

LABORATORY STAFF ONLY: (CUSTODY)
1. Date/Time RCVD: 7/25/11 @ 1030 Via: UPS By: [redacted]
2. Date/Time Analyzed: / / @ By: Sign:
3. Results Reported To: Via: Date: / / Time: Initials:
4. Comments: 1Z X17 305 03 4828 0187

DL

AMA Analytical Services, Inc.
Focused on Results www.amalab.com
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4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

Page 2 of 3

CHAIN OF CUSTODY

(Please Refer To This Number For Inquiries) 510882
p 2/2

Mailing/Billing Information:
1. Client Name: National Guard Bureau
2. Address 1: 301-B Old Bay Lane
3. Address 2: Attn: NGB-AVN-SI, State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:
1. Job Name: BC - Philadelphia - Southampton
2. Job Location:
3. Job #: P.O. #: W912K6-xxxx-0009
4. Contact Person: [redacted] & phone # (410) 942-0273
5. Submitted by: Signature:

Reporting Information (Results will be provided as soon as technically feasible):

After hours / Normal business hours / Report to: Include COC/Field Data Sheets with Report; E-Mail; Fax: shirley.chapman1@us.army.mil; Website: ken.forsythe@us.army.mil

Asbestos Analysis / TEM / Metals Analysis / Fungal Analysis options (checkboxes)

All samples received in good condition unless otherwise noted.

SAMPLE INFORMATION

Client ID Number	Sample Location Identification	Date	Volume (Liters)	Wipe Area	Analysis X	Analysis X	Matrix X
1107484-13		7/19		100cm²	X		X
1107484-14					X		X
1107484-15					X		X
1107484-16					X		X
1107484-17					X		X
1107484-18					X		X
1107484-19					X		X
1107484-20			OL	100cm²	X	X	X
1107484-21			Ø	Ocm²	X	X	X
1107484-22				100cm²	X		X
1107484-23					X		X
1107484-24		↓		↓	X		X

CLIENT CONTACT (Laboratory Staff Only)

Date/Time: Contact: By: NGM
Changes made based on physical sample type

Date/Time: Contact: By:
Attempted to email SD on 7/25/11 but email froze. Will attempt again on

Date/Time: 7/26/11 [redacted]

LABORATORY STAFF ONLY: (CUSTODY)
1. Date/Time RCVD: / / @ Via: By (Print):
2. Date/Time Analyzed: / / @ By (Print): Sign:
3. Results Reported To: Via: Date: / / Time: Initials:
4. Comments:

BEST AVAILABLE COPY

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Page 3 of 3

CHAIN OF CUSTODY

(Please Refer To This Number For Inquires)

510882
p-3/3

Mailing/Billing Information:
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2. Address 1: 301-IH Old Bay Lane
3. Address 2: Attn: NGB-AVN-SI, State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:
1. Job Name: KC- Philadelphia - Southampton
2. Job Location:
3. Job #: [redacted] W912K6-09-A-0003
4. Contact Person [redacted] or phone # (410) 942-0273
5. Submitted by: [redacted] Signature:

Reporting Information (Results will be provided as soon as technically feasible):

AFTER HOURS (must be pre-scheduled)	NORMAL BUSINESS HOURS			REPORT TO:
☐ Immediate Due Date: ☐ 24 Hours Time Due: Comments:	☐ Immediate ☐ Next Day ☐ 2 Day	☐ 3 Day ☒ 5 Day + Date Due:	☐ Results Required By Noon (Every Attempt Will Be Made In Accomodate)	☒ Include COC/Field Data Sheets with Report ☒ [redacted] us.army.mil us.army.mil

Asbestos Analysis
PCM Air – Please Indicate Filter Type:
☐ NIOSH 7400 ___ (QTY)
☐ Fiberglass ___ (QTY)
TEM Air – Please Indicate Filter Type:
☐ AHERA ___ (QTY)
☐ NIOSH 7402 ___ (QTY)
☐ Other (specify ___) ___ (QTY)
PLM Bulk
☐ EPA 600 – Visual Estimate ___ (QTY)
☐ EPA Point Count ___ (QTY)
☐ NY State Friable 198.1 ___ (QTY)
☐ Grav. Reduction ELAP 198.6 ___ (QTY)
☐ Other (specify ___) ___ (QTY)
MISC
☐ Vermiculite
☐ Asbestos Soil ___

TEM Bulk
☐ ELAP 198.4 (Chatfield) ___ (QTY)
☐ NY State PLM/TEM ___ (QTY)
☐ Residual Ash ___ (QTY)
TEM Dust
☐ Qual. (presence) Vacuum/Dust ___ (QTY)
☐ Quan. Infrared Vacuum D5755-95 ___ (QTY)
☐ Quan. (microvac) D6480-99 ___ (QTY)
TEM Water
☐ Qual. (presence) ___ (QTY)
☐ ELAP 198.2/EPA 100.2 ___ (QTY)
☐ EPA 100.1 ___ (QTY)

☐ All samples received in good condition unless otherwise noted.
(TBD) Water samples ___ °C)

Metals Analysis
☐ Pb Paint Chip ___ (QTY)
☐ Pb Dust Wipe (wipe type ___) ___ (QTY)
☐ Pb Air ___ (QTY)
☐ Pb Soil/Solid ___ (QTY)
☐ Pb TCLP ___ (QTY)
☐ Drinking Water ☐ Pb ___ (QTY) ☐ Cu ___ (QTY) ☐ As ___ (QTY)
☐ Waste Water ☐ Pb ___ (QTY) ☐ Cu ___ (QTY) ☐ As ___ (QTY)
☐ Pb Furnace (Media ___) ___ (QTY)
Fungal Analysis
Collection Apparatus for Spore Trap/Air Samples:
Collection Media ___
☐ Spore Trap ___ (QTY) ☐ Surface Vacuum Dust ___ (QTY)
☐ Surface Swab ___ (QTY) ☐ Culturable Bioaerosols (Media ___) ___ (QTY)
☐ Surface Tape ___ (QTY) ☐ Culturable ID Species (Media ___) ___ (QTY)
☐ Other (Specify ___) ___ (QTY)

SAMPLE INFORMATION / ANALYSIS / MATRIX

CLIENT ID NUMBER	SAMPLE LOCATION / IDENTIFICATION	DATE	VOLUME (LITERS)	WIPE AREA	Analysis	Matrix	CLIENT CONTACT (LABORATORY STAFF ONLY)
1107484-25		7/19		100cm²	X	X	Date/Time: Contact: By:
1107484-26		↓		↓	X	X	
							Date/Time: Contact: By:
							Date/Time: Contact: By:
							[redacted]

LABORATORY STAFF ONLY: (CUSTODY)
1. Date/Time RCVD: ___ / ___ / ___ @ ___ Via ___ By (Print) ___ Sign: [redacted]
2. Date/Time Analyzed: ___ / ___ / ___ @ ___ By (Print) ___ Sign: ___
3. Results Reported To: ___ Via ___ Date: ___ / ___ / ___ Time: ___ Initials: ___
4. Comments: ___

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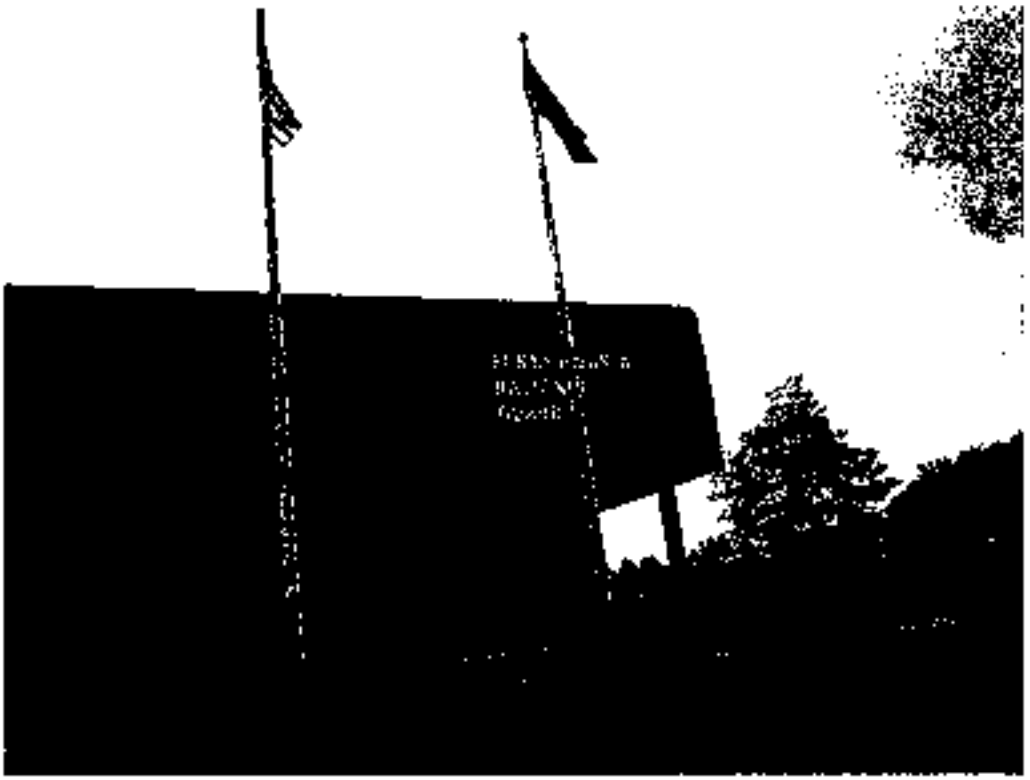
Appendix B
Photographs

Photo #1 RC Southampton – Exterior of Building



Photo#2 RC Southampton Exterior of Building

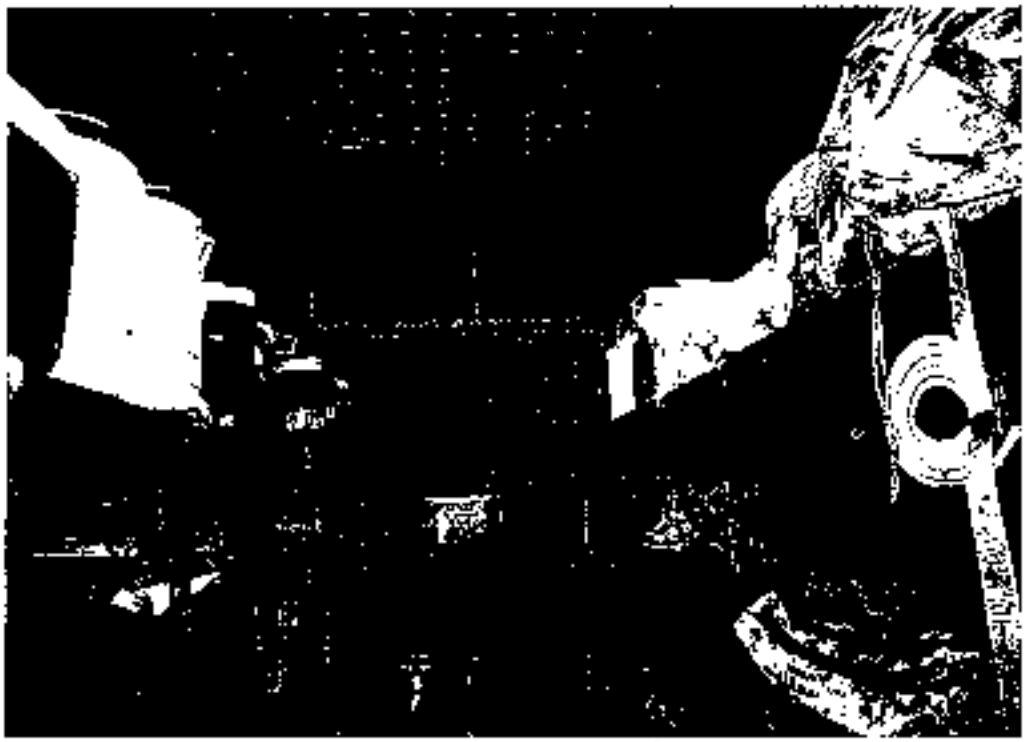


Photo #3 RC Southampton Converted Firing Range

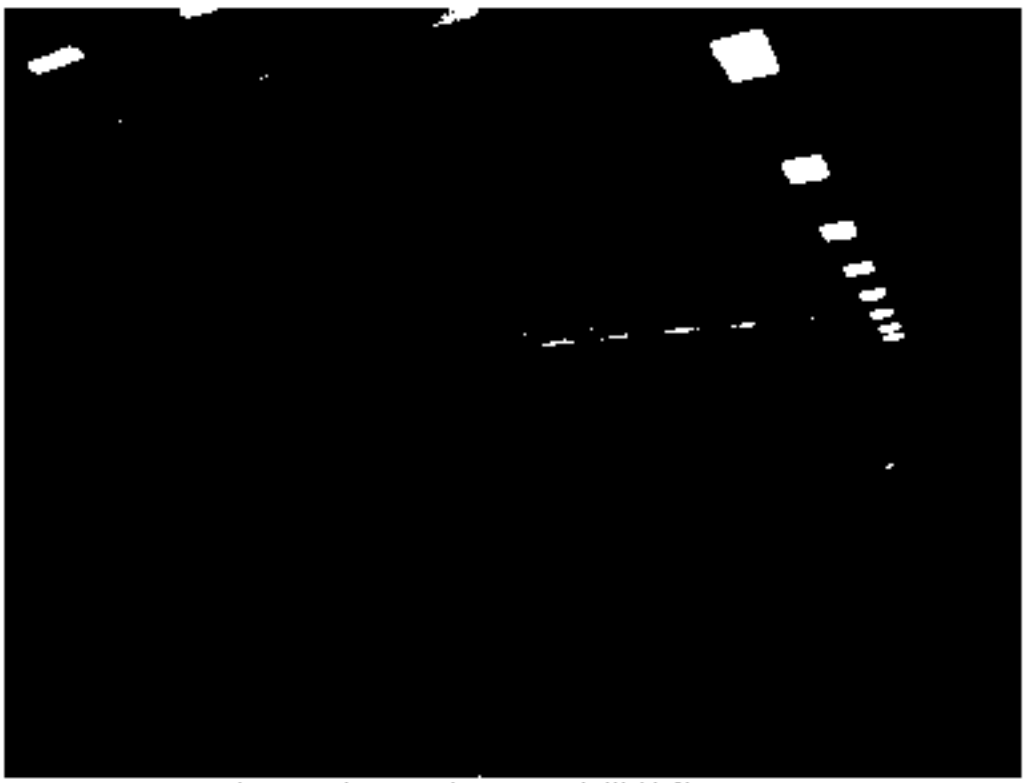


Photo #4 RC Southampton Drill Hall

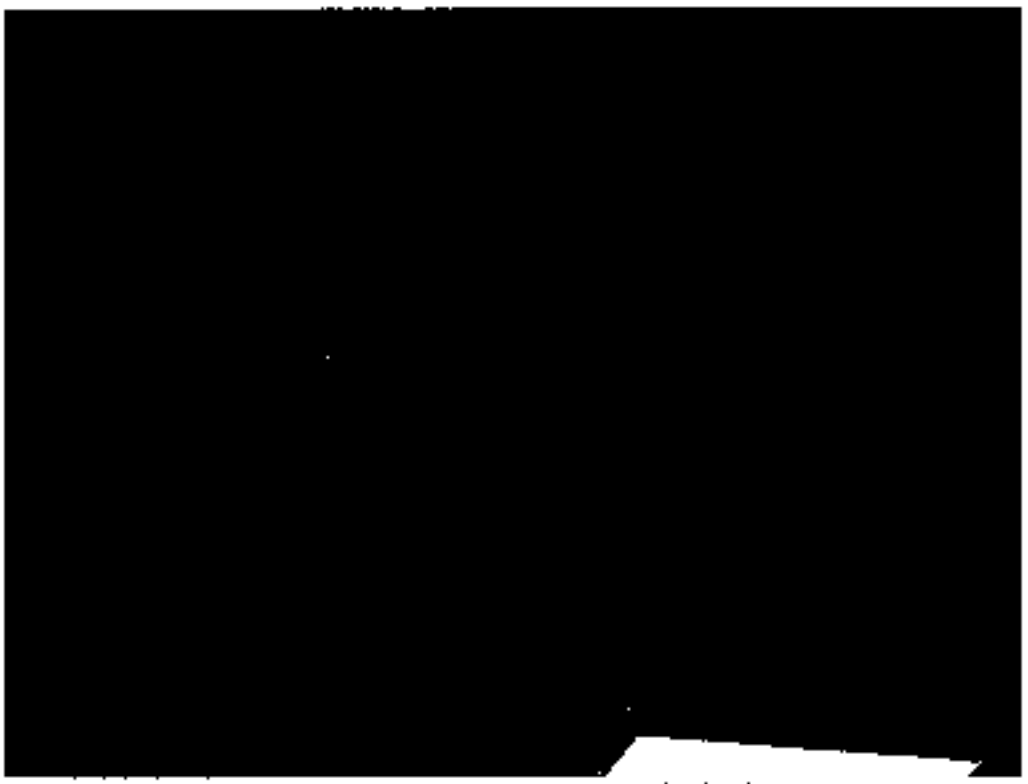
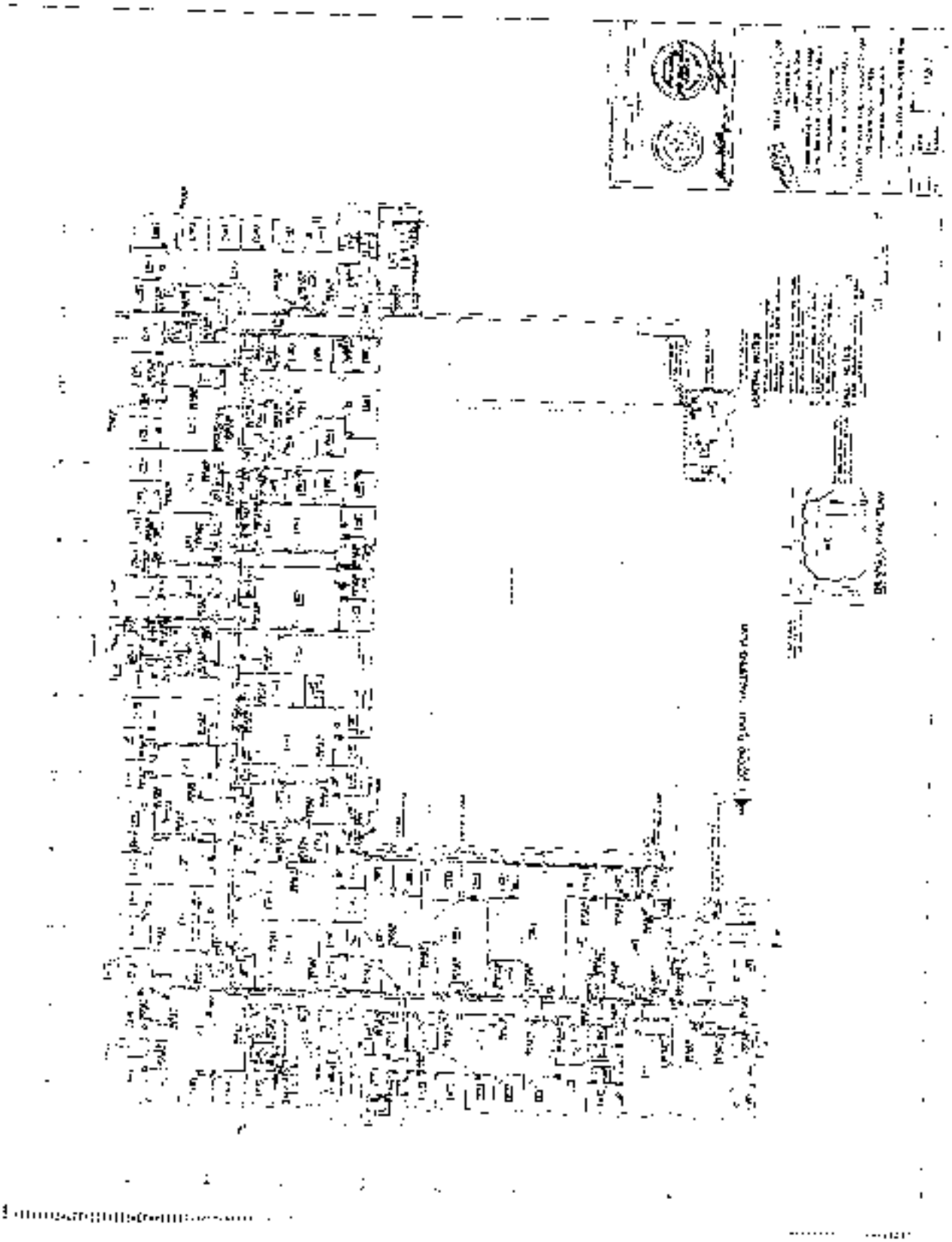


Photo #5 RC Southampton Dirty Supply Grill

Photo #6 RC Southampton Converted Firing Range

Appendix C
Floor Plan



Appendix D
References

Appendix D. References

1. Title 29 Code of Federal Regulations (CFR). Part 1910.1025. Occupational Safety and Health Administration. Occupational Exposure to Lead

2. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values and Biological Exposure Indices, 2011 Edition

3. Industrial Ventilation: A Manual of Recommended Practice for Design. 27th Edition

4. American Society of Heating, Refrigerating and Air-Conditioning Engineers. Ventilation for Acceptable Indoor Air Quality. 62.1-2010

5. RP-1-2005. Industrial Lighting. Illuminating Engineering Society of North America ANSI

6. RP-7-2001. Industrial Lighting. Illuminating Engineering Society of North America ANSI

7. National Emission Standard Hazardous Air Pollutants (NESHAP) The standards for asbestos are contained in 40 CFR 61.140 through 61.157.

8. Environmental Protection Agency (EPA) standards [40 Code of Federal Regulations (CFR) 745.227(e)(3)]

9. Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the U.S Army Center for Health Promotion and Preventive Medicine (USACHPPM)

10. The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland




Industrial Hygiene Survey for PAARNG – Philadelphia-Southampton Readiness Center 2700 Southampton Road Philadelphia, Pennsylvania 19154

AECOM
February 2013
Document No.: 60276421.1/Philadelphia-Southampton Readiness Center

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland

Industrial Hygiene Survey for PAARNG – Philadelphia-Southampton Readiness Center 2700 Southampton Road Philadelphia, Pennsylvania 19154

Non-Responsive
Industrial Hygienist
Non-Responsive
Project Manager
Non-Responsive
Northeast District Health & Safety Manager

AECOM
February 2013
Document No.: 60276421.1/Philadelphia-Southampton Readiness Center

AECOM

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Executive Summary

On February 5, 2013, AECOM conducted an Industrial Hygiene (IH) survey of the Philadelphia-Southampton Readiness Center facility located at 2700 Southampton Road in Philadelphia, Pennsylvania. Mr. [redacted], State Maintenance Supervisor, was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Philadelphia-Southampton Readiness Center operations.

The industrial hygiene survey was generally conducted in accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings", dated January 2012.

The Philadelphia-Southampton Readiness Center is currently staffed by forty personnel. Some of the personnel were not present at the time of the survey due to active duty assignments or other off-site responsibilities. The facility is configured as an administrative area and an Assembly Hall.

Personnel at the facility were undertaking normal daily activities, which are primarily administrative in nature, at the time of the survey.

The activities undertaken during the Industrial Hygiene survey included facility descriptions, lead wipe/air sampling, evaluation of housekeeping, illumination studies, ventilation system evaluation, and a review of the physical building condition.

The Philadelphia-Southampton Readiness Center is housed in a two-story masonry building, and consists of approximately 80% administrative space and 20% Assembly Hall.

Lighting levels measured throughout the facility were generally adequate as per American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IESNA RP-1-2004), Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005, with the exception of the mechanical room and a storage room.

Wipe samples collected for lead-containing dust throughout the facility did not indicate lead levels above the ARNG action level.

No peeling lead-based paint was observed at the Philadelphia-Southampton Readiness Center during this survey.

No visible damaged suspect asbestos-containing material (ACM) was observed.

No visible water damage or visible signs of mold growth were observed.

The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of air handling units that provide fresh air from outside the building exterior to administrative areas. Natural gas boilers feed radiant heaters throughout the building including offices, storage/supply rooms, the assembly hall as well as provide heat for the facilities domestic water.

1.0 Facility Description and Operations

The Philadelphia-Southampton Readiness Center, constructed in 1976, is a two-story administrative facility masonry structure, with a partial basement. The mechanical/boiler rooms and the former indoor firing range are located in the basement. According to site personnel, the Philadelphia-Southampton Readiness Center has undergone approximately 12 million dollars in renovations and upgrades over the past several years. Some of these upgrades include a new kitchen (1 year ago), new lighting system (2 years ago), new natural gas boilers (4 years ago), and two multi-purpose rooms (4 years ago) in the assembly hall. The building consists of two main sections. The larger two-story section, located around the perimeter of the building, consists primarily of offices, training/classroom, locker/shower rooms, storage and administrative areas, and is finished with sheetrock walls, lay-in ceiling tiles and floor tile. The Philadelphia-Southampton Readiness Center was designed and constructed with no office/corridor/stairwell windows. The two-story Assembly/Drill Hall area, located in the center of the building, is finished with painted block walls and a concrete floor. According to site personnel there is a former indoor firing range (IFR) located in the basement of the facility which is currently used as a personnel caged supply room. According to site personnel, the former IFR was one of the first renovations/upgrades (conducted mid-1980) that have occurred at the facility.

The primary activity at the Philadelphia-Southampton Readiness Center is routine administrative duties and occasional use by units for support and training of soldiers. The Assembly Hall is frequently rented out for civic activities. The Philadelphia-Southampton Readiness Center is currently staffed by forty personnel. There is no attached garage/service bay and no vehicle maintenance activities are undertaken at the facility. There is a field maintenance shop (FMS) building on the other side of the common paved parking area approximately 1,500 feet away from the Philadelphia-Southampton Readiness Center.

2.0 Sampling in Readiness Centers

2.1.1 Wipe Sampling

Wipe sampling for lead was conducted in the assembly hall and administrative areas following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost wipes. Samples were collected in areas that are not frequently cleaned and showed signs of dust whenever possible.

The following table presents the results of the lead wipe sampling conducted at the facility.

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
W – 001	Assembly Hall - floor	<110 ug/ft^2
W – 002	Kitchen - counter	<110 ug/ft^2
W – 003	First Floor Orderly Office - desk top	<110 ug/ft^2
W – 004	First Floor Orderly Office - shelf	<110 ug/ft^2
W – 005	Administrative Corridor – floor	<110 ug/ft^2
W - 006	Supply Room (Former Firing Range – bullet trap area)	<110 ug/ft^2
W - 007	Supply Room (Former Firing Range – shelf)	<110 ug/ft^2
W - 008	Supply Room (Former Firing Range – floor)	<110 ug/ft^2
W - 009	Supply Room - corridor	<110 ug/ft^2

ug/ft^2 = Micrograms per square foot.

Wipe samples collected in association with the administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U.S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 micrograms per square foot (ug/ft^2) for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas. Former indoor firing ranges shall be converted in accordance with NG-PAM 420-15. Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

Per Shirley Chapman of NGB-IH, the requirement for Lead air sampling has been removed from the Statement of Work. It was reported that historically, air samples collected at administrative facilities are typically below the limit of detection.

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls appeared to be generally in good condition. Concrete flooring was generally tiled or unpainted. AECOM did not observe damaged or peeling paint during this evaluation.

3.1.2 Suspect Asbestos Containing Materials

AECOM did not observe damaged, friable suspect asbestos containing materials (ACM) in readily accessible areas of the Philadelphia-Southampton Readiness Center during this survey. Thermal system piping observed throughout the facility is typically covered in typical fiberglass insulation with associated fittings and appeared in good condition.

Other typical suspect miscellaneous building materials observed throughout the building but not sampled include floor tiles and associated mastic, cove base and associated mastic, and lay-in ceiling tiles.

3.1.3 Water Damage/Mold

AECOM did not observe evidence of water intrusion during this survey.

3.1.4 Housekeeping

The Philadelphia-Southampton Readiness Center was observed to be generally clean and orderly during this assessment. AECOM did not observe dust accumulation on readily accessible horizontal surfaces within areas commonly used in the facility.

3.1.5 Indoor Air Quality/ Ergonomics

The administration section of the building contains general office space. The administration section is generally utilized by all of the Philadelphia-Southampton Readiness Center staff members including a recruiter. No Indoor Air Quality concerns were noted by the Philadelphia-Southampton Readiness Center personnel.

Philadelphia-Southampton Readiness Center personnel did not report any ergonomics issues or concerns. Office furniture and accessories designed to promote ergonomically correct behaviors were observed.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (^{o} Fahrenheit), and relative humidity (as percentage) are presented in the following table.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (^{o}F)	Relative Humidity (%)
Outside	0.3	323	42.3	25.1
State Maintenance Office	1.0	409	67.5	27.0
Foyer	0.9	357	71.2	21.6
Mechanical Room	0.9	310	71.1	18.5
Men's Locker Room	0.4	334	70.2	20.8
Supply Corridor	1.2	367	68.2	19.7
Personnel Supply Room (former indoor fire range)	0.8	345	69.3	21.2

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (^{o}F)	Relative Humidity (%)
Kitchen	0.0	378	68.8	20.9
Orderly Room	0.4	288	64.9	21.8
Physical Fitness Room	0.1	412	66.7	22.7
Men's Shower Room	0.0	483	68.6	22.1
Storage Room	0.8	496	70.1	25.0
Storage Corridor	0.5	329	70.9	18.3
Assembly Hall	0.6	316	71.2	17.7
Administrative Office	0.6	325	71.3	17.6
Administrative Corridor	0.8	392	70.6	19.1
Recruiter Office	0.1	400	70.7	18.9
Orderly Office	0.4	461	71.2	19.9
Conference Room	0.0	327	71.3	18.7
Copy/Mail Room	0.3	331	70.8	17.7
Administrative Office	0.2	326	71.2	18.4
Break Room	0.0	379	69.2	17.6

Table 3-1 Guidelines:
Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard. OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.
Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.
Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 5.10.1).
Temperature: Winter (clothing insulation = 1.0 clo) Relative humidity 30-60% - Temp - 68 – 75°F
Summer Temp - 73 – 79°F. (Derived from ASHRAE Standard 55-2010)

4.0 Ventilation and HVAC System

4.1.1 Ventilation Systems and Potential for Contamination of Clean Air Sources

There is a field maintenance shop (FMS) building located approximately 1,500 feet away from the Philadelphia-Southampton Readiness Center. As such, a slight potential for contamination of clean air sources was observed at the facility. However, as noted no Indoor Air Quality concerns were noted by personnel.

The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of air handling units that provide fresh air from outside the building exterior to administrative areas.

4.1.2 HVAC Maintenance

The HVAC system is reported to be on an annual maintenance/service agreement. Further, building personnel informed AECOM that the HVAC filters are changed at twice a year. Natural gas boilers feed radiant heaters throughout the building including storage areas, the assembly hall administrative area and provide heat for the facilities domestic water.

5.0 Lighting

Lighting levels in all areas were measured utilizing a Cal-Light 400 light meter that displays lighting levels in foot-candles. Lighting levels were generally adequate with the exception of the mechanical room and a storage room.

Table 5-1: Light Survey

Location	Results – (Foot candles)	Met Standard (Y/N)	Standard*
State Maintenance Office	50.9	Y	50
Foyer	39.3	Y	10
Mechanical Room	12.9	N	30
Men's Locker Room	38.7	Y	7
Supply Corridor	28.9	Y	5
Personnel Supply Room (former indoor fire range)	30.6	Y	30
Kitchen	54.3	Y	50
Orderly Room	83.1	Y	50
Physical Fitness Room	51.7	Y	30
Men's Shower Room	37.7	Y	5
Storage Room	29.6	N	30
Storage Corridor	24.4	Y	5
Assembly Hall	25.9	Y	10
Administrative Office	85.0	Y	50
Administrative Corridor	25.3	Y	5
Recruiter Office	96.2	Y	50
Orderly Office	94.3	Y	50
Conference Room	101.6	Y	30
Copy/Mail Room	82.1	Y	30
Administrative Office	74.4	Y	50
Break Room	82.1	Y	10
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI/IESNA RP-7-01)			

6.0 Evaluation of Attached Garage

There is no attached garage associated with the Philadelphia-Southampton Readiness Center.

7.0 Conclusions and Limitations

AECOM has conducted this survey in accordance with applicable OSHA methods and standard industrial hygiene practice. The following conclusions were based on the observations and assessments of activities that occurred during the on-site evaluation:

Housekeeping is performed regularly at the Philadelphia-Southampton Readiness Center.

AECOM did not observe any damaged, suspect asbestos-containing materials at the Philadelphia-Southampton Readiness Center.

AECOM did not observe peeling paint at the Philadelphia-Southampton Readiness Center.

AECOM did not observe evidence of water intrusion at the Philadelphia-Southampton Readiness Center.

Lighting levels measured throughout the facility were generally adequate as per ANSI/IESNA RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005, with the exception of the mechanical room and a storage room.

Wipe samples collected in association with the administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft^2 for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

AECOM provided these services consistent with the level and skill ordinarily exercised by members of the profession currently providing similar services under similar circumstances at the time the services were provided. This statement is in lieu of other statements either expressed or implied. This report is intended for the sole use of National Guard Bureau – Army National Guard. The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, and use or re-use of this document, the findings, conclusions, or recommendations is at the risk of said user.

As with all such surveys, the results of the sampling represent conditions found on the date of the survey and may not represent conditions found at other times. Additionally, this survey was limited with respect to the specific parameters indicated above and should not be construed to be a comprehensive evaluation or a definitive representation of conditions within the facility. The information presented in this report is intended to be used as a guide to evaluate the need for further investigation or the need for modifications to the processes or procedures surveyed.

The Client recognizes and agrees that all testing and remediation methods have reliability limitations, no method nor number of sampling locations can guarantee that a condition will be discovered within the performance of the services as authorized by the Client. Additionally, the passage of time may result in a change in the environmental characteristics at this site. This report does not warrant against future operations or conditions that could affect the recommendations made. The results, findings, conclusions, and recommendations expressed in this report are based only on conditions that were observed during AECOM's inspection of the site.

Appendix A

Philadelphia-Southampton Readiness Center Facility Layout

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Not available at time of survey, multiple unsuccessful attempts were made to attain it prior to issuing the Final Report.

Appendix B

Philadelphia-Southampton Readiness Center Photographs

Photograph 1

View of Building Exterior

Photograph 2

View of Foyer

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Photograph 3

View of Mechanical/Boiler Room

Photograph 4

View of Former Indoor Firing Range Currently Personnel Supply Room

Photograph 5

View of Typical Radiant Heater in Supply Room

Photograph 6

View of Kitchen

Photograph 7

View of Physical Fitness Room

Photograph 8

View of Orderly Office

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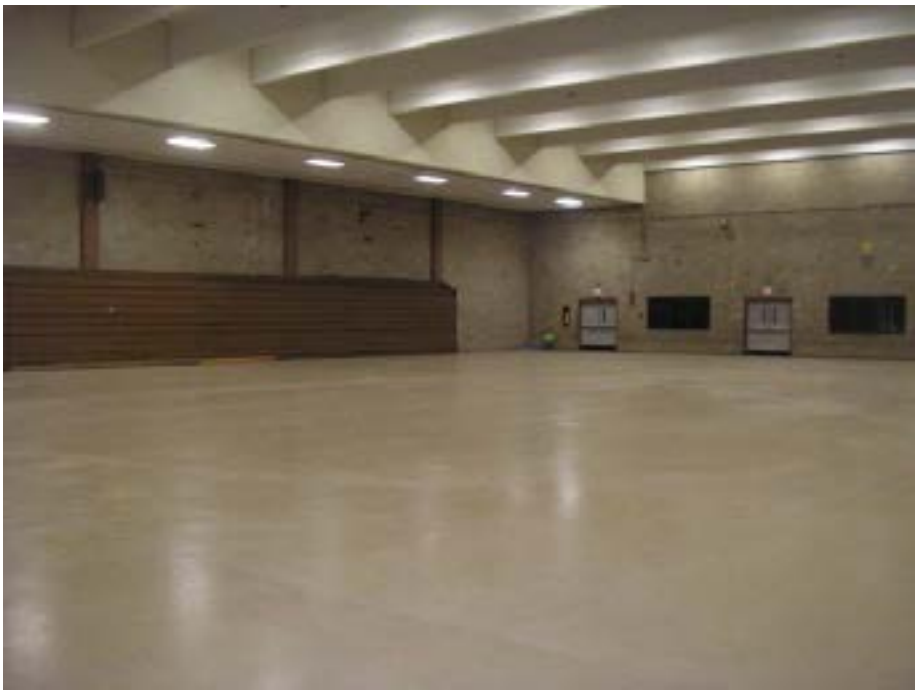
Photograph 9



View of Assembly Hall

Photograph 10

View of Administrative Offices

Photograph 11

View of Conference Room

Photograph 12

View of Break Room

Appendix C

Analytical Results

AECOM

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	Philadelphia-Southampton RC	Chain Of Custody:	515109		
Address:	316-H Old Bay Lane, Attn: ARNG-CIG-P, State Military Reservation	Job Location:	Not Provided	Date Submitted:	2/1/2013		
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM		
		P.O. Number:	W912K6-09-A-0010	Date Analyzed:	2/8/2013	Report Date:	2/8/2013

Attention: Non-

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	Total ug	Final Result	Comments
13036985	W-001	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13036986	W-002	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13036987	W-003	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13036988	W-004	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13036989	W-005	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13036990	W-006	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13036991	W-007	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13036992	W-008	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13036993	W-009	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	

An AIHA (#101478) and NY ELAP (#10920) Accredited Laboratory

4475 Forbes Blvd. - Lanham, MD, 20706 - (301) 459-2640 - Toll Free (800) 346-0961 - Fax (301) 459-2643

AECOM

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	Philadelphia-Southampton RC	Chain Of Custody:	505109		
Address:	300-311 Old Bay Lane, Attn: ARNG-CIG-P, State Military Reservation	Job Location:	Not Provided	Date Submitted:	2/1/2013		
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM		
		P.O. Number:	W912DS-09-A-0003	Date Analyzed:	2/1/2013	Report Date:	2/18/2013

Attention: Non-Responsive

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	Total ug	Final Result	Comments

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B

See QC Summary for analytical results of quality control samples associated with these samples.

N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)

%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)

Note: All samples were received in good condition unless otherwise noted.

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results

Final results for air and wipe samples are based on client supplied information nor verified by this laboratory.

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

Analyst: Non-Responsive

Technical Manager: Non-Responsive

An AIHA (#100429) and NY ELAP (#10920) Accredited Laboratory

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(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This Number For Inquiries) **515109**

Mailing/Billing Information:
1. Client Name: National Guard Bureau
2. Address 1: 301-IH Old Bay Lane
3. Address 2: Attn: NGB-AVN-SL State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information: Philadelphia - Southampton RC
(1) [illegible]
(2) [illegible]
3. Job #: PO #: W91ZRS-09-A-0003
4. Contact Person: [redacted]
5. Submitted by: AECOM [redacted]

Reporting Info (Results provided as soon as technically feasible). If no TAT/Reporting Info is provided, AMA will assign defaults of 5-Day [redacted] is on file.

[illegible] 3/18/13 [redacted]

TEM Bulk:
- ☐ ELAP 198.4/Chatfield ______ (QTY)
- ☐ NY State PLM/TEM ______ (QTY)
- ☐ Residual Ash ______ (QTY)

TEM Dust:
- ☐ Qual. (portable) Vacuum/Dust ______ (QTY)
- ☐ Quan. (others) Vacuum D5755-03 ______ (QTY)
- ☐ Quan. (others) Dust D6480-99 ______ (QTY)

TEM Water:
- ☐ Qual. (portable) ______ (QTY)
- ☐ ELAP 198.2/EPA 100.2 ______ (QTY)
- ☐ EPA 100.1 ______ (QTY)

☐ All samples received in good condition unless otherwise noted. (TEM Water samples ______ °C)

PCM Air – Please Indicate Filter Type:
- ☐ NIOSH 7400 ______ (QTY)
- ☐ Fiberglass ______ (QTY)

TEM Air – Please Indicate Filter Type:
- ☐ AHERA ______ (QTY)
- ☐ NIOSH 7402 ______ (QTY)
- ☐ Other (specify ______) ______ (QTY)

PLM Bulk:
- ☐ EPA 600 – Visual Estimate ______ (QTY)
- ☐ EPA Point Count ______ (QTY)
- ☐ NY State Friable 198.1 ______ (QTY)
- ☐ Grav. Reduction ELAP 198.6 ______ (QTY)
- ☐ Other (specify ______) ______ (QTY)

MISC:
- ☐ Vermiculite
- ☐ Asbestos Soil [illegible]

[illegible]:
- ☐ Pb Paint Chip ______ (QTY)
- ☒ *Pb Dust Wipe (wipe type [illegible]) 9 (QTY)
- ☐ *Pb Air ______ (QTY)
- ☐ Pb Soil/Solid ______ (QTY)
- ☐ Pb TCLP ______ (QTY)
- ☐ Drinking Water ☐ Pb ___ (QTY) ☐ Cu ___ (QTY) ☐ As ___ (QTY)
- ☐ Waste Water ☐ Pb ___ (QTY) ☐ Cu ___ (QTY) ☐ As ___ (QTY)
- ☐ Pb Furnace (Media ______) ______ (QTY)

[illegible]:
Collection Apparatus for Spore Trap/Air Samples: ______
Collection Media ______
- ☐ *Spore-Trap ______ (QTY)
- ☐ *Surface Swab ______ (QTY)
- ☐ *Surface Tape ______ (QTY)
- ☐ Other (Specify ______) ______ (QTY)
- ☐ Surface Vacuum Dust ______ (QTY)
- ☐ Culturable ID Gross (Media ______) ______ (QTY)
- ☐ Culturable ID Species (Media ______) ______ (QTY)

If field data sheets are included, there is no need to complete bottom section.

CLIENT ID #	SAMPLE LOCATION/ID	DATE/TIME	VOL(L)/Wipe Area	ANALYSIS	MATRIX	CLIENT CONTACT (LABORATORY STAFF ONLY)
W-001	Assembly Hall [illegible]	2/5	1 ft²	X	X	Date/Time: Contact: By:
W-002	Kitchen - counter	↓	↓	↓	↓	
W-003	[illegible]					
	SEE ATTACHED FIELD DATA SHEETS					
W-004	[illegible]					Date/Time: Contact: By:
W-005	Admin Corr. Floor					
W-006	IFR - [illegible]					
W-007	IFR - shelf					
W-008	IFR - [illegible]					Date/Time: Contact: By:
W-009	Supply Rm Corr. floor					

LABORATORY STAFF ONLY / CUSTODY:
1. Received by: 2 11 15 930 FedEx [redacted]
2. [illegible]
3. [illegible]
4. [illegible]

Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. http://www.osha.gov/comp-links.html

2. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998. http://www.dtic.mil/whs/directives/corres/pdf/605501p.pdf

3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF

4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://armypubs.army.mil/epubs/pdf/R40_5.PDF

5. AR 385-10, The Army Safety Program, 23 August 2007; Rapid Action Revision (RAR) issue date: 4 October 2011. http://armypubs.army.mil/epubs/pdf/R385_10.PDF

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7. DA PAM 40-11, Preventive Medicine, 22 July 2005, RAR issue date: 19 October 2009. http://armypubs.army.mil/epubs/pdf/p40_11.pdf

8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://armypubs.army.mil/epubs/pdf/P40_503.PDF

9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf

10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current Ed.

11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.

12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.

13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.

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15. RP-1-2004, Office Lighting, ANSI/IESNA.

16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.

17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.

18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.

19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf

INDUSTRIAL HYGIENE SURVEY

DET 1 131ST TRANS CO
276TH ARMY BAND
128TH CHEMICAL CO
AVG TDA 128TH CHEMICAL CO
DET 1 HHB 1ST BN 108TH FA
HHC 56TH BDE (MECH)
HHC AVG TDA 56TH BDE (MECH)
CO A 1/111TH INF (MECH)

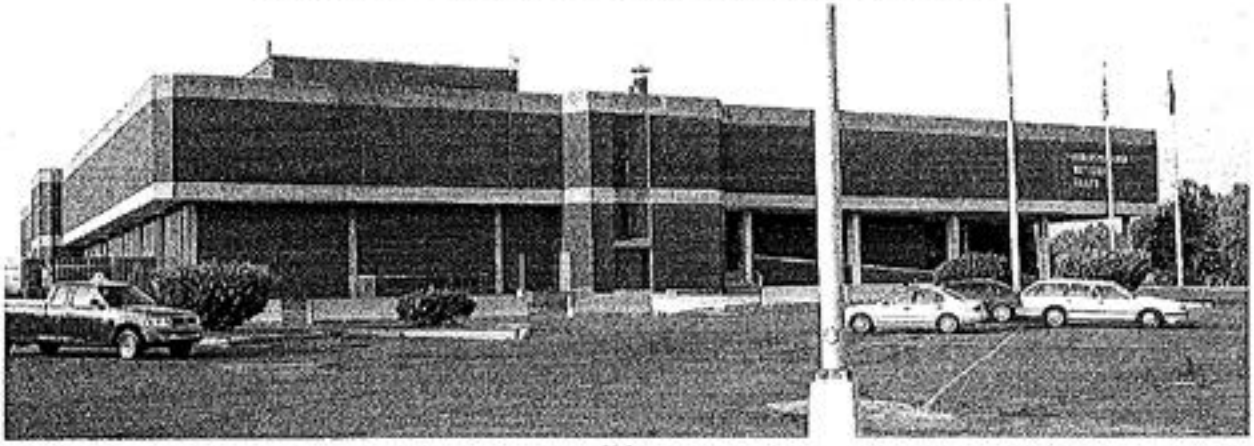
Southampton Road
PHILADELPHIA, PA

August 21, 2003

OPTECH

OPERATIONAL TECHNOLOGIES
CORPORATION

INDUSTRIAL HYGIENE SURVEY



DET 1 131ST TRANS CO
276TH ARMY BAND
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HHC 56TH BDE (MECH)
HHC AVG TDA 56TH BDE (MECH)
CO A 1/111TH INF (MECH)
SOUTHAMPTON ROAD
PHILADELPHIA, PENNSYLVANIA

1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Southampton Road Armory in Philadelphia, Pennsylvania on August 21, 2003. NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. Non-Responsive from OpTech, completed this survey. Non-Responsive, a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the IH Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D.

RECOMMENDATIONS

1. INDOOR AIR QUALITY

1.1. Carbon dioxide levels were slightly elevated in most occupied areas. This is normally due to the lack of fresh air being introduced into the HVAC system. Indoor temperatures varied from 66.5 to 79.2°F, which is slightly lower and higher than recommended comfort ranges. Relative humidity readings were above the 60% recommended levels in portions of the basement and one office on the second floor. Humidity should be maintained below 60% for occupant comfort and controlling mold growth. Elevated humidity levels may indicate water intrusion. Recommend that humidity levels be controlled to levels lower than 60%. Water intrusion should be further investigated.

2. LIGHTING

2.1. Illumination levels were below recommended minimum standards in many areas of the facility, although some areas were only slightly lower than these standards. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3. WIPE SAMPLES

3.1. Four of five wipe samples in the former indoor firing range, as well as a basement supply office, three second floor offices and a sample collected in the assembly hall exceeded the 200 $\mu g/ft^2$ criterion. The source of lead contamination was apparently from the inactive indoor firing range. Apparently lead dust has migrated from the range to other areas of the facility over time. Recommend that affected areas be wet-wiped/mopped and/or cleaned with a high efficiency particulate air (HEPA) vacuum. This method of cleaning should be accomplished during routine cleaning duties.

4. WATER INTRUSION

4.1. Many stained ceiling tiles from previous water intrusion damage were noted throughout the facility. Ceiling tiles in some areas were falling down. Elevated relative humidity levels were measured in some areas, which may indicate current water intrusion. Recommend that water intrusion be further investigated and corrected as needed. Water stained and damaged ceiling tiles and insulation should be replaced to prevent mold growth.

5. HOUSEKEEPING

5.1. Office areas in the facility are being kept very clean and orderly. The building is being kept in very good condition, with the exception of the ceiling tiles. An excessive amount of dust was noted in supply and return air vents. This may indicate substandard HVAC filtration. Recommend that the HVAC system's filtration be investigated and repaired or upgraded.

2.0. EXECUTIVE SUMMARY

2.1. Carbon dioxide levels were slightly elevated in most occupied areas. This is normally due to the lack of fresh air being introduced into the HVAC system. Indoor temperatures varied from 66.5 to 79.2°F, which is slightly lower and higher than recommended comfort ranges. Relative humidity readings were above the 60% recommended levels in portions of the basement and one office on the second floor. Humidity should be maintained below 60% for occupant comfort and controlling mold growth.

2.2. Illumination levels were below recommended minimum standards in many areas of the facility.

2.3. Wipe samples for inorganic lead were collected. Four of five samples in the former indoor firing range, as well as a basement supply office, three second floor offices and a sample collected in the assembly hall exceeded the 200 $\mu g/ft^2$ criterion. The source of lead contamination was apparently from the inactive indoor firing range. Apparently lead dust has migrated from the range to other areas of the facility over time.

2.4. Air sampling for inorganic lead was taken. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building.

2.5. Many stained ceiling tiles from previous water intrusion damage were noted throughout the facility. Ceiling tiles in some areas were falling down. Elevated relative humidity levels were measured in some areas, which may indicate current water intrusion.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	DET 1 131ST TRANS CO		276TH ARMY BAND
128TH CHEMICAL CO	AVG TDA 128TH CHEMICAL CO		HHC AVG TDA 56TH BDE (MECH)
HHC 56TH BDE (MECH)	DET 1 HHB 1ST BN 108TH FA		CO A 1/111TH INF (MECH)
ADDRESS	2700 Southampton Road		
	Philadelphia, PA 19154		
CONTACT	COL Non-		
PHONE	215-560-6010		
DATE BUILT	1975	FACILITY SIZE	≈ 9000 sq.ft.
INDOOR FIRING RANGE	CLOSED		2 floors plus basement
ASSISTED	CPT Non- / CPT Non-		
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	≈ 30		
TRADITIONAL (MIL)	≈ 3500		
CHILD ACTIVITIES	Facility rented out approximately 2 weekends per month		
ADULT ACTIVITIES			

3.1.1. The exterior of the building is brick and appears to be in good condition. The interior has been kept in good condition, with the exception of ceiling tiles in some areas. The former indoor firing range had recently been cleaned and was empty at the time of this survey.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity (RH) in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 Indoor Air Quality Standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ASHRAE 62-2001, Section 6.1.3, states that concentrations up to 700 ppm CO_2, above outdoor concentrations will achieve an acceptable level of indoor air quality.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ASHRAE 55-1992 recommends that temperature ranges be 73 to 79 degrees Fahrenheit (°F) during the summer and 68 to 74°F during the winter. Relative humidity levels be maintained between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE I
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO_2 (ppm)	Temp. (°F)	RH (%)
0750	Outdoors – Background	0.0	550	75.7	77.4
	BASEMENT				
0800	Room 12 (occupied)	0.0	565	77.1	72.2
0808	Former Indoor Firing Range	0.0	524	77.6	53.3
0930	Basement Hallway	0.0	823	79.2	86.9
	1ST FLOOR				
0813	Main Entry	0.0	620	74.6	49.4
0818	Recruiting Office (occupied)	0.0	660	72.7	52.4
0830	Assembly Hall	0.0	593	77.3	44.2
0840	Kitchen	0.0	642	78.9	43.3
	2nd FLOOR				
0855	Room 206 (occupied)	0.0	663	70.8	50.6
0900	Room 205 (occupied)	0.0	673	69.2	52.3
0905	Room 207 – Mail Room	0.0	581	68.3	39.8
0910	Room 210 (occupied)	0.0	660	66.9	56.9
0915	Room 212 (occupied)	0.0	645	66.5	57.7
0920	Room 209 (occupied)	0.0	725	67.1	59.2
0925	Room 214 (occupied)	0.0	653	67.4	62.2
0940	Outdoors – Background	0.0	555	75.7	79.4

3.2.5. Carbon dioxide levels were slightly elevated in most occupied areas. This is normally due to the lack of fresh air being introduced into the HVAC system. Indoor temperatures varied from 66.5 to 79.2°F, which is slightly lower and higher than recommended comfort ranges. Relative humidity readings were above the 60% recommended levels in portions of the basement and one office on the second floor. Humidity should be maintained below 60% for occupant comfort and controlling mold growth.

3.3. ILLUMINATION

3.3.1. Illumination levels were measured in most areas of the facility. Sunlight was excluded, as much as possible for this survey, by closing doors and blocking windows. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 - 463). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
BASEMENT				
Room 12 – Supply Office	46 – 60	52.8	70	NO
Desks	40 – 42	41	70	NO
Corridor	6 – 18	11	7.5	YES
Former Firing Range (future storage)	10 – 82	37	30	YES
North Stairs	12 – 40	26	7.5	YES
1ST FLOOR				
Lobby	12 – 32	19	15	YES
Recruiting Office	20 – 46	35	70	NO
Desks	20 – 28	26	70	NO
Reception – State Maint. Office	32 – 66	49	70	NO
Desk	32	32	70	NO
Assembly Hall	78 – 106	86	75	YES
Kitchen	40 – 62	49	75	NO
2ND FLOOR				
Room 206 – Offices	42 – 84	68	70	NO
Desks	62 – 74	67	70	NO
Room 205 Office	66 – 90	79	70	YES
Desk	80	80	70	YES
Conference Table	58 – 72	65	30	YES
Room 207 – Mail Room	56 – 80	67	75	NO
Room 210 – Offices	42 – 80	59	70	NO
Desks	40 – 50	45	70	NO
Desk Supplemental	92	92	70	YES
Conference Table	38 – 46	41	30	YES
Room 212 – Offices	66 – 98	77	70	YES
Desks	52 – 62	59	70	NO
Conference Table	68 – 78	73	30	YES

Location	Luminance Range (fc)	Average	Standard	Standard Met
Room 209 – Offices	42 – 96	66	70	NO
Desks	38 – 62	51	70	NO
Room 214 Offices	44 – 88	65	70	NO
Desk	62	62	70	NO
Conference Table	66 – 78	70	30	YES

3.3.2. Levels were below recommended minimum standards in many areas of the facility, however some areas were barely below these standards. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3.4. LEAD STUDIES

3.4.1. LEAD WIPE SAMPLES

3.4.1.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples were taken at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot ($\mu g/ft^2$) and are listed in Table 3. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
LEAD WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Phi-03233-04	Basement – Room 12	2000
PA Phi-03233-05	1st Floor – Recruiting Office	BDL
PA Phi-03233-06	Assembly Hall – Center of Floor	BDL
PA Phi-03233-07	2nd Floor – Room 206 – Return Air Grille	560
PA Phi-03233-08	2nd Floor – Room 214 – Floor	BDL
PA Phi-03233-09	BLANK Sample	BDL

µg/ft² – micrograms per square foot BDL – Below Detection Limits

3.4.2. ADDITIONAL LEAD SAMPLING

3.4.2. Additional wipe samples were collected during this survey. These samples were collected to further analyze the extent of contamination should the first five samples indicate a possible hazard. Since samples taken in Rooms 12 and 206 exceeded the 200 $\mu g/ft^2$ criteria (see Section 3.4.4.) these additional samples were analyzed. The results are presented below in Table 4.

TABLE 4
ADDITIONAL LEAD WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Phi-03233-10	2nd Floor – Room 209 – Return Air Grille	BDL
PA Phi-03233-11	2nd Floor – Room 207 – Mail Room – Supply Grille	330
PA Phi-03233-12	2nd Floor – Room 231 – Base of Coat Rack	200
PA Phi-03233-13	1st Floor – Kitchen	BDL
PA Phi-03233-14	Assembly Hall – South Wall – Floor	300
PA Phi-03233-15	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.3. CLOSED FIRING RANGE WIPE SAMPLING

3.4.3.1. Additional wipe samples were collected in the former indoor firing range. This area was empty during the survey. Laboratory analysis results are listed in Table 5.

TABLE 5
FORMER FIRING RANGE LEAD WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Phi-03233-16	Exhaust Duct Behind Backstop	94000
PA Phi-03233-17	Backstop Area – Top of Ductwork	44000
PA Phi-03233-18	Floor – ½ Way Down Range	170
PA Phi-03233-19	Light Fixture – Firing Line	9200
PA Phi-03233-20	Floor – Outside Former Range	13000
PA Phi-03233-21	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.4. WIPE SAMPLING RESULTS

3.4.4.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 $\mu g/ft^2$. This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. (See memorandum in Attachment E, Recommendations for Surface Lead Dust in Armories.) Four of five samples in the former indoor firing range, plus a basement supply office, three second floor offices and a sample collected in the assembly hall exceeded the 200 $\mu g/ft^2$ criterion. The source of lead contamination was apparently from the inactive indoor firing range. Apparently lead dust has migrated from the range to other areas of the facility over time.

3.4.5. AIR SAMPLING

3.4.5.1. Air Sampling for inorganic lead was performed during this survey. Table 6 lists the results of these samples, and is reported in milligrams per cubic meter (mg/m^3) of air.

TABLE 6
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
Area – 1st Floor Lobby	PA Phi-03233-01	Lead	<0.002 mg/m³	0.05 mg/m³	YES
Non-R[redacted]	PA Phi-03233-02	Lead	<0.002 mg/m³	0.05 mg/m³	YES
Area – Basement – Outside Former Range	PA Phi-03233-03	Lead	<0.002 mg/m³	0.05 mg/m³	YES

mg/m³ = milligrams per cubic meter < = less than (below detection limits)

3.4.3.2. Air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this building.

3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION DAMAGE

3.5.1.1. Many stained ceiling tiles from previous water intrusion damage were noted throughout the facility. Ceiling tiles in some areas were falling down.

Water Damaged Ceiling Tiles
1st Floor – Near Kitchen Area

Water Stained Ceiling Tiles
Room 207 – Mail Room

3.5.2. PROGRAMS

3.5.2.1. There are no designated confined space areas within this facility. A need has not been established for a HAZCOM program, the need for personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.3. HOUSEKEEPING:

3.5.3.1. Office areas in the facility are being kept very clean and orderly. The building is being kept in very good condition, with the exception of the ceiling tiles. An excessive amount of dust was noted in supply and return air vents. This may indicate substandard HVAC filtration.

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

E – Recommendations for Surface Lead in Armories

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
Philadelphia, PA	PENNSYLVANIA ARNG ARMORY	Southampton Armory

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR (Initials)
21 August 2003	JSS

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	NA	COL Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
215-560-6010	Numbers	3	9

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
30	3500			

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	CONROLS 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			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	½ FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	¼ 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 WEATHR 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	/		

AEHA Form 271-R (Test), 1 Jan 92 (HSHB-MI-I)

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	3	C
124-38-9	Carbon Dioxide	0	C

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

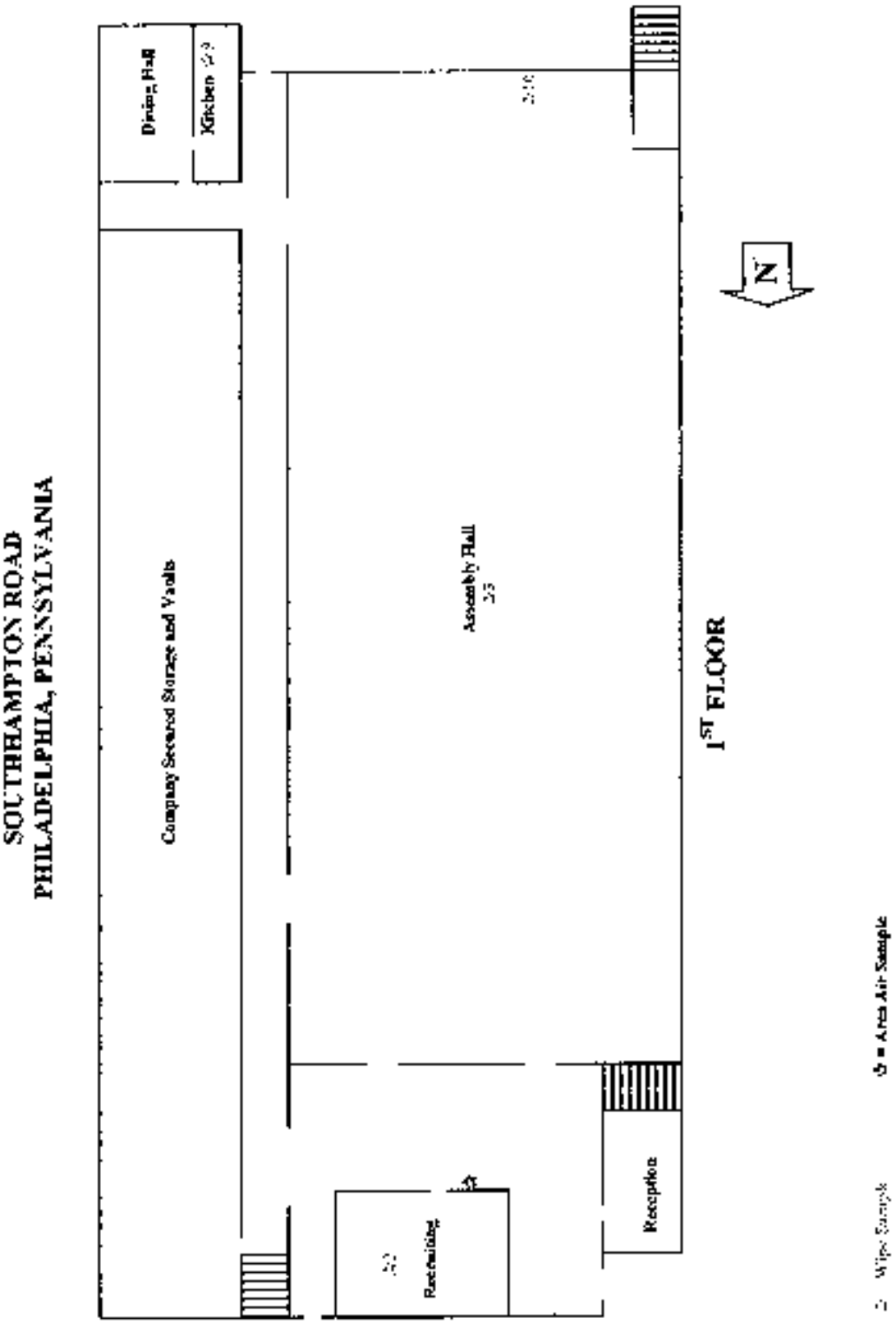
SECTION 6. COMMENTS

☐ No comments ☐ See attached sheet

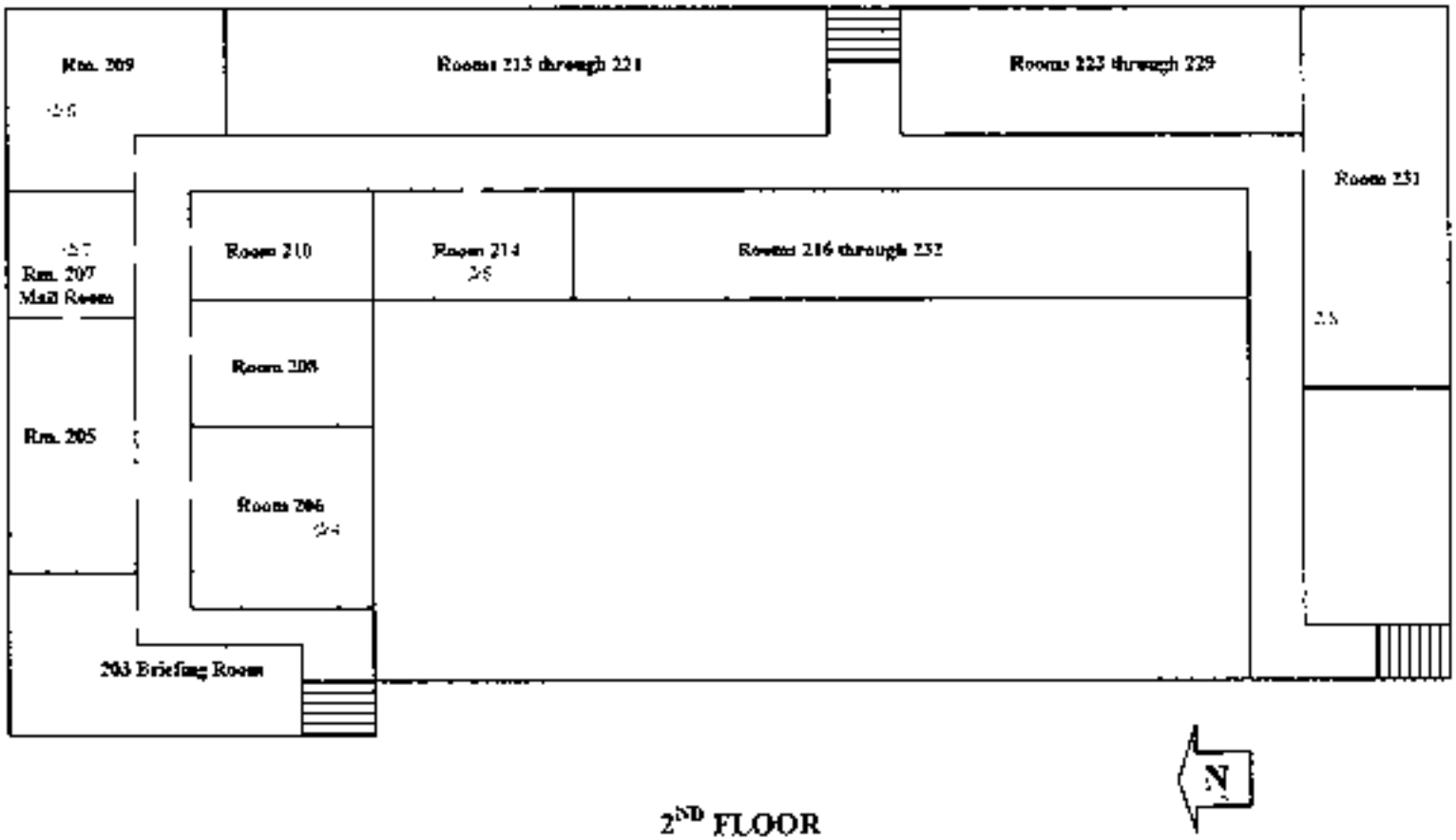
PRIVACY ACT STATEMENT

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

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



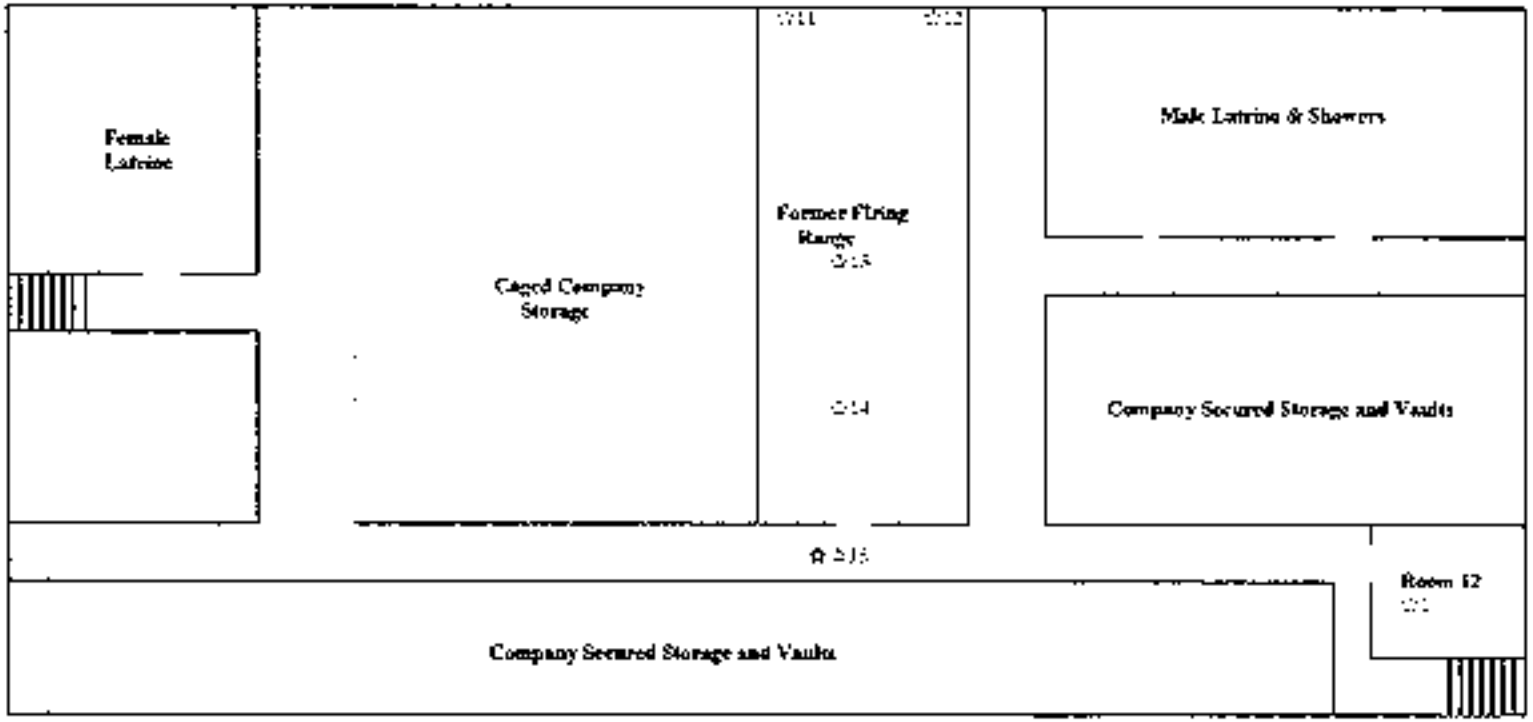
SOUTHHAMPTON ROAD
PHILADELPHIA, PENNSYLVANIA



2ND FLOOR

W = Wipe Sample A = Area Air Sample

SOUTHHAMPTON ROAD
PHILADELPHIA, PENNSYLVANIA



BASEMENT

= Wipe Sample

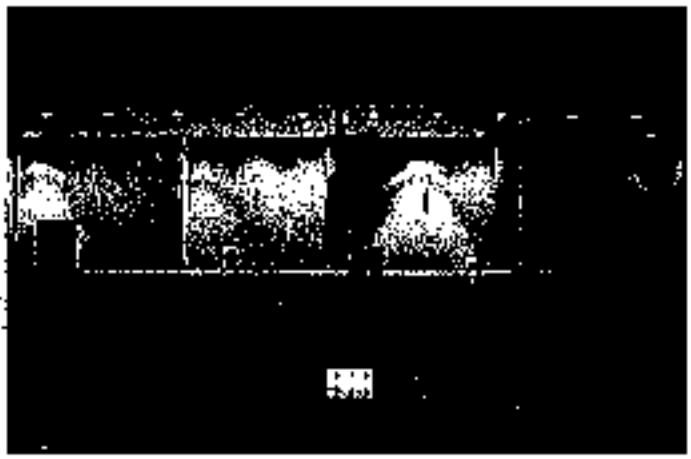
☆ = Area Air Sample

SOUTHAMPTON ROAD ARMORY
PHILADELPHIA, PENNSYLVANIA
WIPE SAMPLING POINTS

(1) PA Phi-03233-04
Basement – Room 12
Supply Office

(2) PA Phi-03233-05
1st Floor - Recruiting Office

(3) PA Phi-03233-06
Assembly Hall



(4) PA Phi-03233-07
2nd Floor – Room 206
Return Air Grille

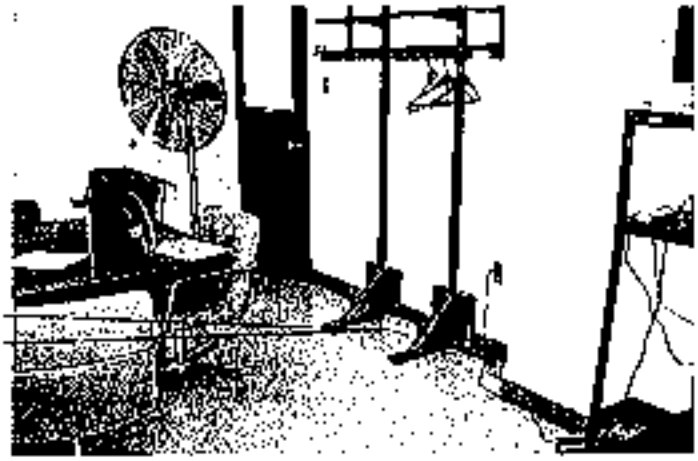
(5) PA Phi-03233-08
2nd Floor – Room 214

ADDITIONAL SAMPLES

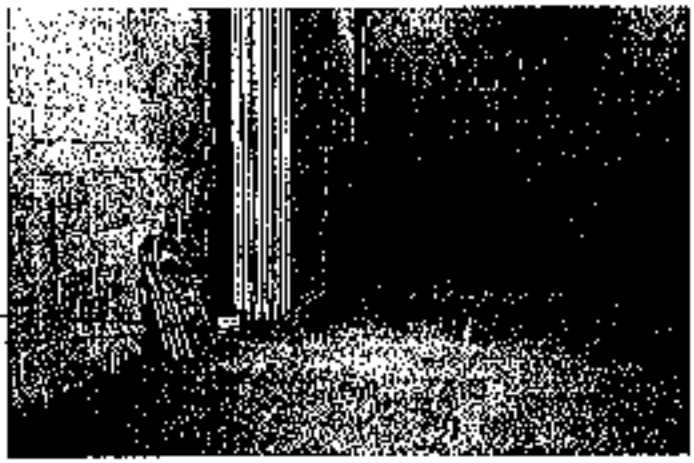
(6) PA Phi-03233-10
2nd Floor – Room 209
Return Air Grille

(7) PA Phi-03233-11
2nd Floor – Room 207
Mail Room Supply Vent

(8) PA Phi-03233-12
2nd Floor – Room 231

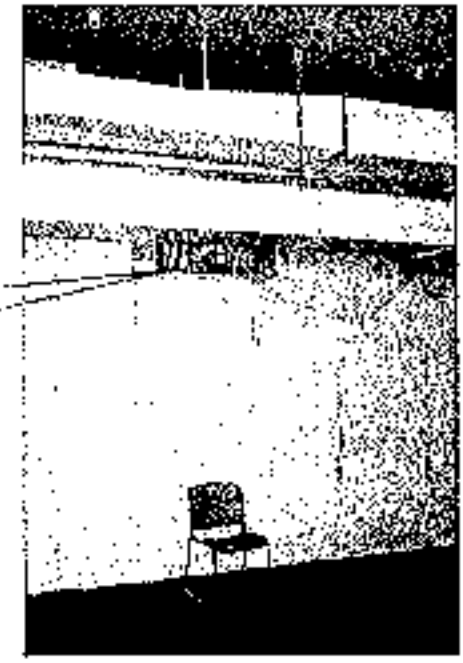


(9) PA Phi-03233-13
1st Floor – Kitchen

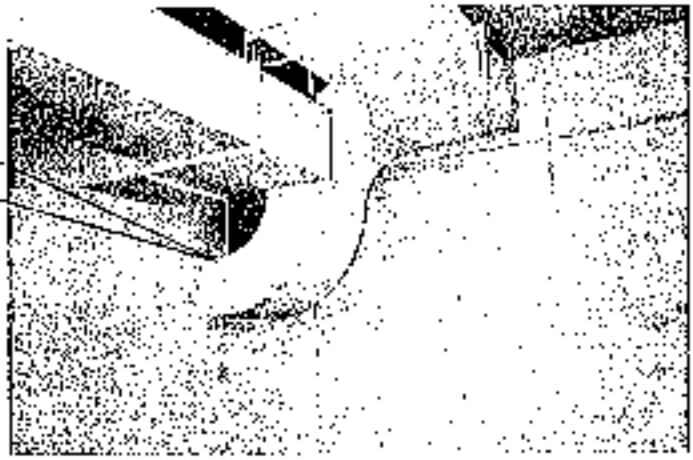


(10) PA Phi-03233-14
Assembly Hall – South End

FORMER INDOOR FIRING RANGE SAMPLES

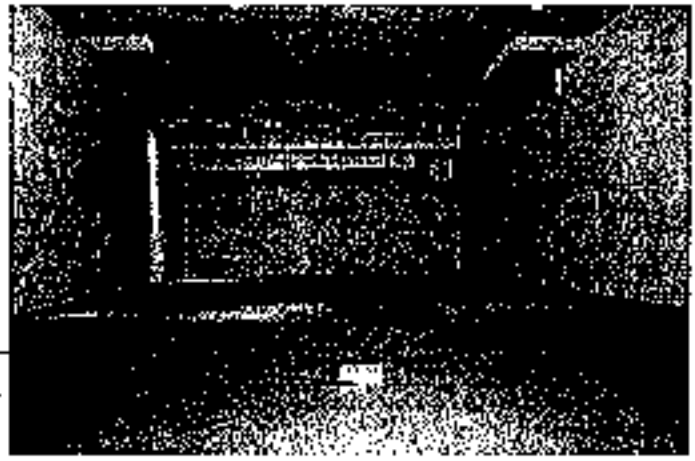


(11) PA Phi-03233-16
Former Range
Exhaust Duct
Backstop Area



(12) PA Phi-03233-17
Former Range
Ductwork
Backstop Area

(12) PA Phi-03233-18
Former Range
Center of Floor
½ Way Down Range



(13) PA Phi-03233-19
No Picture
Light Fixture
Firing Line Area

(14) PA Phi-03233-20
Former Range
Exhaust Duct
Backstop Area

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
Philadelphia, PA	PENNSYLVANIA ARNG ARMORY	Southampton Armory

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR (initials)
21 August 2003	JSS

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	NA	COL Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
215-560-6010 4214	8 units	3	9

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
≈30	≈3500			

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	CONROLS 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			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	½ FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	½ 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/MATS	/
FULL FACE SHIELD	/	EARPLUGS	/	COLD WEATHR 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	/		

AEHA Form 271-R (Test), 1 Jan 92 (HSHB-MI-I)

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	3	C

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

SECTION 6. COMMENTS

☐ No comments ☐ See attached sheet

PRIVACY ACT STATEMENT

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

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

AMA Analytical Services, Inc.
A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client:	National Guard Bureau	**Job Name:**	Pennsylvania Armories-Philadephia Southhamptpon Rd	**Chain Of Custody:**	117198
Address:	301-IH Old Bay Lane, Attn: NGB-AVN-SI, State Military Reservation	**Job Location:**	Not Provided	**Date Analyzed:**	09/08/2003
	Havre de Grace, Maryland 21078	**Job Number:**	Not Provided	**Person Submitting:**	[redacted]
		P.O. Number:	Not Provided	**Report Date:**	10-Sep-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
0366554	PAPhi-03233-04	Flame	Wipe	****	0.111	108.01	ug/ft²	2000	ug/ft²	
0366555	PAPhi-03233-05	Flame	Wipe	****	0.111	108.01	ug/ft²	< 110	ug/ft²	
0366556	PAPhi-03233-06	Flame	Wipe	****	0.111	108.01	ug/ft²	< 110	ug/ft²	
0366557	PAPhi-03233-07	Flame	Wipe	****	0.111	108.01	ug/ft²	560	ug/ft²	
0366558	PAPhi-03233-08	Flame	Wipe	****	0.111	108.01	ug/ft²	< 110	ug/ft²	
0366559	PAPhi-03233-09	Flame	Wipe	****	0.111	108.01	ug/ft²	< 110	ug/ft²	
0366560	PAPhi-03233-10	Flame	Wipe	****	0.111	108.01	ug/ft²	< 110	ug/ft²	
0366561	PAPhi-03233-11	Flame	Wipe	****	0.111	108.01	ug/ft²	330	ug/ft²	
0366562	PAPhi-03233-12	Flame	Wipe	****	0.111	108.01	ug/ft²	200	ug/ft²	
0366563	PAPhi-03233-13	Flame	Wipe	****	0.111	108.01	ug/ft²	< 110	ug/ft²	
0366564	PAPhi-03233-14	Flame	Wipe	****	0.111	108.01	ug/ft²	300	ug/ft²	
0366565	PAPhi-03233-15	Flame	Wipe	****	0.111	108.01	ug/ft²	< 110	ug/ft²	
0366566	PAPhi-03233-16	Flame	Wipe	****	0.111	108.01	ug/ft²	94000	ug/ft²	
0366567	PAPhi-03233-17	Flame	Wipe	****	0.111	108.01	ug/ft²	44000	ug/ft²	
0366568	PAPhi-03233-18	Flame	Wipe	****	0.111	108.01	ug/ft²	170	ug/ft²	
0366569	PAPhi-03233-19	Flame	Wipe	****	0.111	108.01	ug/ft²	9200	ug/ft²	
0366570	PAPhi-03233-20	Flame	Wipe	****	0.111	108.01	ug/ft²	13000	ug/ft²	
0366571	PAPhi-03233-21	Flame	Wipe	****	0.111	108.01	ug/ft²	< 110	ug/ft²	

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m³
PAGre-03230-08	03-25922	275.8	ND	<0.004
PAGre-03230-09	03-25923	280.4	ND	<0.004
PAPhi-03233-01	03-25924	595.9	ND	<0.002
PAPhi-03233-02	03-25925	580.1	ND	<0.002
PAPhi-03233-03	03-25926	568.5	ND	<0.002
	Prep Blank		ND	
% Recovery	LCS		102.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non-Responsive @md.ngb.army.mil

Attachment D

REFERENCE LIST INDEX

1. General Regulations and National Consensus Standards
2. Specific Regulations and Guidance
   a. Abrasive Blasting
   b. Asbestos
   c. Battery Charging Room
   d. Bird and Bat Manure
   e. Bloodborne Pathogens
   f. Chemical Agent Resistant Coating (CARC) Paint
   g. Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE)
   h. Confined Space Entry Program
   i. Design Review
   j. Ergonomics
   k. Flammable Storage Room
   l. Hazard Communication
   m. Hearing Conservation
   n. Indoor Air Quality
   o. Indoor Firing Ranges
   p. Lead
   q. Lighting
   r. Occupational Vision
   s. Paint Spray Booth
   t. Personal Protection
   u. Radiation Protection
   v. Respiratory Protection
   w. Sanitation
   x. Smoking
   y. Vehicle Exhaust
   z. Welding Operation

GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REFERENCE LIST

1. General Regulations and National Consensus Standards
   a. DODI 6055.1, DOD SOH Program, 19 August 1998.
   b. DODI 6055.5, DOD OEH. *[DRAFT]*
   c. DOD 6055.5-M, DOD Occupational Health Surveillance Manual, 13 May 1987.
   d. DODI 6050.5, DOD Hazard Communication, 29 Oct 90. Change 1, 6 May 1996.
   e. AR 40-5, Preventive Medicine, 15 October 1990. [05/2002 Being Updated]
   f. DA PAM 40-5, Preventive Medicine. *[DRAFT]*
   g. AR 385-10, The Army Safety Program, 29 February 2000.
   h. NGR 385-10, ARNG SOH Program, 7 October 1988, Change 1, 29 December 1989.
   i. Title 29, Part 1910, Occupational Safety and Health Standards. [Current Date]
   j. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 2002.
   k. ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th edition, 2001.
   l. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.
   m. TG 141, USACHPPM Industrial Hygiene Sampling Guide, November 1997.
   n. National Safety Council, Fundamentals of Industrial Hygiene, 5th Edition, 2002.
   o. NIOSH, Pocket Guide to Chemical Hazards, 2001.
   p. NFC, A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. [Current date]
   q. ASHRAE Standards. [Current Dates]
   r. ANSI Standards. [Current Dates]

2. Specific Regulations/Guidance
   a. **ABRASIVE BLASTING**
      (1) ANSI Z9.4 1997, Abrasive Blasting Operations - Ventilation and Safe Practices.
      (2) 29 CFR 1910.94 Ventilation
      (3) 42 CFR 84

   b. **ASBESTOS**
      (1) AR 40-5, Preventive Medicine, 15 October 1990. *[05/2002 Being Updated]*
      (2) AR 200-1, Environmental Protection and Enhancement, Chapter 8, 21 February 1997.
      (3) TB MED 513, Guidelines for the Evaluation and Control of Asbestos Exposure, 15 December 1986. *[05/2000 Under Revision as DA PAM 40-513]*
      (4) TG 157, USAEHA, The Installation Asbestos Management Program Assessment Checklists, July 1994.
      (5) 29 CFR 1910.1001
      (6) 29 CFR 1926.58 (prior to 1994 CFR)
      (7) 29 CFR 1926.1101

(8) MEMORANDUM SGPS-PSP, OTSG, subject: AMEDD Role Supporting Asbestos Abatement/Asbestos Management Programs, 19 Jan 89.

(9) EPA, Guidance for Controlling Asbestos-Containing Materials in Buildings, June 1985.

(10) DD Form 2493-1 (Asbestos Exposure, Part I--Initial Medical Questionnaire)

(11) DD Form 2493-2 (Asbestos Exposure, Part II--Periodic Medical Questionnaire)

(12) EPA NESHAPS Asbestos Regulation (40 CFR 61, Subpart M).

c. **BATTERY CHARGING ROOM**

(1) TG 022, USAEHA, page 81, Industrial Hygiene Evaluation Guide, October 1975. *[Out of Print]*

(2) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

d. **BIRD AND BAT MANURE**

(1) TG 142, USAEHA, Managing Health Hazards Associated with Bird and Bat Excrement, Dec 1992.

e. **BLOODBORNE PATHOGENS**

(1) 29 CFR 1910.1030

(2) TG 190, USAEHA, Guide to Managing Occupational Exposure to Bloodborne Pathogens, Jan 94.

f. **CHEMICAL AGENT RESISTANT COATING (CARC) PAINT**

(1) TG 144, USAEHA, Guidelines for Controlling Health Hazards in Painting Operations, 24 August 1987.

(2) DA LTR, USAEHA, HSHB-MI-WR, subject: Respiratory Protection When Spraying CARC, 19 November 1992.

(3) TM 43-0139, Painting Instructions for Army Material, 27 July 19881 Aug 86.

(4) MEMORANDUM SGPS-PSP, OTSG, subject AMEDD, Occupational Health Requirements in Support of Painting in the Army, 22 February 1985.

(5) AR 750-1, Army Materiel Maintenance Policy and Retail Maintenance Operations (Prohibits welding on CARC paint) 1 July 1996.

g. **CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR, EXPLOSIVE (CBRNE)**

(1) DODI 2000.gg, DOD Installation CBRNE Emergency Response Guidelines.

(2) DHHS, NIOSH Pub No. 2002 139, Guidance for Protecting Building Environments from Airborne Chemical, Biological, or Radiological Attacks, May 2002.

(3) TG 275, USACHPPM, Personal Protective Equipment Guide for Medical Treatment Facility Personnel Handling Casualties from Weapons of Mass Destruction and Terrorism Events. *[Draft]*

h. **CONFINED SPACE**

(1) 29 CFR 1910.146 (Confined Space Entry)

(2) 29 CFR 1910.147 (Lockout/Tagout)

(3) ANSI Z117.1-Safety Requirements for Confined Spaces, 1995.

(4) SOP for ARNG Confined Space Entry Program, 25 April 1991.

(5) Letter, US Dept of Labor (DOL) addressed to Vanessa Char, 22 Apr 1994.

(6) OSHA Instruction STD 1-7.3, US DOL, subject: 29 CFR 1910.147, the Control of Hazardous Energy (Lockout/Tagout)--Inspection Procedures and Interpretive Guidance, 11 Sep 90.

(7) DHHS, NIOSH Pub No. 87113, A Guide to Safety in Confined Spaces, July 1987.

(8) Confined Space Entry Program for Helicopters, 2003.

i. **DESIGN REVIEW**

(1) DG 415-1, Design Guide for Armories, current.

(2) DG 415-2, Design Guide for Logistics Facilities, current.

(3) DG 415-3, Design Guide for Training Site Facilities, current.

(4) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

(5) TI-300, 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

(6) UFGS 15940A, Overhead Vehicle Tailpipe (and welding Fume) Exhaust Removal Systems, December 2001.

(7) ASHRAE, Standard 62-2002, Ventilation for Acceptable Indoor Air Quality.

(8) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

j. **ERGONOMICS**

(1) DA PAM 40-21, Medical Services, Ergonomics Program, 15 May 2000.

(2) ANSI Z-365, Management of Work Related Musculoskeletal Disorders, 2000.

(3) 29 CFR 1910. *[PROPOSED STANDARD]*

k. **FLAMMABLE STORAGE ROOM**

(1) 29 CFR 1910.106

(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

l. **HAZARD COMMUNICATION**

(1) 29 CFR 1910.1200

(2) NGR 385-10, Chapter 6

m. **HEARING CONSERVATION**

(1) DA PAM 40-501, Medical Services, Hearing Conservation Program, 10 December 1998.

(2) TG 181, USAEHA, Noise Dosimetry and Risk Assessment, May 1999.

(3) TG 175, USAEHA, Readiness thru Hearing Conservation: Guide for Unit Commanders and Supervisors, June 1999.

(4) 29 CFR 1910.95

n. **INDOOR AIR QUALITY (IAQ)**

(1) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

(2) USACERL Technical Report P-91/42, IAQ Management for Operations and Maintenance Personnel, September 1991.

(3) EPA 400/1-91/003 or DHHS, NIOSH, Publication No. 91-114, Building IAQ, A Guide for Building Owners and Facility Managers, December 1991.

(4) ASHRAE, Standard 62-2002, Ventilation for Acceptable IAQ.

(5) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

(6) NIOSH, IAQ Selected References, Sep 1989.

(7) OSHA Instruction CPL 2-2.20B CH-1, Directorate of Technical Support, 13 Nov 90.

(8) DA PAM 25-52, Mail Facility Security and Handling Suspicious Mail, 6 November 2001.

(9) ASTM, D 5952-96, 10 May 1996.

o. **INDOOR FIRING RANGES**

(1) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(2) NGR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges, 30 March 1990. *[11/02 Under Revision]*

(3) CEHND 1110-1-18, USACE Design Manual for Indoor Firing Range, June 1990.

(4) HQDA LTR, Office of the Adjutant General, DACS-SF, subject: Inspection and Evaluation of US Army Indoor Firing Ranges, 26 March 1993.

(5) Departments of the Army and Air Force, NGB-ADE-OM, subject: All State Log Number (I920323) Indoor Range Clean-up at State Owned Armories, 28 July 1992.

(6) NIOSH, Technical Information, December 1975, subject: Lead Exposure and Design Considerations for Indoor Firing Ranges.

(7) All-States Ltr P01-0075, 5 December 2001.

(8) Information Paper, Alternative Ammunition, 15 March 1996.

(9) Information Paper, Bullet Traps, 26 April 1996.

(10) Information Paper, ARNG IFR Action Plan, 28 January 2002.

p. **LEAD**

(1) 29 CFR 1910.1025

(2) 29 CFR 1926.62

(3) 24 CFR 35.61 (HUD, Percentage of Lead in Paint)

(4) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(5) OSHA Instruction CPL 2-2.58, Office of Health Compliance Assistance, 13 December 1993.

(6) Federal Register, 18 April 1990, Vol. 55, No. 75, HUD, Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing, as amended, September 1990, Office of Public and Indian Housing, Department of Housing and Urban Development, 451 Seventh Street, SW, Washington, DC 20410.

(7) NIOSH, Request for Assistance in Preventing Lead Poisoning in Construction Workers, April 1992.

(8) EPA, Strategy for Reducing Lead Exposures, 21 Feb 91.

q. **LIGHTING**

(1) RP-1-1993, Office Lighting, ANSI/IESNA.

(2) RP-7-2001, Industrial Lighting, IES.

r. **OCCUPATIONAL VISION**

(1) DA PAM 40-506, Medical Services, The Army Vision Conservation and Readiness Program, 20 July 2001.

(2) ANSI Z87.1, Practice for Occupational and Educational Eye and Face Protection, 1989, Change A, REAF 1998.

(3) ANSI Z358.1 for Emergency Eyewash and Shower Equipment, 1998.

(4) OTSG Memorandum SGPS-PSP, subject: Acanthameoba Keratitis and Eyewash Stations, 8 May 89.

(4) 29 CFR 1910.133

s. **PAINT SPRAY BOOTH**

(1) NFPA No. 33, Standard for Spray Application Using Flammable and Combustible Materials, 1995.

(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

(3) 29 CFR 1910.94

(4) 29 CFR 1910.107

(5) ANSI Z9.3-1995 for Exhaust Systems - Spray Finishing Operations - Safety Code for Design, Construction, and Ventilation.

(6) ANSI Z9.2-2001, Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems.

t. **PERSONAL PROTECTIVE EQUIPMENT**

(1) Quick Selection Guide to Chemical Protective Clothing, 2nd edition, Forsberg, K and Mansdorf, S., 1993.

(2) Chemical Protective Clothing, Vol 1 and 2, Johnson, J. and Anderson, K., American Industrial Hygiene Association, 1990.

(3) Guidelines for the Selection of Chemical Protective Clothing, 3rd Edition, ACGIH, Inc., Feb 1987.

u. **RADIATION PROTECTION PROGRAM**

(1) NGR 385-11, Safety, Ionizing and Nonionizing Radiation Protection, 18 February 1999.

(2) AR 11-9, Army Radiation Safety Program, 28 May 1999.

(3) 29 CFR 1910.96

(4) 29 CFR 1910.97

v. **RESPIRATORY PROTECTION**

(1) AR 11-34, The Army Respiratory Protection Program, 15 February 1990. *[11/02 Being Updated]*

(2) 29 CFR 1910.134

(3) 42 CFR 84

(4) TB MED 502, Respiratory Protection Program, February 1992. *[11/02 Being Updated as DA PAM 40-502]*

(5) ANSI/CGA G-7.1-1997, Commodity Specification for Air.

(6) ANSI Z88.2-1992, Standard for Respiratory Protection.

w. **SANITATION**

(1) ANSI Z4.1-1986, Change REAF 1995, Sanitation in Places of Employment-Minimum Requirements.

(2) 29 CFR 1910.141

x. **SMOKING**

(1) AR 600-63, Army Health Promotion, 28 April 1996.

(2) DODI 1010.15, Smoke-Free DOD Facilities, 2 January 2001.

(3) DODD1010.10, Health Promotion, 11 March 1986.

y. **VEHICLE EXHAUST**

(1) ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th Edition, 2001.

(2) TI-300f 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

z. **WELDING OPERATION**

(1) 29 CFR 1910.252

(2) 29 CFR 1910.253

(3) 29 CFR 1910.254

(4) ANSI/AWS Z49.1-1999, Safety in Welding and Cutting and Allied Processes.

(5) TM 5-805-7, Welding Design, Procedures and Inspection, 20 May 85.

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 $\mu g/ft^2$) and windowsills (250 $\mu g/ft^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of 200 $\mu g/ft^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 $\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 $\mu g/ft^2$ on floors and 250 $\mu g/ft^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

DET 1 131ST TRANS CO
276TH ARMY BAND
128TH CHEMICAL CO
AVG TDA 128TH CHEMICAL CO

INDUSTRIAL HYGIENE SURVEY
PENNSYLVANIA

DET 1 HHC 1[illegible]
HHC 56TH BDE (MECH)
HHC AVG TDA 56TH BDE (MECH)
CO A 1/111TH INF (MECH)

SURVEY DATE	21 Aug 03

FACILITY			
ADDRESS	2700 Southampton Road Philadelphia, PA 19154		
CONTACT	[redacted] CPT [redacted] CO [redacted]		
PHONE	215-560-6010		
DATE BUILT	1975	FACILITY SIZE	2080 SqFt
RANGE	Inactive		3344
ASSISTED	Archer-Jones		5160

CPT [redacted] 330 FT

PAINT CONDITION:		
INDOORS		Sample?
OUTDOORS	BRICK	Sample? NO

ASBESTOS		
Area/condition		
Area/condition		

WATER DAMAGE		
Area/condition		
Area/condition		

HOUSEKEEPING: Good
Dirty vents / duct work

TIME	AREA	CO	CO_2	TEMP	RH
0750	OVA Door 2	0.0	550	75.7 °F	77.9 %
0800	Rm K (occupied)	0.0	565	77.1 °F	72.2 %
0808	Former Range	0.0	594	77.6 °F	53.3 %
0813	1st Floor Entry	0.0	630	74.6 °F	49.4 %
0818	Receiving (occupied)	0.0	660	72.9 °F	50.4 %
0830	Assembly Hall	0.0	593	77.3 °F	41.2 %
0840	Kitchen	0.0	642	78.9 °F	43.3 %
0855	Rm 206 Occup	0.0	663	70.8 °F	57.6 %
0900	Rm 205 Occup	0.0	673	69.2 °F	50.3 %
0905	Rm 207 Mail Rm	0.0	381	68.3 °F	39.8 %
0910	Rm 210 Occup	0.0	660	66.5 °F	56.9 %
0915	Rm 212 Occup	0.0	645	66.5 °F	57.7 %
0920	Rm 209 Occup	0.0	725	67.1 °F	59.2 %
0925	RM 14 Occup	0.0	653	67.4 °F	62.2 %
0930	Basement Hallway	0.0	623	79.2 °F	86.1 %
0940	Outdoors	0.0	[illegible]5	75.7 °F	79.4 %
				°F	%

66.5 - 79.2 49.4 - 86.9

INDUSTRIAL HYGIENE SURVEY
PENNSYLVANIA

WIPE SAMPLES	ARMORY	Picture #
PA Phi-03 233-04	~~HVAC supply side of filter~~ Rm [illegible]	1
PA Phi-03 05	~~HVAC on fan side of filter~~ Reception [illegible]	2
PA Phi-03 06	~~Assembly Hall~~ Center of Floor	3
PA Phi-03 07	~~Kitchen~~ 2nd [illegible] Rm 206 Return grille	4
PA Phi-03 08	~~Supply air grille in occupied office~~ Rm 2[illegible] [illegible]	5
PA Phi-03 09	BLANK	--
PA Phi-03 10	Rm 200 Return Grille	6
PA Phi-03 11	Rm 307 - [illegible] Supply Grille	7
PA Phi-03 12	Rm 2[illegible] - [illegible] base	8
PA Phi-03 13	Kitchen [illegible]	9
PA Phi-03 14	Assembly Hall - S. middle [illegible]	10
PA Phi-03 15	BLANK	
PA Phi-03 [illegible]		
PA Phi-03		
PA Phi-03		
PA Phi-03		
PA Phi-03		
PA Phi-03	BLANK	

AIR SAMPLING

Sample #	Pump #	Person/Area	Precal lpm	Postcal lpm	Time On	Time Off	Run Time	Volume (Liters)
PA Phi-03233-01	[illegible]	1st Floor [illegible]	3.1[illegible]	3.153	0750	1059	189	595.9
PA Phi-03233-02	[illegible]	[illegible]	3.20[illegible]	3.223	0755	1055	180	580.1
PA Phi-03233-03	[illegible]	Basement	3.2[illegible]	3.1[illegible]	[illegible]	1055	181	568.5

INDUSTRIAL HYGIENE SURVEY
PENNSYLVANIA

CONVERTED INDOOR FIRING RANGE WIPE SAMPLES

PA Phi-03	16	Inside any containing ventilation ductwork - Exhaust Duct	11
PA Phi-03	17	Exhaust ventilation system Top of duct work	12
PA Phi-03	18	Bullet trap Floor V-3 wipes	13
PA Phi-03	19	Light fixtures - Firing Line	14
PA Phi-03	20	Overhead dividers Firing Range	15
PA Phi-03	21	Storage room BLANK	
PA Phi-03		Floor	
PA Phi-03		Outside the range	
PA Phi-03		Blank	

HVAC SYSTEM: evaluate maintenance schedule and quality of maintenance for HVAC syst.

PROGRAMS

CONFINED SPACES?	Y – N
HEARING CONSERVATION?	Y – N
RESPIRATORY PROTECTION?	Y – N
HAZCOM?	Y – N
PPE?	Y – N
TRAINING?	Y – N

VENTILATION:

NOISE:

SOUTHAMPTON
ILLUMINATING

BASEMENT

Rm 12. Supply Office
54, 56, 48, 46, 60 — 264/5 = 52.8 Sq Avg.
Desks - 40, 42 — 82/2 = 41.0
Corridor 10, 18, 6, 18, 10, 6 — 68/6 = 11.3
Locker Range. 26, 32, 52, 16, 64, 54, 18, 24, 30, 11, 18
10, 10, 14, 52, 10, 62, 16, 54, 30, 54 — 776/21 = 37.0
N. Stairs 40, 40, 12, 12 — 104/4 = 26.0

1ST FLOOR

Lobby 22, 12, 14, 18, 18, 12, 32, 22 — 150/8 = 18.8
Receiving 46, 24, 32, 30, 42, 40, 36 — 248/7 = 35.4
Desks 28, 30, 26, 30 — 104/4 = 26.0
Reception (State Maint.) 32, 48, 66 — 146/3 = 48.7
D - 32
Assembly Hall
Back Section (South) 78, 60, 78, 102, 82
106, 106, 88, 70, 70 — 664/10 = 66.4
Hall 38, 48, 22, 24, 22, 20, 32, 32, 38, 40, 38 — 356/11 = 32.4
Kitchen 48, 48, 56, 46, 44, 62, 40, 50 — 394/8 = 49.3

2ND FLOOR

Rm 206 74, 78, 56, 68, 82, 88, 42, 84, 41, 72 — 663/10 = 66.2
D - 74, 62, 66 — 202/3 = 67.3
Rm 205 68, 90, 72, 40, 72, 66, 76 — 554/7 = 79.1
D - 80
Con. Table 72, 66, 58 — 196/3 = 65.3
Rm. 207 Mail Room 56, 62, 62, 60, 74 — 334/5 = 66.8
Rm 210 42, 52, 43, 64, 80, 74 — 354/6 = 59.0
D - 40, 50 — 90/2 = 45.0
Sup. 42
Conf. Table 42, 38, 46, 38 — 164/4 = 41.0

Room 212 98, 66, 74, 68 — 306/4 = 76.5
Conf. Table 68, 78, 72 — 218/3 = 72.7
D - 62, 62, 52 — 176/3 = 58.7

Rm. 209
64, 62, 60, 72, 96, 70, 42, 40, 62, 76, 54, 52, 54 — 854/13 = 65.5
D - 38, 62 — 100/2 = 50.5

Rm 214
86, 72, 64, 44, 68, 64, 54 — 452/7 = 64.6
D - 62
Conf. Table 66, 78, 66 — 210/3 = 70.0

PENNSYLVANIA ARMORY
INDUSTRIAL HYGIENE SURVEY
EQUIPMENT LISTING

Air Sampling Pumps
SKC Aircheck Samplers 224-44XR
S/N: 647609, 647610, 647626, 647627, 647654, 648324, 648349, 648393

Air Pump Calibrator
DryCal Base m: DC-1B Rev 2.06F S/N B 1827
DryCal Med Cell: m: DC-MC-1 Rev E S/N 1745

Indoor Air Quality
TSI Q-Trak m: 8550 S/N 12050
Metrosonics Carbon Monoxide Logger m: pm7700 S/N 1129
Metrosonics CO Sensor m: gs 7701 S/N 5073

Noise
Quest Sound Level Meter m: 2800 S/N HS4090023
Quest Octave Filter Set m: OB-300 S/N HV4070020
Quest Acoustic Calibrator m: QC-10 S/N QE4090140
Metrosonics db-3080 Noise Dosimeters S/N 4667, 4685
Microphones

ATTACHMENT E

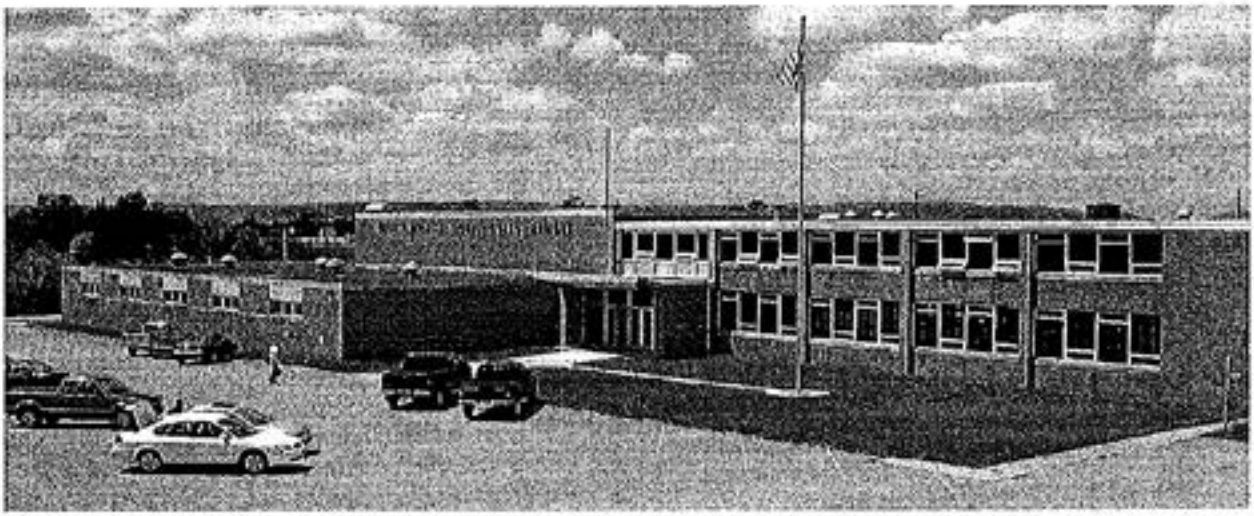
INDUSTRIAL HYGIENE SURVEY

HHC 1/103RD ARMOR
CO B 1/103RD ARMOR
28TH MP CO (-DET 1)
WALTERS AVENUE
JOHNSTOWN, PA

May 14, 2003

OPTECH
OPERATIONAL TECHNOLOGIES
CORPORATION

HHC 1/103RD ARMOR
CO B 1/103RD ARMOR
28TH MP CO (- DET 1)
JOHNSTOWN, PENNSYLVANIA
INDUSTRIAL HYGIENE SURVEY



1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Walters Avenue Armory in Johnstown, Pennsylvania on May 14, 2003. NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. Non-Responsive and Non-Responsive, from OpTech, completed this survey. Non-Responsive a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the IH Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D.

2.0. EXECUTIVE SUMMARY

2.1. No indoor air quality problems were noted.

2.2. Illumination levels were below recommended minimum standards in many areas of the facility.

2.3. Wipe samples for inorganic lead were collected. Samples in the assembly hall, Room 27 (XO's Office), Room 11A, fitness room and the medical supply area exceeded the 200 $\mu g/ft^2$ criteria. Lower levels of lead were detected in other parts of the facility.

2.4. Air sampling for inorganic lead was accomplished. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building.

2.5. The majority of the floors in the facility are nine-inch tiles, which are commonly known to contain a high percentage of asbestos. The tiles in some areas have recently been abated. More areas still have nine-inch tiles. Some minor chipping was noted in the corridors. Personnel were concerned of airborne asbestos fibers. An air sample was taken in Room 29 on the second floor, which contains nine-inch tiles. The analysis was below the OSHA standard for airborne asbestos.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	HHC 1/103RD ARMOR		
	CO B 1/103RD ARMOR		
	28TH MP CO (1 DET 1)		
ADDRESS	565 Walters Avenue		
	Johnstown, PA 15904-1298		
CONTACT	MAJ [redacted]		
PHONE	814-533-2443		
DATE BUILT	1960	FACILITY SIZE	28,615 sq.ft.
INDOOR FIRING RANGE	CLOSED		2 floors
ASSISTED	MAJ [redacted]		
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	15		
TRADITIONAL (MIL)	470		
CHILD ACTIVITIES	Facility rented out about 6 times per year (tool shows, etc.) plus voting		
ADULT ACTIVITIES			

3.1.1. The exterior of the building is brick and appears to be in good condition. The interior has been kept in good condition. The former indoor firing range has been cleaned and is used for mobilization storage, a fitness center, medical supply, medical office and a medical exam room.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity (RH) in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 Indoor Air Quality Standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ASHRAE 62-2001, Section 6.1.3, states that concentrations up to 700 ppm CO_2, above outdoor concentrations will achieve an acceptable level of indoor air quality.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ASHRAE 55-1992 recommends that temperature ranges be 73 to 79 degrees Fahrenheit (°F) during the summer and 68 to 74°F during the winter. Relative humidity levels be maintained between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE 1
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO2 (ppm)	Temp. (°F)	RH (%)
1400	Outdoors – Background	0.0	536	78.8	15.6
1420	Assembly Hall (overhead door open)	0.0	524	69.6	32.0
1428	Room 29 – S3 Office (occupied)	0.0	621	72.3	31.7
1432	Room 30 – SP 1st SGT's Office	0.0	550	73.2	34.6
1436	Room 28 – Copier	0.0	618	73.9	34.0
1440	Room 26 – Logistics	0.0	750	74.3	34.8
1443	Room 27 – BN CO (occupied)	0.0	649	74.8	32.2
1447	Room 25 – S1/S4 Office (occupied)	0.0	639	76.2	31.1
1452	Room 22 – War Room	0.0	555	76.5	27.3
1456	Room 21 – HHC Orderly Room (occupied)	0.0	631	76.4	30.8
1500	Room 35 – Electrical (occupied)	0.0	565	73.3	28.6
1504	Room 20 – BN Commander's Office	0.0	542	75.2	30.1
1509	Room 9 – Classroom	0.0	559	74.3	28.0
1513	Room 8 – Classroom	0.0	549	74.2	28.6
1516	Room 11A – Caged Storage	0.0	562	66.2	34.9
1520	Room 11C – Fitness Room	0.0	860	71.3	40.2
1530	Assembly Hall	0.0	556	70.4	31.6

3.2.5. No indoor air quality problems were noted.

3.3. ILLUMINATION

3.3.1. Illumination levels were measured in most areas of the facility. Sunlight was excluded, as much as possible for this survey, by closing doors and blocking windows. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 – 463). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
1ST FLOOR				
Assembly Hall	4 - 46	19	75	NO
Room 9 – Classroom	32 - 70	56	75	NO
Room 8 – Classroom	54 – 78	69	75	NO
Room 11A – Caged Storage	14 – 44	28	30	NO
Room 11C – Fitness Center	42 58	50	50	YES
2ND FLOOR				
Room 29 – S3 Office	70 – 78	74	70	YES
Desks	72 –80	75	70	YES
Corridor	4 - 56	20	7.5	YES
Room 30 SP 1st SGT	32 - 54	44	70	NO
Desk	36	36	70	NO
Room 28 – Copier Room	20 – 44	34	75	NO
Desk	42	42	70	NO
Desk Supplemental	110	110	70	YES
Room 26 – Logistics	42 – 62	49	70	NO
Desk	62	62	70	NO
Room 27 – BN XO's Office	58 – 64	61	70	NO
Desk	70	70	70	YES
Room 25 – S1/S4 Office	38 - 80	65	70	NO
Desks	54 - 72	63	70	NO
Room 22 – War Room	50 – 72	59	30	YES
Conference Table	62 – 66	59	30	YES
Room 21 – HCC Orderly Room	62 - 76	69	70	NO
Desks	68 70	69	70	NO
Latrine	38 – 68	56	40	YES
Room 35 – Electrical	8 – 68	34	15	YES

3.3.2. Levels were below recommended minimum standards in many areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3.4. WIPE SAMPLES

3.4.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples collected taken at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot ($\mu g/ft^2$) and are listed in Table 3. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
LEAD WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead ($\mu g/ft^2$)
PA Joh-03134-05	Kitchen – Above Stove	BDL
PA Joh-03134-06	Assembly Hall – West End	1455
PA Joh-03134-07	Room 8 Classroom – Window Sill	165
PA Joh-03134-08	Room 21 HHC Orderly Room – Cabinet	BDL
PA Joh-03134-09	Room 29 – S3 Office	175
PA Joh-03134-10	BLANK Sample	BDL

$\mu g/ft^2$ = micrograms per square foot BDL = Below Detection Limits

3.4.2. Additional wipe samples were collected during this survey. These samples were collected to further analyze the extent of contamination should the first five samples indicate a possible hazard. Since the sample collected in the assembly hall exceeded the recommended criteria (see Section 3.4.4.), the additional samples were analyzed. Results are listed in Table 4.

TABLE 4
ADDITIONAL LEAD WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead ($\mu g/ft^2$)
PA Joh-03134-11	Room 30	91
PA Joh-03134-12	Room 27 – XO's Office	310
PA Joh-03134-13	Room 22 – War Room – By TV	BDL
PA Joh-03134-14	Room 39 – Drill Floor Office	BDL
PA Joh-03134-15	Assembly Hall – East Wall	BDL
PA Joh-03134-16	BLANK Sample	BDL

$\mu g/ft^2$ = micrograms per square foot BDL = Below Detection Limits

3.4.3. CLOSED FIRING RANGE WIPE SAMPLING

3.4.3.1. Additional wipe samples were collected in the former indoor firing range. This area is utilized for caged storage, fitness center, medical supply, medical supply office and a medical exam room. The laboratory analysis results are listed in Table 5.

TABLE 5
FORMER FIRING RANGE LEAD WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Joh-03134-17	Bullet Trap Area – F loor – Ro om 11A	572
PA Joh-03134-18	Room 11B – Top of Locker	24
PA Joh-03134-19	Room 11C – Fitness Center – Wi ndow Sill	2445
PA Joh-03134-20	Medical Supply Locker	668
PA Joh-03134-21	Entry inside Door to Medical Area	27
PA Joh-03134-22	Facility Foyer Floor – Outside Former Range	36
PA Joh-03134-23	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.4. WIPE SAMPLING RESULTS

3.4.4.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 µg/ft². This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. (See memorandum in Attachment E, Recommendations for Surface Lead Dust in Armories.) Samples in the assembly hall, Room 27 (XO's Office), Room 11A, fitness room and the medical supply area exceeded the 200 µg/ft² criteria. Lower levels of lead were detected in other areas of the facility.

3.4.5. AIR SAMPLING

3.4.5.1. Air Sampling for inorganic lead was conducted during this survey. Table 6 lists the sampling results, and is reported in milligrams per cubic meter (mg/m³) of air.

TABLE 6
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
John Sarson	PA Joh-03134-01	Lead	<0.003 mg/m³	0.05 mg/m³	YES
Area – Assembly Hall	PA Joh-03134-02	Lead	<0.003 mg/m³	0.05 mg/m³	YES
Area – 2nd Floor Room 29 – S3 Office	PA Joh-03134-03	Lead	<0.003 mg/m³	0.05 mg/m³	YES

mg/m³ = milligrams per cubic meter < = less than (below detection limits)

3.4.5.2. Air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m³ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this

building.

3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION DAMAGE

3.5.1.1. No water intrusion problems were reported or observed within the building.

3.5.2. ASBESTOS

3.5.2.1. The majority of the floors in the facility are nine-inch tiles, which are commonly known to contain a high percentage of asbestos. The tiles in some areas have recently been abated. More areas still have nine-inch tiles. Some minor chipping was noted in the corridors. Personnel were concerned of airborne asbestos fibers. An air sample was taken for asbestos on in Room 29 on the second floor, which contains nine-inch tiles. The room was active throughout the sampling period. The results of this sample are listed below in Table 5.

TABLE 5
ASBESTOS AIR SAMPLING RESULTS

SAMPLE #	LOCATION	Fibers/cc
PA Job-03134 04	Room 29 – S3 Office	0.008

Fibers/cc = asbestos fibers per cubic centimeter of air

3.5.2.2. The standards set forth by the American Conference of Governmental Industrial Hygienists (ACGIH) and Occupational Safety and Health Association (OSHA) set airborne levels of asbestos at 0.1 fibers per cubic centimeters (f/cc). This air sample was approximately 100 times lower than the standard, and is therefore not considered a health hazard.

3.5.3. PROGRAMS

3.5.3.1. There are no designated confined space areas within this facility. A need has not been established for a HAZCOM program, the need for personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.4. HOUSEKEEPING

3.5.4.1. The facility was dusty in most areas, mainly due to remodeling being conducted in some first and second floor offices. The facility is orderly and in good condition.

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

E – Recommendations for Surface Lead in Armories

F – Field Notes
- Equipment Listing

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
Johnstown, PA	PENNSYLVANIA ARNG ARMORY	Walters Ave. Armory

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR (initials)
14 May 2003	JSS

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	NA	MAJ [redacted] Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
814-533-2443	1/103RD ARMOR	3	9

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
15	470			

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	CONROLS 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			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	½ FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	¼ 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 WEATHR 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	/		

AEHA Form 271-R (Test), 1 Jan 92 (HSHB-MI-I)

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	3	C
NA01-29-1	Asbestos	0	C

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

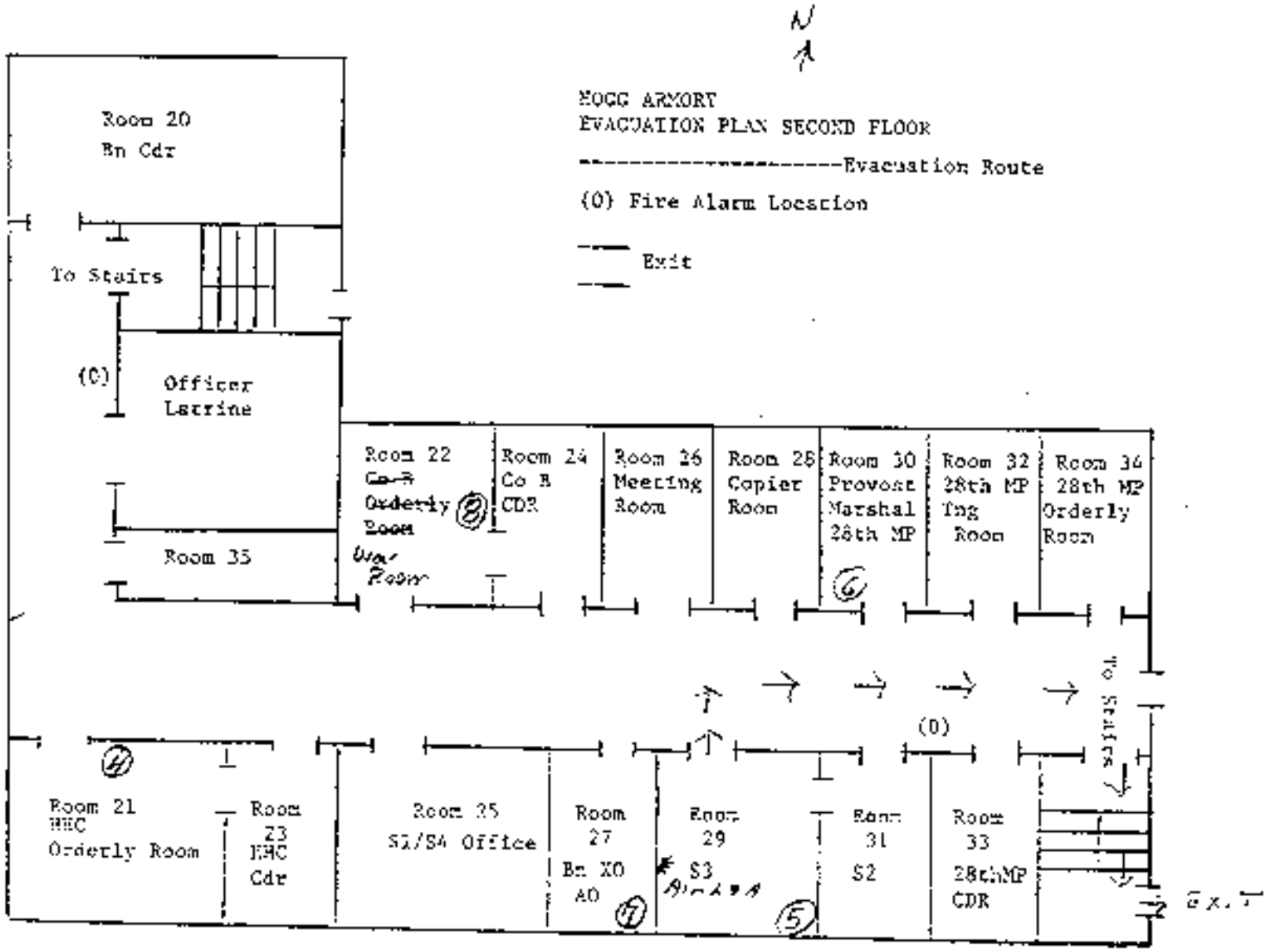
SECTION 6. COMMENTS

☒ No comments ☐ See attached sheet

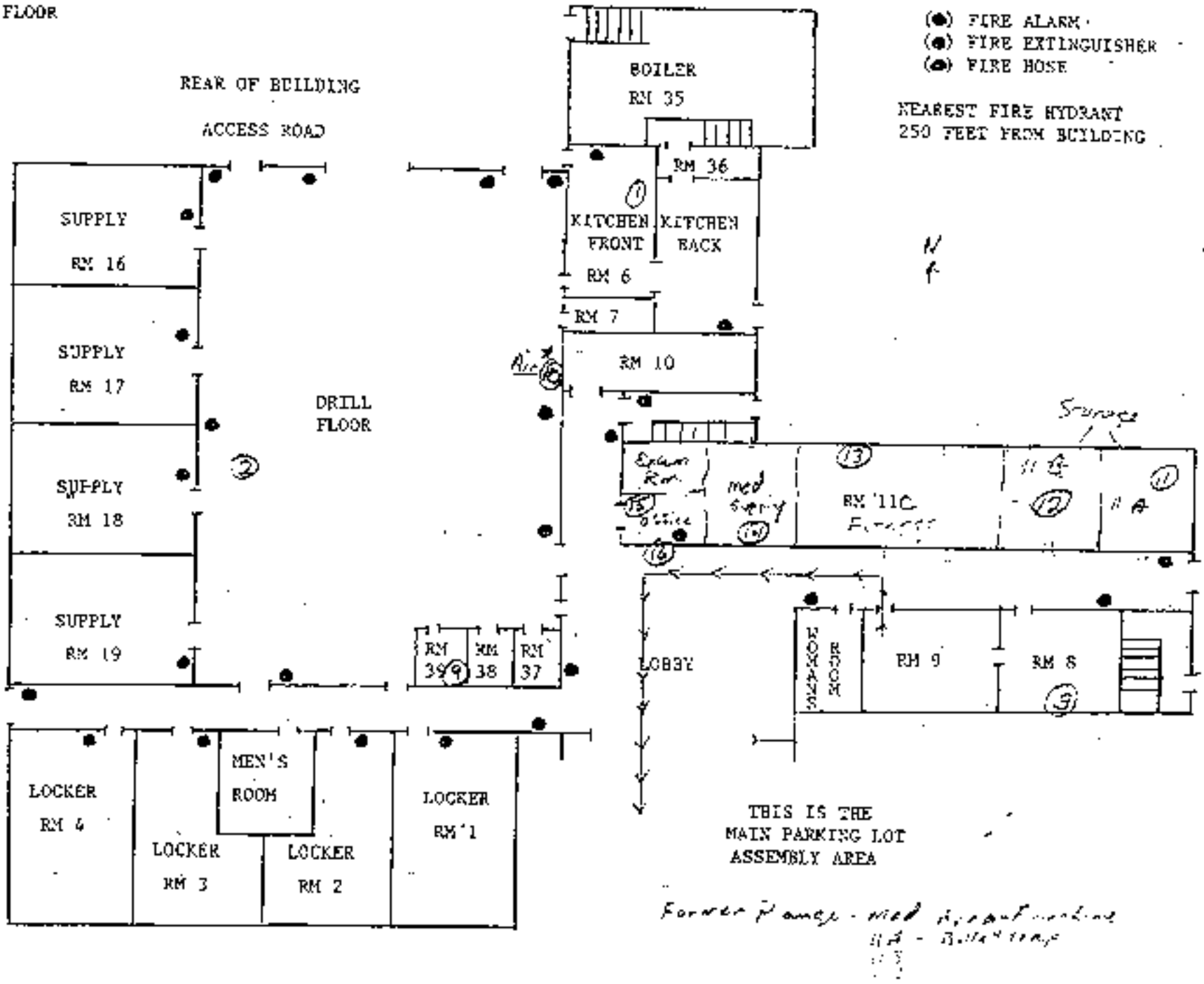
PRIVACY ACT STATEMENT

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

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



HOGG ARMORY
EVACUATION PLAN
1ST FLOOR



ACCESS ROAD

HHC 1/103RD ARMOR
CO B 1/103RD ARMOR
28TH MP CO(-DET 1)
WIPE SAMPLING POINTS

(1) PA Joh-03134-05
Kitchen

(2) PA Joh-03134-06
Assembly Hall – West Side

(3) PA Joh-03134-07
Room 8 – Classroom

(4) PA Joh-03134-08
2nd Floor – Room 21

(5) PA Joh-03134-09
Room 29

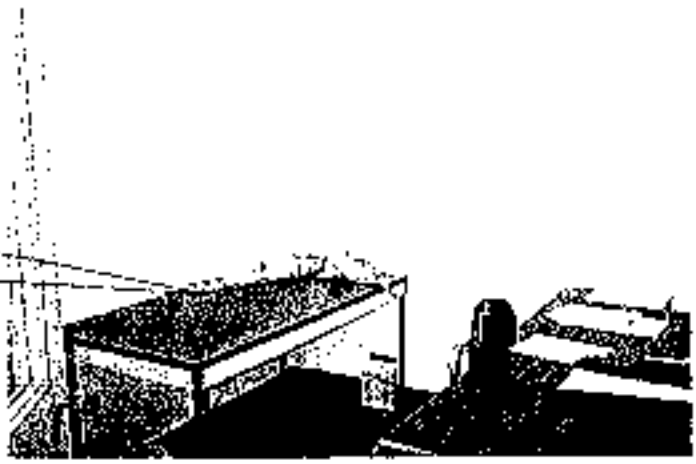
ADDITIONAL SAMPLES

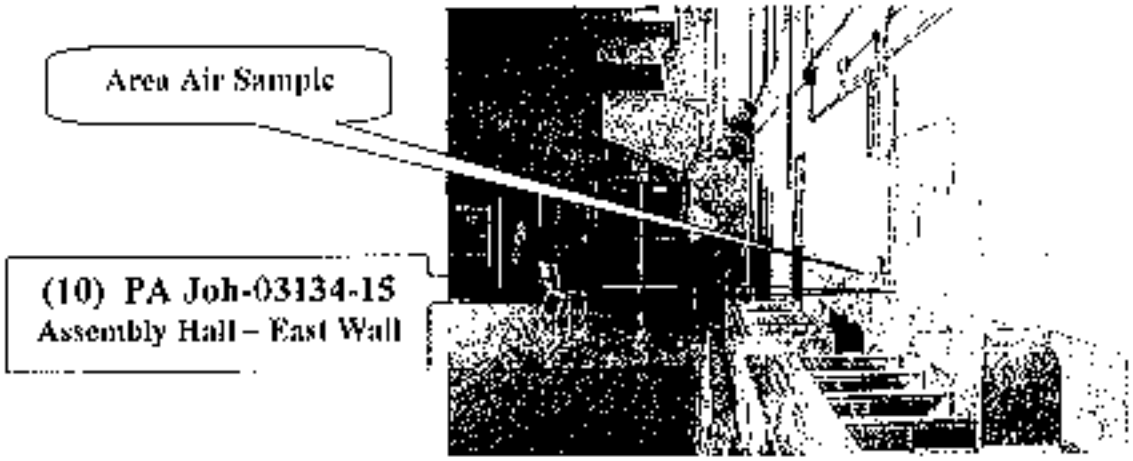
(6) PA Joh-03134-11
Room 30

(7) PA Joh-03134-12
Room 27 – XO's Office

(8) PA Joh-03134-13
Room 22 – War Room

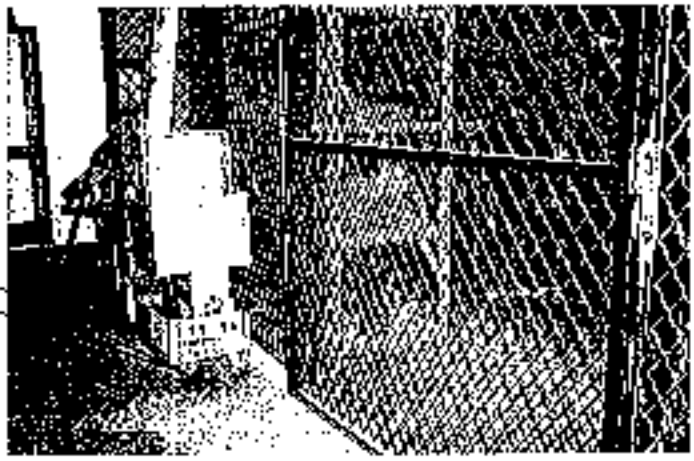
(9) PA Joh-03134-14
Room 29



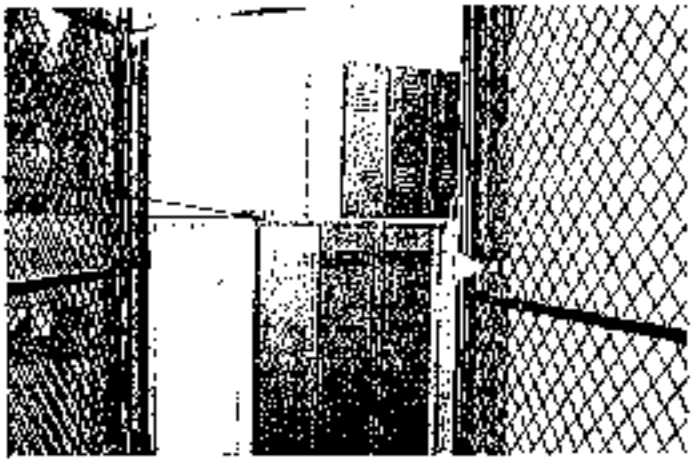


FORMER INDOOR FIRING RANGE SAMPLES

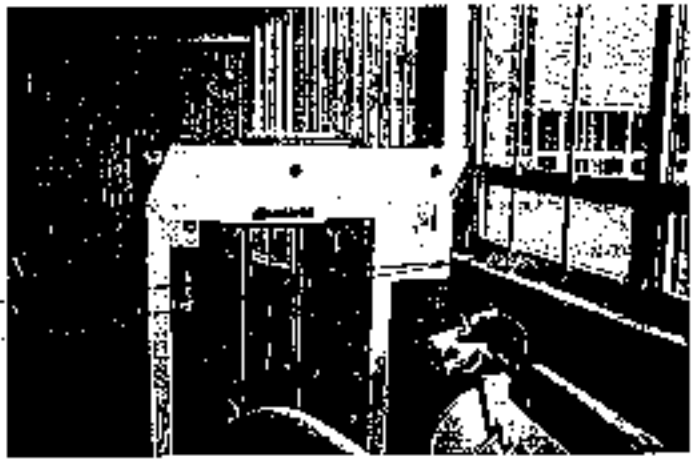
(11) PA Joh-03134-17
Bullet Trap Area - Floor



(12) PA Joh-03134-18
Former Range
Room 11B

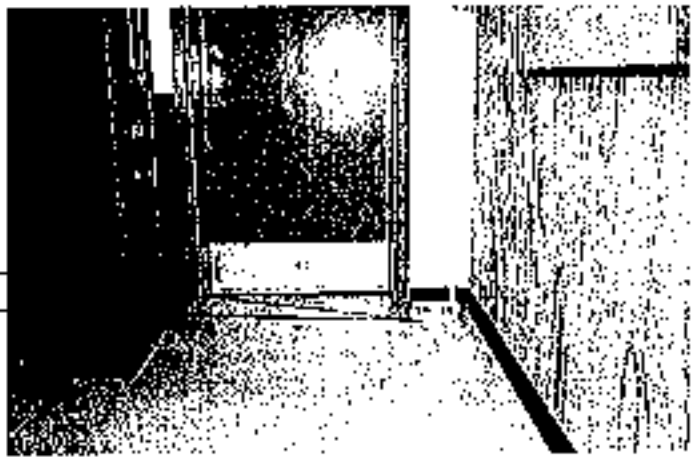


(13) PA Joh-03134-19
Former Range
Fitness Center



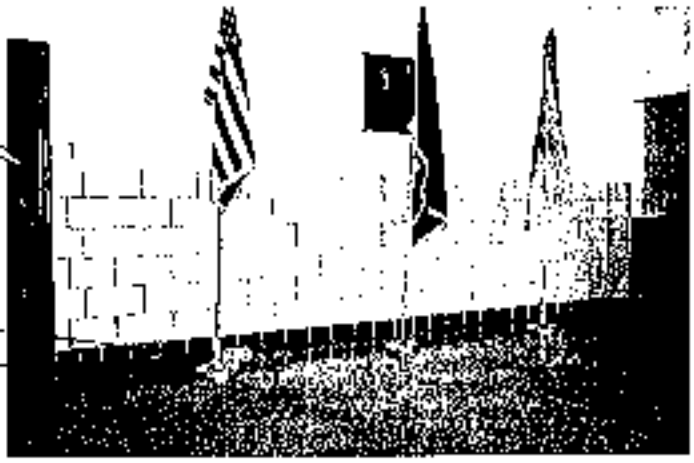
(14) PA Joh-03134-20
Former Range
Medical Supply

(15) PA Joh-03134-21
Entrance to Former Range
Present Medical Area



Former Range
Entrance

(16) PA Joh-03134-22
Outside Former Range
Lobby



RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
AIHA Certificate of Accreditation #4803 LAB ID 101533

TABLE I. ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	RES 93716-1
Client:	Operational Technologies, Corp.
Client Project Number / PO:	06 01
Client Project Description:	Armories/Pennsylvania
Date Samples Received:	June 6, 2003
Analysis Type:	USEPA SW846 3050B / AA(7420)
Turnaround:	3-5 Day
Date Samples Analyzed:	June 14, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA Joh-03134-05	EM 778533	0.11	BDL	23	BDL
PA Joh-03134-06	EM 778534	0.11	160.0	23	1455
PA Joh-03134-07	EM 778535	0.11	18.2	23	165
PA Joh-03134-08	EM 778536	0.11	BDL	23	BDL
PA Joh-03134-09	EM 778537	0.11	19.3	23	175
PA Joh-03134-10	EM 778538	0.11	BDL	23	BDL
PA Joh-03134-17	EM 778539	0.11	62.9	23	572
PA Joh-03134-18	EM 778540	0.11	2.6	23	24
PA Joh-03134-19	EM 778541	0.11	269.0	23	2445
PA Joh-03134-20	EM 778542	0.11	73.5	23	668
PA Joh-03134-21	EM 778543	0.11	3.0	23	27
PA Joh-03134-22	EM 778544	0.11	4.0	23	36
PA Joh-03134-23	EM 778545	0.11	BDL	23	BDL
PA Joh-03135-04	EM 778546	0.11	BDL	23	BDL
PA Joh-03135-05	EM 778547	0.11	BDL	23	BDL
PA Joh-03135-06	EM 778548	0.11	BDL	23	BDL
PA Joh-03135-07	EM 778549	0.11	BDL	23	BDL
PA Joh-03135-08	EM 778550	0.11	BDL	23	BDL
PA Joh-03135-09	EM 778551	0.11	BDL	23	BDL
PA But-03136-04	EM 778552	0.11	BDL	23	BDL
PA But-03136-05	EM 778553	0.11	BDL	23	BDL
PA But-03136-06	EM 778554	0.11	BDL	23	BDL
PA But-03136-07	EM 778555	0.11	5.0	23	45
PA But-03136-08	EM 778556	0.11	7.0	23	64
PA But-03136-09	EM 778557	0.11	BDL	23	BDL
PA For-03139-04	EM 778558	0.11	2.5	23	23
PA For-03139-05	EM 778559	0.11	10.7	23	97
PA For-03139-06	EM 778560	0.11	BDL	23	BDL
PA For-03139-07	EM 778561	0.11	BDL	23	BDL
PA For-03139-08	EM 778562	0.11	BDL	23	BDL

BDL: Below Detection Limit

Data Qa

Results
Lead

Client #	DCL #	Total Area (ft^2)	µg/Wipe	µg/ft^2
PA Joh-03134-11	03-30443	0.11	10.	91.
PA Joh-03134-12	03-30444	0.11	34.	310.
PA Joh-03134-13	03-30445	0.11	ND	<91.
PA Joh-03134-14	03-30446	0.11	ND	<91.
PA Joh-03134-15	03-30447	0.11	ND	<91.
PA Joh-03134-16	03-30448	0.11	ND	<91.
PA Cle-03140-10	03-30449	0.11	17.	150.
PA Cle-03140-11	03-30450	0.11	ND	<91.
PA Cle-03140-12	03-30451	0.11	11.	100.
PA Cle-03140-13	03-30452	0.11	ND	<91.
PA Cle-03140-14	03-30453	0.11	87.	790.
PA Cle-03140-15	03-30454	0.11	ND	<91.
PA Kan-03141-10	03-30455	0.11	19.	170.
PA Kan-03141-11	03-30456	0.11	20.	180.
PA Kan-03141-12	03-30457	0.11	3100.	28000.
PA Kan-03141-13	03-30458	0.11	13.	120.
PA Kan-03141-14	03-30459	0.11	ND	<91.
PA Kan-03141-15	03-30460	0.11	ND	<91.
PA Rid-03141-25	03-30461	0.11	ND	<91.
PA Rid-03141-26	03-30462	0.11	110.	1000.
	Prep Blank		ND	
% Recovery	LCS 1		91.	
% Recovery	LCS 2		90.	
RPL			10.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive
Analyst

Non-Responsive
Reviewer

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m³
PA Loc-03118-02	03-17870	599.6	ND	<0.002
PA Loc-03118-03	03-17871	541.0	ND	<0.002
PA Loc-03118-04	03-17872	531.7	ND	<0.002
PA Lew-03118-22	03-17873	295.2	ND	<0.003
PA Lew-03118-23	03-17874	279.7	ND	<0.004
PA Sun-03119-01	03-17875	410.4	ND	<0.002
PA Sun-03119-02	03-17876	411.6	ND	<0.002
PA Lew-03119-19	03-17877	411.6	ND	<0.002
PA Lew-03119-20	03-17878	398.9	ND	<0.003
PA Lew-03119-21	03-17879	373.4	ND	<0.003
PA Hun-03120-01	03-17880	350.2	ND	<0.003
PA Hun-03120-02	03-17881	341.8	ND	<0.003
PA Joh-03134-01	03-17882	395.3	ND	<0.003
PA Joh-03134-02	03-17883	380.9	ND	<0.003
PA Joh-03134-03	03-17884	349.1	ND	<0.003
PA Joh-03135-01	03-17885	450.7	ND	<0.002
PA Joh-03135-02	03-17886	405.0	ND	<0.002
PA Joh-03135-03	03-17887	381.4	ND	<0.003
PA But-03136-01	03-17888	362.5	ND	<0.003
PA But-03136-02	03-17889	348.3	ND	<0.003
	Prep Blank 6		ND	
% Recovery	LCS 11		96.	
% Recovery	LCS 12		98.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer

DataChem Laboratories Phase Contrast Microscopy Test Report

Client: Army National Guard IH-N

Sample Location: Pennsylvania Armories P.O. No.: 06-03

ANALYSIS INFORMATION								
Graticule Area (mm^2):	0.00817							
SAMPLE INFORMATION			SAMPLE RESULTS				LOD	
Client Sample Nos.	DCL Nos.	Vol. (L)	Fib/Field	Fib/mm^2	Fib/Filter	Fib/mL	(Fib/mm^2)	(Fib/mL)
PAJon-03134-04	03-17634	350.90	0.050	<LOD	<LOD	<LOD	7	0.008
PAEri-03148-03	03-17635	404.30	0.035	<LOD	<LOD	<LOD	7	0.007

**Comments: none.

*NOTES: "NA" indicates no volume was given or the sample is a blank.
All samples counted using the "A" rules.

Non-Responsive

Analyst

Non-Responsive

Reviewer

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non-[redacted]@md.ngb.army.mil

Attachment D

REFERENCE LIST INDEX

1. General Regulations and National Consensus Standards
2. Specific Regulations and Guidance
   a. Abrasive Blasting
   b. Asbestos
   c. Battery Charging Room
   d. Bird and Bat Manure
   e. Bloodborne Pathogens
   f. Chemical Agent Resistant Coating (CARC) Paint
   g. Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE)
   h. Confined Space Entry Program
   i. Design Review
   j. Ergonomics
   k. Flammable Storage Room
   l. Hazard Communication
   m. Hearing Conservation
   n. Indoor Air Quality
   o. Indoor Firing Ranges
   p. Lead
   q. Lighting
   r. Occupational Vision
   s. Paint Spray Booth
   t. Personal Protection
   u. Radiation Protection
   v. Respiratory Protection
   w. Sanitation
   x. Smoking
   y. Vehicle Exhaust
   z. Welding Operation

GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REFERENCE LIST

1. General Regulations and National Consensus Standards
   a. DODI 6055.1, DOD SOH Program, 19 August 1998.
   b. DODI 6055.5, DOD OEH. *[DRAFT]*
   c. DOD 6055.5-M, DOD Occupational Health Surveillance Manual, 13 May 1987.
   d. DODI 6050.5, DOD Hazard Communication, 29 Oct 90. Change 1, 6 May 1996.
   e. AR 40-5, Preventive Medicine, 15 October 1990. [05/2002 Being Updated]
   f. DA PAM 40-5, Preventive Medicine. *[DRAFT]*
   g. AR 385-10, The Army Safety Program, 29 February 2000.
   h. NGR 385-10, ARNG SOH Program, 7 October 1988, Change 1, 29 December 1989.
   i. Title 29, Part 1910, Occupational Safety and Health Standards. [Current Date]
   j. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 2002.
   k. ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th edition, 2001.
   l. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.
   m. TG 141, USACHPPM Industrial Hygiene Sampling Guide, November 1997.
   n. National Safety Council, Fundamentals of Industrial Hygiene, 5th Edition, 2002.
   o. NIOSH, Pocket Guide to Chemical Hazards, 2001.
   p. NFC, A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. [Current date]
   q. ASHRAE Standards. [Current Dates]
   r. ANSI Standards. [Current Dates]

2. Specific Regulations/Guidance
   a. **ABRASIVE BLASTING**
      (1) ANSI Z9.4 1997, Abrasive Blasting Operations - Ventilation and Safe Practices.
      (2) 29 CFR 1910.94 Ventilation
      (3) 42 CFR 84

   b. **ASBESTOS**
      (1) AR 40-5, Preventive Medicine, 15 October 1990. *[05/2002 Being Updated]*
      (2) AR 200-1, Environmental Protection and Enhancement, Chapter 8, 21 February 1997.
      (3) TB MED 513, Guidelines for the Evaluation and Control of Asbestos Exposure, 15 December 1986. *[05/2000 Under Revision as DA PAM 40-513]*
      (4) TG 157, USAEHA, The Installation Asbestos Management Program Assessment Checklists, July 1994.
      (5) 29 CFR 1910.1001
      (6) 29 CFR 1926.58 (prior to 1994 CFR)
      (7) 29 CFR 1926.1101

(8) MEMORANDUM SGPS-PSP, OTSG, subject: AMEDD Role Supporting Asbestos Abatement/Asbestos Management Programs, 19 Jan 89.

(9) EPA, Guidance for Controlling Asbestos-Containing Materials in Buildings, June 1985.

(10) DD Form 2493-1 (Asbestos Exposure, Part I--Initial Medical Questionnaire)

(11) DD Form 2493-2 (Asbestos Exposure, Part II--Periodic Medical Questionnaire)

(12) EPA NESHAPS Asbestos Regulation (40 CFR 61, Subpart M).

c. **BATTERY CHARGING ROOM**

(1) TG 022, USAEHA, page 81, Industrial Hygiene Evaluation Guide, October 1975. *[Out of Print]*

(2) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

d. **BIRD AND BAT MANURE**

(1) TG 142, USAEHA, Managing Health Hazards Associated with Bird and Bat Excrement, Dec 1992.

e. **BLOODBORNE PATHOGENS**

(1) 29 CFR 1910.1030

(2) TG 190, USAEHA, Guide to Managing Occupational Exposure to Bloodborne Pathogens, Jan 94.

f. **CHEMICAL AGENT RESISTANT COATING (CARC) PAINT**

(1) TG 144, USAEHA, Guidelines for Controlling Health Hazards in Painting Operations, 24 August 1987.

(2) DA LTR, USAEHA, HSHB-MI-WR, subject: Respiratory Protection When Spraying CARC, 19 November 1992.

(3) TM 43-0139, Painting Instructions for Army Material, 27 July 1988[1 Aug 86.

(4) MEMORANDUM SGPS-PSP, OTSG, subject AMEDD, Occupational Health Requirements in Support of Painting in the Army, 22 February 1985.

(5) AR 750-1, Army Materiel Maintenance Policy and Retail Maintenance Operations (Prohibits welding on CARC paint) 1 July 1996.

g. **CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR, EXPLOSIVE (CBRNE)**

(1) DODI 2000.gg, DOD Installation CBRNE Emergency Response Guidelines.

(2) DHHS, NIOSH Pub No. 2002 139, Guidance for Protecting Building Environments from Airborne Chemical, Biological, or Radiological Attacks, May 2002.

(3) TG 275, USACHPPM, Personal Protective Equipment Guide for Medical Treatment Facility Personnel Handling Casualties from Weapons of Mass Destruction and Terrorism Events. *[Draft]*

h. **CONFINED SPACE**

(1) 29 CFR 1910.146 (Confined Space Entry)
(2) 29 CFR 1910.147 (Lockout/Tagout)
(3) ANSI Z117.1-Safety Requirements for Confined Spaces, 1995.
(4) SOP for ARNG Confined Space Entry Program, 25 April 1991.
(5) Letter, US Dept of Labor (DOL) addressed to Vanessa Char, 22 Apr 1994.
(6) OSHA Instruction STD 1-7.3, US DOL, subject: 29 CFR 1910.147, the Control of Hazardous Energy (Lockout/Tagout)--Inspection Procedures and Interpretive Guidance, 11 Sep 90.
(7) DHHS, NIOSH Pub No. 87113, A Guide to Safety in Confined Spaces, July 1987.
(8) Confined Space Entry Program for Helicopters, 2003.

i. **DESIGN REVIEW**

(1) DG 415-1, Design Guide for Armories, current.
(2) DG 415-2, Design Guide for Logistics Facilities, current.
(3) DG 415-3, Design Guide for Training Site Facilities, current.
(4) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.
(5) TI-300, 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.
(6) UFGS 15940A, Overhead Vehicle Tailpipe (and welding Fume) Exhaust Removal Systems, December 2001.
(7) ASHRAE, Standard 62-2002, Ventilation for Acceptable Indoor Air Quality.
(8) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

j. **ERGONOMICS**

(1) DA PAM 40-21, Medical Services, Ergonomics Program, 15 May 2000.
(2) ANSI Z-365, Management of Work Related Musculoskeletal Disorders, 2000.
(3) 29 CFR 1910. *[PROPOSED STANDARD]*

k. **FLAMMABLE STORAGE ROOM**

(1) 29 CFR 1910.106
(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

l. **HAZARD COMMUNICATION**

(1) 29 CFR 1910.1200
(2) NGR 385-10, Chapter 6

m. **HEARING CONSERVATION**

(1) DA PAM 40-501, Medical Services, Hearing Conservation Program, 10 December 1998.

(2) TG 181, USAEHA, Noise Dosimetry and Risk Assessment, May 1999.

(3) TG 175, USAEHA, Readiness thru Hearing Conservation: Guide for Unit Commanders and Supervisors, June 1999.

(4) 29 CFR 1910.95

n. **INDOOR AIR QUALITY (IAQ)**

(1) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

(2) USACERL Technical Report P-91/42, IAQ Management for Operations and Maintenance Personnel, September 1991.

(3) EPA 400/1-91/003 or DHHS, NIOSH, Publication No. 91-114, Building IAQ, A Guide for Building Owners and Facility Managers, December 1991.

(4) ASHRAE, Standard 62-2002, Ventilation for Acceptable IAQ.

(5) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

(6) NIOSH, IAQ Selected References, Sep 1989.

(7) OSHA Instruction CPL 2-2.20B CH-1, Directorate of Technical Support, 13 Nov 90.

(8) DA PAM 25-52, Mail Facility Security and Handling Suspicious Mail, 6 November 2001.

(9) ASTM, D 5952-96, 10 May 1996.

o. **INDOOR FIRING RANGES**

(1) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(2) NGR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges, 30 March 1990. *[1102 Under Revision]*

(3) CEHND 1110-1-18, USACE Design Manual for Indoor Firing Range, June 1990.

(4) HQDA LTR, Office of the Adjutant General, DACS-SF, subject: Inspection and Evaluation of US Army Indoor Firing Ranges, 26 March 1993.

(5) Departments of the Army and Air Force, NGB-ADE-OM, subject: All State Log Number (I920323) Indoor Range Clean-up at State Owned Armories, 28 July 1992.

(6) NIOSH, Technical Information, December 1975, subject: Lead Exposure and Design Considerations for Indoor Firing Ranges.

(7) All-States Ltr P01-0075, 5 December 2001.

(8) Information Paper, Alternative Ammunition, 15 March 1996.

(9) Information Paper, Bullet Traps, 26 April 1996.

(10) Information Paper, ARNG IFR Action Plan, 28 January 2002.

p. **LEAD**

(1) 29 CFR 1910.1025

(2) 29 CFR 1926.62

(3) 24 CFR 35.61 (HUD, Percentage of Lead in Paint)

(4) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(5) OSHA Instruction CPL 2-2.58, Office of Health Compliance Assistance, 13 December 1993.

(6) Federal Register, 18 April 1990, Vol. 55, No. 75, HUD, Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing, as amended, September 1990, Office of Public and Indian Housing, Department of Housing and Urban Development, 451 Seventh Street, SW, Washington, DC 20410.

(7) NIOSH, Request for Assistance in Preventing Lead Poisoning in Construction Workers, April 1992.

(8) EPA, Strategy for Reducing Lead Exposures, 21 Feb 91.

q. **LIGHTING**

(1) RP-1-1993, Office Lighting, ANSI/IESNA.

(2) RP-7-2001, Industrial Lighting, IES.

r. **OCCUPATIONAL VISION**

(1) DA PAM 40-506, Medical Services, The Army Vision Conservation and Readiness Program, 20 July 2001.

(2) ANSI Z87.1, Practice for Occupational and Educational Eye and Face Protection, 1989, Change A, REAF 1998.

(3) ANSI Z358.1 for Emergency Eyewash and Shower Equipment, 1998.

(4) OTSG Memorandum SGPS-PSP, subject: Acanthameoba Keratitis and Eyewash Stations, 8 May 89.

(4) 29 CFR 1910.133

s. **PAINT SPRAY BOOTH**

(1) NFPA No. 33, Standard for Spray Application Using Flammable and Combustible Materials, 1995.

(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

(3) 29 CFR 1910.94

(4) 29 CFR 1910.107

(5) ANSI Z9.3-1995 for Exhaust Systems - Spray Finishing Operations - Safety Code for Design, Construction, and Ventilation.

(6) ANSI Z9.2-2001, Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems.

t. **PERSONAL PROTECTIVE EQUIPMENT**

(1) Quick Selection Guide to Chemical Protective Clothing, 2nd edition, Forsberg, K and Mansdorf, S., 1993.

(2) Chemical Protective Clothing, Vol 1 and 2, Johnson, J. and Anderson, K., American Industrial Hygiene Association, 1990.

(3) Guidelines for the Selection of Chemical Protective Clothing, 3rd Edition, ACGIH, Inc., Feb 1987.

u. **RADIATION PROTECTION PROGRAM**

(1) NGR 385-11, Safety, Ionizing and Nonionizing Radiation Protection, 18 February 1999.

(2) AR 11-9, Army Radiation Safety Program, 28 May 1999.

(3) 29 CFR 1910.96

(4) 29 CFR 1910.97

v. **RESPIRATORY PROTECTION**

(1) AR 11-34, The Army Respiratory Protection Program, 15 February 1990. *[11/02 Being Updated]*

(2) 29 CFR 1910.134

(3) 42 CFR 84

(4) TB MED 502, Respiratory Protection Program, February 1992. *[11/02 Being Updated as DA PAM 40-502]*

(5) ANSI/CGA G-7.1-1997, Commodity Specification for Air.

(6) ANSI Z88.2-1992, Standard for Respiratory Protection.

w. **SANITATION**

(1) ANSI Z4.1-1986, Change REAF 1995, Sanitation in Places of Employment-Minimum Requirements.

(2) 29 CFR 1910.141

x. **SMOKING**

(1) AR 600-63, Army Health Promotion, 28 April 1996.

(2) DODI 1010.15, Smoke-Free DOD Facilities, 2 January 2001.

(3) DODD1010.10, Health Promotion, 11 March 1986.

y. **VEHICLE EXHAUST**

(1) ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th Edition, 2001.

(2) TI-300f 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

z. **WELDING OPERATION**

(1) 29 CFR 1910.252

(2) 29 CFR 1910.253

(3) 29 CFR 1910.254

(4) ANSI/AWS Z49.1-1999, Safety in Welding and Cutting and Allied Processes.

(5) TM 5-805-7, Welding Design, Procedures and Inspection, 20 May 85.

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 $\mu g/ft^2$) and windowsills (250 $\mu g/ft^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of 200 $\mu g/ft^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 $\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 $\mu g/ft^2$ on floors and 250 $\mu g/ft^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

INDUSTRIAL HYGIENE SURVEY
PENNSYLVANIA

		SURVEY DATE	14 May 03
FACILITY	HHC 1/103rd Armor	COB 1/103RD Armor	
ADDRESS	565 Walters Ave.	28TH MP CO(-DET1)	
	Johnstown, PA 15904 -1298		
CONTACT	MAJ [redacted]		
PHONE	814-533-2443		
DATE BUILT	1960	FACILITY SIZE	28 615 SqFt
RANGE	CLOSED		5,096
ASSISTED			

FT - 15 6 - Tool sheds

PAINT CONDITION:	Trad - 470	4 roofing
INDOORS	Good	Sample?
OUTDOORS	Brick - good	Sample?

ASBESTOS		
Area/condition	Lots of 9" tile areas recently removed	
Area/condition	2 small areas chipping	

WATER DAMAGE		
Area/condition		
Area/condition		

Many areas - remodeling - roof leaks

HOUSEKEEPING	Dusty - Mostly due to present renovations

TIME	AREA	CO	CO_2	TEMP	RH
1400	Outdoors	0.0	536	78.8 °F	15.6 %
1420	Assembly Hall - floor open	0.0	524	68.6 °F	33.0 %
1428	2nd Floor Rm 29 33 (occup)	0.0	621	72.3 °F	31.7 %
1432	Rm 30 SPT 5GT	0.0	550	73.2 °F	34.6 %
1436	Rm 28 Copier	0.0	618	73.9 °F	34.0 %
1440	Rm 26 Lights	0.0	750	74.3 °F	34.8 %
1443	Rm 27 BN CO (occup)	0.0	679	74.8 °F	32.2 %
1447	Rm 25 51/54 (occup)	0.0	639	76.2 °F	31.1 %
1452	Rm 22 War Rm	0.0	555	76.5 °F	27.3 %
1456	Rm 21 (occup)	0.0	631	76.4 °F	30.8 %
1500	Elect Rm (occup)	0.0	565	73.3 °F	28.6 %
1504	Rm 20 CMDR RM	0.0	542	75.2 °F	30.1 %
1509	1st Floor W. classroom Rm 9	0.0	559	74.3 °F	28.0 %
1513	Rm 8 Classroom	0.0	549	74.2 °F	28.6 %
1516	Rm 11A	0.0	562	66.2 °F	34.9 %
1520	Rm 11C	0.0	860	71.3 °F	40.2 %
1530	Assembly Hall	0.0	556	70.4 °F	31.6 %

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INDUSTRIAL HYGIENE SURVEY
PENNSYLVANIA

Johnstown - Walters

WIPE SAMPLES	ARMORY	Picture #
PA Joh-03/34-05	~~HVAC supply side of filter~~ Kitchen - Above Stove	1
PA Joh-03 06	~~HVAC on fan side of filter~~ Assembly Hall · W	2
PA Joh-03 07	~~Assembly Hall~~ Rm 8 Classroom window sill	3
PA Joh-03 08	~~Kitchen~~ 2nd Floor Rm. 21 Cabinet	4
PA Joh-03 09	~~Supply side grille/occupied office~~ Rm 24 Table	5
PA Joh-03 10	BLANK	
PA Joh-03 11	Rm 30	6
PA Joh-03 12	Rm 27 XO's office	7
PA Joh-03 13	28 War Rm By TV	8
PA Joh-03 14	Rm 39 - off Drill 1st floor	9
PA Joh-03 15	Assembly Hall - E · wall by Air Sampler	10
PA Joh-03 16	BLANK	
PA Joh-03		
PA Joh-03		
PA Joh-03		
PA Joh-03		
PA Joh-03		
PA Joh-03	BLANK	

AIR SAMPLING

Sample #	Pump #	Person/Area	Precal lpm	Postcal lpm	Time On	Time Off	Run Time	Volume (Liters)
PA Joh-03/34-01	647609	John Sargent	3.185	3.088	1425	1633	128	395.3
PA Joh-03/34-02	647627	Area Assembly Area	3.174	3.072	1428	1632	124	380.9
PA Joh-03/34-03	648344	Area - 2nd Floor Rm 29 S3 office	2.980	2.934	1432	1631	119	349.1
PA Joh-03/34-04	648393	Area ASBESTOS 2nd Floor Rm 29 S3 office	3.157	3.051	1440	1635	115	350.9

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INDUSTRIAL HYGIENE SURVEY
PENNSYLVANIA

CONVERTED INDOOR FIRING RANGE WIPE SAMPLES			
PA Joh-03 139 -17	~~Inside any remaining ventilation ductwork~~ Bullet Trap Floor		11
PA Joh-03 18	~~Exhaust ventilation system~~ 11 B		12
PA Joh-03 19	~~Bullet~~ trap Fitness		13
PA Joh-03 20	~~Light~~ fixtures Med. Supply		14
PA Joh-03 21	~~Overhead heaters~~ Entry in Med. Floor		15
PA Joh-03 22	~~Stored items~~ Entry Floor - outside Range		16
PA Joh-03	Floor		
PA Joh-03	~~Outside the range~~		
PA Joh-03 23	Blank		

HVAC SYSTEM: evaluate maintenance schedule and quality of maintenance for HVAC syst.

Firing line ducts were sealed with warning signs.

Former Range is 2 carpeted storage rooms, fitness center & med supply, med office & ... Rm

PROGRAMS		
CONFINED SPACES?	Y - (N)	
HEARING CONSERVATION?	Y - (N)	
RESPIRATORY PROTECTION?	Y - (N)	
HAZCOM?	Y - (N)	
PPE?	Y - (N)	
TRAINING?	Y - (N)	

VENTILATION:

NOISE:

ILLUMINATION

2ND Floor

Rm 09 S3 office

72, 78, 76, 72, 70, 78 446/6 = 74.3 Sc Avg.

D - 80, 72, 72 224/3 = 74.7

Corridors

4, 6, 54, 20, 56, 6, 4, 6, 156/8 = 19.5

Rm 30 SH 1st SGT

30, 46, 54, 132/3 = 44.0

D - 36

Rm 28 copier Rm

20, 44, 38 100/3 = 34.0

D - 42

Sup - 110

Rm 26 Logistics

43, 44, 48, 62 196/4 = 49.0

D - 62

Rm 27 BN XO

58, 60, 64 182/3 = 60.7

D - 70

RM 35 S1/S4

58, 44, 80, 72, 76, 64, 38 454/7 = 64.9

D - 54, 72, 126/2 = 63.0

Rm 02 war Room

54, 52, 54, 72, 66 294/5 = 58.8

Conf. Table

62, 66, 64, 62, 50, 52 356/6 = 59.3

Rm 21

62, 68, 64, 76, 76, 346/5 = 69.2

D - 68, 70 138/2 = 69.0

Rollcall

72, 48, 38, 68 226/4 = 56.5

BN CMDR

58, 60, 62, 78, 56 308/5 = 61.6

D - 52

Conf Table

64, 60, 64, 64 252/4 = 63.0

Stairs

6, 11, 4, 6, 7, 34/5 = 6.8

1ST FLOOR

Classroom west Rm 9

30, 58, 10, 20, 66, 72, 48, 60, 44 504/9 = 56.0

RM 8 Classroom

54, 64, 68, 64, 76, 78, 74, 72 550/8 = 68.8

Rm 11A Storage

28, 20, 14, 18, 38, 44 170/6 = 28.3

Fixtures 11C

42, 50, 50, 56, 58, 46, 48 352/7 = 50.3

ASSEMBLY HALL

10, 24, 30, 44, 46, 20, 28,

12, 8, 6, 6, 4, 10, 12 264/14 = 18.9

Lockers - Elect Dn.

8, [illegible] = 34.0

PENNSYLVANIA ARMORY
INDUSTRIAL HYGIENE SURVEY
EQUIPMENT LISTING

Air Sampling Pumps
SKC Aircheck Samplers 224-44XR
S/N: 647609, 647610, 647626, 647627, 647654, 648324, 648349, 648393

Air Pump Calibrator
DryCal Base m: DC-1B Rev 2.06F S/N B 1827
DryCal Med Cell: m: DC-MC-1 Rev E S/N 1745

Indoor Air Quality
TSI Q-Trak m: 8550 S/N 11050
Metrosonics Carbon Monoxide Logger m: pm7700 S/N 1129
Metrosonics CO Sensor m: gs 7701 S/N 5073

Noise
Quest Sound Level Meter m: 2800 S/N HS4090023
Quest Octave Filter Set m: OB-300 S/N HV4070020
Quest Acoustic Calibrator m: QC-10 S/N QP4090140
Metrosonics db-3080 Noise Dosimeters S/N 4667, 4685
Microphones

ATTACHMENT E

Industrial Hygiene Survey

HHC 213th AREA SPT GP
228TH TRANS DET
CO C (MED) 228TH SPT BN (FSB)

ALLENTOWN, PENNSYLVANIA

June 17, 2003

OPTECH

OPERATIONAL TECHNOLOGIES
CORPORATION

HHC 213TH AREA SPT GP
228TH TRANS DET
CO C (MED) 228TH SPT BN (FSB)
ALLENTOWN, PENNSYLVANIA
INDUSTRIAL HYGIENE SURVEY

1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Armory in Allentown, Pennsylvania on June 17, 2003. The NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. Non-Responsive from OpTech, completed this survey. Non-Responsive a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the IH Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D.

2.0. EXECUTIVE SUMMARY

2.1. Carbon monoxide, carbon dioxide and indoor temperatures were within recommended ranges. Relative humidity levels exceeded 60% in all areas of the facility. Humidity should be maintained below 60% relative humidity for occupant comfort and controlling mold growth.

2.2. Illumination levels were below recommended minimum standards in some areas of the facility.

2.3. Wipe samples for inorganic lead were collected throughout the facility. All results were below the 200 $\mu g/ft^2$ criterion; however, lower levels of lead were detected in many areas. Suspect the source of lead dust is from the indoor firing range activities which has migrated to other areas of the facility.

2.4. Air sampling for inorganic lead was taken. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building.

2.5. Stained ceiling tiles were present in hallways from previous water intrusion.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	**HHC 213TH AREA SPT GP**		
	228TH TRANS DET		
	CO C (MED) 228TH SPT BN (FSB)		
ADDRESS	**1501 Allentown St**		
	Allentown, PA 18102		
CONTACT	**1SG** [redacted]		
PHONE	**610-521-6533**		
DATE BUILT	**1940/60**	**FACILITY SIZE**	**83,000 sq. ft.**
INDOOR FIRING RANGE	**CLOSED**		**3-floors plus basement**
ASSISTED			
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	**6**		
TRADITIONAL (MIL)	**150**		
CHILD ACTIVITIES	**None**		
ADULT ACTIVITIES	**None**		

3.1.1. The exterior is brick and appears to be in good condition. The inside has been kept in very good condition. The facility is heated with a natural gas steam furnace and cooled with window air conditioners.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity (RH) in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 Indoor Air Quality Standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ASHRAE 62-2001, Section 6.1.3, states that concentrations up to 700 ppm CO_2, above outdoor concentrations will achieve an acceptable level of indoor air quality.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ASHRAE 55-1992 recommends that temperature ranges be 73 to 79 degrees Fahrenheit (°F) during the summer and 68 to 74°F during the winter. Relative humidity levels be maintained between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table I.

TABLE I
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO2 (ppm)	Temp. (°F)	RH (%)
0931	Outdoors Background	0.0	480	81.3	65.4
0948	Classroom	0.0	575	77.5	61.2
0951	Assembly Hall	0.0	546	76.1	62.0
0955	Classroom (occupied)	0.0	544	75.4	62.6
0958	Classroom	0.0	532	74.2	61.8
1002	Kitchen	0.0	530	74.5	61.7
1006	Room 109 (occupied)	0.0	541	73.8	61.4
1010	Room 105	0.0	535	75.2	61.8
1014	Room 113	0.0	532	73.8	62.1
1017	Room B-9	0.0	521	74.1	63.0
1021	Hallway	0.0	525	73.9	62.4

TIME	AREA	CO (ppm)	CO2 (ppm)	Temp. (°F)	RH (%)
1026	Room 203	0.0	531	74.5	61.8
1029	Room 213	0.0	530	75.2	61.5
1034	Room 215	0.0	519	74.6	61.8
1039	Room b-13 (occupied)	0.0	525	74.4	62.1
1044	Male Latrine	0.0	531	76.8	62.5
1047	Female Latrine	0.0	535	74.6	61.1

3.2.5. Carbon monoxide, carbon dioxide and indoor temperatures were within recommended ranges. Relative humidity levels exceeded 60% in all areas of the facility. Humidity should be maintained below 60% relative humidity for occupant comfort and controlling mold growth.

3.3 ILLUMINATION

3.3.1. Illumination levels were measured in most areas of the facility. Sunlight was excluded, as much as possible for this survey, by closing doors and blocking windows. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 - 463). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
Kitchen	40 – 52	46	75	NO
Break Room	32 - 46	40	30	YES
Maintenance Area	32 – 42	38	75	NO
Storage	40 - 46	43	40	YES
Latrine	38 - 42	40	40	YES
Office	26 – 44	36	70	NO
Hallway	30 - 36	33	7.5	YES
Supply room	38 – 46	40	40	NO
Balcony	30 – 46	41	40	YES
Stairwell	32 - 40	37	7.5	YES
Computer	28 – 42	36	70	NO

3.3.2. Illumination levels were below recommended minimum standards in some areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3.4. WIPE SAMPLES

3.4.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples were taken at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot ($\mu g/ft^2$) and are listed in Table 3. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead ($\mu g/ft^2$)
PA All-03168-03	Class Room – Glass Table	BDL
PA All-03168-04	Assembly Hall – Shelf	BDL
PA All-03168-05	Kitchen – Top of Cabinet	115
PA All-03168-06	Lobby – Entrance – Center	33
PA All-03168-07	Basement Hall – Between Stairs	118
PA All-03168-08	BLANK Sample	BDL

$\mu g/ft^2$ – micrograms per square foot BDL – Below Detection Limits

3.4.2. Additional wipe samples were collected during this survey. These samples were collected to further analyze the extent of contamination should the first five samples indicate a possible hazard. Since the first series of samples did not exceed the 200 $\mu g/ft^2$ criterion (see Section 3.4.4), these additional samples were not analyzed. Suspect the source of lead dust is from the indoor firing range activities which has migrated to other areas of the facility.

3.4.3. CLOSED FIRING RANGE WIPE SAMPLING

3.4.3.1. Additional wipe samples were collected in the former indoor firing range. This area is presently being utilized for storage. This area has been remodeled with suspended ceiling and carpeting. No floor wipes samples were taken on the carpet as the wipe method does not work on carpet. The laboratory analysis results are listed in Table 4.

TABLE 4
FORMER FIRING RANGE WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA All-03168-15	Vent Unit	BDL
PA All-03168-16	Pipe Work	BDL
PA All-03168-17	Vent Unit	27
PA All-03168-18	Light Fixture	BDL
PA All-03168-19	Emergency Light	BDL
PA All-03168-20	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.4. WIPE SAMPLING RESULTS

3.4.4.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 µg/ft^2. This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. (See memorandum in Attachment E, Recommendations for Surface Lead Dust in Armories.) Results were below the 200 µg/ft^2 criteria; however, lower levels of lead were detected in many areas of the facility.

3.4.5. AIR SAMPLING

3.4.5.1. Air Sampling for inorganic lead was performed during this survey. Table 5 lists the results of these samples, and is reported in milligrams per cubic meter (mg/m³) of air.

TABLE 5
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
Non-	PA All-03168-01	Lead	<0.002 mg/m³	0.05 mg/m³	YES
Area – Kitchen	PA All-03168-02	Lead	<0.002 mg/m³	0.05 mg/m³	YES

mg/m³ = milligrams per cubic meter < = less than (below detection limits)

3.4.5.2. Air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this building.

3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION DAMAGE

3.5.1.1. Stained ceiling tiles were present in hallways from previous water intrusion.

3.5.2. PROGRAMS

3.5.2.1. There are no designated confined space areas within this facility. There are no exhaust ventilation systems to control a hazard. No chemicals besides normal cleaning materials are present. Therefore, a need has not been established for a HAZCOM program, the need for personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.3. HOUSEKEEPING

3.5.3.1 The facility was very clean and orderly. Some of the hallways had areas of chipped paint as well as in the shower facilities.

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

E – Recommendations for Surface Lead in Armories

F – Field Notes
- Equipment Listing

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
Allentown, PA	PENNSYLVANIA ARNG ARMORY	Allentown Armory

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR (Initials)
June 17, 2003	JSS

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	NA	1ST SGT Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
610-521-6533	HHC 213TH ARCA SPT GP 228TH TRANS DET CO E (MED) 228TH SPT BN (-)	3	9

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
6	150			

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	CONROLS 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			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	½ FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	¾ 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 WEATHR 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	/		

AEHA Form 271-R (Test), 1 Jan 92 (HSHB-MI-I)

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	0	C

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

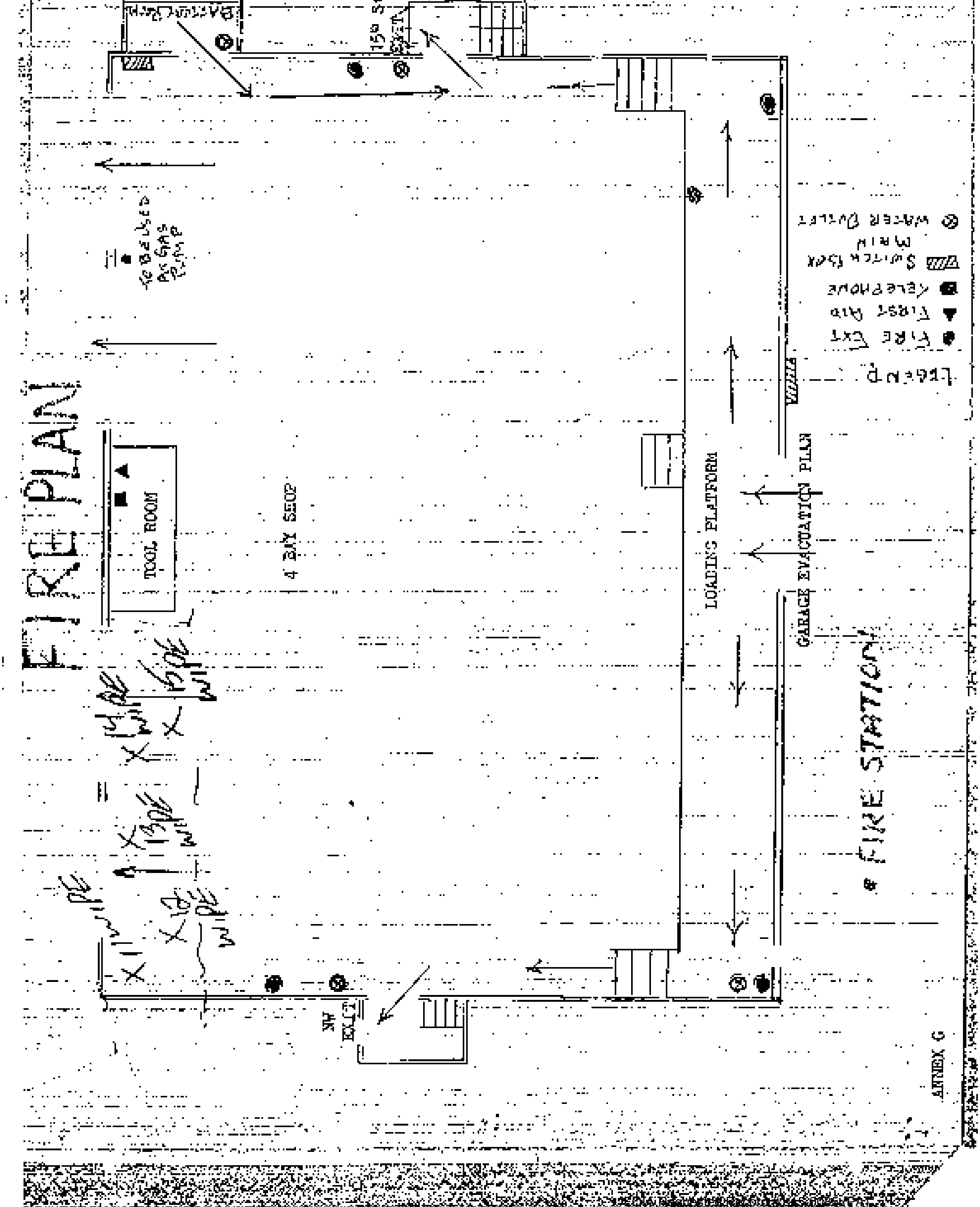
SECTION 6. COMMENTS

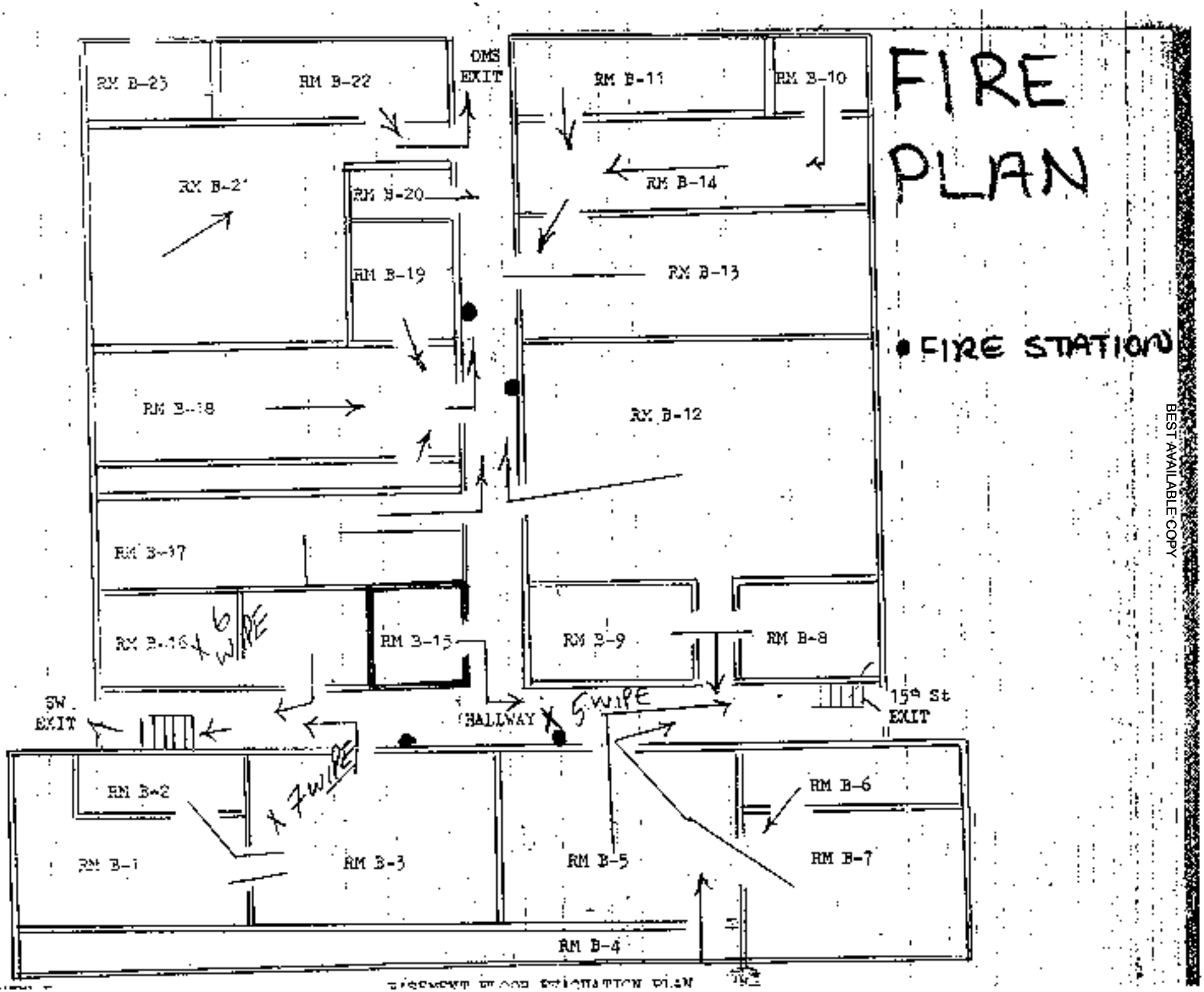
☐ No comments ☐ See attached sheet

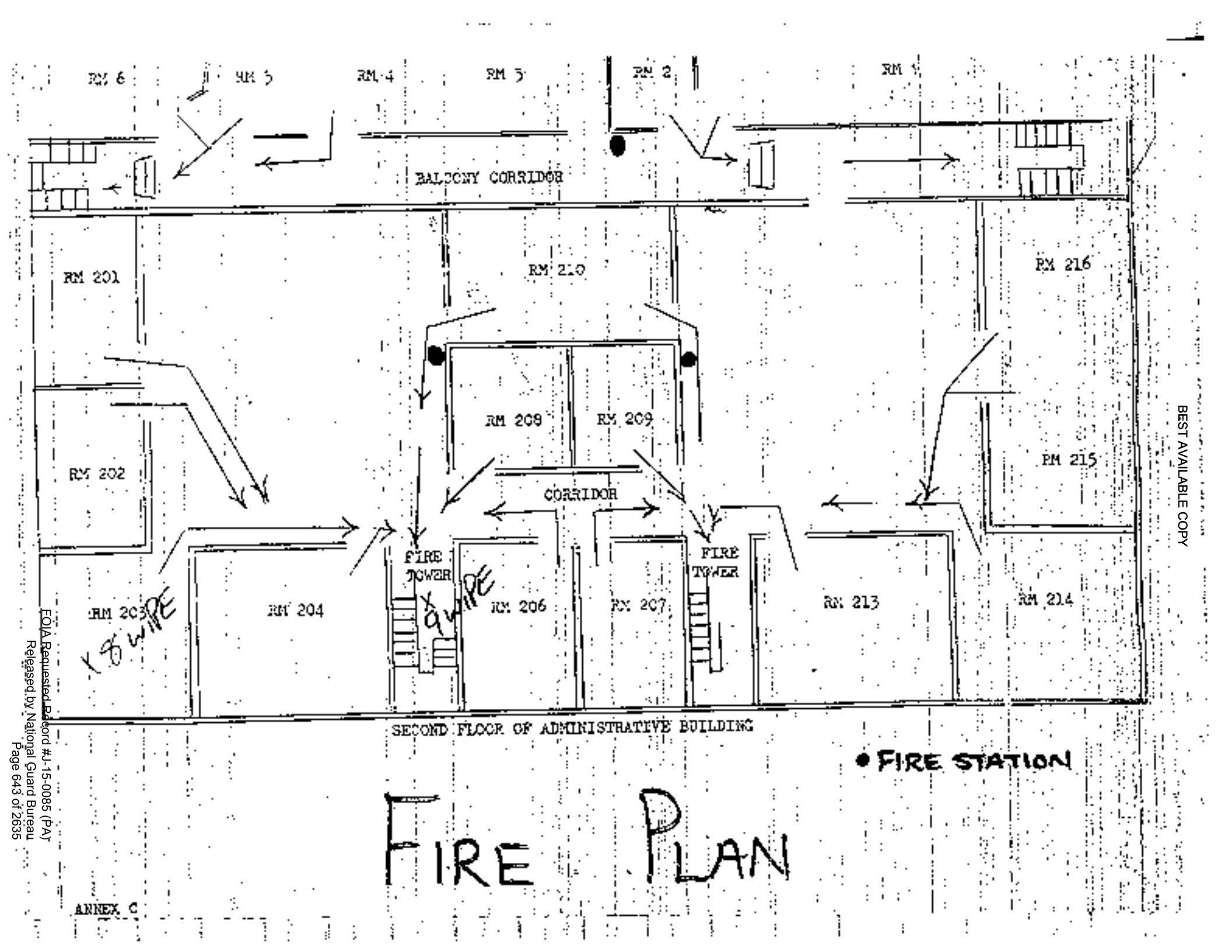
PRIVACY ACT STATEMENT

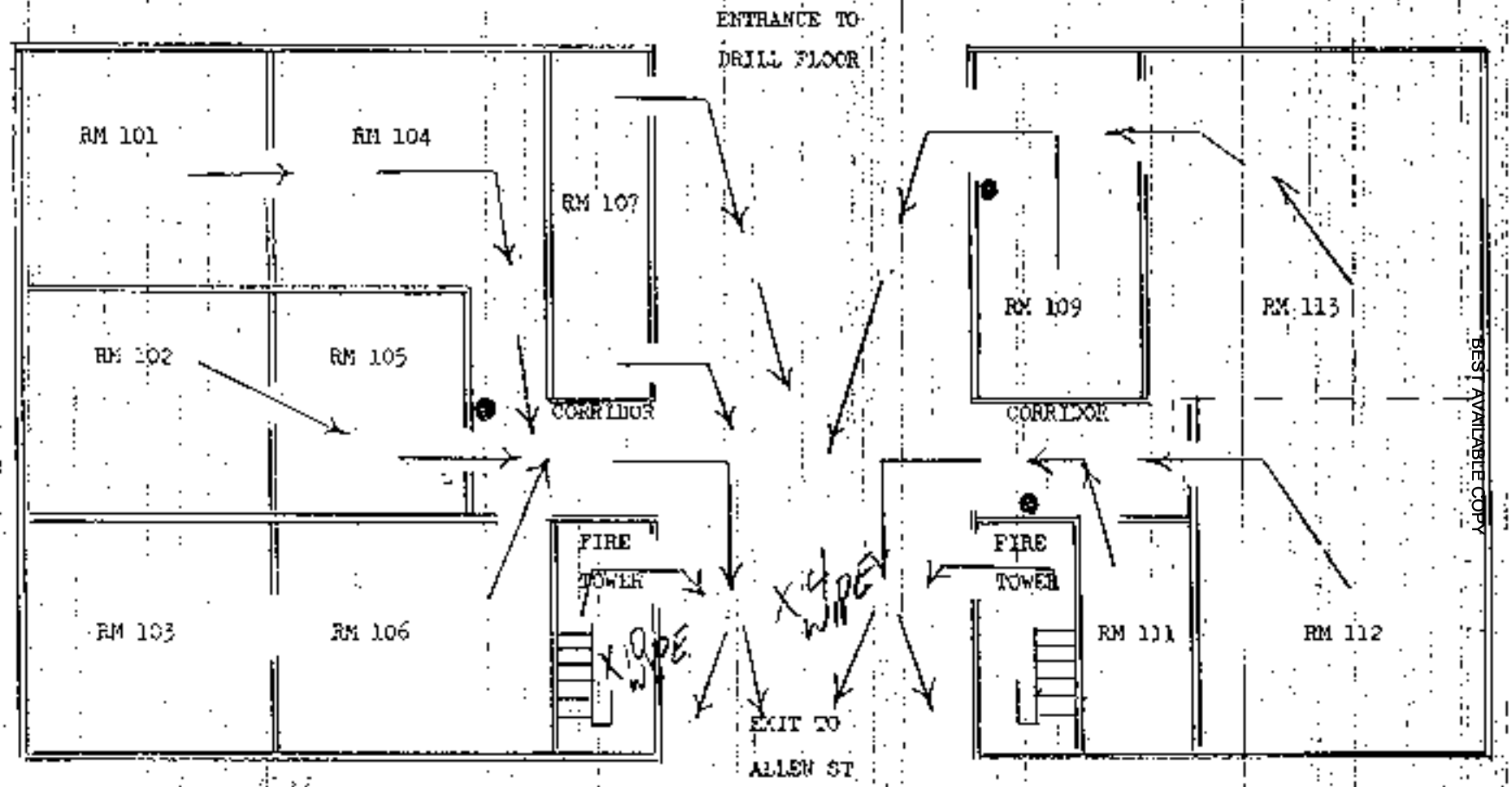
Title 5 US Code, Section 301; Executive Order 9397 authorized the use of your Social Security Number as an identification number. The purpose of this information is to identify and monitor data relating each DA civilian and military employee exposed to a hazardous workplace or operation. The use of this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

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









FIRST FLOOR OF ADMINISTRATIVE BUILDING

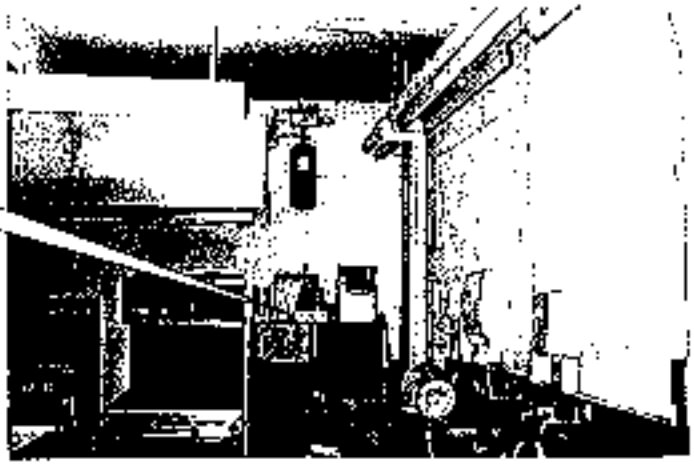
• FIRE STATION

FIRE PLAN

ANNEX D

ALLENTOWN, PENNSYLVANIA

(3) PA All-03168-05
Kitchen



(4) PA All-03168-06
Lobby

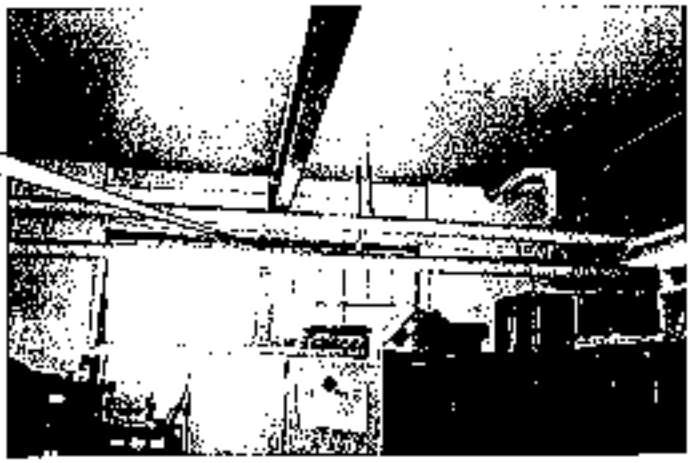
(5) PA All-03168-07
Hallway

Attachment B

ADDITIONAL SAMPLES

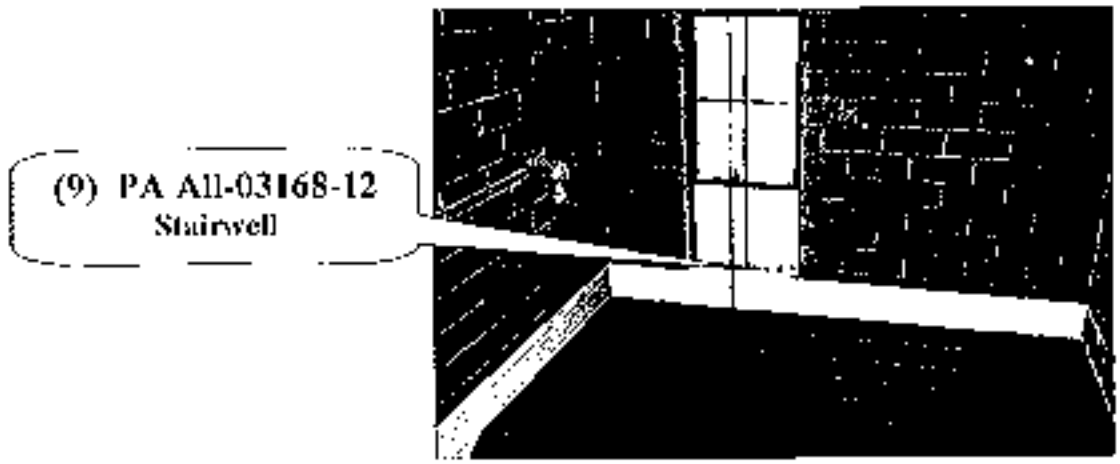
(6) PA All-03168-09
Women's latrine

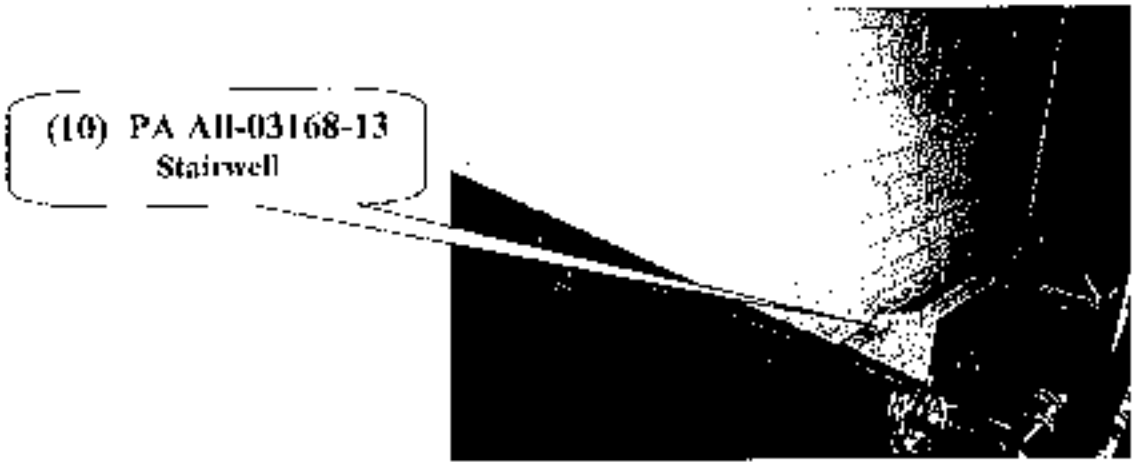
(7) PA All-03168-10
Basement



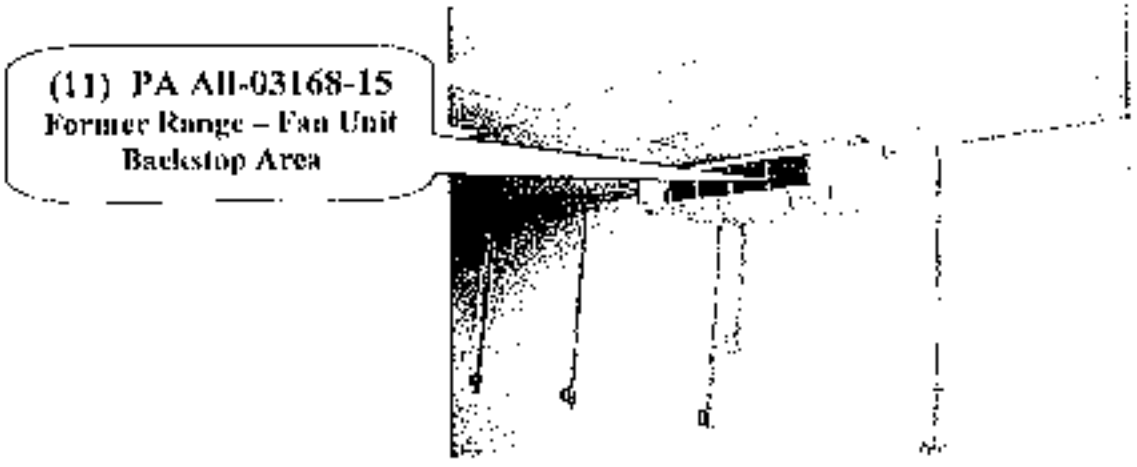
(8) PA All-03168-11
Room 203 - Office

Attachment B



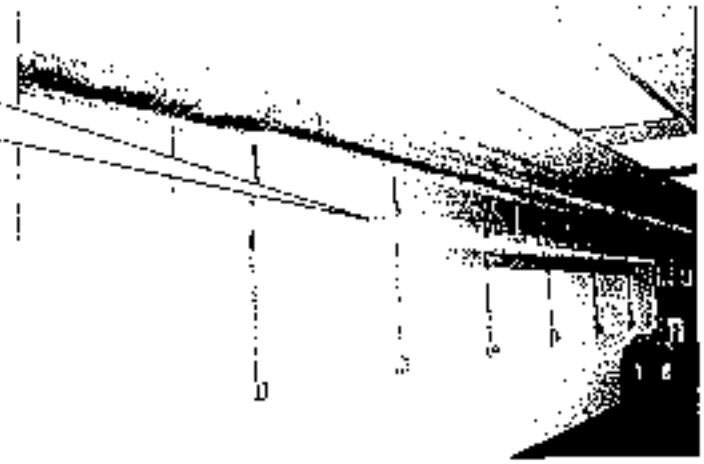


FORMER INDOOR FIRING RANGE SAMPLES

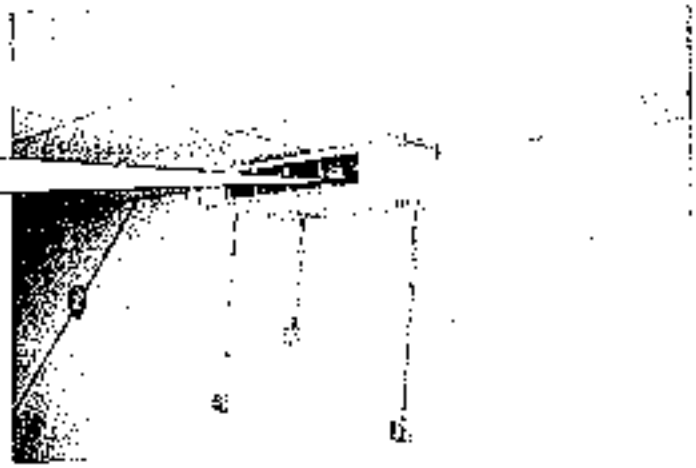


Attachment B

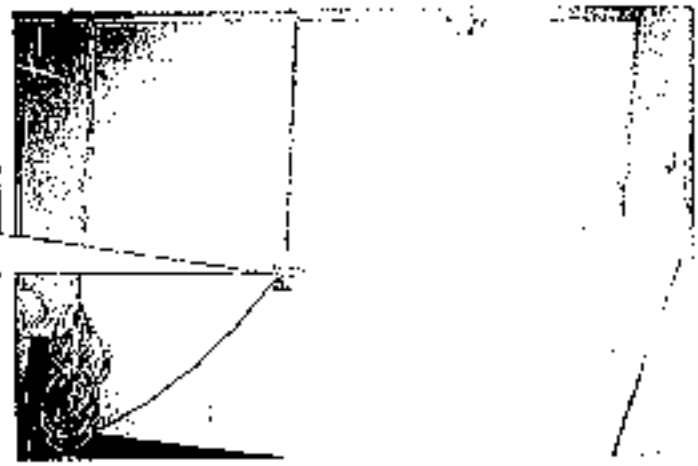
(12) PA All-03168- 16
Former Range – Pipe
½ Way Down Range

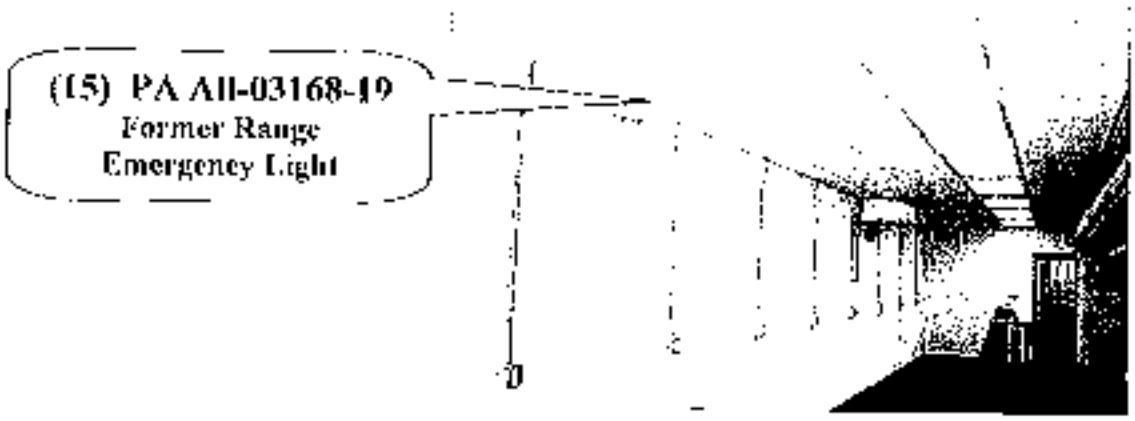


(13) PA All-03168-17
Former Range
Fan Unit



(14) PA All-03168-18
Former Range
Outlet





RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #104896
AIHA Certificate of Accreditation #460 LAP ID 101533

TABLE ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	RES 95335-1
Client:	Operational Technologies, Corp.
Client Project Number / P.O.:	06 03
Client Project Description:	Armories/ Pennsylvania
Date Samples Received:	July 11, 2003
Analysis Type:	USEPA SW846 3050B / AA(7420)
Turnaround:	3-5 Day
Date Samples Analyzed:	July 15, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA ALL-03168-03	BM 794460	0.11	BDL	23	BDL
PA ALL-03168-04	BM 794461	0.11	BDL	23	BDL
PA ALL-03168-05	BM 794462	0.11	12.7	23	115
PA ALL-03168-06	BM 794463	0.11	3.6	23	33
PA ALL-03168-07	BM 794464	0.11	13.0	23	118
PA ALL-03168-08	BM 794465	0.11	BDL	23	BDL
PA ALL-03168-15	BM 794466	0.11	BDL	23	BDL
PA ALL-03168-16	BM 794467	0.11	BDL	23	BDL
PA ALL-03168-17	BM 794468	0.11	3.0	23	27
PA ALL-03168-18	BM 794469	0.11	BDL	23	BDL
PA ALL-03168-19	BM 794470	0.11	BDL	23	BDL
PA ALL-03168-20	BM 794471	0.11	BDL	23	BDL
PA BET-03168-24	BM 794472	0.11	11.8	23	107
PA BET-03168-25	BM 794473	0.11	4.5	23	41
PA BET-03168-26	BM 794474	0.11	10.1	23	92
PA BET-03168-27	BM 794475	0.11	12.1	23	110
PA BET-03168-28	BM 794476	0.11	BDL	23	BDL
PA BET-03168-29	BM 794477	0.11	BDL	23	BDL
PA EAS-03169-03	BM 794478	0.11	BDL	23	BDL
PA EAS-03169-04	BM 794479	0.11	BDL	23	BDL
PA EAS-03169-05	BM 794480	0.11	BDL	23	BDL
PA EAS-03169-06	BM 794481	0.11	BDL	23	BDL
PA EAS-03169-07	BM 794482	0.11	BDL	23	BDL
PA EAS-03169-08	BM 794483	0.11	BDL	23	BDL
PA EAS-03169-18	BM 794484	0.11	BDL	23	BDL
PA EAS-03169-19	BM 794485	0.11	BDL	23	BDL
PA EAS-03169-20	BM 794486	0.11	BDL	23	BDL
PA EAS-03169-21	BM 794487	0.11	BDL	23	BDL
PA EAS-03169-22	BM 794488	0.11	3.6	23	33
PA EAS-03169-23	BM 794489	0.11	BDL	23	BDL

BDL Below Detection Limit

Data Qu

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m³
PA Scr-03162-01	03-20684	260.9	ND	<0.004
PA Scr-03162-02	03-20685	251.7	ND	<0.004
PA Hon-03162-22	03-20686	248.7	ND	<0.004
PA Hon-03162-23	03-20687	237.0	ND	<0.004
PA Ply-03163-01	03-20688	378.1	ND	<0.003
PA Ply-03163-02	03-20689	381.3	ND	<0.003
PA Nan-03163-22	03-20690	351.2	ND	<0.003
PA Nan-03163-23	03-20691	336.9	ND	<0.003
PA All-03168-01	03-20692	503.8	ND	<0.002
PA All-03168-02	03-20693	478.0	ND	<0.002
PA Bet-03168-22	03-20694	276.5	ND	<0.004.
PA Bet-03168-23	03-20695	282.1	ND	<0.004
PA Eas-03169-01	03-20696	297.9	ND	<0.003
PA Eas-03169-02	03-20697	279.3	ND	<0.004
PA Eas-03169-16	03-20698	234.7	ND	<0.004
PA Eas-03169-17	03-20699	226.7	ND	<0.004
PA Tam-03170-01	03-20700	249.6	ND	<0.004
PA Tam-03170-02	03-20701	241.5	ND	<0.004
PA Pot-03170-22	03-20702	420.5	ND	<0.002
PA Pot-03170-23	03-20703	413.6	ND	<0.002
	Prep Blank		ND	
% Recovery	LCS 3		99.	
% Recovery	LCS 4		101.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive [redacted]
Analyst

Non-Responsive [redacted]
Reviewer

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non-[redacted]@md.ngb.army.mil

Attachment D

REFERENCE LIST INDEX

1. General Regulations and National Consensus Standards
2. Specific Regulations and Guidance
   a. Abrasive Blasting
   b. Asbestos
   c. Battery Charging Room
   d. Bird and Bat Manure
   e. Bloodborne Pathogens
   f. Chemical Agent Resistant Coating (CARC) Paint
   g. Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE)
   h. Confined Space Entry Program
   i. Design Review
   j. Ergonomics
   k. Flammable Storage Room
   l. Hazard Communication
   m. Hearing Conservation
   n. Indoor Air Quality
   o. Indoor Firing Ranges
   p. Lead
   q. Lighting
   r. Occupational Vision
   s. Paint Spray Booth
   t. Personal Protection
   u. Radiation Protection
   v. Respiratory Protection
   w. Sanitation
   x. Smoking
   y. Vehicle Exhaust
   z. Welding Operation

GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REFERENCE LIST

1. General Regulations and National Consensus Standards
   a. DODI 6055.1, DOD SOH Program, 19 August 1998.
   b. DODI 6055.5, DOD OEH. *[DRAFT]*
   c. DOD 6055.5-M, DOD Occupational Health Surveillance Manual, 13 May 1987.
   d. DODI 6050.5, DOD Hazard Communication, 29 Oct 90. Change 1, 6 May 1996.
   e. AR 40-5, Preventive Medicine, 15 October 1990. [05/2002 Being Updated]
   f. DA PAM 40-5, Preventive Medicine. *[DRAFT]*
   g. AR 385-10, The Army Safety Program, 29 February 2000.
   h. NGR 385-10, ARNG SOH Program, 7 October 1988, Change 1, 29 December 1989.
   i. Title 29, Part 1910, Occupational Safety and Health Standards. [Current Date]
   j. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 2002.
   k. ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th edition, 2001.
   l. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.
   m. TG 141, USACHPPM Industrial Hygiene Sampling Guide, November 1997.
   n. National Safety Council, Fundamentals of Industrial Hygiene, 5th Edition, 2002.
   o. NIOSH, Pocket Guide to Chemical Hazards, 2001.
   p. NFC, A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. [Current date]
   q. ASHRAE Standards. [Current Dates]
   r. ANSI Standards. [Current Dates]

2. Specific Regulations/Guidance
   a. **ABRASIVE BLASTING**
      (1) ANSI Z9.4 1997, Abrasive Blasting Operations - Ventilation and Safe Practices.
      (2) 29 CFR 1910.94 Ventilation
      (3) 42 CFR 84

   b. **ASBESTOS**
      (1) AR 40-5, Preventive Medicine, 15 October 1990. *[05/2002 Being Updated]*
      (2) AR 200-1, Environmental Protection and Enhancement, Chapter 8, 21 February 1997.
      (3) TB MED 513, Guidelines for the Evaluation and Control of Asbestos Exposure, 15 December 1986. *[05/2000 Under Revision as DA PAM 40-513]*
      (4) TG 157, USAEHA, The Installation Asbestos Management Program Assessment Checklists, July 1994.
      (5) 29 CFR 1910.1001
      (6) 29 CFR 1926.58 (prior to 1994 CFR)
      (7) 29 CFR 1926.1101

(8) MEMORANDUM SGPS-PSP, OTSG, subject: AMEDD Role Supporting Asbestos Abatement/Asbestos Management Programs, 19 Jan 89.

(9) EPA, Guidance for Controlling Asbestos-Containing Materials in Buildings, June 1985.

(10) DD Form 2493-1 (Asbestos Exposure, Part I--Initial Medical Questionnaire)

(11) DD Form 2493-2 (Asbestos Exposure, Part II--Periodic Medical Questionnaire)

(12) EPA NESHAPS Asbestos Regulation (40 CFR 61, Subpart M).

c. BATTERY CHARGING ROOM

(1) TG 022, USAEHA, page 81, Industrial Hygiene Evaluation Guide, October 1975. *[Out of Print]*

(2) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

d. BIRD AND BAT MANURE

(1) TG 142, USAEHA, Managing Health Hazards Associated with Bird and Bat Excrement, Dec 1992.

e. BLOODBORNE PATHOGENS

(1) 29 CFR 1910.1030

(2) TG 190, USAEHA, Guide to Managing Occupational Exposure to Bloodborne Pathogens, Jan 94.

f. CHEMICAL AGENT RESISTANT COATING (CARC) PAINT

(1) TG 144, USAEHA, Guidelines for Controlling Health Hazards in Painting Operations, 24 August 1987.

(2) DA LTR, USAEHA, HSHB-MI-WR, subject: Respiratory Protection When Spraying CARC, 19 November 1992.

(3) TM 43-0139, Painting Instructions for Army Material, 27 July 1988 Aug 86.

(4) MEMORANDUM SGPS-PSP, OTSG, subject AMEDD, Occupational Health Requirements in Support of Painting in the Army, 22 February 1985.

(5) AR 750-1, Army Materiel Maintenance Policy and Retail Maintenance Operations (Prohibits welding on CARC paint) 1 July 1996.

g. CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR, EXPLOSIVE (CBRNE)

(1) DODI 2000.gg, DOD Installation CBRNE Emergency Response Guidelines.

(2) DHHS, NIOSH Pub No. 2002 139, Guidance for Protecting Building Environments from Airborne Chemical, Biological, or Radiological Attacks, May 2002.

(3) TG 275, USACHPPM, Personal Protective Equipment Guide for Medical Treatment Facility Personnel Handling Casualties from Weapons of Mass Destruction and Terrorism Events. *[Draft]*

h. **CONFINED SPACE**

(1) 29 CFR 1910.146 (Confined Space Entry)
(2) 29 CFR 1910.147 (Lockout/Tagout)
(3) ANSI Z117.1-Safety Requirements for Confined Spaces, 1995.
(4) SOP for ARNG Confined Space Entry Program, 25 April 1991.
(5) Letter, US Dept of Labor (DOL) addressed to Vanessa Char, 22 Apr 1994.
(6) OSHA Instruction STD 1-7.3, US DOL, subject: 29 CFR 1910.147, the Control of Hazardous Energy (Lockout/Tagout)--Inspection Procedures and Interpretive Guidance, 11 Sep 90.
(7) DHHS, NIOSH Pub No. 87113, A Guide to Safety in Confined Spaces, July 1987.
(8) Confined Space Entry Program for Helicopters, 2003.

i. **DESIGN REVIEW**

(1) DG 415-1, Design Guide for Armories, current.
(2) DG 415-2, Design Guide for Logistics Facilities, current.
(3) DG 415-3, Design Guide for Training Site Facilities, current.
(4) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.
(5) TI-300, 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.
(6) UFGS 15940A, Overhead Vehicle Tailpipe (and welding Fume) Exhaust Removal Systems, December 2001.
(7) ASHRAE, Standard 62-2002, Ventilation for Acceptable Indoor Air Quality.
(8) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

j. **ERGONOMICS**

(1) DA PAM 40-21, Medical Services, Ergonomics Program, 15 May 2000.
(2) ANSI Z-365, Management of Work Related Musculoskeletal Disorders, 2000.
(3) 29 CFR 1910. *[PROPOSED STANDARD]*

k. **FLAMMABLE STORAGE ROOM**

(1) 29 CFR 1910.106
(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

l. **HAZARD COMMUNICATION**

(1) 29 CFR 1910.1200
(2) NGR 385-10, Chapter 6

m. **HEARING CONSERVATION**

(1) DA PAM 40-501, Medical Services, Hearing Conservation Program, 10 December 1998.

(2) TG 181, USAEHA, Noise Dosimetry and Risk Assessment, May 1999.

(3) TG 175, USAEHA, Readiness thru Hearing Conservation: Guide for Unit Commanders and Supervisors, June 1999.

(4) 29 CFR 1910.95

n. **INDOOR AIR QUALITY (IAQ)**

(1) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

(2) USACERL Technical Report P-91/42, IAQ Management for Operations and Maintenance Personnel, September 1991.

(3) EPA 400/1-91/003 or DHHS, NIOSH, Publication No. 91-114, Building IAQ, A Guide for Building Owners and Facility Managers, December 1991.

(4) ASHRAE, Standard 62-2002, Ventilation for Acceptable IAQ.

(5) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

(6) NIOSH, IAQ Selected References, Sep 1989.

(7) OSHA Instruction CPL 2-2.20B CH-1, Directorate of Technical Support, 13 Nov 90.

(8) DA PAM 25-52, Mail Facility Security and Handling Suspicious Mail, 6 November 2001.

(9) ASTM, D 5952-96, 10 May 1996.

o. **INDOOR FIRING RANGES**

(1) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(2) NGR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges, 30 March 1990. *[11/02 Under Revision]*

(3) CEHND 1110-1-18, USACE Design Manual for Indoor Firing Range, June 1990.

(4) HQDA LTR, Office of the Adjutant General, DACS-SF, subject: Inspection and Evaluation of US Army Indoor Firing Ranges, 26 March 1993.

(5) Departments of the Army and Air Force, NGB-ADE-OM, subject: All State Log Number (I920323) Indoor Range Clean-up at State Owned Armories, 28 July 1992.

(6) NIOSH, Technical Information, December 1975, subject: Lead Exposure and Design Considerations for Indoor Firing Ranges.

(7) All-States Ltr P01-0075, 5 December 2001.

(8) Information Paper, Alternative Ammunition, 15 March 1996.

(9) Information Paper, Bullet Traps, 26 April 1996.

(10) Information Paper, ARNG IFR Action Plan, 28 January 2002.

p. **LEAD**

(1) 29 CFR 1910.1025

(2) 29 CFR 1926.62

(3) 24 CFR 35.61 (HUD, Percentage of Lead in Paint)

(4) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(5) OSHA Instruction CPL 2-2.58, Office of Health Compliance Assistance, 13 December 1993.

(6) Federal Register, 18 April 1990, Vol. 55, No. 75, HUD, Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing, as amended, September 1990, Office of Public and Indian Housing, Department of Housing and Urban Development, 451 Seventh Street, SW, Washington, DC 20410.

(7) NIOSH, Request for Assistance in Preventing Lead Poisoning in Construction Workers, April 1992.

(8) EPA, Strategy for Reducing Lead Exposures, 21 Feb 91.

q. **LIGHTING**

(1) RP-1-1993, Office Lighting, ANSI/IESNA.

(2) RP-7-2001, Industrial Lighting, IES.

r. **OCCUPATIONAL VISION**

(1) DA PAM 40-506, Medical Services, The Army Vision Conservation and Readiness Program, 20 July 2001.

(2) ANSI Z87.1, Practice for Occupational and Educational Eye and Face Protection, 1989, Change A, REAF 1998.

(3) ANSI Z358.1 for Emergency Eyewash and Shower Equipment, 1998.

(4) OTSG Memorandum SGPS-PSP, subject: Acanthameoba Keratitis and Eyewash Stations, 8 May 89.

(4) 29 CFR 1910.133

s. **PAINT SPRAY BOOTH**

(1) NFPA No. 33, Standard for Spray Application Using Flammable and Combustible Materials, 1995.

(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

(3) 29 CFR 1910.94

(4) 29 CFR 1910.107

(5) ANSI Z9.3-1995 for Exhaust Systems - Spray Finishing Operations - Safety Code for Design, Construction, and Ventilation.

(6) ANSI Z9.2-2001, Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems.

t. **PERSONAL PROTECTIVE EQUIPMENT**

(1) Quick Selection Guide to Chemical Protective Clothing, 2nd edition, Forsberg, K and Mansdorf, S., 1993.

(2) Chemical Protective Clothing, Vol 1 and 2, Johnson, J. and Anderson, K., American Industrial Hygiene Association, 1990.

(3) Guidelines for the Selection of Chemical Protective Clothing, 3rd Edition, ACGIH, Inc., Feb 1987.

u. **RADIATION PROTECTION PROGRAM**

(1) NGR 385-11, Safety, Ionizing and Nonionizing Radiation Protection, 18 February 1999.

(2) AR 11-9, Army Radiation Safety Program, 28 May 1999.

(3) 29 CFR 1910.96

(4) 29 CFR 1910.97

v. **RESPIRATORY PROTECTION**

(1) AR 11-34, The Army Respiratory Protection Program, 15 February 1990. *[11/02 Being Updated]*

(2) 29 CFR 1910.134

(3) 42 CFR 84

(4) TB MED 502, Respiratory Protection Program, February 1992. *[11/02 Being Updated as DA PAM 40-502]*

(5) ANSI/CGA G-7.1-1997, Commodity Specification for Air.

(6) ANSI Z88.2-1992, Standard for Respiratory Protection.

w. **SANITATION**

(1) ANSI Z4.1-1986, Change REAF 1995, Sanitation in Places of Employment-Minimum Requirements.

(2) 29 CFR 1910.141

x. **SMOKING**

(1) AR 600-63, Army Health Promotion, 28 April 1996.

(2) DODI 1010.15, Smoke-Free DOD Facilities, 2 January 2001.

(3) DODD1010.10, Health Promotion, 11 March 1986.

y. **VEHICLE EXHAUST**

(1) ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th Edition, 2001.

(2) TI-300f 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

z. **WELDING OPERATION**

(1) 29 CFR 1910.252

(2) 29 CFR 1910.253

(3) 29 CFR 1910.254

(4) ANSI/AWS Z49.1-1999, Safety in Welding and Cutting and Allied Processes.

(5) TM 5-805-7, Welding Design, Procedures and Inspection, 20 May 85.

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 $\mu g/ft^2$) and windowsills (250 $\mu g/ft^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of 200 $\mu g/ft^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 $\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 $\mu g/ft^2$ on floors and 250 $\mu g/ft^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

HHC 213TH AREA SPT GP
228TH TRANS DET
CO C (MED) 22ED SPT BN(FSB)

INDUSTRIAL HYGIENE SURVEY
PENNSYLVANIA

PA 593

SURVEY DATE | 6-17-03

FACILITY			
ADDRESS	1501 Allen St		
	Allentown, PA 18102		
CONTACT	~~CPT John O'Boyle~~ 156 [redacted]		
PHONE	~~610-821-6637~~ 610 521-6533		
DATE BUILT	1940 / 60	FACILITY SIZE	83000 SqFt
RANGE	closed		3000
ASSISTED			3600
	STAFF-6 DRILL-150	RENTAL-	4500 160

PAINT CONDITION:		
INDOORS	BLOCK	Sample?
OUTDOORS	BRICK	Sample?

ASBESTOS		
Area/condition	NO	
Area/condition	NO	

WATER DAMAGE		
Area/condition	HALLWAYS	STAINED (WATER)
Area/condition		

HOUSEKEEPING	

TIME	AREA	CO	CO_2	TEMP	RH
0931	OUTSIDE	0.0	480	81.5°F	65.4%
0948	CLASS RM	0.0	575	77.5°F	61.1%
0951	DRILL FLR	0.0	546	76.1 °F	62.0%
0955	CLASS RM OCCUPIED	0.0	544	75.4°F	62.6%
0958	CLASS RM	0.0	532	74.2°F	61.8%
1002	KITCHEN	0.0	530	74.5°F	61.7%
1006	RM 109 OCCUPIED	0.0	541	73.8°F	61.9%
1010	RM 105 OFFICE	0.0	535	75.2°F	61.8%
1014	RM 113 OFFICE	0.0	532	73.8°F	62.1%
1017	RM B-9 OFFICE	0.0	521	74.1°F	63.0%
1021	HALLWAY	0.0	525	73.9°F	62.4%
1026	RM 203 STORAGE	0.0	531	74.5°F	61.8%
1029	RM 213 COMPUTER	0.0	530	75.2°F	61.5%
1034	RM 215 CLASS RM	0.0	519	74.6°F	61.8%
1029	B-13 OCCUPIED	0.0	543	74.4°F	62.1%
1044	M) LATRINE	0.0	531	76.8°F	62.5%
1047	W) LATRINE	0.0	535	74.6°F	61.1%

73.8-77.5 61.1-6

INDUSTRIAL HYGIENE SURVEY
PENNSYLVANIA

WIPE SAMPLES	ARMORY	Picture #
PA AII-03 IVB - 03	~~HVAC supply side of filter~~ CLASS RM GLASS TABLE	1
PA AII-03 04	~~HVAC on fan side of filter~~ DRILL PR SHELF	2
PA AII-03 05	~~Assembly Hall~~ KITCHEN TOP CABINET	3
PA AII-03 06	~~Kitchen~~ LOBBY/ENTRANCE/HEATER	4
PA AII-03 07	~~Supply air grille in occupied office~~ BASEMT HALL (STAIRS)	5
PA AII-03 08	BLANK	
PA AII-03 09	L) LATRINE PIPE	6
PA AII-03 10	SUPPLY RM.	7
PA AII-03 11	CORNER RM UP STAIRS WALL	8
PA AII-03 12	STAIR WELL 2ND FLR NW/SW EAST	9
PA AII-03 13	STAIR WELL 1st DN TO BASE (E)	10
PA AII-03 14	BLANK	
PA AII-03		
PA AII-03		
PA AII-03		
PA AII-03		
PA AII-03		
PA AII-03	BLANK	

BDL
BDL
115
33
118
BDL

AIR SAMPLING

Sample #	Pump #	Person/Area	Precal lpm	Postcal lpm	Time On	Time Off	Run Time	Volume (Liters)
PA AII-03 IVB-01	648385	Person	3.193	3.129	0937	1218	161	503.8
PA AII-03 IVB-02	644657	Kitchen	3.075	3.025	0958	1216	158	478.0
PA 03								

INDUSTRIAL HYGIENE SURVEY
PENNSYLVANIA

CONVERTED INDOOR FIRING RANGE WIPE SAMPLES			
PA AII-03 [illegible] 15	~~Inside any remaining ventilation ductwork~~ VENT UNIT	11	BDL
PA AII-03 [illegible] 16	~~Inboard ventilation system~~ PIPE WORK	12	BDL
PA AII-03 [illegible] 17	~~Bullet trap~~ VENT UNIT	13	BDL
PA AII-03 [illegible] 18	~~Light fixtures~~ LIGHT FIXTURE	14	BDL
PA AII-03 [illegible] 19	~~Overhead heaters~~ EMERGENCY LIGHT	15	BDL
PA AII-03 [illegible] 20	~~Stored items~~ BLANK	—	BDL
PA AII-03	~~Floor~~		
PA AII-03	Outside the range		
PA AII-03	~~Blank~~		

HVAC SYSTEM: evaluate maintenance schedule and quality of maintenance for HVAC syst.

PROGRAMS	
CONSINED SPACES?	Y – N
HEARING CONSERVATION?	Y – N
RESPIRATORY PROTECTION?	Y – N
HAZCOM?	Y – N
PPE?	Y – N
TRAINING?	Y – N

VENTILATION:

NOISE:

KITCHEN
50, 52, 40, 44, 46 - 46.4 Sq Avg

B-12 - BREAKROOM
42, 46, 40, 32, 40 40.

B-8
40, 36, 42, 32, 40 38.

B-3 STORAGE
42, 44, 46, 40, 44 43.2

B-16 - LATRINE
38, 40, 42 40.0

RM-106 - OFFICE
44, 30, 26, 38, 40 35.6

HALLWAY
30, 36, 34, 36, 30 33.2

RM-B-8 - SUPPLY
42, 46, 38, 32 39.5

BALCONY
44, 30, 44, 46, 40 40.8

STAIRWELL
36, 40, 38, 32, 40 37.2

B-15 - COMPUTER
34, 42, 38, 28, 40 36.1

PENNSYLVANIA ARMORY
INDUSTRIAL HYGIENE SURVEY
EQUIPMENT LISTING

Air Sampling Pumps
SKC Airebeck Sampfers 224-44XR
S/N: 647609, 647610, 647626, 647627, 647654, 648324, 648349, 648393

Air Pump Calibrator
DryCal Base m: DC-1B Rev 2.06F S/N B 1827
DryCal Med Cell: m: DC-MC-1 Rev E S/N 1745

Indoor Air Quality
TSI Q-Trak m: 8550 S/N 11050
Metrosonics Carbon Monoxide Logger m: pm7700 S/N 1129
Metrosonics CO Sensor m: gs 7701 S/N 5073

Noise
Quest Sound Level Meter m: 2800 S/N HS4090023
Quest Octave Filter Set m: OB-300 S/N HV4070020
Quest Acoustic Calibrator m: QC-10 S/N QE4090140
Metrosonics db-3080 Noise Dosimeters S/N 4667, 4685
Microphones

ATTACHMENT E

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland




Industrial Hygiene Survey
for PAARNG – Allentown Readiness Center
1501 Allen Street
Allentown, Pennsylvania 18102

AECOM
January 2013
Document No.: 60276421.1/Allentown Readiness Center

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland

Industrial Hygiene Survey
for PAARNG – Allentown Readiness Center
1501 Allen Street
Allentown, Pennsylvania 18102

Non-Responsive
Industrial Hygienist

Non-Responsive
Project Manager

Non-Responsive
Northeast District Health & Safety Manager

AECOM
January 2013
Document No.: 60276421.1/Allentown Readiness Center

AECOM

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Executive Summary

On November 15, 2012, AECOM conducted an Industrial Hygiene (IH) survey of the Allentown Readiness Center facility located at 1501 Allen Street in Allentown Pennsylvania. Non-Responsive, LTC was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Allentown Readiness Center operations.

The industrial hygiene survey was generally conducted in accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings", dated January 2012.

The Allentown Readiness Center is currently staffed by twelve personnel. Some of the personnel were not present at the time of the survey due to active duty assignments or other off-site responsibilities. The facility is configured as an administrative area and a Drill/Assembly Hall.

Personnel at the facility were undertaking normal daily activities, which are primarily administrative in nature, at the time of the survey.

The activities undertaken during the Industrial Hygiene survey included facility descriptions, lead wipe/air sampling, evaluation of housekeeping, illumination studies, ventilation system evaluation, and a review of the physical building condition.

The Allentown Readiness Center is housed in a two-story masonry building, and consists of approximately 50% administrative space and 30% Assembly Hall and 10% Field Maintenance Shop (FMS). The FMS portion of the facility is currently used as a service bay and an overflow storage area.

Approximately half of the lighting levels measured throughout the facility were inadequate as per American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

Wipe samples collected for lead-containing dust throughout the facility did not indicate lead levels above the ARNG action level.

No peeling lead-based paint was observed at the Allentown Readiness Center during this survey.

No visible damaged friable suspect friable asbestos-containing material (ACM) was observed.

No visible water damage or visible signs of mold growth were observed.

There is a Heating, Ventilation & Air Conditioning (HVAC) system at the Allentown Readiness Center associated with the newer addition to the site building. The remainder of the site building is heated by a natural gas boiler.

The local exhaust ventilation system used to control vehicle emissions in the former garage was not in operation during the IH survey. Activities associated with the attached garage have not been in use since approximately 2006. The garage area is used for storage currently. The system was activated and face velocities of all accessible exhaust ducts were measured as part of the IH survey. The results of this assessment indicate the system performance did not meet applicable guidelines.

1.0 Facility Description and Operations

The Allentown Readiness Center, constructed in 1938 and improved in 1960, is a two-story administrative masonry structure with a lower level/basement and a sub-basement. The building consists of three main sections. The larger two-story section, consists primarily of offices, training/classroom, locker/shower rooms, storage and administrative areas, and is finished with sheetrock walls, lay-in ceiling tiles and floor tile. The two-story Assembly/Drill Hall area is finished with painted block walls and a concrete floor. According to site personnel there are two former firing ranges at the facility. An old pistol range, which has not been used since early 1970, located in the sub-basement was not accessible at the time of the survey. The other firing range, which has not been used since mid-1980, is currently being renovated as an alternate locker room.

An attached garage was constructed along the northern boundary of the site building in approximately 1960 and, according to site personnel, has not been used since approximately 2006. Most of the equipment and associated materials used when the garage was in operation have since been removed from the site. The former garage facility is currently used as an overflow storage area.

The primary activity at the Allentown Readiness Center is routine administrative duties and occasional use by units for support and training of soldiers. The Assembly Hall is rented out for limited civic activities such as group meetings, trade shows and to other related local groups and organizations. The Allentown Readiness Center is currently staffed by twelve personnel. Vehicle maintenance activities have not been undertaken at the facility since approximately 2006.

2.0 Sampling in Readiness Centers

2.1.1 Wipe Sampling

Wipe sampling for lead was conducted in the Assembly Hall and administrative areas following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost wipes. Samples were collected in areas that are not frequently cleaned and showed signs of dust whenever possible.

The following table presents the results of the lead wipe sampling conducted at the facility.

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
Wipe – 001	Assembly Hall – table	<110 ug/ft^2
Wipe – 002	Kitchen – cabinet	<110 ug/ft^2
Wipe – 003	HQ Office – desk top	<110 ug/ft^2
Wipe – 004	Recruiter Office – shelf	<110 ug/ft^2
Wipe – 005	Foyer – floor	<110 ug/ft^2
Wipe – 006	Former Firing Range - bullet trap area	<110 ug/ft^2
Wipe – 007	Former Firing Range – locker top	<110 ug/ft^2
Wipe – 008	Former Firing Range – floor	<110 ug/ft^2
Wipe – 009	Adjoining Locker Room - floor	<110 ug/ft^2

ug/ft^2 = Micrograms per square foot.

Wipe samples collected in association with the administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U.S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 micrograms per square foot (ug/ft^2) for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas. Indoor firing ranges shall be converted in accordance with NG PAM 420-15. Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

Per Non-Responsive of NGB-IH, the requirement for Lead air sampling has been removed from the Statement of Work. It was reported that historically, air samples collected at administrative facilities are typically below the limit of detection.

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls appeared to be generally in good condition. Concrete flooring was generally tiled or unpainted. AECOM did not observe damaged or peeling paint during this evaluation.

3.1.2 Suspect Asbestos Containing Materials

AECOM did not observe damaged, friable suspect asbestos containing materials (ACM) in readily accessible areas of the Allentown Readiness Center during this survey. Thermal system piping is typically covered in typical fiberglass insulation with associated fittings and appeared in good condition.

Other typical miscellaneous building materials observed throughout the building but not sampled include floor tiles and associated mastic, cove base and associated mastic, ceiling tiles, and window glazing compound and caulks.

3.1.3 Water Damage/Mold

AECOM did not observe evidence of water intrusion during this survey.

3.1.4 Housekeeping

The Allentown Readiness Center was observed to be generally clean and orderly during this assessment. AECOM did not observe dust accumulation on readily accessible horizontal surfaces within areas commonly used in the facility.

3.1.5 Indoor Air Quality/ Ergonomics

The administration section of the building contains general office space. The administration section is generally utilized by all of the Allentown Readiness Center staff members including a recruiter. No Indoor Air Quality concerns were noted by the Allentown Readiness Center personnel.

The Allentown Readiness Center personnel did not report any ergonomics issues or concerns. Office furniture and accessories designed to promote ergonomically correct behaviors were observed.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (^{o} Fahrenheit), and relative humidity (as percentage) are presented in the following table.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (^{o}F)	Relative Humidity (%)
Outside	0.1	323	73.4	25.6
2nd Floor – CO Office	0.1	516	72.1	26.4
2nd Floor – Conference Room	0.0	587	73.4	25.1
2nd Floor – JAG Office	0.1	469	72.6	25.7
2nd Floor – NCO Office	0.1	312	72.5	24.2
1st Floor – Foyer	0.1	471	71.1	24.7
1st Floor – Recruiter Office	0.1	422	72.0	25.8
1st Floor – HQ Office	0.1	560	72.3	24.2

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (^{o}F)	Relative Humidity (%)
1st Floor – Orderly Office	0.1	572	72.3	24.6
1st Floor - Assembly Hall	0.0	413	71.6	25.2
Basement – Classroom	0.0	408	71.8	26.8
Basement – Supply Room	0.0	422	71.4	22.3
Basement –Fire Range	0.0	474	73.6	23.4
Basement – corridor	0.0	461	72.2	24.6
Basement – Men's Shower	0.0	563	72.4	24.9
Basement – NBC Room	0.0	579	71.2	25.2
Basement – Vacant Room	0.0	418	71.3	23.3
Basement – Record Storage	0.0	436	71.8	24.9
Basement – Former FMS Bay	0.3	418	68.7	20.1
Basement - Physical Fitness	0.1	477	69.9	23.3
Sub-Basement – Boiler Room	0.2	488	74.2	25.2

Table 3-1 Guidelines:
Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard. OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.
Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.
Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 5.10.1).
Temperature: Winter (clothing insulation = 1.0 clo) Relative humidity 30-60% - Temp - 68 – 75°F
Summer Temp - 73 – 79°F. (Derived from ASHRAE Standard 55-2010)

4.0 Ventilation and HVAC System

4.1.1 Ventilation Systems and Potential for Contamination of Clean Air Sources

There is an attached garage located at the Allentown Readiness Center. Garage related activities have ceased since approximately 2006. No maintenance activities have occurred in the garage area to date. Most of the related equipment, materials, and associated personnel have since been relocated to other facilities. The Allentown Readiness Center has one HVAC system, when used during garage activities, could have resulted in historical potential for contamination of clean air sources at the facility.

4.1.2 HVAC Maintenance

The HVAC system is reported to be on a yearly maintenance/service agreement. Further, building personnel informed AECOM that the HVAC filters are changed at least twice a year. The building also maintains a natural gas boiler that feeds radiant heaters throughout the building. The natural gas boiler also provides heat for the facilities domestic water.

4.1.3 Vehicle Exhaust Ventilation System

The Service Bay is equipped with four flexible ceiling mounted ducts for local vehicle exhaust. The flexible duct branches (approximately six inches in diameter) are connected to tapered circular plain-opening capture hoods that can be placed over engine exhaust pipes. The vehicle exhaust ventilation system was reported by site personnel to not have been used since activities vacated the site in 2006.

The following table presents results compared to typical required exhaust flow rates for vehicles routinely serviced at FMS facilities:

Table 4-1: Vehicle Exhaust Ventilation System Measured Air Flow Rates

Local Ventilation System Measured Air Flow Rates		
Location	**Air Flow – cubic feet per minute (cfm)**	**Reference Value***
Service Bay Exhaust #1	607 cfm	1370 cfm
Service Bay Exhaust #2	545 cfm	1370 cfm
Service Bay Exhaust #3	Inoperable/out-of-service	N/A
Service Bay Exhaust #4	Inoperable/out-of-service	N/A

The Reference Value (1370 cubic feet per minute, or cfm) for the vehicle emission exhaust system was determined using theoretical values in the ACGIH calculation (below), based on an engine displacement of 6.2L, exhaust temperature of 267^{o}F, and 3,800 engine rpm. These values were based on using the highest flow rate required for tactical vehicles routinely serviced by ARNG maintenance facilities.

- Reference calculation – $Q_e=(1.2)(D_{eng}xN)[(460F+T_{eng})/530F]$

  Where Q_e=Exhaust Flow; T_{eng}=Engine Tailpipe Temperature (^{o}F); D_{eng}=Engine displacement (ft^3); and N=Engine rpm; 1.2 represents a 20% safety factor.

5.0 Lighting

Lighting levels in all areas were measured utilizing a Cal-Light 400 light meter that displays lighting levels in foot-candles. Lighting levels were generally inadequate.

Table 5-1: Light Survey

Location	Results – (Foot candles)	Met Standard (Y/N)	Standard*
2nd Floor – CO Office	41.7	N	50
2nd Floor – Conference Room	30.6	Y	30
2nd Floor – JAG Office	37.1	N	50
2nd Floor – NCO Office	19.9	N	50
1st Floor – Foyer	25.2	Y	10
1st Floor – Recruiter Office	42.1	N	50
1st Floor – HQ Office	58.6	Y	50
1st Floor – Orderly Office	68.4	Y	50
1st Floor - Assembly Hall	17.8	Y	10
Basement – Classroom	69.4	Y	30
Basement – Supply Room	17.9	N	30
Basement –Fire Range	14.2	N	50
Basement – corridor	33.0	Y	5
Basement – Men's Shower	53.2	Y	5
Basement – NBC Room	30.0	Y	30
Basement – Vacant Room	16.2	N	50
Basement – Record Storage	76.3	Y	30
Basement – Former Garage Bay Now Storage	45.7	Y	30
Basement - Physical Fitness	30.6	Y	30
Sub-Basement – Boiler Room	23.8	N	30
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI RP-7-01)			

6.0 Evaluation of Attached Garage

There is an attached garage associated with the Allentown Readiness Center. The garage has not been used since approximately 2006. AECOM observed that most of the garage related equipment, material, waste items have been removed from the site. The former garage is currently used as an overflow storage area.

7.0 Conclusions and Limitations

AECOM has conducted this survey in accordance with applicable OSHA methods and standard industrial hygiene practice. The following conclusions were based on the observations and assessments of activities that occurred during the on-site evaluation:

Housekeeping is performed regularly at the Allentown Readiness Center.

AECOM did not observe any damaged, friable suspect asbestos-containing materials at the Allentown Readiness Center.

AECOM did not observe peeling paint at the Allentown Readiness Center.

AECOM did not observe evidence of water intrusion at the Allentown Readiness Center.

Approximately half of the lighting levels measured throughout the facility were inadequate as per ANSI/IESNA RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

Wipe samples collected in association with the administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft^2 for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

The local exhaust ventilation system was activated and face velocities of all accessible exhaust ducts were measured as part of the IH survey. The results of this assessment indicate the system performance does not meet the applicable guidelines.

AECOM provided these services consistent with the level and skill ordinarily exercised by members of the profession currently providing similar services under similar circumstances at the time the services were provided. This statement is in lieu of other statements either expressed or implied. This report is intended for the sole use of National Guard Bureau – Army National Guard. The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, and use or re-use of this document, the findings, conclusions, or recommendations is at the risk of said user.

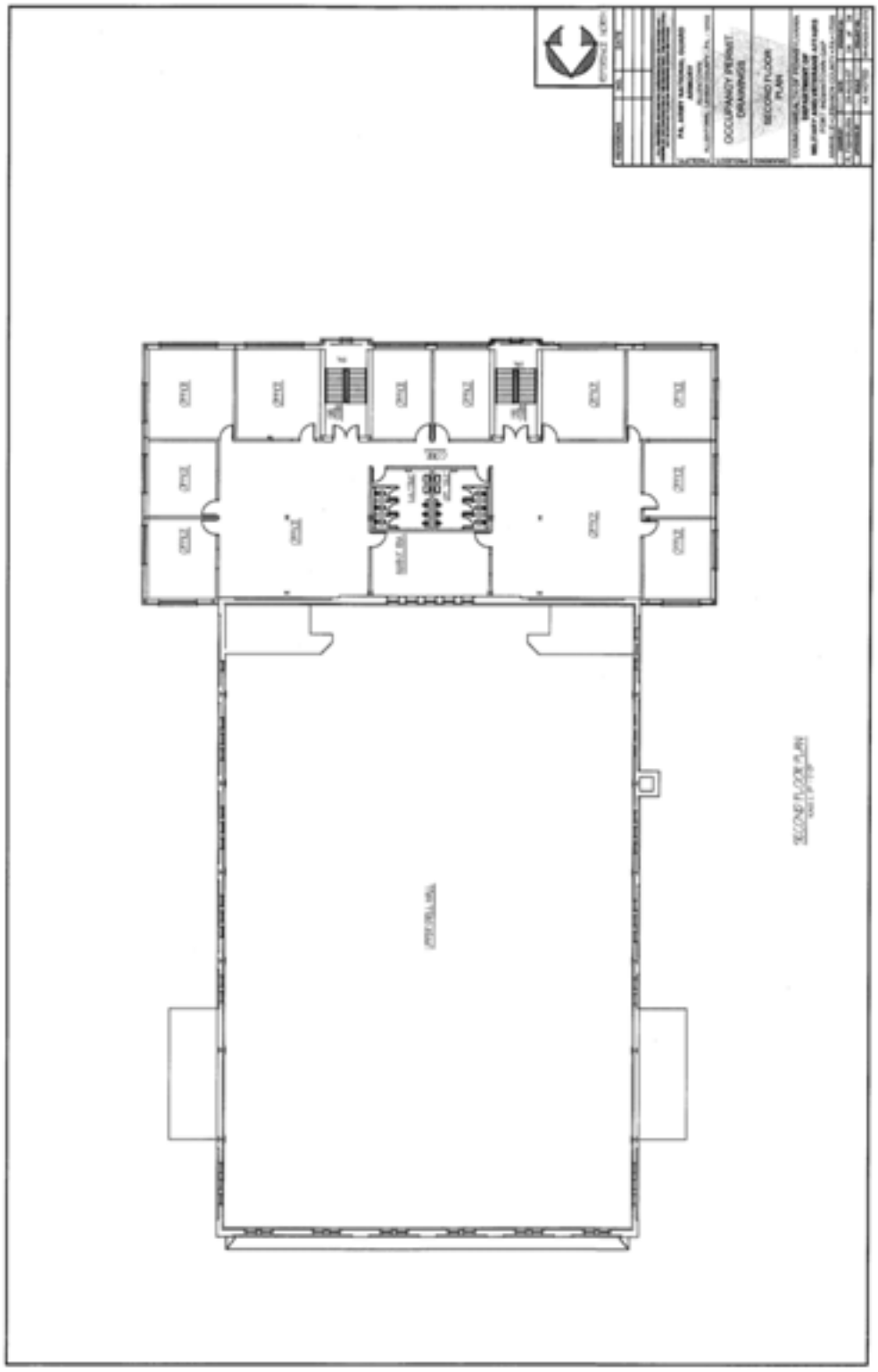
As with all such surveys, the results of the sampling represent conditions found on the date of the survey and may not represent conditions found at other times. Additionally, this survey was limited with respect to the specific parameters indicated above and should not be construed to be a comprehensive evaluation or a definitive representation of conditions within the facility. The information presented in this report is intended to be used as a guide to evaluate the need for further investigation or the need for modifications to the processes or procedures surveyed.

The Client recognizes and agrees that all testing and remediation methods have reliability limitations, no method nor number of sampling locations can guarantee that a condition will be discovered within the performance of the services as authorized by the Client. Additionally, the passage of time may result in a change in the environmental characteristics at this site. This report does not warrant against future operations or conditions that could affect the recommendations made. The results, findings, conclusions, and recommendations expressed in this report are based only on conditions that were observed during AECOM's inspection of the site.

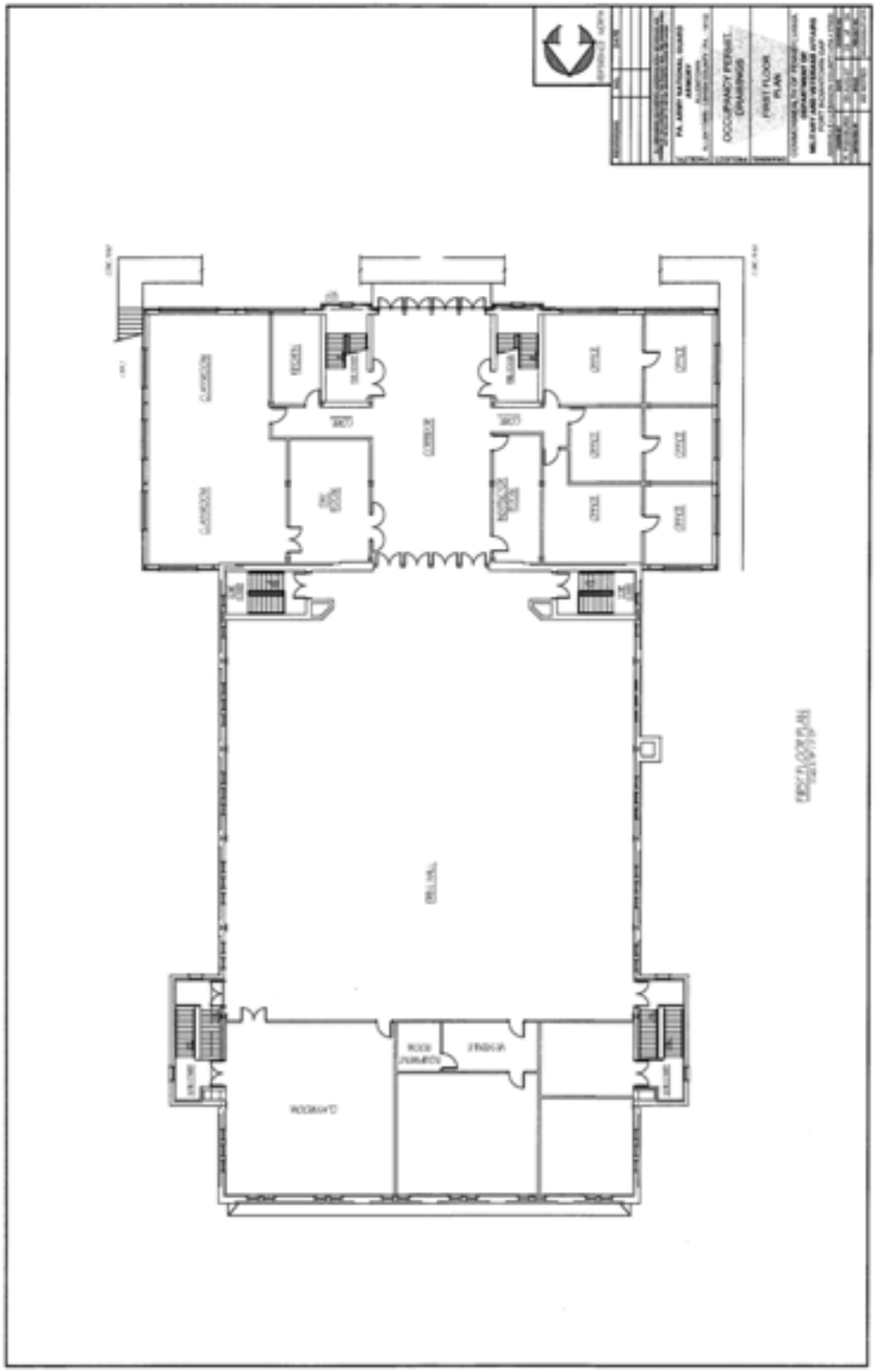
Appendix A

Allentown Readiness Center Facility Layout

AECOM



AECOM



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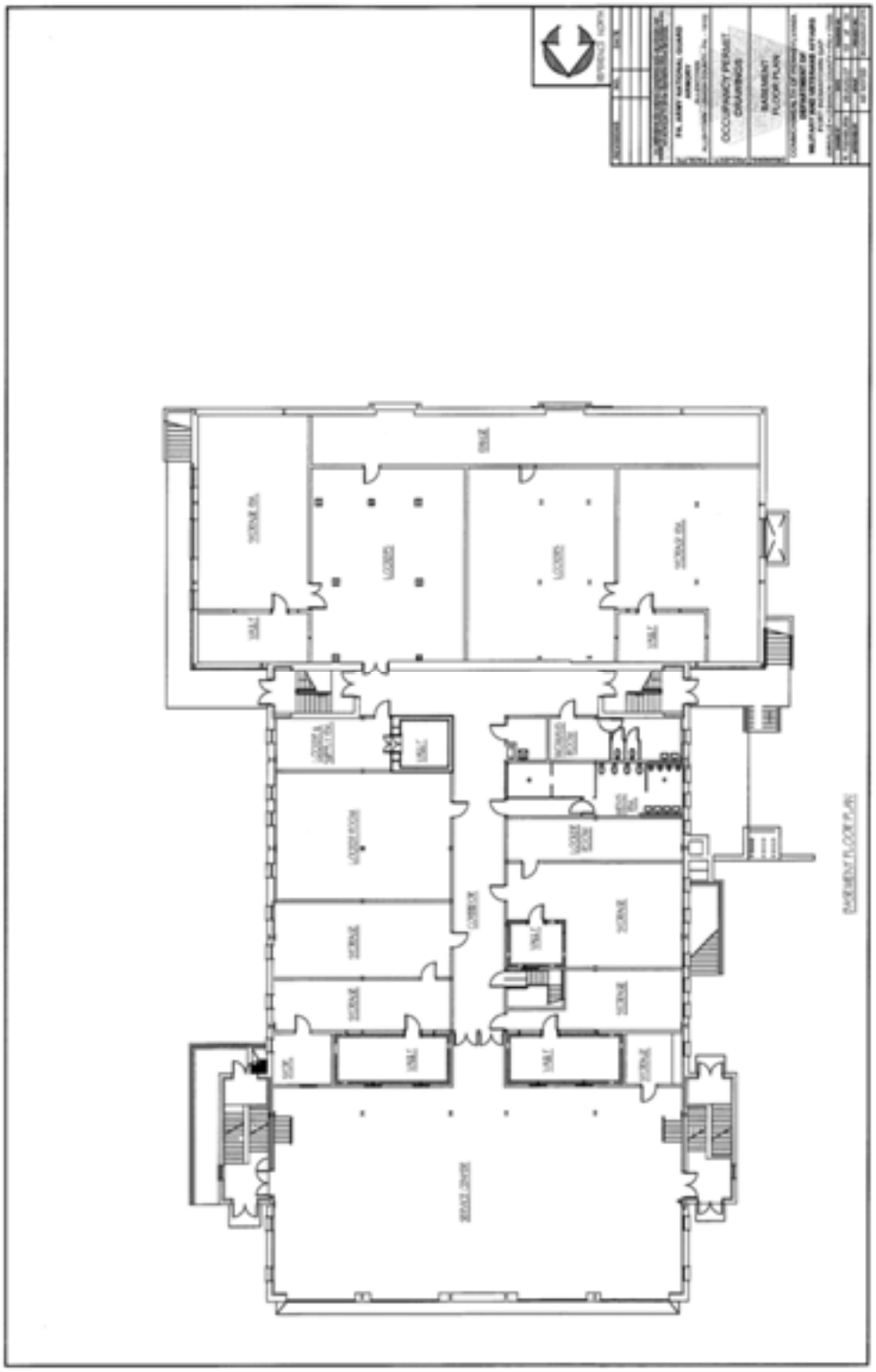

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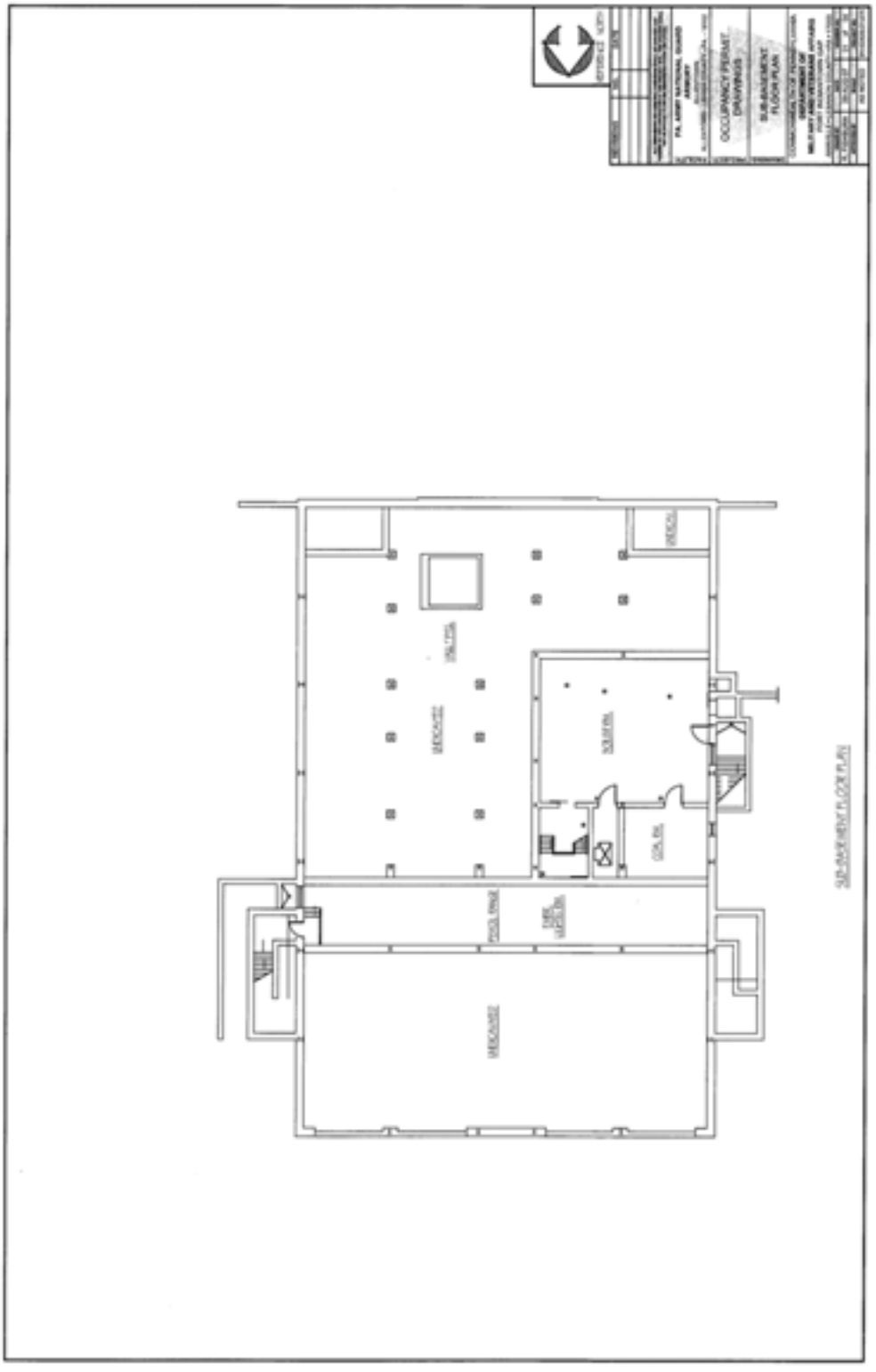


Appendix B

Allentown Readiness Center Photographs

AECOM

Photograph 1

View of Building Exterior

Photograph 2

View of Foyer

AECOM

Photograph 3

View of Administrative Corridor – 1st floor

Photograph 4

View of Conference Room – 1st floor

AECOM

Photograph 5

View of Kitchen

Photograph 6

View of Typical Office – 1st floor

AECOM

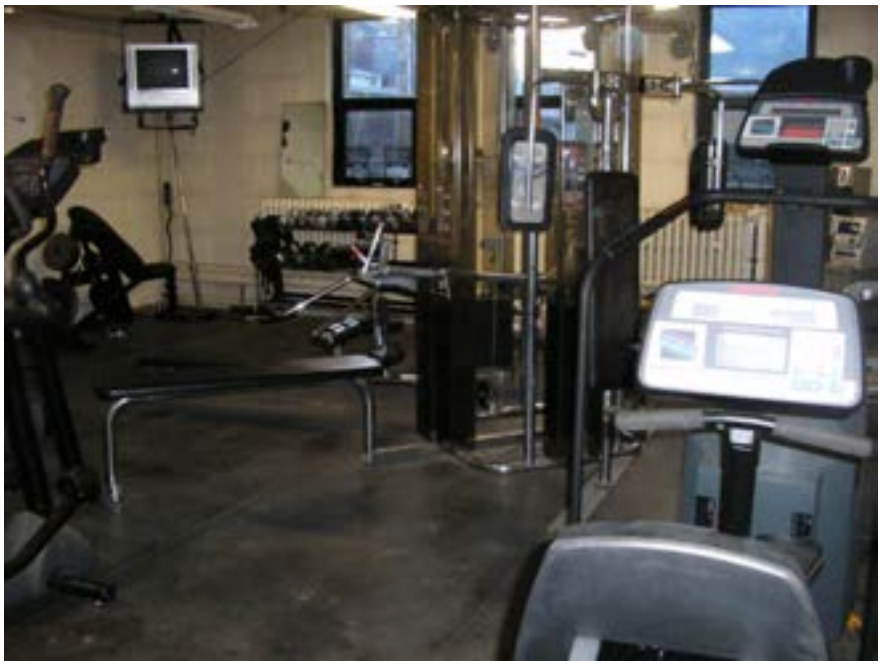
Photograph 7

View of Classroom – 2nd floor

Photograph 8

View of NCO Office – 2nd floor

AECOM

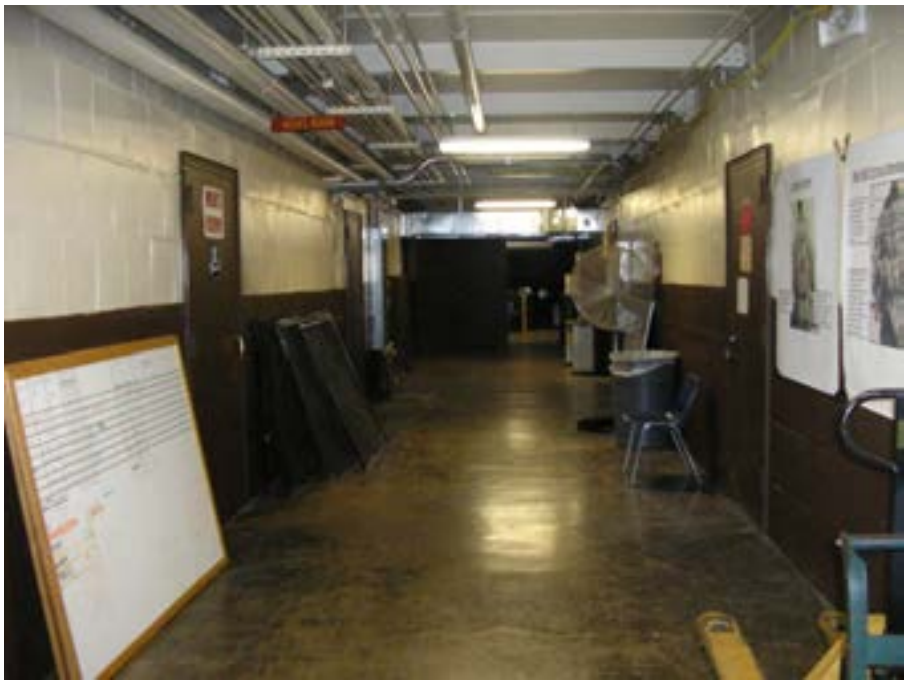
Photograph 9

View of Physical Fitness Room

Photograph 10

View of Assembly Hall

AECOM

Photograph 11



View of Basement Corridor

Photograph 12

View of Flammable Storage Cabinet

Photograph 13

View of Former Firing Range

Photograph 14

View of Boiler Room

AECOM

Photograph 15

View of Storage Area - Basement

Photograph 16

View of Former Garage (now storage)

Appendix C

Analytical Results

AECOM

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	Not Provided	Chain Of Custody:	514640		
Address:	301-81 Old Hay Lane, Attn: ATSMG-CIG-P, State Military Reservation	Job Location:	Allentown, PA	Date Submitted:	11/30/2012		
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM		
		P.O. Number:	0190256-09-A-0003	Date Analyzed:	12/9/2012	Report Date:	12/9/2012

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	Total ug	Final Result	Comments
1301B593	Wipe-001	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
1301B594	Wipe-002	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
1301B595	Wipe-003	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
1301B596	Wipe-004	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
1301B597	Wipe-005	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
1301B598	Wipe-006	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
1301B599	Wipe-007	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
1301B600	Wipe-008	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
1301B601	Wipe-009	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	

An AIHA (#100478) and NY ELAP (#10920) Accredited Laboratory

4475 Forbes Blvd. · Lanham, MD, 20706 · (301) 459-2640 · Toll Free (800) 346-0961 · Fax (301) 459-2643

AECOM

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY
INDUSTRIAL HYGIENE, ENVIRONMENTAL LEAD & ENVIRONMENTAL MICROBIOLOGY

Client:	National Guard Bureau	Job Name:	Not Provided	Chain Of Custody:	51464
Address:	301-B1 Old Bay Lane, Attn: ARNG-CGP, State Military Reservation	Job Location:	Allentown, PA	Date Submitted:	11/30/2012
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM
		P.O. Number:	0192S6-09-A-0003	Date Analyzed:	12/9/2012 Report Date: 12/9/2012

Attention: Non-Responsive

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	Total ug	Final Result	Comments

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B

See QC Summary for analytical results of quality control samples associated with these samples.

N/A = Not Applicable mg/Kg = parts per million (ppm) or a dry weight basis mg/L = parts per million (ppm)

%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)

Note: All samples were received in good condition unless otherwise noted.

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results

Final results for air and wipe samples are based on client supplied information nor verified by this laboratory.

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

Analyst: Non-Responsive

Technical Manager: Non-Responsive

An AIHA (#100479) and NY ELAP (#11928) Accredited Laboratory

4475 Forbes Blvd. · Lanham, MD 20706 · (301) 459-3640 · Toll Free (800) 346-0961 · Fax (301) 459-2643

AECOM

AMA Analytical Services, Inc.
Focused on Results www.amalab.com
AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)
4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF COUSTODY

(Please Refer To This Number For Inquiry)

514640

Mailing/Billing Information:

1. Client Name: National Guard Bureau
2. Address 1: 301-H Old Bay Lane
3. Address 2: Attn: NGB-AVN-SI, State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-8254

Submittal Information:

1. [illegible]
2. [illegible] Allentown, PA
3. Job #: PO #: W912K8-09-A-0003
4. Contact Person: Non-Responsive [redacted] @ph [illegible]
5. Submitted by: AECOM [illegible] Non-Responsive [redacted]

Reporting Info (Results provided as soon as technically feasible). If no TAT/Reporting Info is provided, AMA will assign defaults of 5-Day and [illegible] to contacts on file.

[illegible] 10/17/10 [illegible]

TEM Bulk
- ☐ ELAP 198.4/Chatfield ____ (QTY)
- ☐ NY State PLM/TEM ____ (QTY)
- ☐ Residual Ash ____ (QTY)

TEM Dust
- ☐ Qual. (presence) Vacuum/Dust ____ (QTY)
- ☐ Quan. (s/area) Vacuum D5755-95 ____ (QTY)
- ☐ Quan. (s/area) Dust D6480-99 ____ (QTY)

TEM Water
- ☐ Qual. (presence) ____ (QTY)
- ☐ ELAP 198.2/EPA 100.2 ____ (QTY)
- ☐ EPA 100.1 ____ (QTY)

☒ All samples received in good condition unless otherwise noted.
(TEM Water samples ____ °C)

*PCM Air – Please Indicate Filter Type:
- ☐ NIOSH 7400 ____ (QTY)
- ☐ Fiberglass ____ (QTY)

TEM Air* – Please Indicate Filter Type:
- ☐ AHERA ____ (QTY)
- ☐ NIOSH 7402 ____ (QTY)
- ☐ Other (specify ____) ____ (QTY)

PLM Bulk
- ☐ EPA 600 – Visual Estimate ____ (QTY)
- ☐ EPA Point Count ____ (QTY)
- ☐ NY State Friable 198.1 ____ (QTY)
- ☐ Grav. Reduction ELAP 198.6 ____ (QTY)
- ☐ Other (specify ____) ____ (QTY)

MISC
- ☐ Vermiculite
- ☐ Asbestos Soil P.H. ___ (Qal) P.H. ___ (Qan) P.NTEM ___ (Qal) P.MTEM ___ (Qan)

If [illegible] sheets are submitted, there is no need to complete bottom section.

[illegible]

- ☐ Pb Paint Chip ____ (QTY)
- ☒ Pb Dust Wipe (wipe type: [illegible]) 9 (QTY)
- ☐ Pb Air ____ (QTY)
- ☐ Pb Soil/Solid ____ (QTY)
- ☐ Pb TCLP ____ (QTY)
- ☐ Drinking Water ☐ Pb ___ (QTY) ☐ Cu ___ (QTY) ☐ As ___ (QTY)
- ☐ Waste Water ☐ Pb ___ (QTY) ☐ Cu ___ (QTY) ☐ As ___ (QTY)
- ☐ Pb Furnace (Media ____) ____ (QTY)

Collection Apparatus for Spore Trap/Air Samples: ____
Collection Media: ____

- ☐ *Spore Trap ___ (QTY)
- ☐ *Surface Swab ___ (QTY)
- ☐ *Surface Tape ___ (QTY)
- ☐ Other (Specify ___) ___ (QTY)
- ☐ Surface Vacuum Dust ___ (QTY)
- ☐ Culturable ID Genus (Media ___) ___ (QTY)
- ☐ Culturable ID Species (Media ___) ___ (QTY)

SAMPLE INFORMATION

CLIENT ID #	SAMPLE LOCATION ID	DATE/TIME	VOL (L)/Non-Area	ANALYSIS / MATRIX	CLIENT CONTACT (LABORATORY STAFF ONLY)
Wipe-001	D [illegible] Table	[illegible]	[illegible]	✓	
Wipe-002	Kitchen Cabinet				Date/Time: Contact: By:
Wipe-003	HQ office				
	SEE ATTACHED FIELD DATA SHEETS				
Wipe-004	[illegible]				
Wipe-005	Foyer floor				Date/Time: Contact: By:
Wipe-006	[illegible]				
Wipe-007	F Range locker [illegible]				
Wipe-008	F Range Floor				
Wipe-009	[illegible] locker Rm [illegible]	✓	✓	✓	Date/Time: Contact: By:

[illegible] 10 [illegible] FEDEX Non-Responsive [redacted]

LABORATORY
SAMPLE(S)
CUSTODY

[illegible] 8941 7694 5837

Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. http://www.osha.gov/comp-links.html

2. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998. http://www.dtic.mil/whs/directives/corres/pdf/605501p.pdf

3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF

4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://armypubs.army.mil/epubs/pdf/R40_5.PDF

5. AR 385-10, The Army Safety Program, 23 August 2007; Rapid Action Revision (RAR) issue date: 4 October 2011. http://armypubs.army.mil/epubs/pdf/R385_10.PDF

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8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://armypubs.army.mil/epubs/pdf/P40_503.PDF

9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf

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11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.

12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.

13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.

14. ANSI/ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality.

15. RP-1-2004, Office Lighting, ANSI/IESNA.

16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.

17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.

18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.

19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf

Industrial Hygiene Survey

CO B (-DET 1) 28th SIG BN

BEAVER FALLS, PENNSYLVANIA

June 5, 2003

OPTECH

OPERATIONAL TECHNOLOGIES
CORPORATION

CO B (-DET 1) 28TH SIG BN
BEAVER FALLS, PENNSYLVANIA
INDUSTRIAL HYGIENE SURVEY

1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Armory in Beaver Falls, Pennsylvania on June 5, 2003. The NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. [redacted] a Certified Industrial Hygienist from OpTech, completed this survey. [redacted] (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the IH Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D.

2.0. EXECUTIVE SUMMARY

2.1 Indoor Air Quality

Carbon monoxide and carbon dioxide readings were within recommended levels. Indoor temperature and relative humidity readings were within recommended comfort ranges. Humidity should be maintained below 60% relative humidity for occupant comfort and controlling mold growth. No mold was observed during the survey.

2.2. Lighting

Levels were below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting would improve some areas.

2.3. Lead Results

In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 $\mu g/ft^2$. This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. Samples in the assembly hall and locker room exceeded the 200 $\mu g/ft^2$ criterion. Three of the five samples taken in the former firing range exceeded the criterion. Lower levels were detected in other areas of the facility. The source of lead contamination is from previous firing range activities. Lead dust from the range has migrated throughout the facility and has accumulated over the years.

Air sampling for inorganic lead was taken. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building.

2.4. Other Issues

The facility was constructed in 1978. No asbestos was observed in the facility. Water damage was observed in the orderly room and hallway. The facility is kept impressively clean and orderly. The storage room (former firing range) is in good condition but the paint is worn on the floor.

RECOMMENDATIONS

1. LIGHTING

1.1. Illumination levels were below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

2. LEAD RESULTS

2.1. Wipe sampling results for inorganic lead in the assembly hall and locker room exceeded the 200 $\mu g/ft^2$ criterion. Three of the five samples taken in the former firing range also exceeded the criterion. Lower levels were detected in other areas of the building. Suspect the source contamination is from indoor firing range activities. Recommend that these areas be wet-wiped/mopped or vacuumed with a high efficiency particulate (HEPA) filter. This method of cleaning should be repeated during routine housecleaning duties.

3. WATER INTRUSION

3.1. Water intrusion damage is present in the orderly room and hallway. Recommend that the leak be repaired. Damaged ceiling tiles and insulation should be replace to prevent mold growth.

2.0. EXECUTIVE SUMMARY

2.1. No indoor air quality problems were noted.

2.2. Illumination levels were below recommended minimum standards in most areas of the facility.

2.3. Wipe samples for inorganic lead were collected. Samples in the assembly hall and locker room exceeded the 200 $\mu g/ft^2$ criterion. Three of the five samples taken in the former firing range exceeded the criterion. Lower levels were detected in other areas of the facility. The source of lead contamination is from previous firing range activities. Lead dust from the range has migrated throughout the facility and has accumulated over the years.

2.4. Air sampling for inorganic lead was taken. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building.

2.5. Stained ceiling tiles from water intrusion are present in the orderly room and areas of the hallway. The cause is not known. It may be from steam lines or a roof leak.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	CO B (-DET 1) 28TH SIG BN		
ADDRESS	150 Janet Street		
	Beaver Falls, PA 15010		
CONTACT	SSG Non-Responsive		
PHONE	724-847-5574		
DATE BUILT	1978	FACILITY SIZE	31,090 sq. ft.
INDOOR FIRING RANGE	CLOSED		1-floor
ASSISTED			
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	8		
TRADITIONAL (MIL)	300		
CHILD ACTIVITIES	The facility is used for cheerleading practice throughout the year.		
ADULT ACTIVITIES			

3.1.1. The exterior is brick and appears to be in good condition. The interior of the building has also been kept in very good condition. The building is heated by a natural gas steam furnace.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity (RH) in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 Indoor Air Quality Standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ASHRAE 62-2001, Section 6.1.3, states that concentrations up to 700 ppm CO_2, above outdoor concentrations will achieve an acceptable level of indoor air quality.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ASHRAE 55-1992 recommends that temperature ranges be 73 to 79 degrees Fahrenheit (°F) during the summer and 68 to 74°F during the winter. Relative humidity levels be maintained between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE 1
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO_2 (ppm)	Temp. (°F)	RH (%)
1010	Outdoors – Background	0.0	511	86.3	66.0
1027	Admin Office (occupied)	0.0	530	76.2	58.9
1032	Motor Pool	0.0	556	75.8	58.5
1036	Kitchen	0.0	530	75.3	58.1
1040	Assembly Hall	0.0	520	75.0	57.8
1043	USAR Office	0.0	515	75.4	58.4
1046	Locker Room	0.0	517	75.3	58.1
1050	Assembly Hall	0.0	513	75.1	57.7
1054	Boiler Room	0.0	526	77.4	58.4
1101	Range	0.0	514	76.1	57.7
1104	Hallway	0.0	521	74.5	58.8
1107	Hallway (lobby)	0.0	518	74.8	58.5
1113	Orderly Room (occupied)	0.0	562	76.1	58.9

3.2.5. No indoor air quality problems were noted.

3.3. ILLUMINATION

3.3.1. Illumination levels were measured in most areas of the facility. Sunlight was excluded, as much as possible for this survey, by closing doors and blocking windows. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 - 463). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
Orderly Room	32 - 44	38	70	NO
USAR Office	36 - 52	46	70	NO
Locker Room	40 - 50	43	40	YES
Conference room	32 - 42	38	70	NO
Kitchen	32 - 56	44	75	NO
Assembly Hall	32 - 56	42	75	NO
Former Indoor Range (storage)	28 - 42	38	40	NO
Boiler Room	38 - 50	43	15	YES
Lobby	36 - 42	40	40	YES

3.3.2. Levels were below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3.4. WIPE SAMPLES

3.4.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples were taken at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot ($\mu g/ft^2$) and are listed in Table 3. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Bea-03156-03	Orderly Room – Top of Book Shelf	BDL
PA Bea-03156-04	Hallway – Vent Cover	128
PA Bea-03156-05	Assembly Hall - Floor	1,055
PA Bea-03156-06	Kitchen	BDL
PA Bea-03156-07	Hallway - Heater	143
PA Bea-03156-08	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.2. Additional wipe samples were collected during this survey. These samples were collected to further analyze the extent of contamination should the first five samples indicate a possible hazard. Since the samples taken in assembly hall exceeded the 200 µg/ft² criterion (see Section 3.4.4 below), these additional samples were analyzed. The results are presented below in Table 4.

TABLE 4
ADDITIONAL WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Bea-03156-09	Boiler Room - Pipes	BDL
PA Bea-03156-10	Male Latrine	BDL
PA Bea-03156-11	Weight/Break Room	BDL
PA Bea-03156-12	USAR Office	340
PA Bea-03156-13	Locker Room	BDL
PA Bea-03156-14	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits (10 µg/ft²)

3.4.3. CLOSED FIRING RANGE WIPE SAMPLING

3.4.3.1. Additional wipe samples were collected in the former indoors firing range. This area is presently being utilized for storage. The laboratory analysis results are listed in Table 5.

TABLE 5
FORMER INDOOR FIRING RANGE WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Bea-03156-15	Firing Line Area - Floor	113
PA Bea-03156-16	Cage - ½ Way Down Range	73
PA Bea-03156-17	Floor - ¾ of the Way Down Range	12,909
PA Bea-03156-18	Floor - Backstop Area	600
PA Bea-03156-19	Maintenance – Hose Rack Behind Firing Line	3,009
PA Bea-03156-20	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.4. WIPE SAMPLING RESULTS

3.4.4.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 $\mu g/ft^2$. This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. (See memorandum in Attachment E, Recommendations for Surface Lead Dust in Armories.) Three of the five samples collected in the former firing range exceeded the criterion. Lower levels were detected in other areas of the building. The source of lead contamination is from previous firing range activities. Lead dust from the range has migrated throughout the facility and has accumulated over the years.

3.4.5. AIR SAMPLING

3.4.5.1. Air Sampling for inorganic lead was performed during this survey. Table 6 lists the results of these samples, and is reported in milligrams per cubic meter (mg/m^3) of air.

TABLE 6
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
Non-R[redacted]	PA Bea-03156-01	Lead	<0.003 mg/m^3	0.05 mg/m^3	YES
Area – Kitchen	PA Bev-03156-02	Lead	<0.003 mg/m^3	0.05 mg/m^3	YES

mg/m^3 = milligrams per cubic meter < = less than (below detection limits)

3.4.5.2. Air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this building.

3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION

3.5.1.1. The orderly room and some areas of the hallway have water intrusion damage. The cause is not known. It may be from steam lines or a roof leak.

3.5.2. PROGRAMS

3.5.2.1. There are no designated confined space areas within this facility. There are no exhaust ventilation systems to control a hazard. No chemicals besides normal cleaning materials are present. Therefore, a need has not been established for a HAZCOM program, the need for

personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.3. HOUSEKEEPING

3.5.3.1. The facility is kept impressively clean and orderly.

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

E – Recommendations for Surface Lead in Armories

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC: Beaver Falls, PA	INSTALLATION: PENNSYLVANIA ARNG ARMORY	BLDG/RM NO.: Beaver Falls Armory
LOCATION/CODE: AA		OPERATION/CODE: ADO
SURVEY DATE: June 5, 2003		EVALUATOR (initials): JSS
MACOM/CODE: ARMY NATIONAL GUARD	SUBMACOM/CODE: NA	SUPERVISOR: 55[redacted] Non-Responsive
TELEPHONE/DSN NO.: 724-847-5574	UNIT/ORGANIZATION: CO B (DET 1) 28TH SUBN	RAC: 3
FREQUENCY (hrs/day): 9		
NO. CIV(S): 6	NO. MIL: 300	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	CONROLS 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			
NBC AGENTS		FULL FACE AIR PURIFYING			
OIL		½ FACE AIR PURIFYING			
SOLVENTS		POWERED AIR PURIFYING			
SURGICAL GLOVES		¼ 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 WEATHR CLOTHING		HARD HATS	
CHEM/CAL/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			

AEHA Form 271-R (Test), 1 Jan 92 (HSHB-MI-I)

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	3	C

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

SECTION 6. COMMENTS

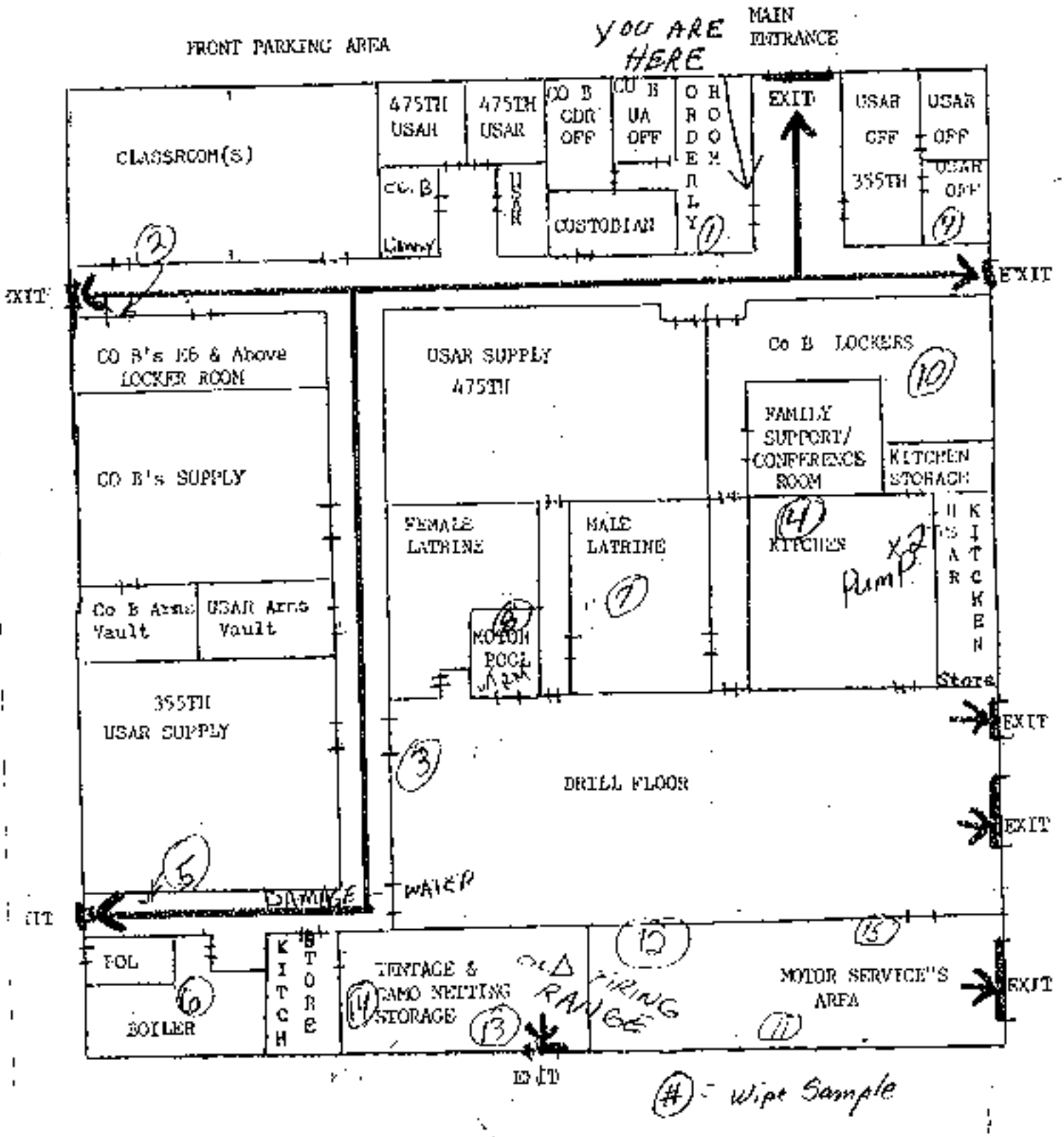
☐ No comments ☐ See attached sheet

PRIVACY ACT STATEMENT

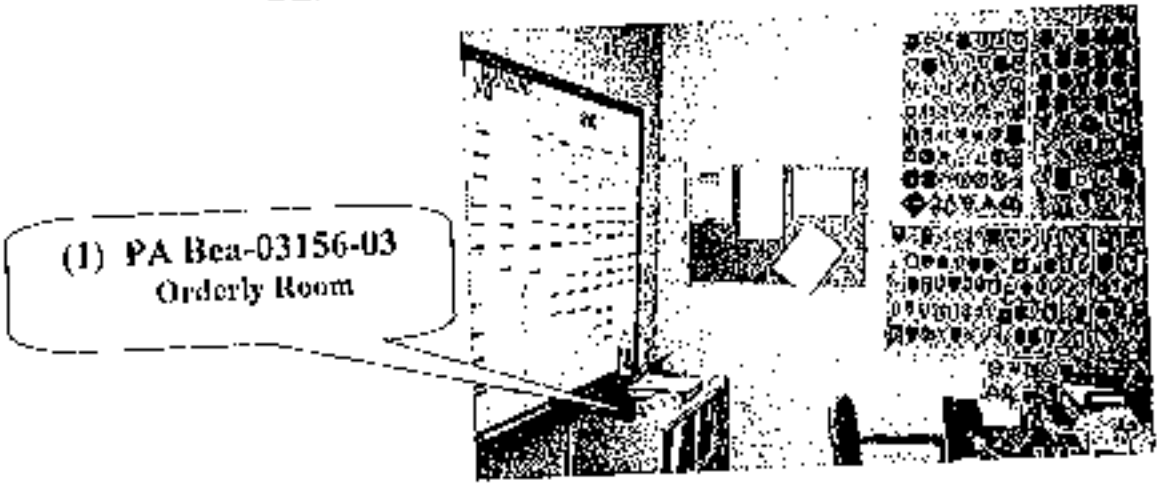
Title 5 US Code, Section 301; Executive Order 9397 authorized the use of your Social Security Number as an identification number. The purpose of this information is to identify and monitor data relating each DA civilian and military employee exposed to a hazardous workplace or operation. The use of this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

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

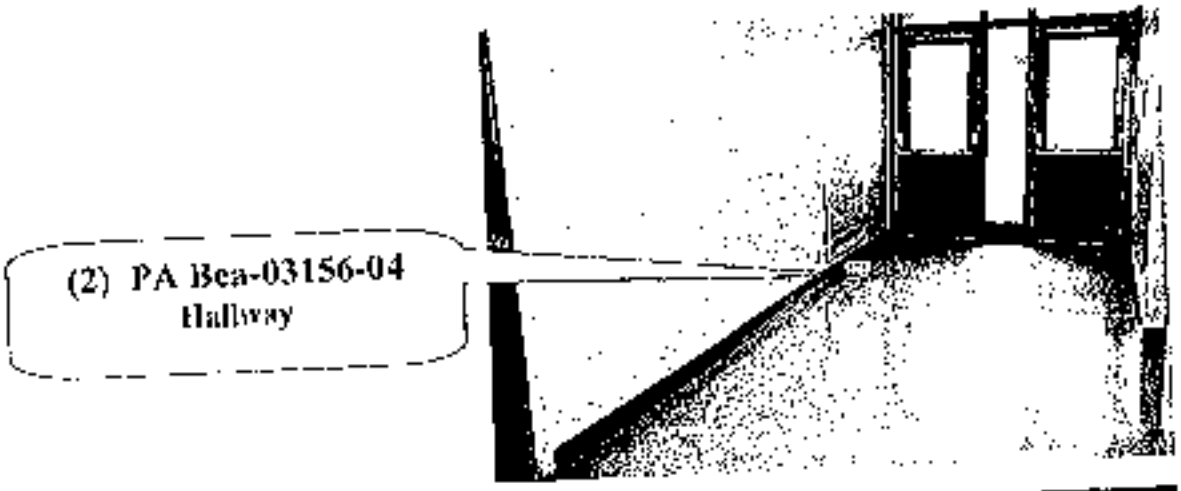
ARMORY EVACUATION MAP



CO B (-DET 1) 28TH SIG BN
BEAVER FALLS, PENNSYLVANIA



(1) PA Bea-03156-03
Orderly Room

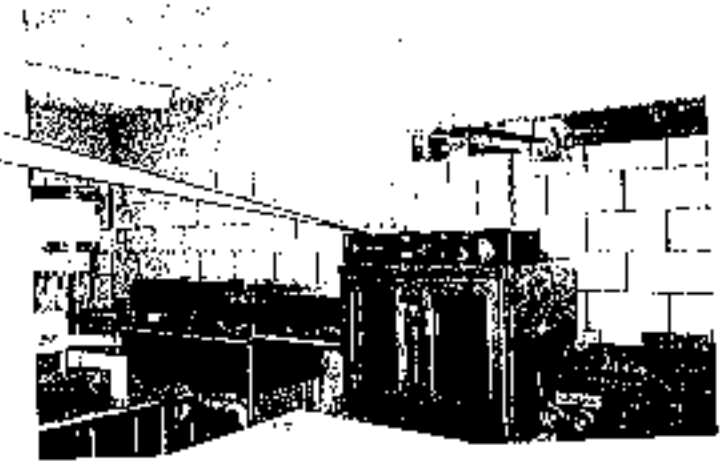


(2) PA Bea-03156-04
Hallway

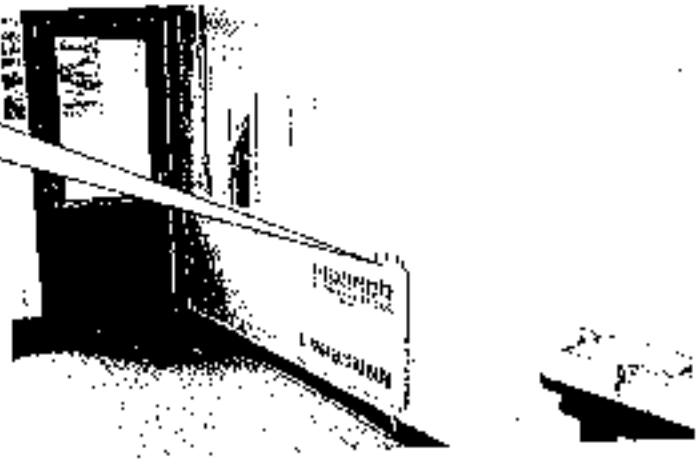
(3) PA Bea-03156-05
Assembly Hall

Attachment B

(4) PA Bea-03156-06
Kitchen

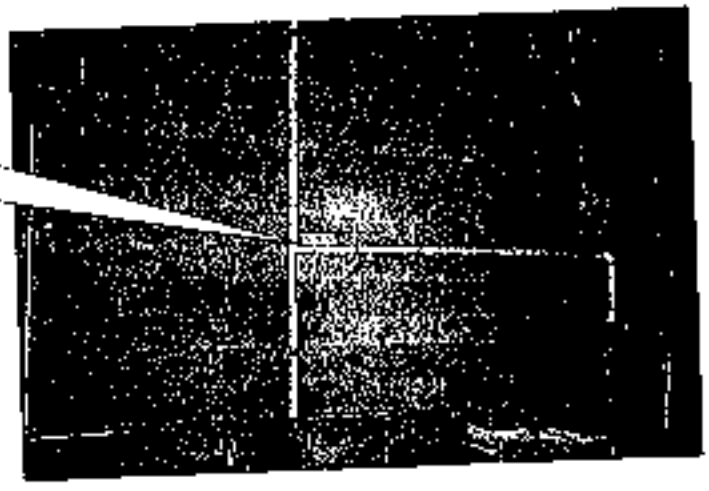


(5) PA Bea-03156-07
Hallway



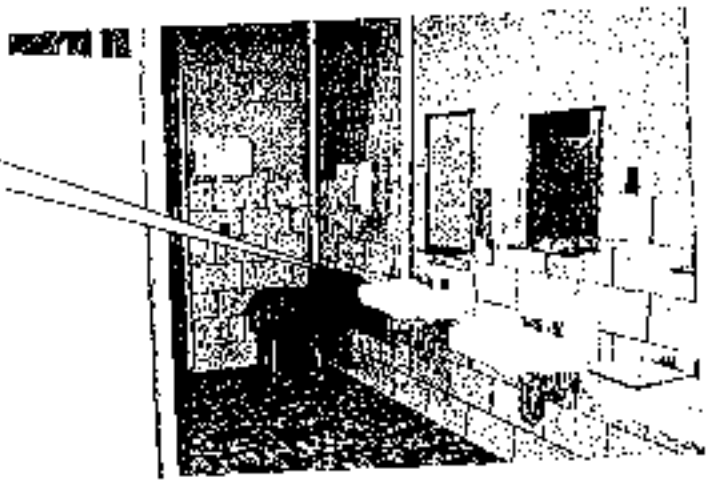
ADDITIONAL SAMPLES

(6) PA Bea-03156-09
Boiler Room

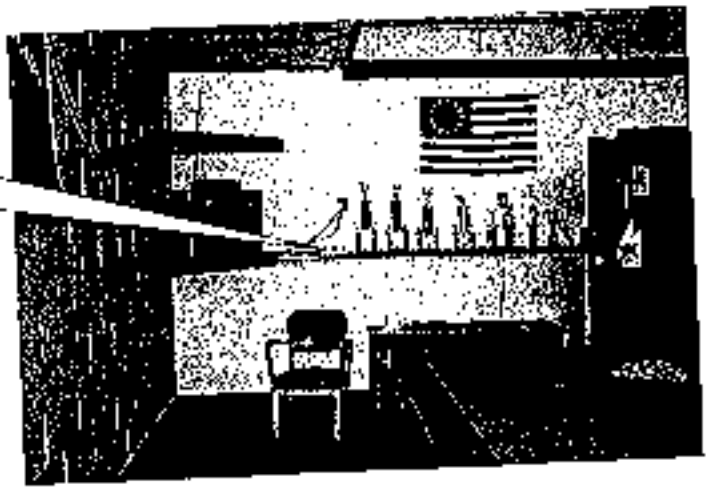


Attachment B

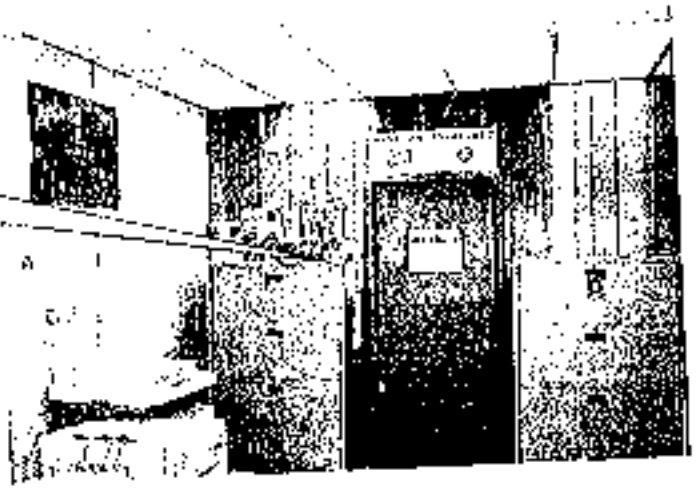
(7) PA Bea-03156-10
Male Latrine



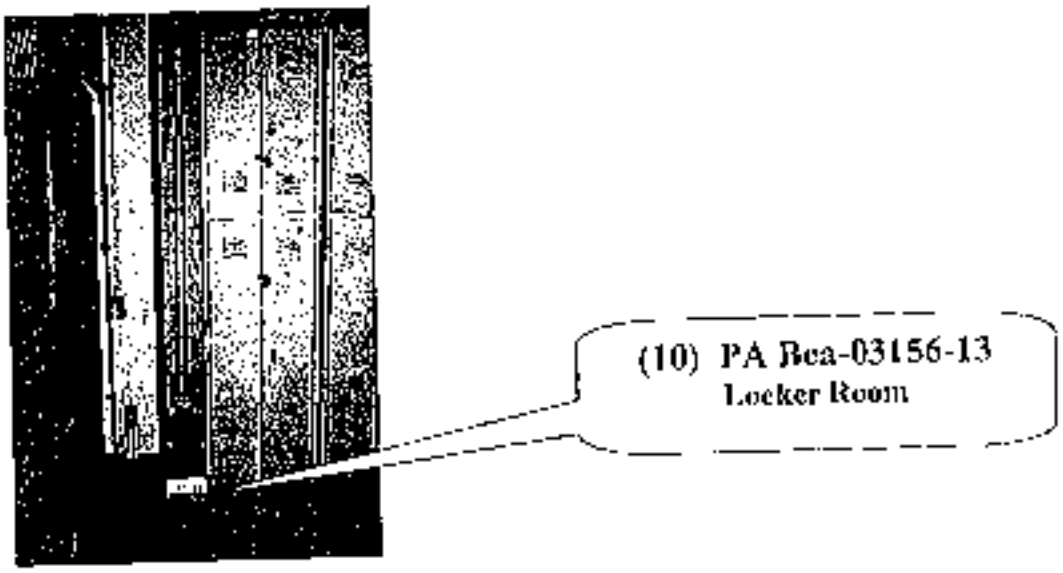
(8) PA Bea-03156-11
Break Room / Fitness Center



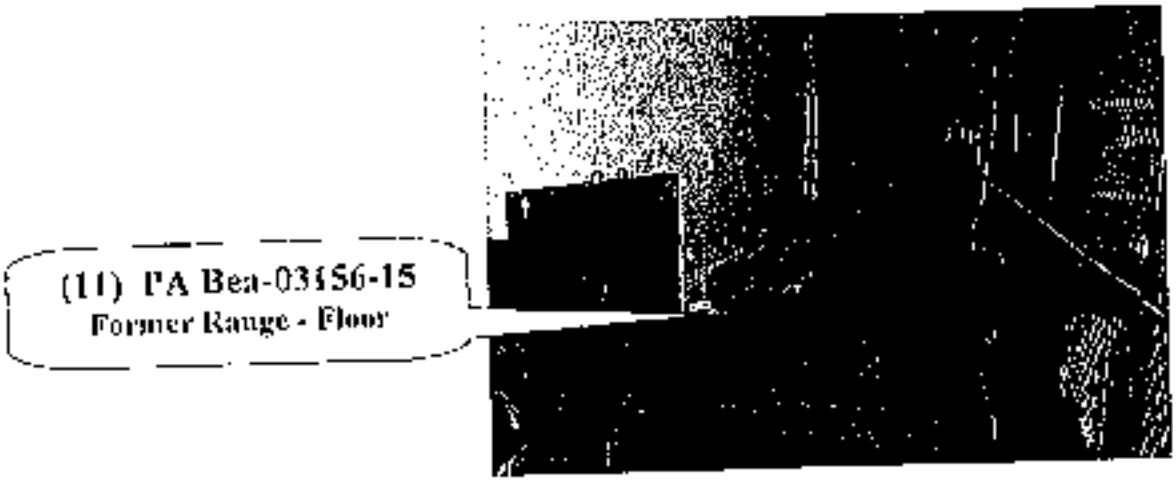
(9) PA Bea-03156-12
USAR Office

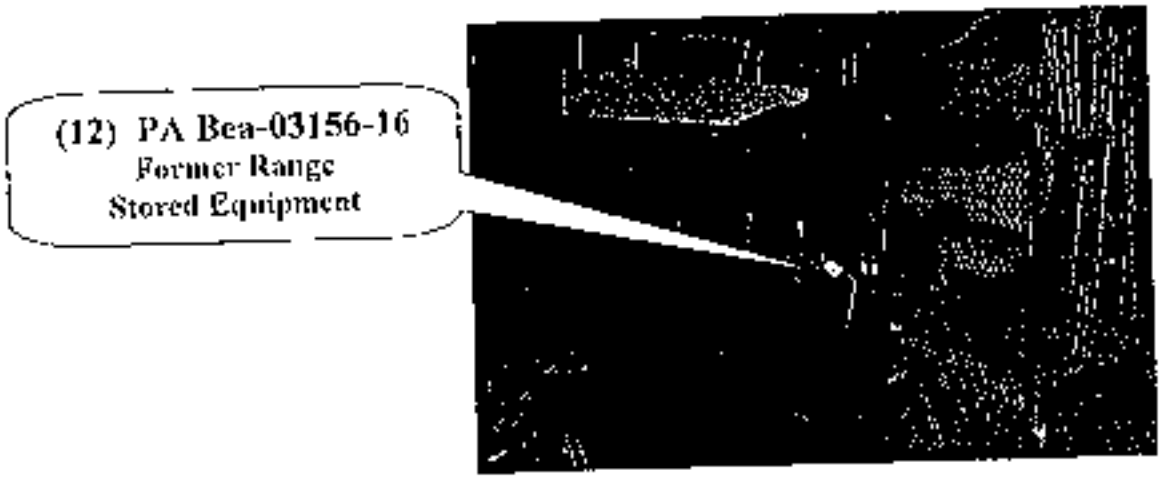


Attachment B



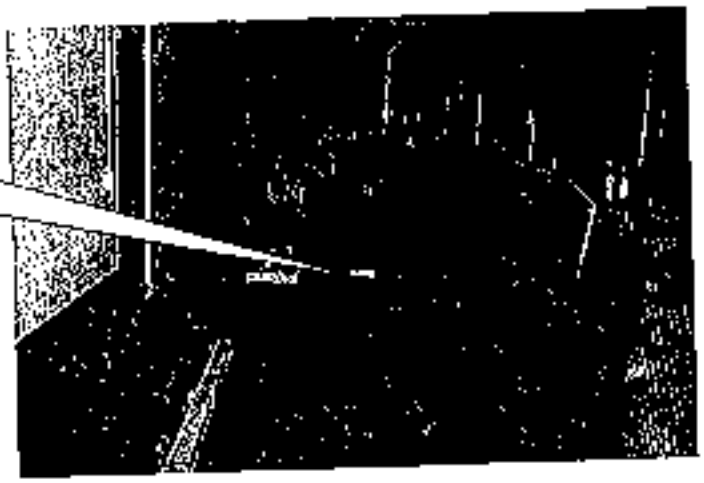
FORMER INDOOR FIRING RANGE SAMPLES



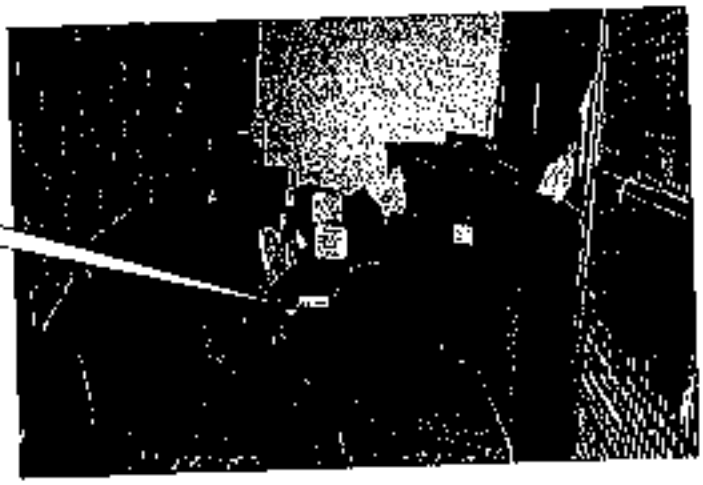


Attachment 1

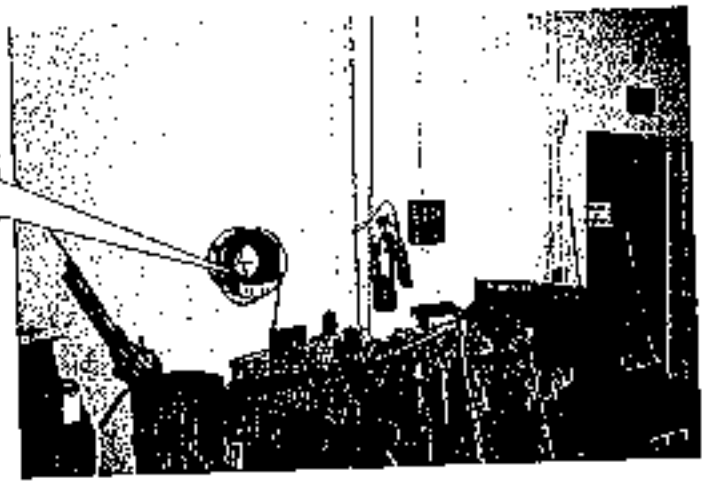
(13) PA Bea-03156-17
Former Range
Firing Line Floor



(14) PA Bea-03156-18
Former Range – Floor



(15) PA Bea-03156-19
Former Range
Stored Equipment



Attachment B

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
AIHA Certificate of Accreditation #480 LAB ID 101533

TABLE I. ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	RES 94604-1
Client:	Operational Technologies, Corp.
Client Project Number / PAD:	06 03
Client Project Description:	Anniston/Pennsylvania
Date Samples Received:	June 24, 2003
Analysis Type:	USEPA SW846 3050B / AA(7420)
Turnaround:	3-5 Day
Date Samples Analyzed:	July 1, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA Cor-03155-15	EM 787903	0.11	5.5	23	50
PA Cor-03155-16	EM 787904	0.11	9.8	23	89
PA Cor-03155-17	EM 787905	0.11	317.0	23	2882
PA Cor-03155-18	EM 787906	0.11	5.0	23	45
PA Cor-03155-19	EM 787907	0.11	21.0	23	191
PA Cor-03155-20	EM 787908	0.11	BDL	23	BDL
PA Bea-03156-03	EM 787909	0.11	BDL	23	BDL
PA Bea-03156-04	EM 787910	0.11	14.1	23	128
PA Bea-03156-05	EM 787911	0.11	116.0	23	1055
PA Bea-03156-06	EM 787912	0.11	BDL	23	BDL
PA Bea-03156-07	EM 787913	0.11	15.7	23	143
PA Bea-03156-08	EM 787914	0.11	BDL	23	BDL
PA Bea-03156-15	EM 787915	0.11	12.4	23	113
PA Bea-03156-16	EM 787916	0.11	8.0	23	73
PA Bea-03156-17	EM 787917	0.11	2190.0	23	19909
PA Bea-03156-18	EM 787918	0.11	66.0	23	600
PA Bea-03156-19	EM 787919	0.11	331.0	23	3009
PA Bea-03156-20	EM 787920	0.11	BDL	23	BDL
PA Pit-03156-24	EM 787921	0.11	BDL	23	BDL
PA Pit-03156-25	EM 787922	0.11	17.0	23	155
PA Pit-03156-26	EM 787923	0.11	6.0	23	55
PA Pit-03156-27	EM 787924	0.11	21.5	23	195
PA Pit-03156-28	EM 787925	0.11	BDL	23	BDL
PA Pit-03156-29	EM 787926	0.11	BDL	23	BDL
PA Pit-03156-36	EM 787927	0.11	BDL	23	BDL
PA Pit-03156-37	EM 787928	0.11	69.0	23	627
PA Pit-03156-38	EM 787929	0.11	4.0	23	36
PA Pit-03156-39	EM 787930	0.11	65.7	23	597
PA Pit-03156-40	EM 787931	0.11	BDL	23	BDL
PA Pit-03156-41	EM 787932	0.11	BDL	23	BDL

Data Qa

BDL = Below Detection Limit

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m³
PA Her-03154-01	03-20664	370.5	ND	<0.003
PA Her-03154-02	03-20665	382.4	ND	<0.003
PA New-03154-22	03-20666	465.6	ND	<0.002
PA New-03154-23	03-20667	450.1	ND	<0.002
PA Cor 03155-01	03-20668	305.5	ND	<0.003
PA Cor 03155-02	03-20669	292.0	ND	<0.003
PA Bea-03156-01	03-20670	312.3	ND	<0.003
PA Bea-03156-02	03-20671	294.7	ND	<0.003
PA Pit-03156-22	03-20672	263.9	ND	<0.004
PA Pit-03156-23	03-20673	247.1	ND	<0.004
PA Pit-03157-01	03-20674	384.5	ND	<0.003
PA Pit-03157-02	03-20675	380.9	ND	<0.003
PA Pit-03157-22	03-20676	421.3	ND	<0.002
PA Pit-03157-23	03-20677	404.6	ND	<0.002
PA Wil-03161-01	03-20678	445.6	ND	<0.002
PA Wil-03161-02	03-20679	437.2	ND	<0.002
PA New-03161-22	03-20680	148.1	ND	<0.007
PA New-03161-23	03-20681	139.1	ND	<0.007
PA Car-03161-37	03-20682	248.3	ND	<0.004
PA Car-03161-38	03-20683	240.0	ND	<0.004
	Prep Blank		ND	
% Recovery	LCS 1		97.	
% Recovery	LCS 2		99.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non-[redacted]@md.ngb.army.mil

Attachment D

REFERENCE LIST INDEX

1. General Regulations and National Consensus Standards
2. Specific Regulations and Guidance
   a. Abrasive Blasting
   b. Asbestos
   c. Battery Charging Room
   d. Bird and Bat Manure
   e. Bloodborne Pathogens
   f. Chemical Agent Resistant Coating (CARC) Paint
   g. Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE)
   h. Confined Space Entry Program
   i. Design Review
   j. Ergonomics
   k. Flammable Storage Room
   l. Hazard Communication
   m. Hearing Conservation
   n. Indoor Air Quality
   o. Indoor Firing Ranges
   p. Lead
   q. Lighting
   r. Occupational Vision
   s. Paint Spray Booth
   t. Personal Protection
   u. Radiation Protection
   v. Respiratory Protection
   w. Sanitation
   x. Smoking
   y. Vehicle Exhaust
   z. Welding Operation

GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

Attachment D

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

Attachment D

4 December 2002

NGB-AVS-SI

OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REFERENCE LIST

1. General Regulations and National Consensus Standards
   a. DODI 6055.1, DOD SOH Program, 19 August 1998.
   b. DODI 6055.5, DOD OEH. *[DRAFT]*
   c. DOD 6055.5-M, DOD Occupational Health Surveillance Manual, 13 May 1987.
   d. DODI 6050.5, DOD Hazard Communication, 29 Oct 90. Change 1, 6 May 1996.
   e. AR 40-5, Preventive Medicine, 15 October 1990. [05/2002 Being Updated]
   f. DA PAM 40-5, Preventive Medicine. *[DRAFT]*
   g. AR 385-10, The Army Safety Program, 29 February 2000.
   h. NGR 385-10, ARNG SOH Program, 7 October 1988, Change 1, 29 December 1989.
   i. Title 29, Part 1910, Occupational Safety and Health Standards. [Current Date]
   j. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 2002.
   k. ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th edition, 2001.
   l. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.
   m. TG 141, USACHPPM Industrial Hygiene Sampling Guide, November 1997.
   n. National Safety Council, Fundamentals of Industrial Hygiene, 5th Edition, 2002.
   o. NIOSH, Pocket Guide to Chemical Hazards, 2001.
   p. NFC, A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. [Current date]
   q. ASHRAE Standards. [Current Dates]
   r. ANSI Standards. [Current Dates]

2. Specific Regulations/Guidance
   a. **ABRASIVE BLASTING**
      (1) ANSI Z9.4 1997, Abrasive Blasting Operations - Ventilation and Safe Practices.
      (2) 29 CFR 1910.94 Ventilation
      (3) 42 CFR 84

   b. **ASBESTOS**
      (1) AR 40-5, Preventive Medicine, 15 October 1990. *[05/2002 Being Updated]*
      (2) AR 200-1, Environmental Protection and Enhancement, Chapter 8, 21 February 1997.
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(10) DD Form 2493-1 (Asbestos Exposure, Part I--Initial Medical Questionnaire)

(11) DD Form 2493-2 (Asbestos Exposure, Part II--Periodic Medical Questionnaire)

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(1) TG 142, USAEHA, Managing Health Hazards Associated with Bird and Bat Excrement, Dec 1992.

e. **BLOODBORNE PATHOGENS**

(1) 29 CFR 1910.1030

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(5) AR 750-1, Army Materiel Maintenance Policy and Retail Maintenance Operations (Prohibits welding on CARC paint) 1 July 1996.

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(3) ANSI Z117.1-Safety Requirements for Confined Spaces, 1995.
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(7) OSHA Instruction CPL 2-2.20B CH-1, Directorate of Technical Support, 13 Nov 90.

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z. **WELDING OPERATION**

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(4) ANSI/AWS Z49.1-1999, Safety in Welding and Cutting and Allied Processes.

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Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 $\mu g/ft^2$) and windowsills (250 $\mu g/ft^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of 200 $\mu g/ft^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 $\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

Attachment E

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 $\mu g/ft^2$ on floors and 250 $\mu g/ft^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

Attachment E

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland




Industrial Hygiene Survey
for PAARNG – Beaver Falls Readiness Center
150 Janet Street
Beaver Falls, Pennsylvania 15010

AECOM
January 2013
Document No.: 60276421.1/Beaver Falls Readiness Center

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland

Industrial Hygiene Survey
for PAARNG – Beaver Falls Readiness Center
150 Janet Street
Beaver Falls, Pennsylvania 15010

Non-Responsive
Industrial Hygienist

Non-Responsive

Non-Responsive
Northeast District Health & Safety Manager

AECOM
November 2012
Document No.: 60276421.1/Beaver Falls Readiness Center

AECOM

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Executive Summary

On December 11, 2012, AECOM conducted an Industrial Hygiene (IH) survey of the Beaver Falls Readiness Center facility located at 150 Janet Street in Beaver Falls, Pennsylvania. Non-[redacted], SSG was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Beaver Falls Readiness Center operations.

The industrial hygiene survey was generally conducted in accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings", dated January 2012.

The Beaver Falls Readiness Center is currently staffed by five personnel. Some of the personnel were not present at the time of the survey due to active duty assignments or other off-site responsibilities. The facility is configured as an administrative area and a Drill/Assembly Hall.

Personnel at the facility were undertaking normal daily activities, which are primarily administrative in nature, at the time of the survey.

The activities undertaken during the Industrial Hygiene survey included facility descriptions, lead wipe/air sampling, evaluation of housekeeping, illumination studies, ventilation system evaluation, and a review of the physical building condition.

The Beaver Falls Readiness Center is housed in a one-story masonry building, and consists of approximately 80% administrative space and 20% Assembly Hall.

Lighting levels measured throughout the facility were generally adequate as per American National standards Institute/Illuminating Engineering Society of North America (ANSI/IESNA RP-1-2004), Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005, with the exception of the kitchen and the boiler room.

Wipe samples collected for lead-containing dust throughout the facility did not indicate lead levels above the ARNG action level.

No peeling lead-based paint was observed at the Beaver Falls Readiness Center during this survey.

No visible damaged suspect asbestos-containing material (ACM) was observed.

No visible water damaged or visible signs of mold growth were observed.

The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of air handling units that provide fresh air from outside the building exterior to administrative areas. Natural gas boilers feed radiant heaters throughout the remainder of the building including storage areas, the assembly hall as well as provide heat for the facilities domestic water.

1.0 Facility Description and Operations

The main section of the Beaver Falls Readiness Center, constructed in 1976, is a one-story administrative facility slab on-grade masonry structure. The building was improved in 2008 with a new roof system. The building consists of two main sections. The larger one-story section, located around the perimeter of the building, consists primarily of offices, training/classroom, locker/shower rooms, storage and administrative areas, and is finished with sheetrock walls, lay-in ceiling tiles and floor tile. The two-story Assembly/Drill Hall area, located in the center of the building, is finished with painted block walls and a concrete floor. According to site personnel there is a former firing range at the facility which is currently used as a caged storage area.

The primary activity at the Beaver Falls Readiness Center is routine administrative duties and occasional use by units for support and training of soldiers. The Assembly Hall is not rented out for civic activities. The Beaver Falls Readiness Center is currently staffed by five personnel. No vehicle maintenance activities are undertaken at the facility.

2.0 Sampling in Readiness Centers

2.1.1 Wipe Sampling

Wipe sampling for lead was conducted in the Assembly Hall and administrative areas following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost wipes. Samples were collected in areas that are not frequently cleaned and showed signs of dust whenever possible.

The following table presents the results of the lead wipe sampling conducted at the facility.

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
W – 001	Assembly Hall - table	<110 ug/ft^2
W – 002	Kitchen - counter	<110 ug/ft^2
W – 003	Orderly Office - desk top	<110 ug/ft^2
W – 004	Orderly Office - shelf	<110 ug/ft^2
W – 005	Administrative Corridor – floor	<110 ug/ft^2
W - 006	Storage (Former Firing Range – bullet trap area)	<110 ug/ft^2
W - 007	Storage (Former Firing Range – shelf)	<110 ug/ft^2
W - 008	Storage (Former Firing Range – floor)	<110 ug/ft^2
W - 009	Assembly Hall - floor	<110 ug/ft^2

ug/ft^2 = Micrograms per square foot.

Wipe samples collected in association with the administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U.S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 micrograms per square foot (ug/ft^2) for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas. Former firing ranges shall be converted in accordance with NG-PAM 420-15. Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

Per Non-Responsive of NGB-IH, the requirement for Lead air sampling has been removed from the Statement of Work. It was reported that historically, air samples collected at administrative facilities are typically below the limit of detection.

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls appeared to be generally in good condition. Concrete flooring was generally tiled or unpainted. AECOM did not observe damaged or peeling paint during this evaluation.

3.1.2 Suspect Asbestos Containing Materials

AECOM did not observe damaged, friable suspect asbestos containing materials (ACM) in readily accessible areas of the Beaver Falls Readiness Center during this survey. Thermal system piping is typically covered in typical fiberglass insulation with associated fittings and appeared in good condition.

Other typical miscellaneous building materials observed throughout the building but not sampled include floor tiles and associated mastic, cove base and associated mastic, ceiling tiles, and window glazing compound and caulks.

3.1.3 Water Damage/Mold

AECOM did not observe evidence of water intrusion during this survey.

3.1.4 Housekeeping

The Beaver Falls Readiness Center was observed to be generally clean and orderly during this assessment. AECOM did not observe dust accumulation on readily accessible horizontal surfaces within areas commonly used in the facility.

3.1.5 Indoor Air Quality/ Ergonomics

The administration section of the building contains general office space. The administration section is generally utilized by all of the Beaver Falls Readiness Center staff members including a recruiter. No Indoor Air Quality concerns were noted by the Beaver Falls Readiness Center personnel.

Beaver Falls Readiness Center personnel did not report any ergonomics issues or concerns. Office furniture and accessories designed to promote ergonomically correct behaviors were observed.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (^{o} Fahrenheit), and relative humidity (as percentage) are presented in the following table.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (^{o}F)	Relative Humidity (%)
Outside	0.0	364	69.8	25.4
Foyer	1.1	946	74.8	37.1
Orderly Office Area	1.0	861	74.1	34.2
Recruiter Office	1.0	794	74.3	28.9
Administrative Corridor	0.8	817	73.8	28.6
Classroom	0.8	597	72.3	26.4
Supply Room	0.4	614	73.6	25.3
Men's Restroom	0.2	728	72.4	27.1

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (^{o}F)	Relative Humidity (%)
Locker Room	0.2	433	72.8	27.6
Physical Fitness Room	0.6	642	74.2	34.2
Kitchen	0.6	517	72.4	28.9
Assembly Hall	0.8	438	72.9	27.3
Service Bay	0.5	486	70.3	21.4
Caged Storage Area	0.5	474	70.3	20.9
Boiler Room	0.1	698	75.6	28.7

Table 3-1 Guidelines:
Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard. OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.
Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.
Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 5.10.1).
Temperature: Winter (clothing insulation = 1.0 clo) Relative humidity 30-60% - Temp - 68 – 75°F
Summer Temp - 73 – 79°F. (Derived from ASHRAE Standard 55-2010)

4.0 Ventilation and HVAC System

4.1.1 Ventilation Systems and Potential for Contamination of Clean Air Sources

There is no Field Maintenance Shop (FMS) located at the Beaver Falls Readiness Center. As such, no potential for contamination of clean air sources was observed at the facility.

The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of air handling units that provide fresh air from outside the building exterior to administrative areas.

4.1.2 HVAC Maintenance

The HVAC system is reported to be on an annual maintenance/service agreement. Further, building personnel informed AECOM that the HVAC filters are changed twice a year. Natural gas boilers feed radiant heaters throughout the building including storage areas, the assembly hall administrative area and provide heat for the facilities domestic water.

5.0 Lighting

Lighting levels in all areas were measured utilizing a Cal-Light 400 light meter that displays lighting levels in foot-candles. Lighting levels were generally adequate with the exception of the kitchen and boiler room.

Table 5-1: Light Survey

Location	Results – (Foot candles)	Met Standard (Y/N)	Standard*
Foyer	30.4	Y	10
Orderly Office Area	52.1	Y	50
Recruiter Office	56.8	Y	50
Administrative Corridor	19.7	Y	5
Classroom	42.2	Y	30
Supply Room	48.7	Y	10
Men's Restroom	19.8	Y	5
Locker Room	19.4	Y	7
Physical Fitness Room	43.9	Y	30
Kitchen	37.7	N	50
Assembly Hall	15.3	Y	10
Service Bay	42.8	Y	30
Caged Storage Area	42.6	Y	30
Boiler Room	21.4	N	30
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI/IESNA RP-7-01)			

6.0 Evaluation of Attached Garage

There is no attached garage associated with the Beaver Falls Readiness Center.

7.0 Conclusions and Limitations

AECOM has conducted this survey in accordance with applicable OSHA methods and standard industrial hygiene practice. The following conclusions were based on the observations and assessments of activities that occurred during the on-site evaluation:

Housekeeping is performed regularly at the Beaver Falls Readiness Center.

AECOM did not observe any damaged, suspect asbestos-containing materials at the Beaver Falls Readiness Center.

AECOM did not observe peeling paint at the Beaver Falls Readiness Center.

AECOM did not observe evidence of water intrusion at the Beaver Falls Readiness Center.

Lighting levels measured throughout the facility were generally adequate as per ANSI/IESNA RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005, with the exception of the kitchen and the boiler room.

Wipe samples collected in association with the administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft^2 for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

AECOM provided these services consistent with the level and skill ordinarily exercised by members of the profession currently providing similar services under similar circumstances at the time the services were provided. This statement is in lieu of other statements either expressed or implied. This report is intended for the sole use of National Guard Bureau – Army National Guard. The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, and use or re-use of this document, the findings, conclusions, or recommendations is at the risk of said user.

As with all such surveys, the results of the sampling represent conditions found on the date of the survey and may not represent conditions found at other times. Additionally, this survey was limited with respect to the specific parameters indicated above and should not be construed to be a comprehensive evaluation or a definitive representation of conditions within the facility. The information presented in this report is intended to be used as a guide to evaluate the need for further investigation or the need for modifications to the processes or procedures surveyed.

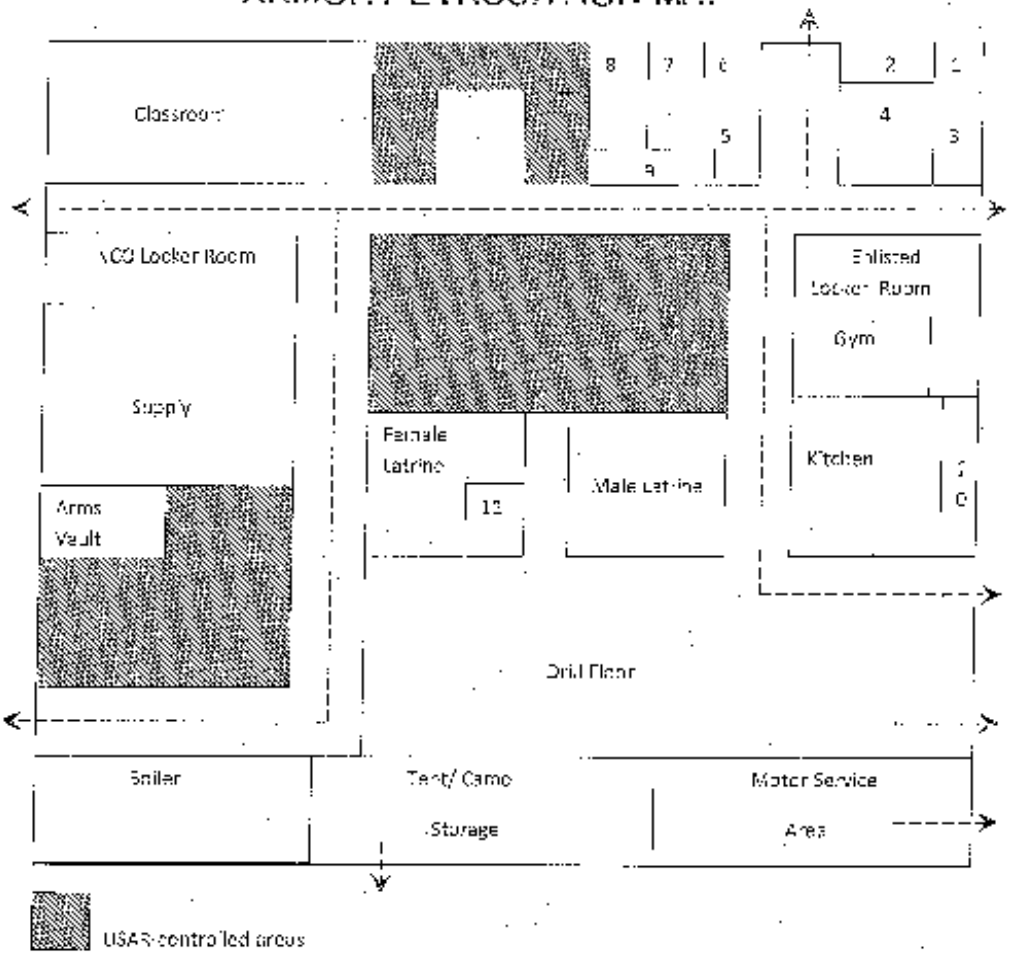
The Client recognizes and agrees that all testing and remediation methods have reliability limitations, no method nor number of sampling locations can guarantee that a condition will be discovered within the performance of the services as authorized by the Client. Additionally, the passage of time may result in a change in the environmental characteristics at this site. This report does not warrant against future operations or conditions that could affect the recommendations made. The results, findings, conclusions, and recommendations expressed in this report are based only on conditions that were observed during AECOM's inspection of the site.

Appendix A

Beaver Falls Readiness Center Facility Layout

AECOM

ARMORY EVACUATION MAP



1. Commander's Office
2. 1SG's Office
3. Administrative Room
4. Conference Room
5. Orderly Room
6. Training NCO
7. Readiness NCO
8. Recruiting & Retention NCO
9. MR2 Storage
10. Kitchen Storage
11. Platoon Offices

Appendix B

Beaver Falls Readiness Center Photographs

Photograph 1

View of Building Exterior

Photograph 2

View of Foyer

AECOM

Photograph 3

View of Administrative Corridor

Photograph 4

View of Break Room

Photograph 5

View of Physical Fitness Room

Photograph 6

View of Assembly Hall

AECOM

Photograph 7

View of Supply Room

Photograph 8

View of Caged Storage Area in Assembly Hall

AECOM

Photograph 9

View of Heating/Light System in Service Bay

Photograph 10

View of Storage Area (Former Firing Range)

Photograph 11

View of Flammable Storage Cabinets

Photograph 12

View of Heating/lighting System in Storage Room

Appendix C

Analytical Results

AECOM

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE, ENVIRONMENTAL LEAD, ENVIRONMENTAL MICROBIOLOGY

Client:	National Guard Bureau	Job Name:	Not Provided	Chain Of Custody:	51490X
Address:	301-03 Old Bay Lane, Attn: ARNG-CIG-P, State Military Reservation	Job Location:	Beaver Falls, PA	Date Submitted:	1/3/2013
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM
		P.O. Number:	W912KZ-09-A-0003	Date Analyzed:	1/9/2013
				Report Date:	1/9/2013

Attention: [redacted]

Summary of Atomic Absorption Analysis for Lead

Page 1 of 2

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Total ug	Final Result	Comments
13027297	W-001	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13027298	W-002	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13027299	W-003	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13027300	W-004	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13027301	W-005	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13027302	W-006	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13027303	W-007	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13027304	W-008	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13027305	W-009	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	

An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

4475 Forbes Blvd. · Lanham, MD, 20706 · (301) 459-2640 · Toll Free (800) 346-0961 · Fax (301) 459-2643

AECOM

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	Not Provided	Chain Of Custody:	514908		
Address:	301-81 Old Bay Lane, Attn: ARNG-CIG-P, State Military Reservation	Job Location:	Beaver Falls, PA	Date Submitted:	1/3/2013		
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM		
		P.O. Number:	W912K6-09-A-0010	Date Analyzed:	1/9/2013	Report Date:	1/9/2013

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	Total ug	Final Result	Comments

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B

N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)

%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)

Note: All samples were received in good condition unless otherwise noted.

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results

Final results for air and wipe samples are based on client supplied information nor verified by this laboratory.

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

See QC Summary for analytical results of quality control samples associated with these samples.

Ana[redacted]

Technical Manag[redacted]

An AIHA (#100478) and NY ELAP (#10920) Accredited Laboratory

4475 Forbes Blvd. - Lanham, MD. 20706 - (301) 459-2640 - Toll Free (800) 346-0961 - Fax (301) 459-2643

AECOM

AMA Analytical Services, Inc.
Focused on Results www.amalab.com
AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)
4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This Number For Inquires) 514908

Mailing/Billing Information:

1. Client Name: National Guard Bureau
2. Address 1: 301-IH Old Bay Lane
3. Address 2: Attn: NGB-AVN-SI, State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:

1. [illegible]
2. [illegible] Beaver Falls, PA
3. Job #: [redacted] WS1208-09-A-0003
4. Contact Person: [redacted] @ phone #:
5. Submitted by: AECOM [redacted]

Reporting Info (Results provided as soon as technically feasible). If no TAT/Reporting Info is provided, AMA will assign defaults of 5-Day and email/fax to contacts on file.

[illegible] 1/10/13

☐ Pb Dust Wipe (wipe type: [illegible]) 9 (QTY)

☑ All samples received in good condition unless otherwise noted. (TEM Water samples ____ °C)

If field data sheets are submitted, these can be used to complete bottom section.

CLIENT ID #	SAMPLE LOCATION/ID	DATE/TIME	VOL (L)/Wipe Area	CLIENT CONTACT (LABORATORY STAFF ONLY)
W-001	D. Hall - Table	12/11	1 ft²	Date/Time: Contact: By:
W-002	Kitchen Counter	↓	↓	
W-003	Office Desk			
SEE ATTACHED FIELD DATA SHEETS			003-tube broken LOS	
W-004	Office Cabinet			Date/Time: Contact: By:
W-005	Admin Hall - floor			
W-006	F. Range - [illegible]			
W-007	F. Range - shelf			
W-008	F. Range - floor [?]			Date/Time: Contact: By:
W-009	Assembly Bd [?] - floor	↓	↓	

LABORATORY STAFF ONLY: CUSTODY [illegible] 3 13 [illegible] FedEx [redacted]

8753 1118 3842

Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. http://www.osha.gov/comp-links.html

2. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998. http://www.dtic.mil/whs/directives/corres/pdf/605501p.pdf

3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF

4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://armypubs.army.mil/epubs/pdf/R40_5.PDF

5. AR 385-10, The Army Safety Program, 23 August 2007; Rapid Action Revision (RAR) issue date: 4 October 2011. http://armypubs.army.mil/epubs/pdf/R385_10.PDF

6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://armypubs.army.mil/epubs/pdf/P40_501.pdf

7. DA PAM 40-11, Preventive Medicine, 22 July 2005, RAR issue date: 19 October 2009. http://armypubs.army.mil/epubs/pdf/p40_11.pdf

8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://armypubs.army.mil/epubs/pdf/P40_503.PDF

9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf

10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current Ed.

11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.

12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.

13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.

14. ANSI/ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality.

15. RP-1-2004, Office Lighting, ANSI/IESNA.

16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.

17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.

18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.

19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf

Industrial Hygiene Survey

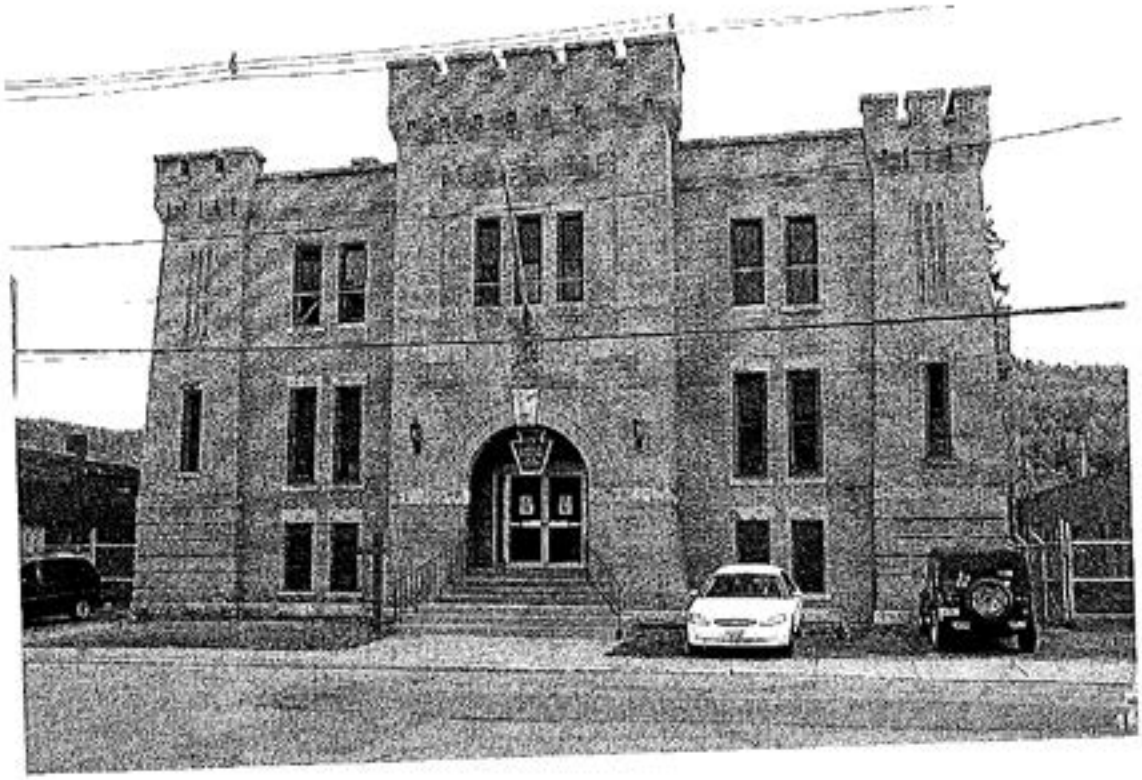
DET 1 CO C 1/112th MECH INF
BRADFORD, PENNSYLVANIA

May 22, 2003

OPTECH

OPERATIONAL TECHNOLOGIES
CORPORATION

DET 1 CO C 1/112th MECH INF
BRADFORD, PENNSYLVANIA
INDUSTRIAL HYGIENE SURVEY



1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Armory in Bradford, Pennsylvania on May 22, 2003. The NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. [redacted], from OpTech, completed this survey. [redacted] a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the IH Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D.

2.0. EXECUTIVE SUMMARY

2.1. No significant indoor air quality problems were noted.

2.2. Illumination levels were slightly below recommended minimum standards in some areas of the facility.

2.3. Wipe samples for inorganic lead were collected throughout the facility. Sample in Room 5, the basement windowsill and the boiler room exceeded the 200 $\mu g/ft^2$ criteria. Lower levels were detected in an office and kitchen.

2.4. Air sampling for inorganic lead was taken. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building.

2.5. Nine-inch floor tiles, which are commonly know to contain a high percentage of asbestos, are present in the facility. Tiles in observed areas were in good condition. Asbestos is known to exist in insulation on steam lines. All areas were in good condition.

2.6. The facility is scheduled to be replaced within the next two years.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	DET 1 CO C 1/112TH MECH INF		
ADDRESS	38 Barbour Street		
	Bradford, PA 16701		
CONTACT	SFC Non-Responsive		
PHONE	814-368-6417		
DATE BUILT	1900	FACILITY SIZE	33,119 sq. ft.
INDOOR FIRING RANGE	See note below.		2-floors plus basement
ASSISTED			
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	2		
TRADITIONAL (MIL)	64 individual attend drill duty		
CHILD ACTIVITIES	NA		
ADULT ACTIVITIES	NA		

3.1.1 The exterior is brick and appears to be in good condition. The interior has been maintained in relatively good condition. Some painting is needed on the window trim. Heat is provided by a natural gas steam heating unit, and cooling is by window air conditioners. Asbestos is know to exist in the facility. A former indoor firing range was reported to be in the building. Personnel stated that they did not know the exact location of the former range. The facility is scheduled to be replaced within the next two years. One building will replace the armories in Bradford, Kane and Ridgway.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity (RH) in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 Indoor Air Quality Standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ASHRAE 62-2001, Section 6.1.3, states that concentrations up to 700 ppm CO_2, above outdoor concentrations will achieve an acceptable level of indoor air quality.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ASHRAE 55-1992 recommends that temperature ranges be 73 to 79 degrees Fahrenheit (°F) during the summer and 68 to 74°F during the winter. Relative humidity levels be maintained between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE 1
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO2 (ppm)	Temp. (°F)	RH (%)
1003	Outdoors – Background	0.0	487	76.1	42.3
1015	1ST Floor Latrine	0.0	510	64.8	42.9
1021	Commander's Office	0.0	508	66.9	46.3
1030	1ST SCG's Office	0.0	492	67.0	47.4
1032	Corridor	0.0	489	66.9	47.4
1034	Assembly Hall	0.0	514	67.3	47.9
1044	Storage Area	0.0	525	68.8	50.1
1051	2ND Floor Classroom	0.0	509	69.9	51.0
1055	Locker Room	0.0	498	70.0	51.2
1058	Kitchen	0.0	535	69.8	51.5
1108	Basement	0.0	497	66.8	48.3
1118	Boiler Room	0.0	488	66.5	48.0
1128	Recreational Room	0.0	560	67.0	49.2
1131	Lounge	0.0	540	67.8	49.7
1133	Basement Latrine	0.0	520	68.0	49.8
1138	Basement Fitness Center	0.0	515	66.2	48.2
1139	Maintenance Room	0.0	521	65.9	47.8

3.2.5. No indoor air quality problems were noted.

3.3. ILLUMINATION

3.3.1. Illumination levels were measured in most areas of the facility. Sunlight was excluded, as much as possible for this survey, by closing doors and blocking windows. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 -- 463). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
1st Floor Classroom	52 – 72	64	70	NO
Latrine	32 - 45	32	40	NO
Commander's Office	44 – 52	47	70	NO
Commander's Latrine	32 – 46	40	40	YES
1st SCG's Office	42 – 80	61	70	NO
Male Latrine	40 – 46	42	40	YES
Assembly Hall	24 – 46	36	75	NO
Library	42 - 70	51	70	NO
2nd Floor Classroom	50- 80	67	70	NO
2nd Floor Locker Room	32 – 46	40	40	YES
Kitchen	50 -80	63	75	NO
Basement	28 - 60	44	40	YES
Boiler Room	30 - 42	34	15	YES
Recreational Room	44 -52	45	30	YES
Lounge	42 - 60	50	30	YES

3.3.2. Levels were slightly below recommended minimum standards in some areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3.4. WIPE SAMPLES

3.4.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples collected taken at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot ($\mu g/ft^2$) and are listed in Table 3. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presened in Attachment C.

TABLE 3
WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Bra-03142-03	1st Floor Office Assembly	169
PA Bra-03142-04	Room 5	890
PA Bra-03142-05	Assembly Hall	BDL
PA Bra-03142-06	2nd Floor Classroom	BDL
PA Bra-03142-07	Kitchen	84
PA Bra-03142-08	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.2. Additional wipe samples were collected during this survey. These samples were collected to further analyze the extent of contamination should the first five samples indicate a possible hazard. Since the samples taken in Room 5 exceeded the 200 µg/ft² criteria (see Section 3.4.3 below), these additional samples were analyzed. The results are presented below in Table 4.

TABLE 4
WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Bra-03142-09	Basement- Window Sill	350
PA Bra-03142-10	Basement – Locker Room Area	BDL
PA Bra-03142-11	Boiler Room	720
PA Bra-03142-12	Basement Rec. Room	BDL
PA Bra-03142-13	Hallway – on Door – Room 4	BDL
PA Bra-03142-14	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.3. WIPE SAMPLING RESULTS

3.4.3.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 µg/ft². This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. (See memorandum in Attachment F, Recommendations for Surface Lead Dust in Armories.) The samples in Room 5, the basement windowsill and boiler room exceeded the 200 µg/ft² criteria. Lower levels were detected in an office and kitchen. The source of lead contamination was apparently from an indoor firing range that had been closed more than thirty years prior and possibly from lead paint.

3.4.4. AIR SAMPLING

3.4.4.1. Air Sampling for inorganic lead was performed during this survey. Table 5 lists the results of these samples, and is reported in milligrams per cubic meter (mg/m³) of air.

TABLE 5
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
Non-[redacted]	PA Bra-03142-01	Lead	<0.003 mg/m³	0.05 mg/m³	YES
Area – 1st Floor Hallway	PA Bra-03142-02	Lead	<0.003 mg/m³	0.05 mg/m³	YES

mg/m³ = milligrams per cubic meter < = less than (below detection limits)

3.4.4.2. Air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this building.

3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION DAMAGE

3.5.1.1. No known or observed water intrusion was noted in the facility.

3.5.2. LEAD PAINT

3.5.2.1. Indoor paint was in good condition and no samples were taken.

3.5.3. ASBESTOS

3.5.3.1. Nine-inch floor tiles, which are commonly known to contain a high percentage of asbestos, are present in the facility. All observed areas were in good condition. Asbestos insulation is known to exist on steam lines. All observed areas were in good condition.

3.5.4. PROGRAMS

3.5.4.1. There are no designated confined space areas within this facility. There are no exhaust ventilation systems to control a hazard. No chemicals besides normal cleaning materials are present. Therefore, a need has not been established for a HAZCOM program, the need for personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.5. HOUSEKEEPING

3.5.5.1. This facility was well maintained and housekeeping was outstanding.

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

E – Recommendations for Surface Lead in Armories

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
Bradford, PA	PENNSYLVANIA ARNG ARMORY	Bradford Armory

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR (Initials)
22 May 2003	JSS

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	NA	SFC Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
814-368-6417	DET 1 COC 1/112TH MECH INF	3	9

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
2	64			

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	CONROLS 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			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	½ FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	¼ 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 WEATHR 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/T IME LIMIT	/	SAFETY BELT/HARNESS	/		

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	3	C
12001-29-5	Asbestos	0	C

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

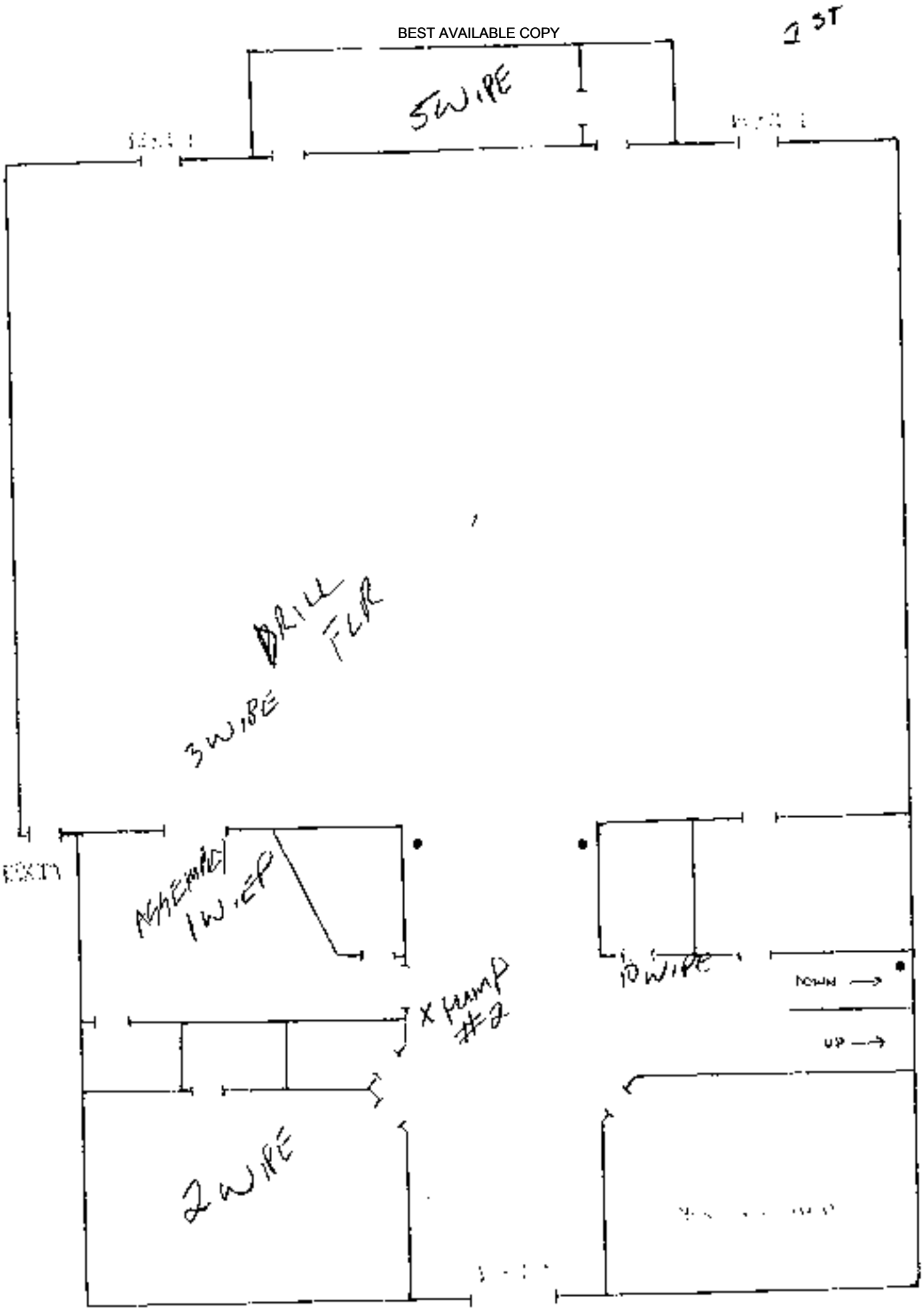
SECTION 6. COMMENTS

☐ No comments ☐ See attached sheet

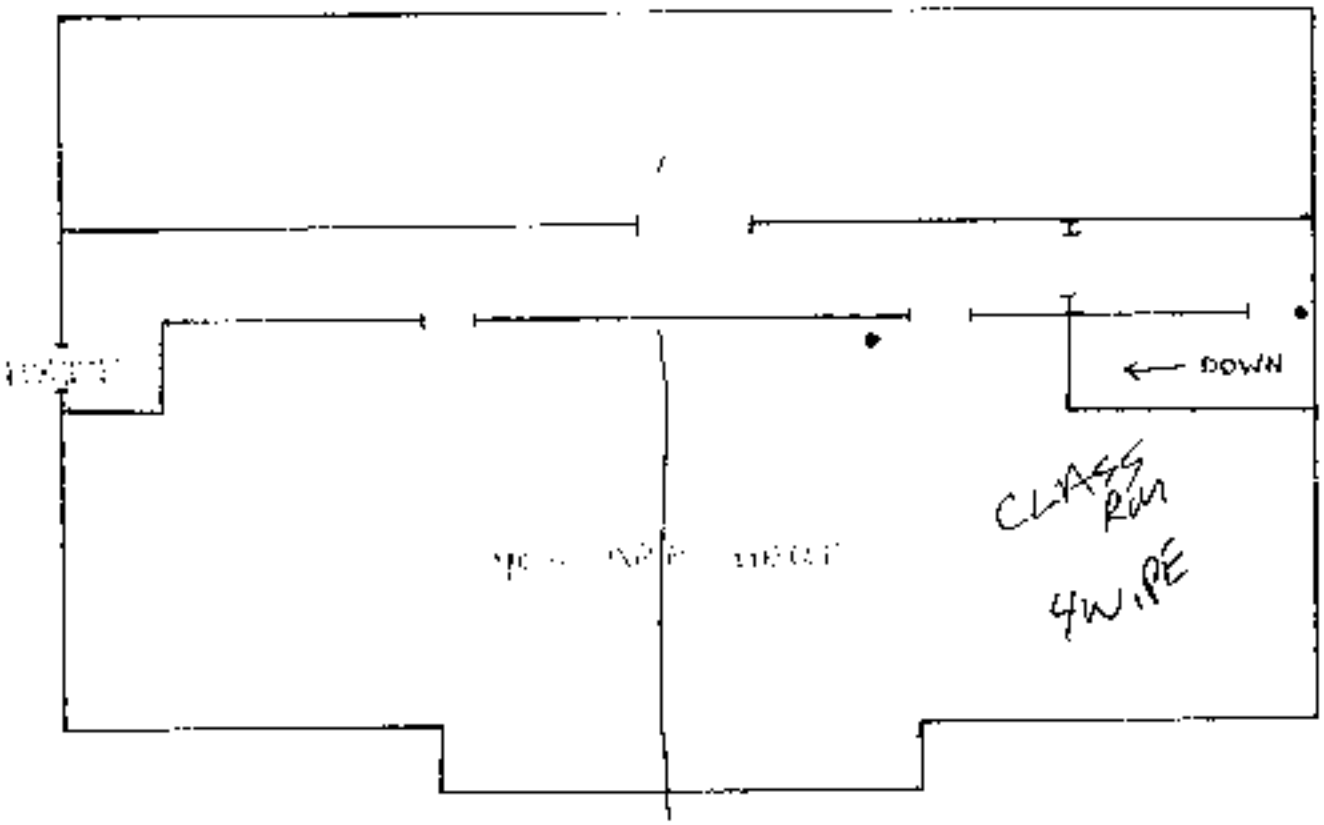
PRIVACY ACT STATEMENT

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

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



2ND FLR



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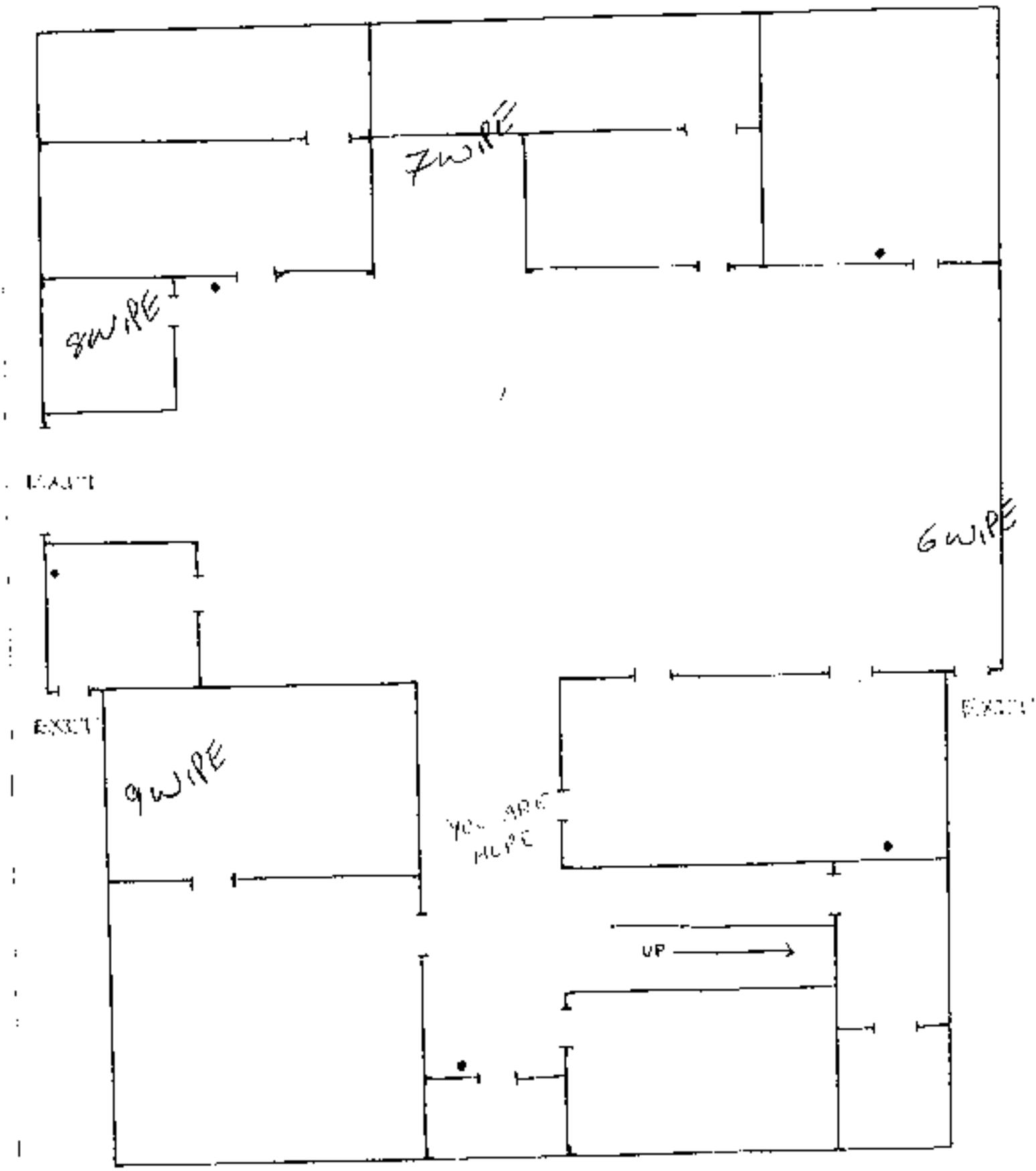
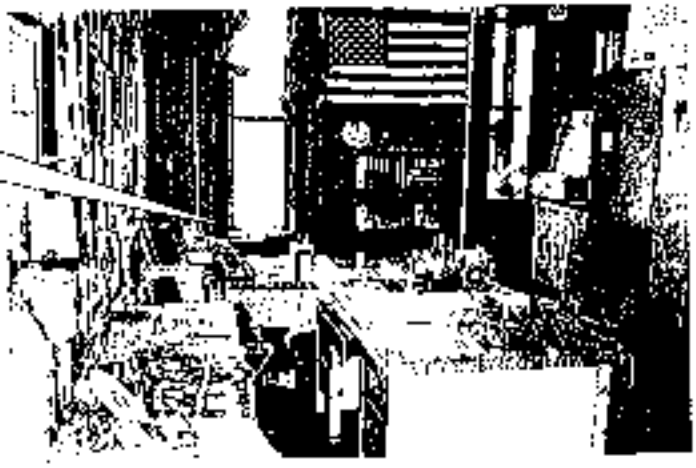


DET 1 CO C 1/112TH MECH INF
BRADFORD, PENNSYLVANIA

(1) PA Bra-03142-03
Assembly Office

(2) PA Bra-03142-04
Room 5 Office

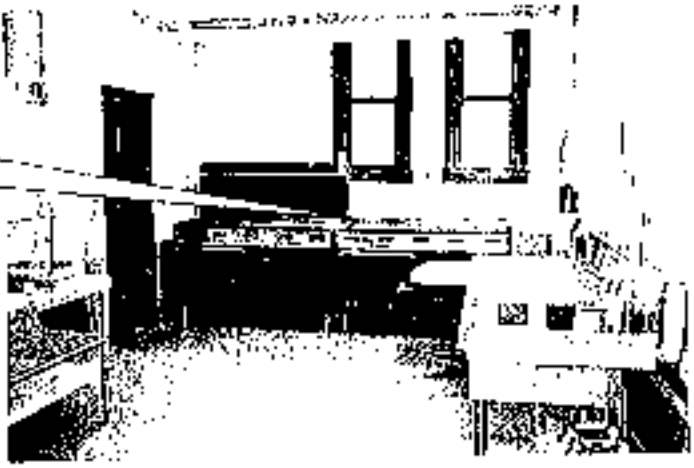


(3) PA Bra-03142-05
Assembly Hall

Attachment 13

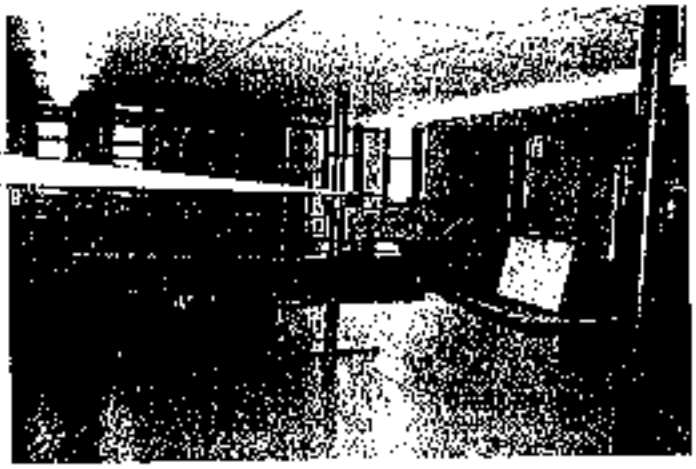
(4) PA Bra-03142-06
2nd Floor Classroom

(5) PA Bra-03142-07
Kitchen

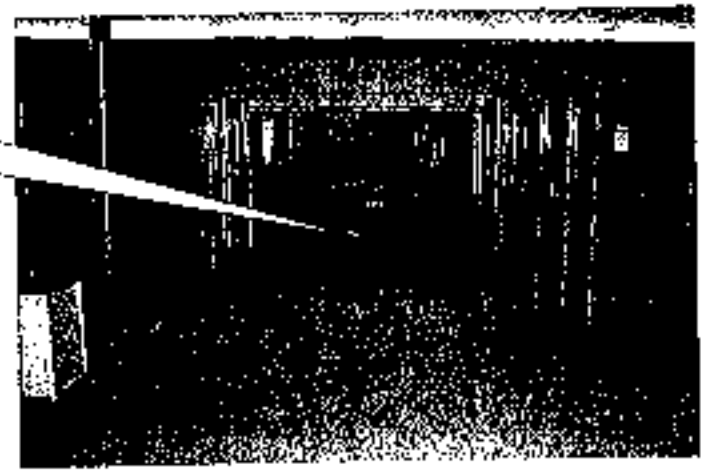


ADDITIONAL SAMPLES

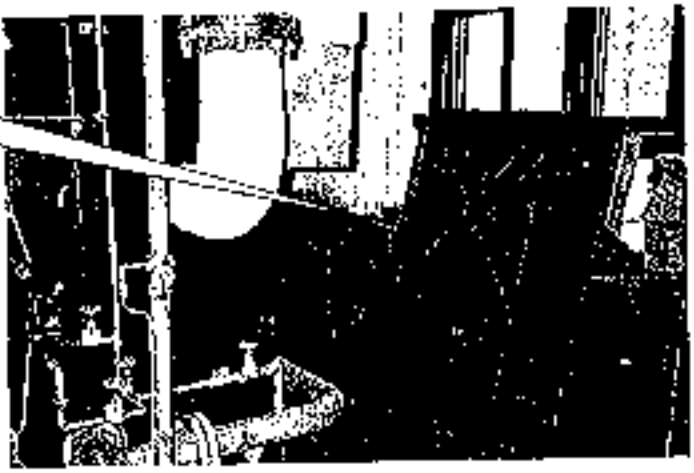
(6) PA Bra-03142-09
Basement



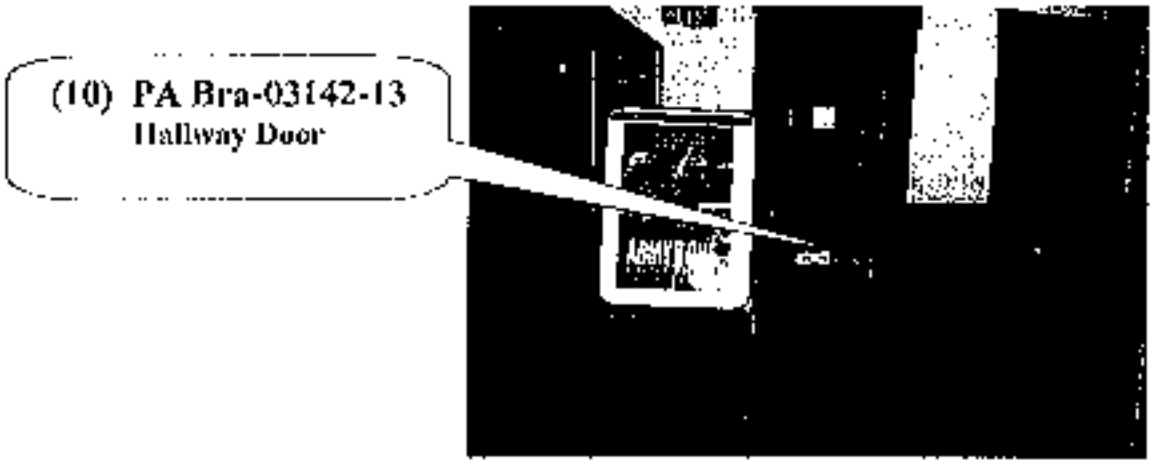
(7) PA Bra-03142-10
Locker Room



(8) PA Bra-03142-11
Boiler Room



(9) PA Bra-03142-12
Recreation Room



RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
AIHA Certificate of Accreditation #480 LAB ID 101533

TABLE I. ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number: RES 93716-I
Client: Operational Technologies, Corp.
Client Project Number / P.O.: 06 01
Client Project Description: Annorles/Pennsylvania
Date Samples Received: June 6, 2003
Analysis Type: OSHA/EPA SW846 3050B / AA(7420)
Turnaround: 3-5 Day
Date Samples Analyzed: June 14, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA Rid-03141-36	BM 778593	0.11	BDL.	23	BDL.
PA Bra-03142-03	BM 778594	0.11	18.6	23	169
PA Bra-03142-04	BM 778595	0.11	97.9	23	890
PA Bra-03142-05	BM 778596	0.11	BDL.	23	BDL.
PA Ben-03142-06	BM 778597	0.11	BDL.	23	BDL.
PA Ben-03142-07	BM 778598	0.11	9.2	23	84
PA Bra-03142-08	BM 778599	0.11	BDL.	23	BDL.
PA Pun-03142-18	BM 778600	0.11	5.5	23	50
PA Pun-03142-19	BM 778601	0.11	158.0	23	1436
PA Pun-03142-20	BM 778602	0.11	3.8	23	35
PA Pun-03142-21	BM 778603	0.11	BDL.	23	BDL.
PA Pun-03142-22	BM 778604	0.11	2.9	23	26
PA Pun-03142-23	BM 778605	0.11	BDL.	23	BDL.
PA Pun-03142-30	BM 778606	0.11	140.0	23	1273
PA Pun-03142-31	BM 778607	0.11	9.5	23	86
PA Pun-03142-32	BM 778608	0.11	33.0	23	300
PA Pun-03142-33	BM 778609	0.11	6.7	23	61
PA Pun-03142-34	BM 778610	0.11	12.0	23	109
PA Pun-03142-35	BM 778611	0.11	BDL.	23	BDL.
PA Man-03143-03	BM 778612	0.11	BDL.	23	BDL.
PA Man-03143-04	BM 778613	0.11	BDL.	23	BDL.
PA Man-03143-05	BM 778614	0.11	9.2	23	84
PA Man-03143-06	BM 778615	0.11	41.6	23	378
PA Man-03143-07	BM 778616	0.11	3.2	23	29
PA Man-03143-08	BM 778617	0.11	BDL.	23	BDL.
PA Eri-03148-04	BM 778618	0.11	BDL.	23	BDL.
PA Eri-03148-05	BM 778619	0.11	10.8	23	98
PA Eri-03148-06	BM 778620	0.11	15.1	23	137
PA Eri-03148-07	BM 778621	0.11	BDL.	23	BDL.
PA Eri-03148-08	BM 778622	0.11	BDL.	23	BDL.

BDL = Below Detection Limit

Data Qa

Results
Lead

Client #	DCL #	Total Area (ft^2)	µg/Wipe	µg/ft^2
PA Rid-03141-27	03-30463	0.11	260.	2400.
PA Rid-03141-28	03-30464	0.11	14.	130.
PA Rid-03141-29	03-30465	0.11	48.	440.
PA Rid-03141-30	03-30466	0.11	ND	<91.
PA Bra-03142-09	03-30467	0.11	39.	350.
PA Bra-03142-10	03-30468	0.11	ND	<91.
PA Bra-03142-11	03-30469	0.11	79.	720.
PA Bra-03142-12	03-30470	0.11	ND	<91.
PA Bra-03142-13	03-30471	0.11	ND	<91.
PA Bra-03142-14	03-30472	0.11	ND	<91.
PA Pun-03142-24	03-30473	0.11	ND	<91.
PA Pun-03142-25	03-30474	0.11	ND	<91.
PA Pun-03142-26	03-30475	0.11	ND	<91.
PA Pun-03142-27	03-30476	0.11	230.	2100.
PA Pun-03142-28	03-30477	0.11	ND	<91.
PA Pun-03142-29	03-30478	0.11	ND	<91.
PA Man-03143-09	03-30479	0.11	86.	780.
PA Man-03143-10	03-30480	0.11	ND	<91.
PA Man-03143-11	03-30481	0.11	88.	800.
PA Man-03143-12	03-30482	0.11	ND	<91.
	Prep Blank		ND	
% Recovery	LCS 3		81.	
% Recovery	LCS 4		86.	
RPL			10.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m³
PA But-03136-03	03-17890	347.3	ND	<0.003
PA For-03139-01	03-17891	383.4	ND	<0.003
PA For-03139-02	03-17892	389.5	ND	<0.003
PA For-03139-03	03-17893	374.0	ND	<0.003
PA Cle-03140-01	03-17894	537.5	ND	<0.002
PA Cle-03140-02	03-17895	523.0	ND	<0.002
PA Cle-03140-03	03-17896	493.5	ND	<0.002
PA Kan-03141-01	03-17897	469.4	ND	<0.002
PA Kan-03141-02	03-17898	470.6	ND	<0.002
PA Kan-03141-03	03-17899	464.6	ND	<0.002
PA Rid-03141-16	03-17900	462.6	ND	<0.002
PA Rid-03141-17	03-17901	439.6	ND	<0.002
PA Rid-03141-18	03-17902	452.4	ND	<0.002
PA Bra-03142-01	03-17903	356.0	ND	<0.003
PA Bra-03142-02	03-17904	355.2	ND	<0.003
PA Pun-03142-15	03-17905	336.7	ND	<0.003
PA Pun-03142-16	03-17906	331.9	ND	<0.003
PA Pun-03142-17	03-17907	324.6	ND	<0.003
PA Man-03143-01	03-17908	261.4	ND	<0.004
PA Man-03143-02	03-17909	252.6	ND	<0.004
	Prep Blank 7		ND	
% Recovery	LCS 13		95.	
% Recovery	LCS 14		97.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non-Responsive @md.ngb.army.mil

Attachment D

REFERENCE LIST INDEX

1. General Regulations and National Consensus Standards
2. Specific Regulations and Guidance
   a. Abrasive Blasting
   b. Asbestos
   c. Battery Charging Room
   d. Bird and Bat Manure
   e. Bloodborne Pathogens
   f. Chemical Agent Resistant Coating (CARC) Paint
   g. Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE)
   h. Confined Space Entry Program
   i. Design Review
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   k. Flammable Storage Room
   l. Hazard Communication
   m. Hearing Conservation
   n. Indoor Air Quality
   o. Indoor Firing Ranges
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   q. Lighting
   r. Occupational Vision
   s. Paint Spray Booth
   t. Personal Protection
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   v. Respiratory Protection
   w. Sanitation
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GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REFERENCE LIST

1. General Regulations and National Consensus Standards
   a. DODI 6055.1, DOD SOH Program, 19 August 1998.
   b. DODI 6055.5, DOD OEH. *[DRAFT]*
   c. DOD 6055.5-M, DOD Occupational Health Surveillance Manual, 13 May 1987.
   d. DODI 6050.5, DOD Hazard Communication, 29 Oct 90. Change 1, 6 May 1996.
   e. AR 40-5, Preventive Medicine, 15 October 1990. (05/2002 Being Updated)
   f. DA PAM 40-5, Preventive Medicine. *[DRAFT]*
   g. AR 385-10, The Army Safety Program, 29 February 2000.
   h. NGR 385-10, ARNG SOH Program, 7 October 1988, Change 1, 29 December 1989.
   i. Title 29, Part 1910, Occupational Safety and Health Standards. [Current Date]
   j. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 2002.
   k. ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th edition, 2001.
   l. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.
   m. TG 141, USACHPPM Industrial Hygiene Sampling Guide, November 1997.
   n. National Safety Council, Fundamentals of Industrial Hygiene, 5th Edition, 2002.
   o. NIOSH, Pocket Guide to Chemical Hazards, 2001.
   p. NFC, A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. [Current date]
   q. ASHRAE Standards. [Current Dates]
   r. ANSI Standards. [Current Dates]

2. Specific Regulations/Guidance
   a. **ABRASIVE BLASTING**
      (1) ANSI Z9.4 1997, Abrasive Blasting Operations - Ventilation and Safe Practices.
      (2) 29 CFR 1910.94 Ventilation
      (3) 42 CFR 84

   b. **ASBESTOS**
      (1) AR 40-5, Preventive Medicine, 15 October 1990. *[05/2002 Being Updated]*
      (2) AR 200-1, Environmental Protection and Enhancement, Chapter 8, 21 February 1997.
      (3) TB MED 513, Guidelines for the Evaluation and Control of Asbestos Exposure, 15 December 1986. *[05/2000 Under Revision as DA PAM 40-513]*
      (4) TG 157, USAEHA, The Installation Asbestos Management Program Assessment Checklists, July 1994.
      (5) 29 CFR 1910.1001
      (6) 29 CFR 1926.58 (prior to 1994 CFR)
      (7) 29 CFR 1926.1101

(8) MEMORANDUM SGPS-PSP, OTSG, subject: AMEDD Role Supporting Asbestos Abatement/Asbestos Management Programs, 19 Jan 89.

(9) EPA, Guidance for Controlling Asbestos-Containing Materials in Buildings, June 1985.

(10) DD Form 2493-1 (Asbestos Exposure, Part I--Initial Medical Questionnaire)

(11) DD Form 2493-2 (Asbestos Exposure, Part II--Periodic Medical Questionnaire)

(12) EPA NESHAPS Asbestos Regulation (40 CFR 61, Subpart M).

c. **BATTERY CHARGING ROOM**

(1) TG 022, USAEHA, page 81, Industrial Hygiene Evaluation Guide, October 1975. *[Out of Print]*

(2) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

d. **BIRD AND BAT MANURE**

(1) TG 142, USAEHA, Managing Health Hazards Associated with Bird and Bat Excrement, Dec 1992.

e. **BLOODBORNE PATHOGENS**

(1) 29 CFR 1910.1030

(2) TG 190, USAEHA, Guide to Managing Occupational Exposure to Bloodborne Pathogens, Jan 94.

f. **CHEMICAL AGENT RESISTANT COATING (CARC) PAINT**

(1) TG 144, USAEHA, Guidelines for Controlling Health Hazards in Painting Operations, 24 August 1987.

(2) DA LTR, USABHA, HSHB-MI-WR, subject: Respiratory Protection When Spraying CARC, 19 November 1992.

(3) TM 43-0139, Painting Instructions for Army Material, 27 July 1988I Aug 86.

(4) MEMORANDUM SGPS-PSP, OTSG, subject AMEDD, Occupational Health Requirements in Support of Painting in the Army, 22 February 1985.

(5) AR 750-1, Army Materiel Maintenance Policy and Retail Maintenance Operations (Prohibits welding on CARC paint) 1 July 1996.

g. **CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR, EXPLOSIVE (CBRNE)**

(1) DODI 2000.gg, DOD Installation CBRNE Emergency Response Guidelines.

(2) DHHS, NIOSH Pub No. 2002 139, Guidance for Protecting Building Environments from Airborne Chemical, Biological, or Radiological Attacks, May 2002.

(3) TG 275, USACHPPM, Personal Protective Equipment Guide for Medical Treatment Facility Personnel Handling Casualties from Weapons of Mass Destruction and Terrorism Events. *[Draft]*

h. **CONFINED SPACE**

(1) 29 CFR 1910.146 (Confined Space Entry)
(2) 29 CFR 1910.147 (Lockout/Tagout)
(3) ANSI Z117.1-Safety Requirements for Confined Spaces, 1995.
(4) SOP for ARNG Confined Space Entry Program, 25 April 1991.
(5) Letter, US Dept of Labor (DOL) addressed to Vanessa Char, 22 Apr 1994.
(6) OSHA Instruction STD 1-7.3, US DOL, subject: 29 CFR 1910.147, the Control of Hazardous Energy (Lockout/Tagout)--Inspection Procedures and Interpretive Guidance, 11 Sep 90.
(7) DHHS, NIOSH Pub No. 87113, A Guide to Safety in Confined Spaces, July 1987.
(8) Confined Space Entry Program for Helicopters, 2003.

i. **DESIGN REVIEW**

(1) DG 415-1, Design Guide for Armories, current.
(2) DG 415-2, Design Guide for Logistics Facilities, current.
(3) DG 415-3, Design Guide for Training Site Facilities, current.
(4) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.
(5) TI-300, 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.
(6) UFGS 15940A, Overhead Vehicle Tailpipe (and welding Fume) Exhaust Removal Systems, December 2001.
(7) ASHRAE, Standard 62-2002, Ventilation for Acceptable Indoor Air Quality.
(8) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

j. **ERGONOMICS**

(1) DA PAM 40-21, Medical Services, Ergonomics Program, 15 May 2000.
(2) ANSI Z-365, Management of Work Related Musculoskeletal Disorders, 2000.
(3) 29 CFR 1910. *[PROPOSED STANDARD]*

k. **FLAMMABLE STORAGE ROOM**

(1) 29 CFR 1910.106
(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

l. **HAZARD COMMUNICATION**

(1) 29 CFR 1910.1200
(2) NGR 385-10, Chapter 6

m. **HEARING CONSERVATION**

(1) DA PAM 40-501, Medical Services, Hearing Conservation Program, 10 December 1998.

(2) TG 181, USAEHA, Noise Dosimetry and Risk Assessment, May 1999.

(3) TG 175, USAEHA, Readiness thru Hearing Conservation: Guide for Unit Commanders and Supervisors, June 1999.

(4) 29 CFR 1910.95

n. **INDOOR AIR QUALITY (IAQ)**

(1) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

(2) USACERL Technical Report P-91/42, IAQ Management for Operations and Maintenance Personnel, September 1991.

(3) EPA 400/1-91/003 or DHHS, NIOSH, Publication No. 91-114, Building IAQ, A Guide for Building Owners and Facility Managers, December 1991.

(4) ASHRAE, Standard 62-2002, Ventilation for Acceptable IAQ.

(5) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

(6) NIOSH, IAQ Selected References, Sep 1989.

(7) OSHA Instruction CPL 2-2.20B CH-1, Directorate of Technical Support, 13 Nov 90.

(8) DA PAM 25-52, Mail Facility Security and Handling Suspicious Mail, 6 November 2001.

(9) ASTM, D 5952-96, 10 May 1996.

o. **INDOOR FIRING RANGES**

(1) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(2) NGR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges, 30 March 1990. *[11/02 Under Revision]*

(3) CEHND 1110-1-18, USACE Design Manual for Indoor Firing Range, June 1990.

(4) HQDA LTR, Office of the Adjutant General, DACS-SF, subject: Inspection and Evaluation of US Army Indoor Firing Ranges, 26 March 1993.

(5) Departments of the Army and Air Force, NGB-ADE-OM, subject: All State Log Number (I920323) Indoor Range Clean-up at State Owned Armories, 28 July 1992.

(6) NIOSH, Technical Information, December 1975, subject: Lead Exposure and Design Considerations for Indoor Firing Ranges.

(7) All-States Ltr P01-0075, 5 December 2001.

(8) Information Paper, Alternative Ammunition, 15 March 1996.

(9) Information Paper, Bullet Traps, 26 April 1996.

(10) Information Paper, ARNG IFR Action Plan, 28 January 2002.

p. **LEAD**

(1) 29 CFR 1910.1025

(2) 29 CFR 1926.62

(3) 24 CFR 35.61 (HUD, Percentage of Lead in Paint)

(4) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(5) OSHA Instruction CPL 2-2.58, Office of Health Compliance Assistance, 13 December 1993.

(6) Federal Register, 18 April 1990, Vol. 55, No. 75, HUD, Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing, as amended, September 1990, Office of Public and Indian Housing, Department of Housing and Urban Development, 451 Seventh Street, SW, Washington, DC 20410.

(7) NIOSH, Request for Assistance in Preventing Lead Poisoning in Construction Workers, April 1992.

(8) EPA, Strategy for Reducing Lead Exposures, 21 Feb 91.

q. **LIGHTING**

(1) RP-1-1993, Office Lighting, ANSI/IESNA.

(2) RP-7-2001, Industrial Lighting, IES.

r. **OCCUPATIONAL VISION**

(1) DA PAM 40-506, Medical Services, The Army Vision Conservation and Readiness Program, 20 July 2001.

(2) ANSI Z87.1, Practice for Occupational and Educational Eye and Face Protection, 1989, Change A, REAF 1998.

(3) ANSI Z358.1 for Emergency Eyewash and Shower Equipment, 1998.

(4) OTSG Memorandum SGPS-PSP, subject: Acanthamoeba Keratitis and Eyewash Stations, 8 May 89.

(4) 29 CFR 1910.133

s. **PAINT SPRAY BOOTH**

(1) NFPA No. 33, Standard for Spray Application Using Flammable and Combustible Materials, 1995.

(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

(3) 29 CFR 1910.94

(4) 29 CFR 1910.107

(5) ANSI Z9.3-1995 for Exhaust Systems - Spray Finishing Operations - Safety Code for Design, Construction, and Ventilation.

(6) ANSI Z9.2-2001, Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems.

t. **PERSONAL PROTECTIVE EQUIPMENT**

(1) Quick Selection Guide to Chemical Protective Clothing, 2nd edition, Forsberg, K and Mansdorf, S., 1993.

(2) Chemical Protective Clothing, Vol 1 and 2, Johnson, J. and Anderson, K., American Industrial Hygiene Association, 1990.

(3) Guidelines for the Selection of Chemical Protective Clothing, 3rd Edition, ACGIH, Inc., Feb 1987.

u. **RADIATION PROTECTION PROGRAM**

(1) NGR 385-11, Safety, Ionizing and Nonionizing Radiation Protection, 18 February 1999.

(2) AR 11-9, Army Radiation Safety Program, 28 May 1999.

(3) 29 CFR 1910.96

(4) 29 CFR 1910.97

v. **RESPIRATORY PROTECTION**

(1) AR 11-34, The Army Respiratory Protection Program, 15 February 1990. *[11/02 Being Updated]*

(2) 29 CFR 1910.134

(3) 42 CFR 84

(4) TB MED 502, Respiratory Protection Program, February 1992. *[11/02 Being Updated as DA PAM 40-502]*

(5) ANSI/CGA G-7.1-1997, Commodity Specification for Air.

(6) ANSI Z88.2-1992, Standard for Respiratory Protection.

w. **SANITATION**

(1) ANSI Z4.1-1986, Change REAF 1995, Sanitation in Places of Employment-Minimum Requirements.

(2) 29 CFR 1910.141

x. **SMOKING**

(1) AR 600-63, Army Health Promotion, 28 April 1996.

(2) DODI 1010.15, Smoke-Free DOD Facilities, 2 January 2001.

(3) DODD1010.10, Health Promotion, 11 March 1986.

y. **VEHICLE EXHAUST**

(1) ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th Edition, 2001.

(2) TI-300f 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

z. **WELDING OPERATION**

(1) 29 CFR 1910.252

(2) 29 CFR 1910.253

(3) 29 CFR 1910.254

(4) ANSI/AWS Z49.1-1999, Safety in Welding and Cutting and Allied Processes.

(5) TM 5-805-7, Welding Design, Procedures and Inspection, 20 May 85.

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 $\mu g/ft^2$) and windowsills (250 $\mu g/ft^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of 200 $\mu g/ft^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 $\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 $\mu g/ft^2$ on floors and 250 $\mu g/ft^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

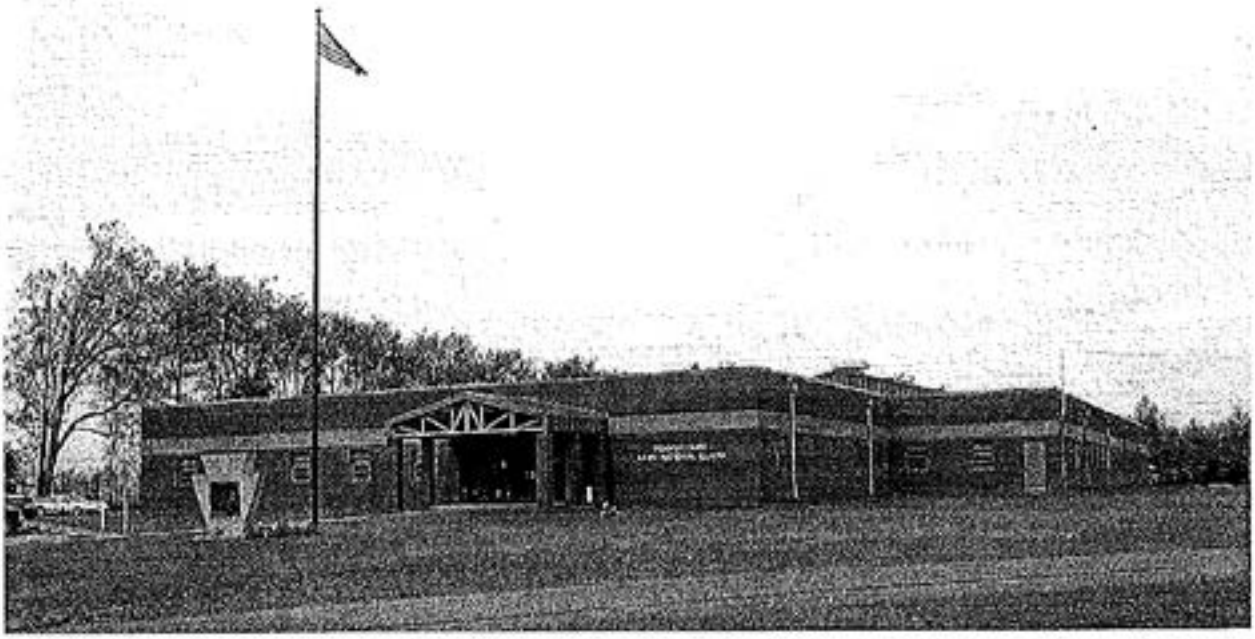
INDUSTRIAL HYGIENE SURVEY

CO A (SUP) 128TH SPT BN (FSB)
CO D 1/112TH MECH INF
BUTLER, PA

May 16, 2003

OPTECH
OPERATIONAL TECHNOLOGIES
CORPORATION

CO A (SUP) 128TH SPT BN (FSB)
CO D 1/112TH MECH INF
BUTLER, PENNSYLVANIA
INDUSTRIAL HYGIENE SURVEY



1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Armory in Butler, Pennsylvania on May 16, 2003. NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. Non-Responsive and Non-Responsive, from OpTech, completed this survey. Non-Responsive, a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the IH Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D.

RECOMMENDATIONS

1. ILLUMINATION

1.1. Illumination levels were below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

2. WIPE SAMPLES

2.1. Wipe sampling results for inorganic lead were below the 200 micrograms per square foot criteria. Lower levels of lead was detected immediately outside the former indoor firing range and in the assembly hall. It is apparent that this minor contamination is from the former range activities. Recommend that the areas outside the former range plus the assembly hall be wet-wiped/mopped or cleaned using a high efficiency particulate air (HEPA) vacuum during routine housekeeping duties.

2.0. EXECUTIVE SUMMARY

2.1. No significant indoor air quality problems were noted.

2.2. Illumination levels were below recommended minimum standards in most areas of the facility.

2.3. Wipe samples for inorganic lead were collected. Sample results were below recommended levels, although lower levels were detected immediately outside the former indoor firing range and in the assembly hall.

2.4. Air sampling for inorganic lead was taken. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	**CO A (SUP) 128TH SPT BN (FSB)**		
ADDRESS	**CO D 1/112TH MECH INF**		
	250 Kriess Road		
	Butler, PA 16001-8707		
CONTACT	**SFC** Non-Responsive		
PHONE	**724-789-7894**		
DATE BUILT	**1993**	**FACILITY SIZE**	**33,119 sq.ft.**
INDOOR FIRING RANGE	**Inactive**		**1-Floor**
ASSISTED	Non-Responsive **– State Maintenance**		
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	**8**		
TRADITIONAL (MIL)	**200**		
CHILD ACTIVITIES	**Not rented out to outside groups**		
ADULT ACTIVITIES			

3.1.1. The exterior of the building is brick and appears to be in good condition. The interior has been kept in good condition. The former indoor firing range was awaiting cleaning.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity (RH) in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 Indoor Air Quality Standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ASHRAE 62-2001, Section 6.1.3, states that concentrations up to 700 ppm CO_2, above outdoor concentrations will achieve an acceptable level of indoor air quality.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ASHRAE 55-1992 recommends that temperature ranges be 73 to 79 degrees Fahrenheit (°F) during the summer and 68 to 74°F during the winter. Relative humidity levels be maintained between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE 1
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO2 (ppm)	Temp. (°F)	RH (%)
1010	Outdoors Background	0.0	496	72.5	80.6
1020	Conference Room	0.0	568	73.1	55.3
1024	Room 137 – Kitchen	0.0	488	72.1	54.5
1030	Room 138 - Kitchen Storage	0.0	471	73.1	55.2
1034	Assembly Hall	0.0	556	72.9	55.4
1038	Caged Supply	0.0	553	72.6	55.3
1050	Room 128 – CO A 128th Locker Room	0.0	565	72.8	58.6
1052	Room 124 Fitness Center	0.0	540	73.1	59.3
1058	Room 121 - Dining Room	0.0	534	73.6	59.2
1105	Room 120 – Classroom	0.0	586	73.7	58.6
1108	Room 122 – Recruiting (occupied)	0.0	582	73.5	58.4
1111	Room 123 – Recruiting (occupied)	0.0	585	74.0	58.4

TIME	AREA	CO (ppm)	CO2 (ppm)	Temp. (°F)	RH (%)
1115	Room 128 – Male Latrine	0.0	566	73.9	58.3
1120	Room 105 – HHC Orderly Room (occupied)	0.0	580	73.3	57.8
1128	Room 108 – Staff Conference Room	0.0	645	72.8	56.8
1135	CO A Copy Room Orderly Room (occupied)	0.0	533	71.3	55.2

3.2.5. No indoor air quality problems were noted. Carbon monoxide, carbon dioxide, temperature and relative humidity readings were within recommended comfort levels.

3.3. ILLUMINATION

3.3.1. Illumination levels were measured in most areas of the facility. Sunlight was excluded, as much as possible for this survey, by closing doors and blocking windows. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 – 463). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
Room 137 Kitchen	28 – 74	52	75	NO
Room 138 – Kitchen Storage	20 – 42	34	40	NO
Room 136 – Scullery	32 – 60	49	50	NO
Assembly Hall	22 – 30	26	75	NO
Supply Cage	22 – 24	23	30	NO
Room 128 – Male Locker Room	24 – 40	32	40	NO
Room 124 – Fitness Room	22 – 60	48	50	NO
Room 121 – Dining Hall	62 – 80	70	30	YES
Room 120 – Classroom	40 – 80	67	75	NO
Room 122 – Recruiting	42 – 54	49	70	NO
Room 123 – Recruiting	42 – 60	49	70	NO
Room 128 – Male Latrine	24 – 50	31	40	NO
Room 105 HHC Orderly Room	45 – 62	55	70	NO

Location	Luminance Range (fc)	Average	Standard	Standard Met
Room 103 – Commander's Office	60 – 80	68	70	NO
Room 104 – 1 SGT's Office	52 – 80	59	70	NO
Room 108 Staff Conference Room	42 – 62	50	30	YES
Orderly Room	32 – 62	48	70	NO
Room 113 – Offices	52 – 80	64	70	NO
Room 115	46 – 80	59	-	-

3.3.2. Levels were below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3.4. LEAD STUDIES

3.4.1. LEAD WIPE SAMPLES

3.4.1.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples were taken at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM D1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot ($\mu g/ft^2$) and are listed in Table 3. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
LEAD WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead ($\mu g/ft^2$)
PA But-03136-04	Room 105 – HHC Orderly Room	BDL
PA But-03136-05	Room 122 – Recruiting Office	BDL
PA But-03136-06	Room 137 – Kitchen	BDL
PA But-03136-07	Assembly Hall Top of Flammable Cabinet	45
PA But-03136-08	Hallway Outside Former Indoor Firing Range	64
PA But-03136-09	BLANK Sample	BDL

$\mu g/ft^2$ = micrograms per square foot BDL = Below Detection Limits

3.4.2. Additional wipe samples were taken during this survey. These samples were taken to further analyze the extent of contamination should the first five samples indicate a possible hazard. Since the first five wipe samples were within acceptable limits, these additional samples were not analyzed.

3.4.3. WIPE SAMPLING RESULTS

3.4.3.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 $\mu g/ft^2$. This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. (See memorandum in Attachment E, Recommendations for Surface Lead Dust in Armories.) All five wipe samples were below the 200 $\mu g/ft^2$ criteria. Lower levels were detected in the assembly hall and outside the former indoor firing range.

3.4.4. AIR SAMPLING

3.4.4.1. Air Sampling for inorganic lead was performed during this survey. Table 4 lists the results of these samples, and is reported in milligrams per cubic meter (mg/m^3) of air.

TABLE 4
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
[redacted]	PA But-03136-01	Lead	<0.003 mg/m^3	0.05 mg/m^3	YES
Area – Offices	PA But-03136-02	Lead	<0.003 mg/m^3	0.05 mg/m^3	YES
Area – Assembly Hall	PA But-03136-03	Lead	<0.003 mg/m^3	0.05 mg/m^3	YES

mg/m^3 = milligrams per cubic meter < = less than (below detection limits)

3.4.4.2. Air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this building.

3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION DAMAGE

3.5.1.1. No water intrusion problems were reported or observed within the building.

3.5.2. PROGRAMS

3.5.2.1. There are no designated confined space areas within this facility. A need has not been established for a HAZCOM program, the need for personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.3. HOUSEKEEPING

3.5.3.1. The facility is impressively clean, orderly and is being kept in very good condition.

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

E – Recommendations for Surface Lead in Armories

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
Butler, PA	PENNSYLVANIA ARNG ARMORY	Butler Armory

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR (initials)
16 May 2003	JSS

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	NA	SFC Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
724-789-7894	COA (SUP) HHC SPT BN COD 1/112TH MECH INF	3	9

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
0	700			

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	CONROLS 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			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	½ FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	¼ 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	/		

AEHA Form 271-R (Test), 1 Jan 92 (HSHB-MI-I)

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	3	C

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

SECTION 6. COMMENTS

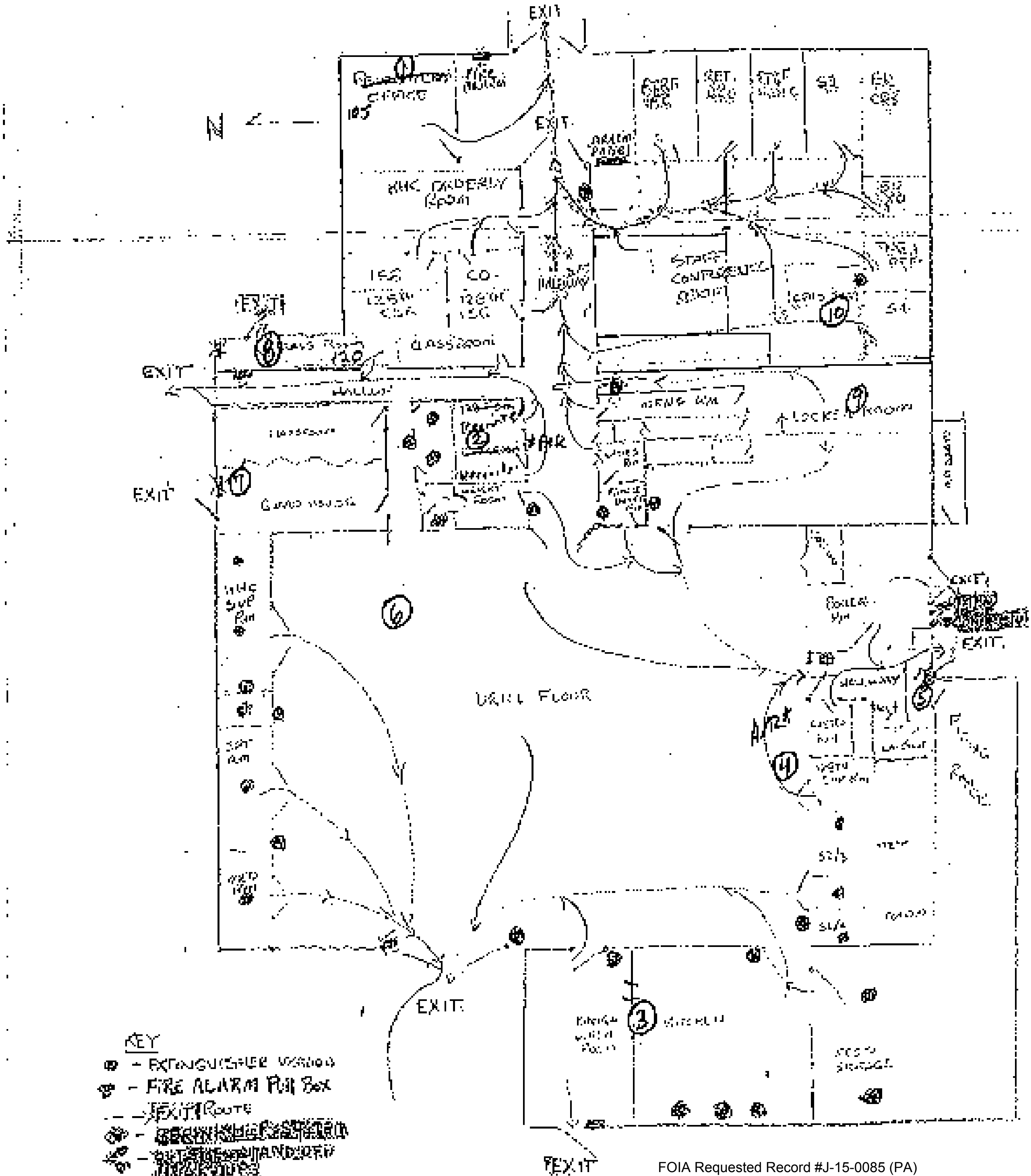
☐ No comments ☐ See attached sheet

PRIVACY ACT STATEMENT

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

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

[redacted] EVACUATION PLAN
(EVACUATION DIAGRAM)

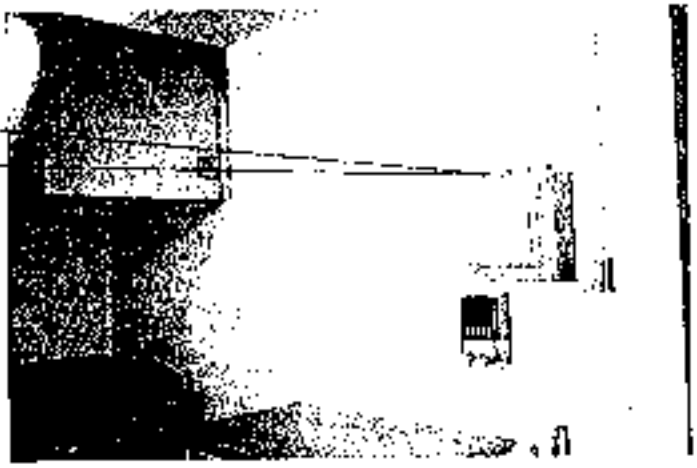


CO A (SUP) 128[th] SPT BN (FSB)
CO D 1/112[th] MECH INF
BUTLER, PENNSYLVANIA
WIPE SAMPLING POINTS

(1) PA But-03136-04
Room 105
HHC Orderly Room

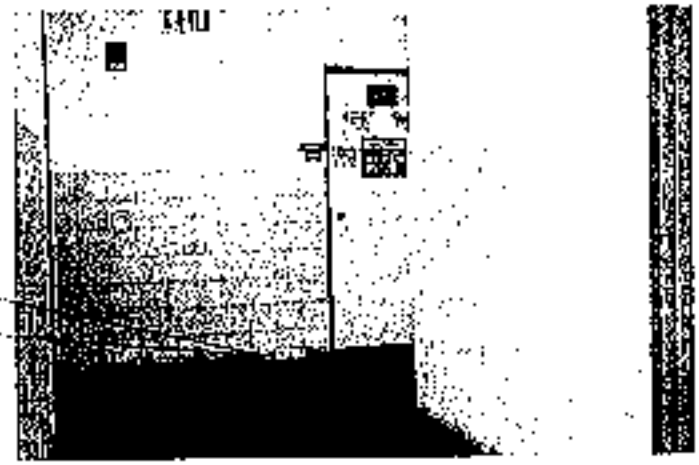
(2) PA But-03136-05
Room 122
Recruiting Office

(3) PA But-03136-06
Room 137
Kitchen



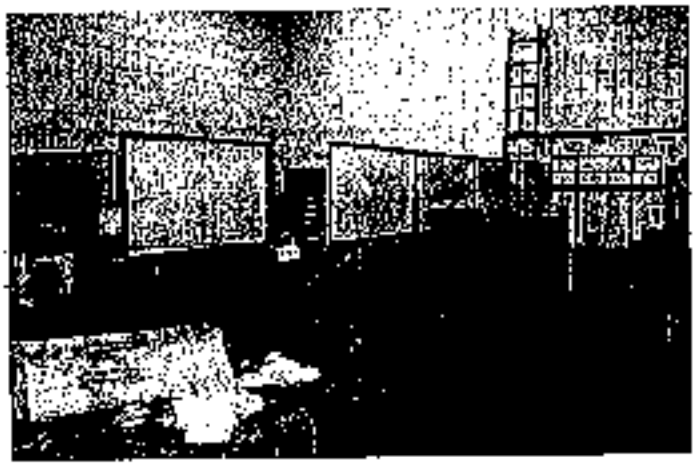
(4) PA But-03136-07
Assembly Hall

(5) PA But-03136-08
Hallway Floor Outside
Former Indoor Firing Range

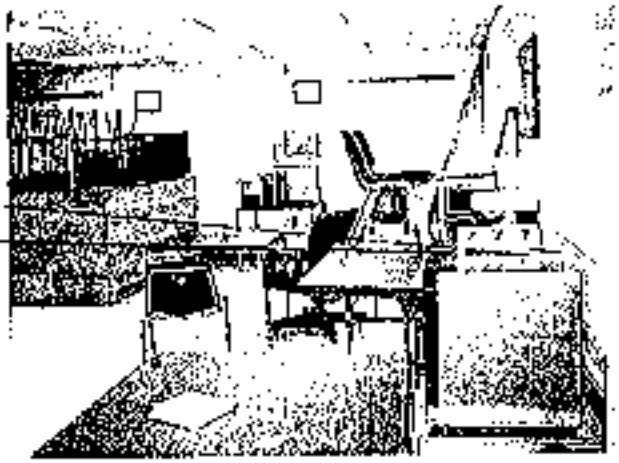


ADDITIONAL SAMPLES

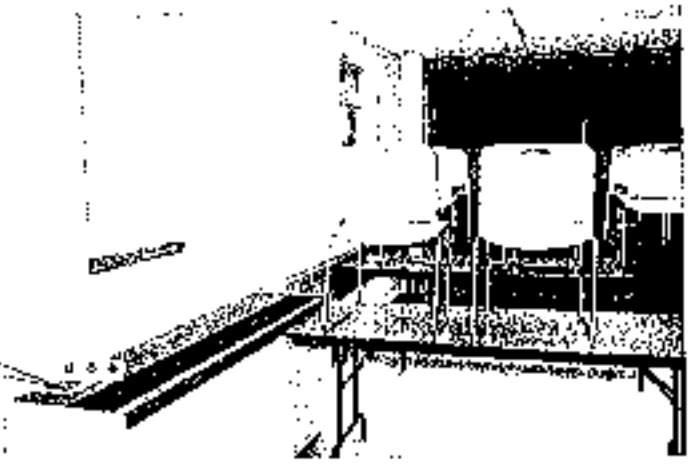
(6) PA But-03136-10
Assembly Hall
Dividers – North End



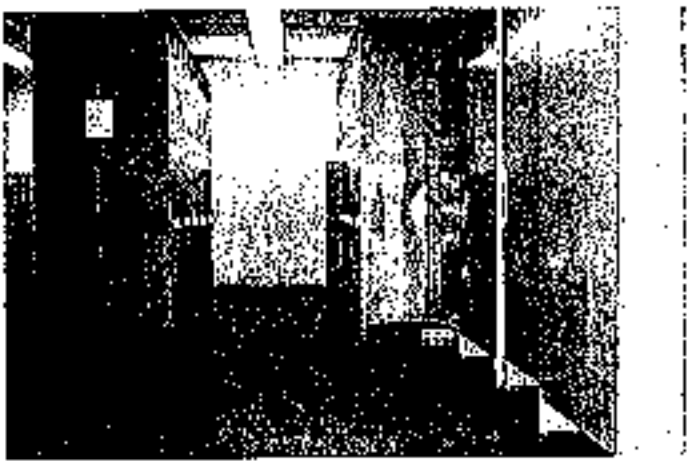
(7) PA But-03136-11
Room 121
On Microwave



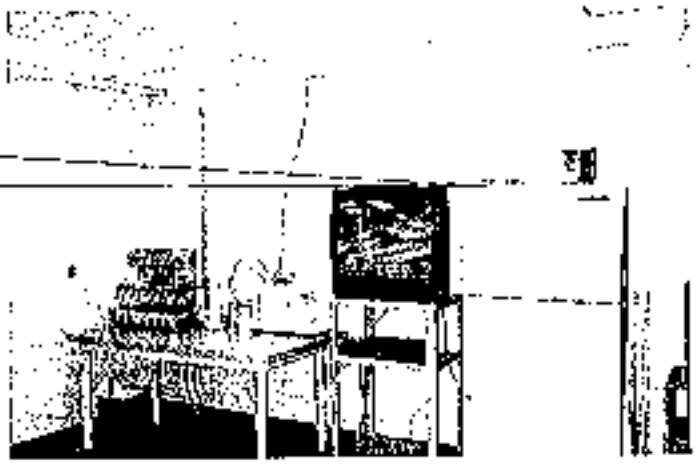
(8) PA But-03136-12
Classroom



(9) PA But-03136-13
Room 132
Male Locker Room



(10) PA But-03136-14
Orderly Room



RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
AIHA Certificate of Accreditation #480 LAB ID 101533

TABLE I. ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	RES 93716-1
Client:	Operational Technologies, Corp.
Client Project Number / P.O.:	06 01
Client Project Description:	Armories/Pennsylvania
Date Samples Received:	June 6, 2003
Analysis Type:	USEPA SW846 3050B / AA(7420)
Turnaround:	3-5 Day
Date Samples Analyzed:	June 14, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA Joh-03134-05	BM 778533	0.11	BDL	23	BDL
PA Joh-03134-06	BM 778534	0.11	160.0	23	1455
PA Joh-03134-07	BM 778535	0.11	18.2	23	165
PA Joh-03134-08	BM 778536	0.11	BDL	23	BDL
PA Joh-03134-09	BM 778537	0.11	19.3	23	175
PA Joh-03134-10	BM 778538	0.11	BDL	23	BDL
PA Joh-03134-17	BM 778539	0.11	62.9	23	572
PA Joh-03134-18	BM 778540	0.11	2.6	23	24
PA Joh-03134-19	BM 778541	0.11	269.0	23	2445
PA Joh-03134-20	BM 778542	0.11	73.5	23	668
PA Joh-03134-21	BM 778543	0.11	3.0	23	27
PA Joh-03134-22	BM 778544	0.11	4.0	23	36
PA Joh-03134-23	BM 778545	0.11	BDL	23	BDL
PA Joh-03135-04	BM 778546	0.11	BDL	23	BDL
PA Joh-03135-05	BM 778547	0.11	BDL	23	BDL
PA Joh-03135-06	BM 778548	0.11	BDL	23	BDL
PA Joh-03135-07	BM 778549	0.11	BDL	23	BDL
PA Joh-03135-08	BM 778550	0.11	BDL	23	BDL
PA Joh-03135-09	BM 778551	0.11	BDL	23	BDL
PA But-03136-04	BM 778552	0.11	BDL	23	BDL
PA But-03136-05	BM 778553	0.11	BDL	23	BDL
PA But-03136-06	BM 778554	0.11	BDL	23	BDL
PA But-03136-07	BM 778555	0.11	5.0	23	45
PA But-03136-08	BM 778556	0.11	7.0	23	64
PA But-03136-09	BM 778557	0.11	BDL	23	BDL
PA For-03139-04	BM 778558	0.11	2.5	23	23
PA For-03139-05	BM 778559	0.11	10.7	23	97
PA For-03139-06	BM 778560	0.11	BDL	23	BDL
PA For-03139-07	BM 778561	0.11	BDL	23	BDL
PA For-03139-08	BM 778562	0.11	BDL	23	BDL

BDL - Below Detection Limit

Data Qa [signature]

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m³
PA Loc-03118-02	03-17870	599.6	ND	<0.002
PA Loc-03118-03	03-17871	541.0	ND	<0.002
PA Loc-03118-04	03-17872	531.7	ND	<0.002
PA Lew-03118-22	03-17873	295.2	ND	<0.002
PA Lew-03118-23	03-17874	279.7	ND	<0.003
PA Sun-03119-01	03-17875	410.4	ND	<0.004
PA Sun-03119-02	03-17876	411.6	ND	<0.002
PA Lew-03119-19	03-17877	411.6	ND	<0.002
PA Lew-03119-20	03-17878	398.9	ND	<0.002
PA Lew-03119-21	03-17879	373.4	ND	<0.003
PA Hun-03120-01	03-17880	350.2	ND	<0.003
PA Hun-03120-02	03-17881	341.8	ND	<0.003
PA Joh-03134-01	03-17882	395.3	ND	<0.003
PA Joh-03134-02	03-17883	380.9	ND	<0.003
PA Joh-03134-03	03-17884	349.1	ND	<0.003
PA Joh-03135-01	03-17885	450.7	ND	<0.003
PA Joh-03135-02	03-17886	405.0	ND	<0.002
PA Joh-03135-03	03-17887	381.4	ND	<0.002
PA But-03136-01	03-17888	362.5	ND	<0.003
PA But-03136-02	03-17889	348.3	ND	<0.003
				<0.003
	Prep Blank 6		ND	
% Recovery	LCS 11		96.	
% Recovery	LCS 12		98.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).
LCS - laboratory control sample.

Non-Responsive [redacted]

Analyst

Non-Responsive [redacted]

Reviewer

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m³
PA But-03136-03	03-17890	347.3	ND	<0.003
PA For-03139-01	03-17891	383.4	ND	<0.003
PA For-03139-02	03-17892	389.5	ND	<0.003
PA For-03139-03	03-17893	374.0	ND	<0.003
PA Cle-03140-01	03-17894	537.5	ND	<0.002
PA Cle-03140-02	03-17895	523.0	ND	<0.002
PA Cle-03140-03	03-17896	493.5	ND	<0.002
PA Kan-03141-01	03-17897	469.4	ND	<0.002
PA Kan-03141-02	03-17898	470.6	ND	<0.002
PA Kan-03141-03	03-17899	464.6	ND	<0.002
PA Rid-03141-16	03-17900	462.6	ND	<0.002
PA Rid-03141-17	03-17901	439.6	ND	<0.002
PA Rid-03141-18	03-17902	452.4	ND	<0.002
PA Bra-03142-01	03-17903	356.0	ND	<0.003
PA Bra-03142-02	03-17904	355.2	ND	<0.003
PA Pun-03142-15	03-17905	336.7	ND	<0.003
PA Pun-03142-16	03-17906	331.9	ND	<0.003
PA Pun-03142-17	03-17907	324.6	ND	<0.003
PA Man-03143-01	03-17908	261.4	ND	<0.004
PA Man-03143-02	03-17909	252.6	ND	<0.004
	Prep Blank 7		ND	
% Recovery	LCS 13		95.	
% Recovery	LCS 14		97.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non-[redacted]@md.ngb.army.mil

Attachment D

REFERENCE LIST INDEX

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   b. Asbestos
   c. Battery Charging Room
   d. Bird and Bat Manure
   e. Bloodborne Pathogens
   f. Chemical Agent Resistant Coating (CARC) Paint
   g. Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE)
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GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REFERENCE LIST

1. General Regulations and National Consensus Standards
   a. DODI 6055.1, DOD SOH Program, 19 August 1998.
   b. DODI 6055.5, DOD OEH. *[DRAFT]*
   c. DOD 6055.5-M, DOD Occupational Health Surveillance Manual, 13 May 1987.
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   e. AR 40-5, Preventive Medicine, 15 October 1990. [05/2002 Being Updated]
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   j. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 2002.
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   l. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.
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   p. NFC, A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. [Current date]
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      (1) ANSI Z9.4 1997, Abrasive Blasting Operations - Ventilation and Safe Practices.
      (2) 29 CFR 1910.94 Ventilation
      (3) 42 CFR 84

   b. **ASBESTOS**
      (1) AR 40-5, Preventive Medicine, 15 October 1990. *[05/2002 Being Updated]*
      (2) AR 200-1, Environmental Protection and Enhancement, Chapter 8, 21 February 1997.
      (3) TB MED 513, Guidelines for the Evaluation and Control of Asbestos Exposure, 15 December 1986. *[05/2000 Under Revision as DA PAM 40-513]*
      (4) TG 157, USAEHA, The Installation Asbestos Management Program Assessment Checklists, July 1994.
      (5) 29 CFR 1910.1001
      (6) 29 CFR 1926.58 (prior to 1994 CFR)
      (7) 29 CFR 1926.1101

(8) MEMORANDUM SGPS-PSP, OTSG, subject: AMEDD Role Supporting Asbestos Abatement/Asbestos Management Programs, 19 Jan 89.

(9) EPA, Guidance for Controlling Asbestos-Containing Materials in Buildings, June 1985.

(10) DD Form 2493-1 (Asbestos Exposure, Part I--Initial Medical Questionnaire)

(11) DD Form 2493-2 (Asbestos Exposure, Part II--Periodic Medical Questionnaire)

(12) EPA NESHAPS Asbestos Regulation (40 CFR 61, Subpart M).

c. BATTERY CHARGING ROOM

(1) TG 022, USAEHA, page 81, Industrial Hygiene Evaluation Guide, October 1975. *[Out of Print]*

(2) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

d. BIRD AND BAT MANURE

(1) TG 142, USAEHA, Managing Health Hazards Associated with Bird and Bat Excrement, Dec 1992.

e. BLOODBORNE PATHOGENS

(1) 29 CFR 1910.1030

(2) TG 190, USAEHA, Guide to Managing Occupational Exposure to Bloodborne Pathogens, Jan 94.

f. CHEMICAL AGENT RESISTANT COATING (CARC) PAINT

(1) TG 144, USAEHA, Guidelines for Controlling Health Hazards in Painting Operations, 24 August 1987.

(2) DA LTR, USAEHA, HSHB-MI-WR, subject: Respiratory Protection When Spraying CARC, 19 November 1992.

(3) TM 43-0139, Painting Instructions for Army Material, 27 July 1988 Aug 86.

(4) MEMORANDUM SGPS-PSP, OTSG, subject AMEDD, Occupational Health Requirements in Support of Painting in the Army, 22 February 1985.

(5) AR 750-1, Army Materiel Maintenance Policy and Retail Maintenance Operations (Prohibits welding on CARC paint) 1 July 1996.

g. CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR, EXPLOSIVE (CBRNE)

(1) DODI 2000.gg, DOD Installation CBRNE Emergency Response Guidelines.

(2) DHHS, NIOSH Pub No. 2002 139, Guidance for Protecting Building Environments from Airborne Chemical, Biological, or Radiological Attacks, May 2002.

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h. **CONFINED SPACE**

(1) 29 CFR 1910.146 (Confined Space Entry)
(2) 29 CFR 1910.147 (Lockout/Tagout)
(3) ANSI Z117.1-Safety Requirements for Confined Spaces, 1995.
(4) SOP for ARNG Confined Space Entry Program, 25 April 1991.
(5) Letter, US Dept of Labor (DOL) addressed to Vanessa Char, 22 Apr 1994.
(6) OSHA Instruction STD 1-7.3, US DOL, subject: 29 CFR 1910.147, the Control of Hazardous Energy (Lockout/Tagout)--Inspection Procedures and Interpretive Guidance, 11 Sep 90.
(7) DHHS, NIOSH Pub No. 87113, A Guide to Safety in Confined Spaces, July 1987.
(8) Confined Space Entry Program for Helicopters, 2003.

i. **DESIGN REVIEW**

(1) DG 415-1, Design Guide for Armories, current.
(2) DG 415-2, Design Guide for Logistics Facilities, current.
(3) DG 415-3, Design Guide for Training Site Facilities, current.
(4) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.
(5) TI-300, 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.
(6) UFGS 15940A, Overhead Vehicle Tailpipe (and welding Fume) Exhaust Removal Systems, December 2001.
(7) ASHRAE, Standard 62-2002, Ventilation for Acceptable Indoor Air Quality.
(8) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

j. **ERGONOMICS**

(1) DA PAM 40-21, Medical Services, Ergonomics Program, 15 May 2000.
(2) ANSI Z-365, Management of Work Related Musculoskeletal Disorders, 2000.
(3) 29 CFR 1910, *[PROPOSED STANDARD]*

k. **FLAMMABLE STORAGE ROOM**

(1) 29 CFR 1910.106
(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

l. **HAZARD COMMUNICATION**

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m. **HEARING CONSERVATION**

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(2) TG 181, USAEHA, Noise Dosimetry and Risk Assessment, May 1999.

(3) TG 175, USAEHA, Readiness thru Hearing Conservation: Guide for Unit Commanders and Supervisors, June 1999.

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(2) USACERL Technical Report P-91/42, IAQ Management for Operations and Maintenance Personnel, September 1991.

(3) EPA 400/1-91/003 or DHHS, NIOSH, Publication No. 91-114, Building IAQ, A Guide for Building Owners and Facility Managers, December 1991.

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(6) NIOSH, IAQ Selected References, Sep 1989.

(7) OSHA Instruction CPL 2-2.20B CH-1, Directorate of Technical Support, 13 Nov 90.

(8) DA PAM 25-52, Mail Facility Security and Handling Suspicious Mail, 6 November 2001.

(9) ASTM, D 5952-96, 10 May 1996.

o. **INDOOR FIRING RANGES**

(1) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(2) NGR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges, 30 March 1990. *[11/02 Under Revision]*

(3) CEHND 1110-1-18, USACE Design Manual for Indoor Firing Range, June 1990.

(4) HQDA LTR, Office of the Adjutant General, DACS-SF, subject: Inspection and Evaluation of US Army Indoor Firing Ranges, 26 March 1993.

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(6) NIOSH, Technical Information, December 1975, subject: Lead Exposure and Design Considerations for Indoor Firing Ranges.

(7) All-States Ltr P01-0075, 5 December 2001.

(8) Information Paper, Alternative Ammunition, 15 March 1996.

(9) Information Paper, Bullet Traps, 26 April 1996.

(10) Information Paper, ARNG IFR Action Plan, 28 January 2002.

p. **LEAD**

(1) 29 CFR 1910.1025

(2) 29 CFR 1926.62

(3) 24 CFR 35.61 (HUD, Percentage of Lead in Paint)

(4) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(5) OSHA Instruction CPL 2-2.58, Office of Health Compliance Assistance, 13 December 1993.

(6) Federal Register, 18 April 1990, Vol. 55, No. 75, HUD, Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing, as amended, September 1990, Office of Public and Indian Housing, Department of Housing and Urban Development, 451 Seventh Street, SW, Washington, DC 20410.

(7) NIOSH, Request for Assistance in Preventing Lead Poisoning in Construction Workers, April 1992.

(8) EPA, Strategy for Reducing Lead Exposures, 21 Feb 91.

q. **LIGHTING**

(1) RP-1-1993, Office Lighting, ANSI/IESNA.

(2) RP-7-2001, Industrial Lighting, IES.

r. **OCCUPATIONAL VISION**

(1) DA PAM 40-506, Medical Services, The Army Vision Conservation and Readiness Program, 20 July 2001.

(2) ANSI Z87.1, Practice for Occupational and Educational Eye and Face Protection, 1989, Change A, REAF 1998.

(3) ANSI Z358.1 for Emergency Eyewash and Shower Equipment, 1998.

(4) OTSG Memorandum SGPS-PSP, subject: Acanthameoba Keratitis and Eyewash Stations, 8 May 89.

(4) 29 CFR 1910.133

s. **PAINT SPRAY BOOTH**

(1) NFPA No. 33, Standard for Spray Application Using Flammable and Combustible Materials, 1995.

(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

(3) 29 CFR 1910.94

(4) 29 CFR 1910.107

(5) ANSI Z9.3-1995 for Exhaust Systems - Spray Finishing Operations - Safety Code for Design, Construction, and Ventilation.

(6) ANSI Z9.2-2001, Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems.

t. **PERSONAL PROTECTIVE EQUIPMENT**

(1) Quick Selection Guide to Chemical Protective Clothing, 2nd edition, Forsberg, K and Mansdorf, S., 1993.

(2) Chemical Protective Clothing, Vol 1 and 2, Johnson, J. and Anderson, K., American Industrial Hygiene Association, 1990.

(3) Guidelines for the Selection of Chemical Protective Clothing, 3rd Edition, ACGIH, Inc., Feb 1987.

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(1) NGR 385-11, Safety, Ionizing and Nonionizing Radiation Protection, 18 February 1999.

(2) AR 11-9, Army Radiation Safety Program, 28 May 1999.

(3) 29 CFR 1910.96

(4) 29 CFR 1910.97

v. **RESPIRATORY PROTECTION**

(1) AR 11-34, The Army Respiratory Protection Program, 15 February 1990. *[11/02 Being Updated]*

(2) 29 CFR 1910.134

(3) 42 CFR 84

(4) TB MED 502, Respiratory Protection Program, February 1992. *[11/02 Being Updated as DA PAM 40-502]*

(5) ANSI/CGA G-7.1-1997, Commodity Specification for Air.

(6) ANSI Z88.2-1992, Standard for Respiratory Protection.

w. **SANITATION**

(1) ANSI Z4.1-1986, Change REAF 1995, Sanitation in Places of Employment-Minimum Requirements.

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x. **SMOKING**

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(2) DODI 1010.15, Smoke-Free DOD Facilities, 2 January 2001.

(3) DODD1010.10, Health Promotion, 11 March 1986.

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(2) TI-300f 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

z. **WELDING OPERATION**

(1) 29 CFR 1910.252

(2) 29 CFR 1910.253

(3) 29 CFR 1910.254

(4) ANSI/AWS Z49.1-1999, Safety in Welding and Cutting and Allied Processes.

(5) TM 5-805-7, Welding Design, Procedures and Inspection, 20 May 85.

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 $\mu g/ft^2$) and windowsills (250 $\mu g/ft^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of 200 $\mu g/ft^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 $\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 $\mu g/ft^2$ on floors and 250 $\mu g/ft^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland




Industrial Hygiene Survey
for PAARNG – Butler Readiness Center
250 Kress Road
Butler, Pennsylvania 16001

AECOM
January 2013
Document No.: 60276421.1/Butler Readiness Center

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland

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January 2013
Document No.: 60276421.1/Butler Readiness Center

AECOM

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Executive Summary

On November 6, 2012, AECOM conducted an Industrial Hygiene (IH) survey of the Butler Readiness Center facility located at 250 Kress Road in Butler, Pennsylvania. Non-[redacted], SSG was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Butler Readiness Center operations.

The industrial hygiene survey was generally conducted in accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings", dated January 2012.

The Butler Readiness Center is currently staffed by ten personnel. Some of the personnel were not present at the time of the survey due to active duty assignments or other off-site responsibilities. The facility is configured as an administrative area and a Drill/Assembly Hall.

Personnel at the facility were undertaking normal daily activities, which are primarily administrative in nature, at the time of the survey.

The activities undertaken during the Industrial Hygiene survey included facility descriptions, lead wipe/air sampling, evaluation of housekeeping, illumination studies, ventilation system evaluation, and a review of the physical building condition.

The Butler Readiness Center is housed in a one-story masonry building, and consists of approximately 80% administrative space and 20% Assembly Hall.

Lighting levels measured throughout the facility were generally inadequate as per ANSI/IESNA RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

Wipe samples collected for lead-containing dust throughout the facility did not indicate lead levels above the ARNG action level.

No peeling lead-based paint was observed at the Butler Readiness Center during this survey.

No visible damaged suspect asbestos-containing material (ACM) was observed.

No visible water damaged or visible signs of mold growth were observed.

The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of air handling units that provide fresh air from outside the building exterior to administrative areas. Natural gas boilers feed radiant heaters throughout the remainder of the building including storage areas, the assembly hall as well as provide heat for the facilities domestic water.

1.0 Facility Description and Operations

The main section of the Butler Readiness Center, constructed in 1993, is a one-story administrative facility slab on-grade masonry structure. The building was improved in 2008 with the addition of a larger kitchen area, additional storage rooms and an upgrade to the existing heating/cooling system. The building consists of two main sections. The larger one-story section, located around the perimeter of the building, consists primarily of offices, training/classroom, locker/shower rooms, storage and administrative areas, and is finished with sheetrock walls, lay-in ceiling tiles and floor tile. The two-story Assembly/Drill Hall area, located in the center of the building, is finished with painted block walls and a concrete floor. According to site personnel there is no firing range at the facility.

The primary activity at the Butler Readiness Center is routine administrative duties and occasional use by units for support and training of soldiers. The Assembly Hall is rented out for limited civic activities such as group meetings, community polling center, trade shows and to other related local groups and organizations. The Butler Readiness Center is currently staffed by ten personnel. No vehicle maintenance activities are undertaken at the facility. At the time of the survey, the Assembly Hall was occupied by the public for purposes of voting. As such, it was requested by site personnel that photographs not be taken of the polling activities/operations or perspective voters.

2.0 Sampling in Readiness Centers

2.1.1 Wipe Sampling

Wipe sampling for lead was conducted in the Assembly Hall and administrative areas following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost wipes. Samples were collected in areas that are not frequently cleaned and showed signs of dust whenever possible.

The following table presents the results of the lead wipe sampling conducted at the facility.

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
PBW – 001	Assembly Hall - table	<110 ug/ft^2
PBW – 002	Kitchen - counter	<110 ug/ft^2
PBW – 003	Office - desk top	<110 ug/ft^2
PBW – 004	Office - shelf	<110 ug/ft^2
PBW – 005	Former Firing Range – cabinet	<110 ug/ft^2
PBW - 006	Former Firing Range – floor	<110 ug/ft^2
PBW - 007	Assembly Hall - floor	<110 ug/ft^2

ug/ft^2 = Micrograms per square foot.

Wipe samples collected in association with the administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U. S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 ug/ft^2 for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

The wipe samples collected throughout the facility did not detect levels of lead in excess of the ARNG action level of 200 micrograms per square foot (ug/ft^2). Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

Per Non-Responsive of NGB-IH, the requirement for Lead air sampling has been removed from the Statement of Work. It was reported that historically, air samples collected at administrative facilities are typically below the limit of detection.

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls appeared to be generally in good condition. Concrete flooring was generally tiled or unpainted. AECOM did not observe damaged or peeling paint during this evaluation.

3.1.2 Suspect Asbestos Containing Materials

AECOM did not observe damaged, friable suspect asbestos containing materials (ACM) in readily accessible areas of the Butler Readiness Center during this survey. Thermal system piping is typically covered in typical fiberglass insulation with associated fittings and appeared in good condition.

Other typical miscellaneous building materials observed but not sampled include floor tiles and associated mastic, cove base and associated mastic, ceiling tiles, and window glazing compound and caulks.

3.1.3 Water Damage/Mold

AECOM did not observe evidence of water intrusion during this survey.

3.1.4 Housekeeping

The Butler Readiness Center was observed to be generally clean and orderly during this assessment. AECOM did not observe dust accumulation on readily accessible horizontal surfaces within areas commonly used in the facility.

3.1.5 Indoor Air Quality/ Ergonomics

The administration section of the building contains general office space. The administration section is generally utilized by all of the Butler Readiness Center staff members including a recruiter. No Indoor Air Quality concerns were noted by the Butler Readiness Center personnel.

Butler Readiness Center personnel did not report any ergonomics issues or concerns. Office furniture and accessories designed to promote ergonomically correct behaviors were observed.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (^{o} Fahrenheit), and relative humidity (as percentage) are presented in the following table.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (^{o}F)	Relative Humidity (%)
Outside	0.1	231	72.6	25.4
Conference Room	1.3	425	73.9	25.6
Room 118 Office	1.2	479	73.8	25.9
Room 114 Office	1.2	417	72.6	24.1
Room 115 Office	1.3	369	75.0	24.7
Room 117 Office	1.2	382	75.3	24.5
Room 119 Office	1.2	355	75.4	23.5
Room 109 POC Office	1.2	534	74.1	24.0
Room 110 CO Office	1.2	677	74.9	25.9

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (^{o}F)	Relative Humidity (%)
Room 103 Conference Rm.	1.2	618	73.7	24.4
Room 104 Office	1.2	508	74.2	22.7
Room 107 Recruiter Office	1.2	417	72.6	27.5
Classroom #120	0.6	292	71.0	24.0
Classroom #121	0.6	286	70.4	25.3
Corridor	0.6	403	72.0	24.0
Classroom #124	0.9	287	70.5	22.8
Break Room	0.4	263	70.4	21.5
Men's rest Room	0.1	347	71.9	31.2
Locker Room	0.0	552	75.6	26.4
Room 146 First Aid Room	0.6	491	75.5	20.0
Room 147 Boiler Room	1.1	414	76.7	23.7
Physical Fitness Room	1.2	349	70.9	17.7
Kitchen	0.0	526	70.9	22.1
Kitchen Cooler Room	0.0	490	70.9	22.5
Cage Storage Room	0.1	406	71.3	24.0
EST Area	0.6	398	70.8	28.9
EST Office	0.6	412	68.5	29.6
EST Rest Room	0.5	333	68.4	30.3

Table 3-1 Guidelines:
Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard. OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.
Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.
Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 5.10.1).
Temperature: Winter (clothing insulation = 1.0 clo) Relative humidity 30-60% - Temp - 68 – 75°F
Summer Temp - 73 – 79°F. (Derived from ASHRAE Standard 55-2010)

4.0 Ventilation and HVAC System

4.1.1 Ventilation Systems and Potential for Contamination of Clean Air Sources

There is no Field Maintenance Shop (FMS) located at the Butler Readiness Center. As such, no potential for contamination of clean air sources was observed at the facility.

The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of air handling units that provide fresh air from outside the building exterior to administrative areas.

4.1.2 HVAC Maintenance

The HVAC system is reported to be on a as-needed maintenance/service agreement. Further, building personnel informed AECOM that the HVAC filters are changed at least twice a year. Natural gas boilers feed radiant heaters throughout the remainder of the building including storage areas, the assembly hall provide heat for the facilities domestic water.

5.0 Lighting

Lighting levels in all areas were measured utilizing a Cal-Light 400 light meter that displays lighting levels in foot-candles. Lighting levels were generally inadequate.

Table 5-1: Light Survey

Location	Results – (Foot candles)	Met Standard (Y/N)	Standard*
Conference Room	24.9	N	50
Room 118 Office	39.8	N	50
Room 114 Office	55.3	Y	50
Room 115 Office	35.5	N	50
Room 117 Office	73.7	Y	50
Room 119 Office	75.2	Y	50
Room 109 POC Office	58.7	Y	50
Room 110 CO Office	56.4	Y	50
Room 103 Conference Rm.	47.0	N	50
Room 104 Office	62.4	Y	50
Room 107 Recruiter Office	36.5	N	50
Classroom #120	61.8	Y	30
Classroom #121	69.1	Y	30
Corridor	18.2	Y	5
Classroom #124	42.3	Y	30
Break Room	19.6	Y	10
Men's rest Room	21.2	Y	5
Locker Room	10.9	Y	7
Room 146 First Aid Room	19.3	N	50
Room 147 Boiler Room	20.2	N	30
Physical Fitness Room	31.2	Y	30
Kitchen	46.4	N	50
Kitchen Cooler Room	25.3	N	50
Cage Storage Supply Room	70.9	Y	10
EST Area	39.4	Y	10
EST Office	73.9	Y	50
EST Rest Room	84.1	Y	5
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI/IESNA RP-7-01)			

6.0 Evaluation of Attached Garage

There is no attached garage associated with the Butler Readiness Center.

7.0 Conclusions and Limitations

AECOM has conducted this survey in accordance with applicable OSHA methods and standard industrial hygiene practice. The following conclusions were based on the observations and assessments of activities that occurred during the on-site evaluation:

Housekeeping is performed regularly at the Butler Readiness Center.

AECOM did not observe any damaged, suspect asbestos-containing materials at the Butler Readiness Center.

AECOM did not observe peeling paint during at the Butler Readiness Center.

AECOM did not observe evidence of water intrusion at the Butler Readiness Center.

Lighting levels measured throughout the facility were generally inadequate as per ANSI/IESNA RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

Wipe samples collected in association with the administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft^2 for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

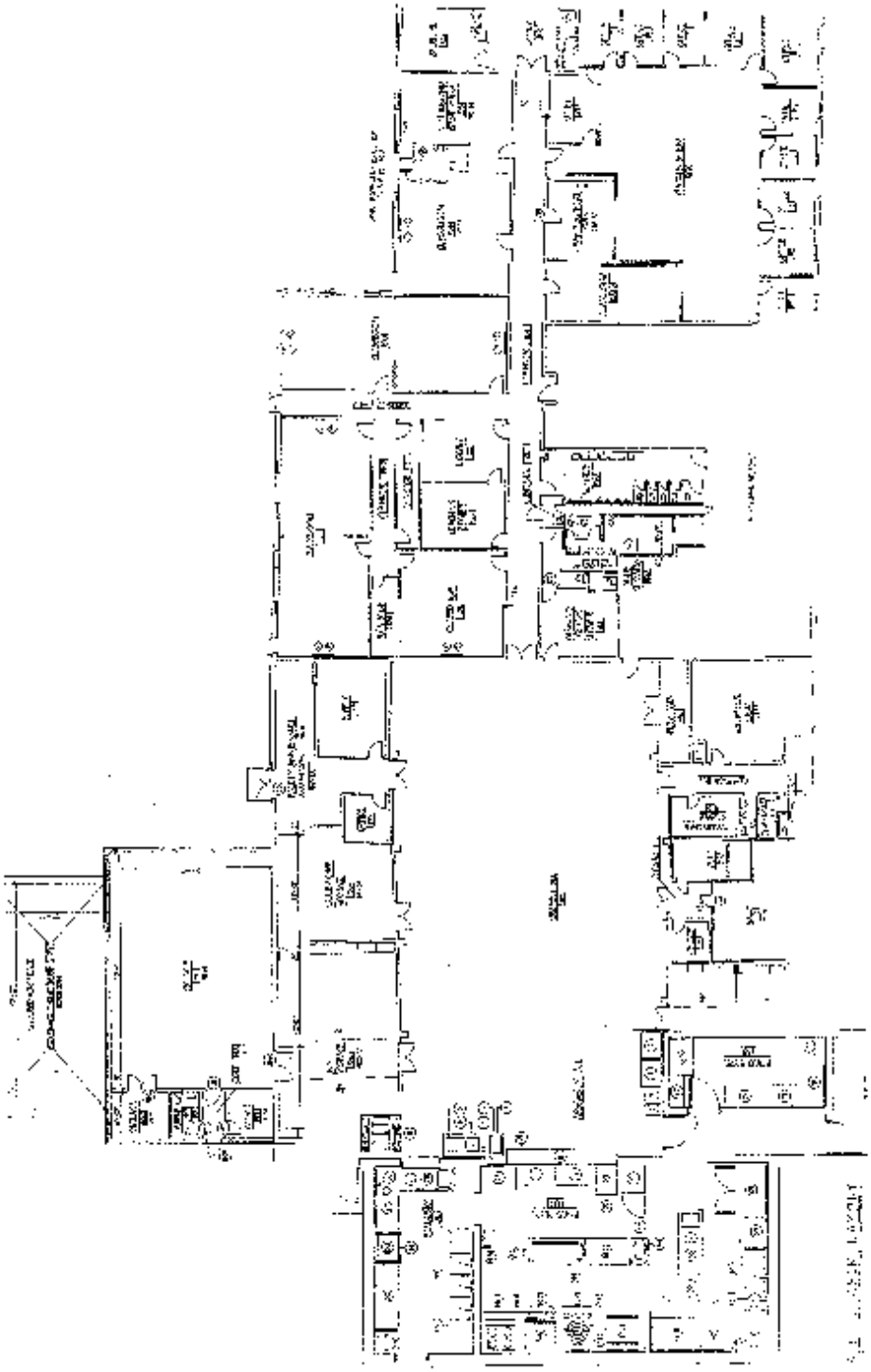
AECOM provided these services consistent with the level and skill ordinarily exercised by members of the profession currently providing similar services under similar circumstances at the time the services were provided. This statement is in lieu of other statements either expressed or implied. This report is intended for the sole use of National Guard Bureau – Army National Guard. The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, and use or re-use of this document, the findings, conclusions, or recommendations is at the risk of said user.

As with all such surveys, the results of the sampling represent conditions found on the date of the survey and may not represent conditions found at other times. Additionally, this survey was limited with respect to the specific parameters indicated above and should not be construed to be a comprehensive evaluation or a definitive representation of conditions within the facility. The information presented in this report is intended to be used as a guide to evaluate the need for further investigation or the need for modifications to the processes or procedures surveyed.

The Client recognizes and agrees that all testing and remediation methods have reliability limitations, no method nor number of sampling locations can guarantee that a condition will be discovered within the performance of the services as authorized by the Client. Additionally, the passage of time may result in a change in the environmental characteristics at this site. This report does not warrant against future operations or conditions that could affect the recommendations made. The results, findings, conclusions, and recommendations expressed in this report are based only on conditions that were observed during AECOM's inspection of the site.

Appendix A

Butler Readiness Center Facility Layout



Appendix B

Butler Readiness Center Photographs

AECOM

Photograph 1

View of Building Exterior

Photograph 2

View of Foyer

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Photograph 3

View of Administrative Corridor

Photograph 4

View of Break Room

Photograph 5

View of Conference Room

Photograph 6

View of Typical Office

AECOM

Photograph 7

View of Classroom

Photograph 8

View of Recruiter Office

Photograph 9

View of Physical Fitness Room

Photograph 10

View of Heating System in Physical Fitness Room

Photograph 11

View of Kitchen

Photograph 12

View of Heating/lighting System in Storage Room

Photograph 13

View of Heating/lighting System in Locker Room

Appendix C

Analytical Results

AECOM

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	Butler, PA	Chain Of Custody:	514650		
Address:	301-81 Old Bay Lane, Attn: ATZM-CG-P, State Military Reservation	Job Location:	Not Provided	Date Submitted:	11/30/2012		
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM		
		P.O. Number:	0190356-06-A-0003	Date Analyzed:	12/7/2012	Report Date:	12/10/2012

Attention: Non-Responsive

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		Total ug	Final Result		Comments
1301B678	W-001	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
1301B679	W-002	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
1301B680	W-003	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
1301B681	W-004	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
1301B682	W-005	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
1301B683	W-006	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
1301B684	W-007	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B

See QC Summary for analytical results of quality control samples associated with these samples.

N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)

%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)

Note: All samples were received in good condition unless otherwise noted.

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results.

Final results for air and wipe samples are based on client supplied information not verified by this laboratory.

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

Non-Responsive

Anal

Non-Responsive

Technical Manager:

An AIHA (#100478) and NY ELAP (#11920) Accredited Laboratory

4475 Forbes Blvd. · Lanham, MD. 20706 · (301) 459-2640 · Toll Free (800) 346-0961 · Fax (301) 459-2643

AECOM

AMA Analytical Services, Inc.
Focused on Results www.amalab.com
AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)
4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This Number For Inquiries) 514650

Mailing/Billing Information:

1. Client Name: National Guard Bureau
2. Address 1: 301-IH Old Bay Lane
3. Address 2: Attn: NGB-AVN-SI, State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0256

Submittal Information: Butler, PA

(1) (Job Name)
(2) (Job Location)
3. Job #: PO #: W912K6-09-A-0003
4. Contact Person: [redacted] @ phone #
5. Submitted by: AECOM (Signature)

Reporting Info (Results provided as soon as technically feasible). If no TAT/Reporting Info is provided, AMA will assign defaults of 5-Day and email/fax to contacts on file.

AFTER HOURS (must be pre-scheduled) / NORMAL BUSINESS HOURS / REPORT TO:

☐ Immediate Date Due: ☐ 24 Hours Time Due: Contact:

☐ Immediate ☐ Next Day ☐ 2 Day ☐ 3 Day ☒ 5 Day + Date Due: 12/3/12 ☐ Results Required By Noon

☒ Include COC/Field Data Sheets with Report ☒ Email [redacted] aecom.com ☐ Fax ☐ Website

Asbestos Analysis / TEM Bulk / TEM Dust / TEM Water / PLM Bulk / Lead Analysis

☒ Pb Dust Wipe (wipe type: Ghost Wipe) 7 (QTY)

☒ All samples received in good condition unless otherwise noted. (TEM Water samples ___ °C)

CLIENT ID #	SAMPLE LOCATION/ID	DATE/TIME	VOL (L)/Wipe Area	PCM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST			TAPE	SWAB	CLIENT CONTACT (LABORATORY STAFF ONLY)
W-001	D.Hall Table	11/6	1sq ft				X									Date/Time: Contact: By:
W-002	Kitchen Counter	↓	↓				↓									
W-003	office Desk															
	SEE ATTACHED FIELD DATA SHEETS															
W-004	office Counter															Date/Time: Contact: By:
W-005	F.R. Cabinet															
W-006	F.R Floor															
W-007	D.Hall floor	↓	↓				↓									
																Date/Time: Contact: By:

LABORATORY STAFF ONLY: (CUSTODY)

1. Date/Time RCVD: 11/30/12 [illegible] Via FEDEX By [redacted]
2. Date/Time Analyzed: ___/___/___ @ ___ By ___ Sign:
3. Results Reported To: ___ Via ___ Date: ___/___/___ Time: ___ Initials:
4. Comment: 7941 7694 5331

Appendix D

References

AECOM

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. http://www.osha.gov/comp-links.html

2. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998. http://www.dtic.mil/whs/directives/corres/pdf/605501p.pdf

3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF

4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://armypubs.army.mil/epubs/pdf/R40_5.PDF

5. AR 385-10, The Army Safety Program, 23 August 2007; Rapid Action Revision (RAR) issue date: 4 October 2011. http://armypubs.army.mil/epubs/pdf/R385_10.PDF

6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://armypubs.army.mil/epubs/pdf/P40_501.pdf

7. DA Pam 40-11, Preventive Medicine, 22 July 2005, RAR issue date: 19 October 2009. http://armypubs.army.mil/epubs/pdf/p40_11.pdf

8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://armypubs.army.mil/epubs/pdf/P40_503.PDF

9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf

10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current Ed.

11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.

12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.

13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.

14. ANSI/ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality.

15. RP-1-2004, Office Lighting, ANSI/IESNA.

16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.

17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.

18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.

19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf

Industrial Hygiene Survey

CO E 1/109th INF (MECH)

CARBONDALE, PENNSYLVANIA

June 10, 2003
&
December 9, 2003

OPTECH

OPERATIONAL TECHNOLOGIES
CORPORATION

RECOMMENDATIONS

1. INDOOR AIR QUALITY

1.1. Carbon monoxide and carbon dioxide levels were within recommended levels. Indoor temperature were slightly below the recommended temperature ranges in a few areas. The relative humidity readings were within the acceptable ranges. Humidity should be maintained below 60% relative humidity for occupant comfort and controlling mold growth.

2. ILLUMINATION

2.1. Illumination levels were below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3. LEAD WIPE SAMPLES

3.1. Wipe samples for inorganic lead were collected throughout the facility, with additional samples gathered in the former indoor firing range and daycare center. No lead was detected in the six samples collected in the daycare. A sample collected in the female latrine exceeded the 200 $\mu g/ft^2$ criteria. Lower levels of lead were detected in a few areas of the facility. Suspect that these areas with minor lead contamination is due to former indoor firing range activities, which has migrated to other areas. Recommend that the female latrine be wet-wiped/mopped. Since a childcare center exists in the building, recommend that all areas where lead was detected be wet-wiped/mopped or cleaned using a high efficiency particulate air (HEPA) vacuum. The entire facility should be cleaned in this same manner during routine housekeeping duties, to further reduce lead dust levels.

CO E 1/109TH INF (MECH)
CARBONDALE, PENNSYLVANIA
INDUSTRIAL HYGIENE SURVEY

1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Armory in Carbondale, Pennsylvania on June 10, 2003 with a return trip on December 9, 2003. The NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. Non- and Non-R from OpTech, completed this survey. Peter Lurker, a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the IH Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D.

2.0. EXECUTIVE SUMMARY

2.1. Carbon monoxide and carbon dioxide levels were within recommended levels. Indoor temperature were slightly below the recommended temperature ranges in a few areas. The relative humidity readings were within the acceptable ranges. Humidity should be maintained below 60% relative humidity for occupant comfort and controlling mold growth.

2.2. Illumination levels were below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting would improve some areas.

2.3. Wipe samples for lead were collected throughout the facility with additional samples gathered in the former indoor firing range and daycare center. No lead was detected in the six samples collected in the daycare. A sample collected in the female latrine exceeded the 200 $\mu g/ft^2$ criteria. Lower levels of lead were detected in a few areas of the facility. Suspect that these areas with minor lead contamination is due to former indoor firing range activities, which has migrated to other areas.

2.4. Air sampling for inorganic lead was taken. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	CO E 1/109th INF (MECH)		
ADDRESS	Clideo Drive		
	Carbondale, PA		
CONTACT	SGT [redacted]		
PHONE	570-282-2300		
DATE BUILT	1975	FACILITY SIZE	18,464 sq. ft.
INDOOR FIRING RANGE	CLOSED		1-floor
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	4		
TRADITIONAL (MIL)	80		
CHILD ACTIVITIES	This facility has a daycare facility that houses 40 daycare students. The school is open from August until May.		
ADULT ACTIVITIES	none		

3.1.1. The exterior of the building is brick and appears to be in good condition. The facility is heated by a steam boiler and cooled by central air. The facility houses a daycare center.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity (RH) in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 Indoor Air Quality Standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ASHRAE 62-2001, Section 6.1.3, states that concentrations up to 700 ppm CO_2, above outdoor concentrations will achieve an acceptable level of indoor air quality.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ASHRAE 55-1992 recommends that temperature ranges be 73 to 79 degrees Fahrenheit (°F) during the summer and 68 to 74°F during the winter. Relative humidity levels be maintained between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE 1
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO2 (ppm)	Temp. (°F)	RH (%)
1515	Outdoor – Background	0.0	461	82.1	54.2
1540	Kitchen	0.0	521	72.2	53.1
1543	Maintenance Area	0.0	526	73.1	53.2
1546	Commander's Office	0.0	513	72.6	52.1
1551	Classroom	0.0	516	75.1	51.6
1555	Classroom	0.0	518	73.2	53.1
1559	Male Latrine	0.0	521	72.1	52.8
1603	Orderly Room	0.0	516	73.2	52.3
1605	Former Range Area	0.0	511	72.2	53.1
1608	Supply Room	0.0	518	73.1	52.6
1611	Assembly Hall	0.0	511	72.6	52.8

3.2.5. Carbon monoxide and carbon dioxide levels were within recommended levels. Indoor temperature were slightly below the recommended temperature ranges in a few areas. The relative humidity readings were within the acceptable ranges. Humidity should be maintained below 60% relative humidity for occupant comfort and controlling mold growth.

3.3. ILLUMINATION

3.3.1. Illumination levels were measured in most areas of the facility. Sunlight was excluded, as much as possible for this survey, by closing doors and blocking windows. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 - 463). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
Library	40 – 46	42	70	NO
Classroom	34 – 42	38	70	NO
Commander's Office	40 – 46	42	70	NO
Male Latrine	38 – 46	41	40	YES
Orderly Room	32 – 40	37	70	NO
Former Range Area	32 – 44	39	40	YES
Supply Room	38 – 44	41	40	YES
Kitchen	38 – 50	44	75	NO
Female Latrine	36 – 46	40	40	YES
Platoon Room	28 – 40	35	70	NO

3.3.2. Levels were below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting would improve some areas.

3.4. WIPE SAMPLES

3.4.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples were taken at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot ($\mu g/ft^2$) and are listed in Table 3. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead ($\mu g/ft^2$)
PA Car-03161-39	Kitchen Vent	43
PA Car-03161-40	Drill Floor - Fan Base	118
PA Car-03161-41	Library	102
PA Car-03161-42	Orderly room	BDL
PA Car-03161-43	Female Latrine	1,509
PA Car-03161-44	BLANK Sample	BDL

$\mu g/ft^2$ = micrograms per square foot BDL = Below Detection Limits

3.4.2. Additional wipe samples were collected during this survey. These samples were collected to further analyze the extent of contamination should the first five samples indicate a possible hazard. Since the samples collected in female latrine exceeded the 200 $\mu g/ft^2$ criteria (see Section 3.4.5), these additional samples were analyzed. The results are presented in Table 4.

TABLE 4
ADDITIONAL WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Car-03161-45	Male Latrine	32
PA Car-03161-46	DAYCARE – Ductwork	BDL
PA Car-03161-47	Hallway Ceiling Vent	23
PA Car-03161-48	Break Room – Bar	BDL
PA Car-03161-49	Hallway – Platoon Room	77
PA Car-03161-50	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.3. Since a daycare is present in the facility a second visit was scheduled to collect additional wipe samples. These samples were collected in the daycare area. The results are presented in Table 5.

TABLE 5
DAYCARE CENTER WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Car-03343-01	Daycare – West End – Computer Table	BDL
PA Car-03343-02	Daycare – South Wall – Floor	BDL
PA Car-03343-03	Daycare – North Wall – Central Area – Floor	BDL
PA Car-03343-04	Daycare – South Wall – Central Area – Floor	BDL
PA Car-03343-05	Daycare – East End – Windowsill	BDL
PA Car-03343-06	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.4. CLOSED FIRING RANGE WIPE SAMPLING

3.4.4.1. Additional wipe samples were collected in the former indoor firing range. This area is presently being as a vehicle maintenance bay and storage. The laboratory analysis results are listed below in Table 6.

TABLE 6
FORMER FIRING RANGE WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Car-03161-51	Side Wall	BDL
PA Car-03161-52	Floor	BDL
PA Car-03161-53	Floor	BDL
PA Car-03161-54	Table	BDL
PA Car-03161-55	Vent	BDL
PA Car-03161-56	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits, 23 µg/ft²

3.4.5. WIPE SAMPLING RESULTS

3.4.4.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 µg/ft^2. This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. (See memorandum in Attachment E, Recommendations for Surface Lead Dust in Armories.) In childcare facilities, recommends cleaning areas in which sample results are greater than 40 µg/ft^2. No lead was detected in the six samples collected in the daycare. A sample collected in the female latrine exceeded the 200 µg/ft^2 criteria. Lower levels of lead were detected in a few areas of the facility. Suspect that these areas with minor lead contamination is due to former indoor firing range activities, which has migrated to other areas.

3.4.6. AIR SAMPLING

3.4.6.1. Air Sampling for inorganic lead was performed during this survey. Table 7 lists the results of these samples, and is reported in milligrams per cubic meter (mg/m^3) of air.

TABLE 7
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
[redacted]	PA Car-03161-37	Lead	<0.004 mg/m³	0.05 mg/m³	YES
Area – Kitchen	PA Car-03161-38	Lead	<0.004 mg/m³	0.05 mg/m³	YES

mg/m³ = milligrams per cubic meter < = less than (below detection limits)

3.4.6.2. Air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this building.

3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION DAMAGE

3.5.1.1. There was no visible water intrusion damage to the facility.

3.5.2. ASBESTOS

3.5.2.1. No ashestos was observed in the facility and no samples were taken.

3.5.3. PROGRAMS

3.5.3.1. There are no designated confined space areas within this facility. There are no exhaust ventilation systems to control a hazard. No chemicals besides normal cleaning materials are present. Therefore, a need has not been established for a HAZCOM program, the need for personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.4. HOUSEKEEPING

3.5.4.1. The facility was exceptionally clean and orderly. The ventilation duct work was moderately clean with very little dust accumulation.

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

E – Recommendations for Surface Lead in Armories

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
Carbondale, PA	PENNSYLVANIA ARNG ARMORY	Carbondale Armory

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR (initials)
10 June / 9 Dec 2003	JSS

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	NA	SGT Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
570-282-2300	COE 1-109 INF MECH DAYCARE	3	9

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
4 Adult 40 children	80			

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	CONROLS 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			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	½ FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	¼ 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 WEATHR 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	/		

AEHA Form 271-R (Test), 1 Jan 92 (HSHB-MI-I)

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	3	C

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

SECTION 6. COMMENTS

☐ No comments ☐ See attached sheet

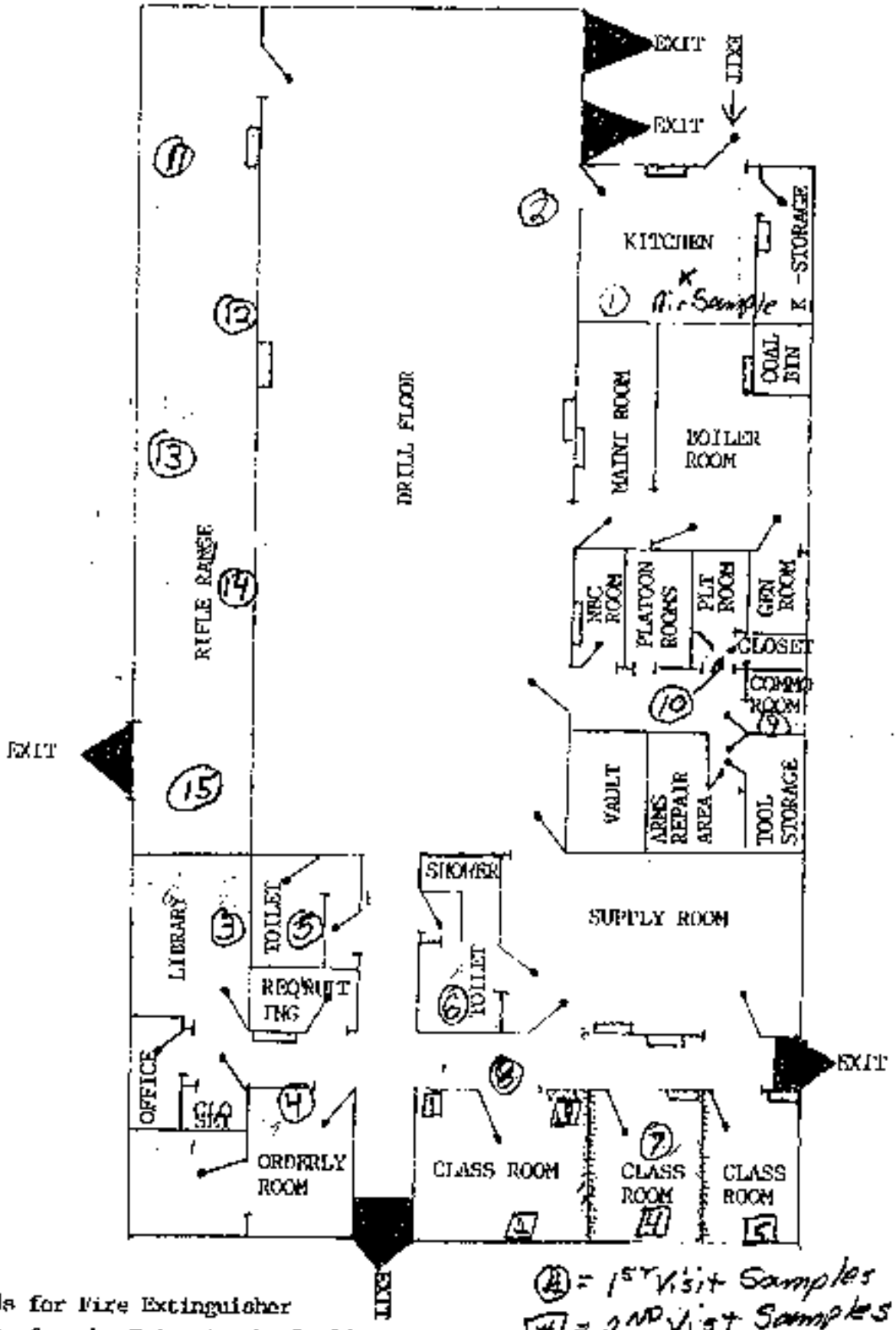
PRIVACY ACT STATEMENT

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

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

CO B 1ST BN (MECH) 109th INF

FIRE EGRESS PLAN



LEGEND

: · · Stands for Fire Extinguisher

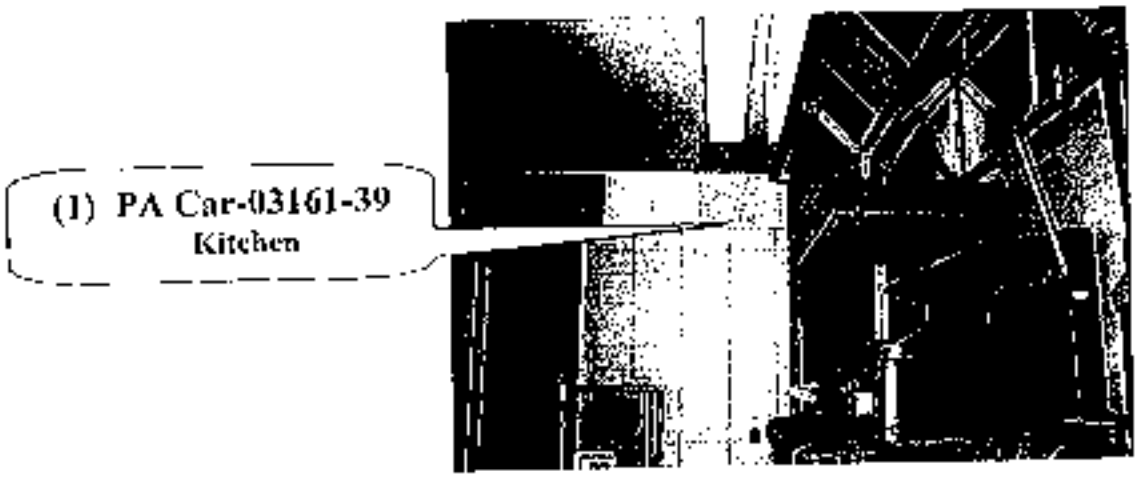
Stands for the Exits in the Building

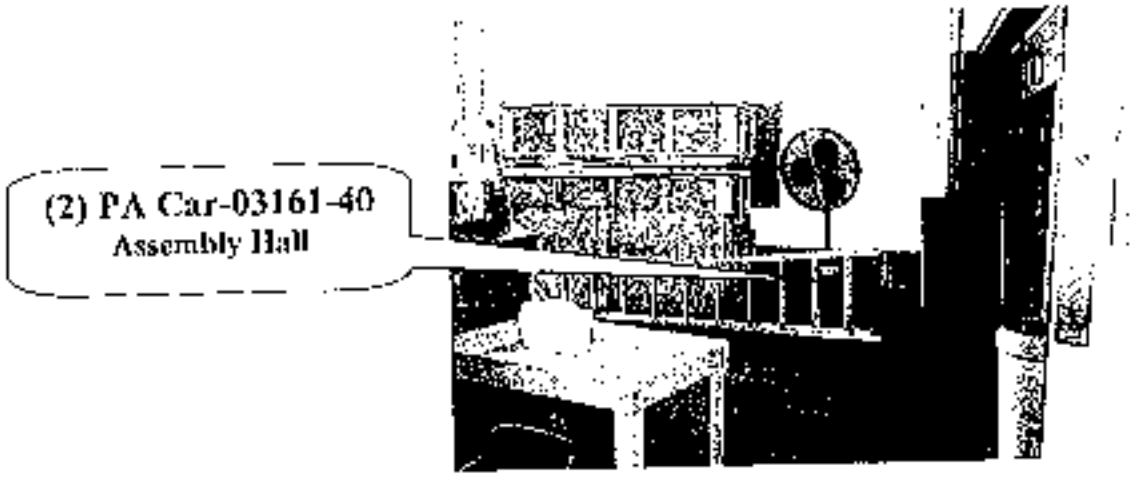
Stands for the directions to the Exits

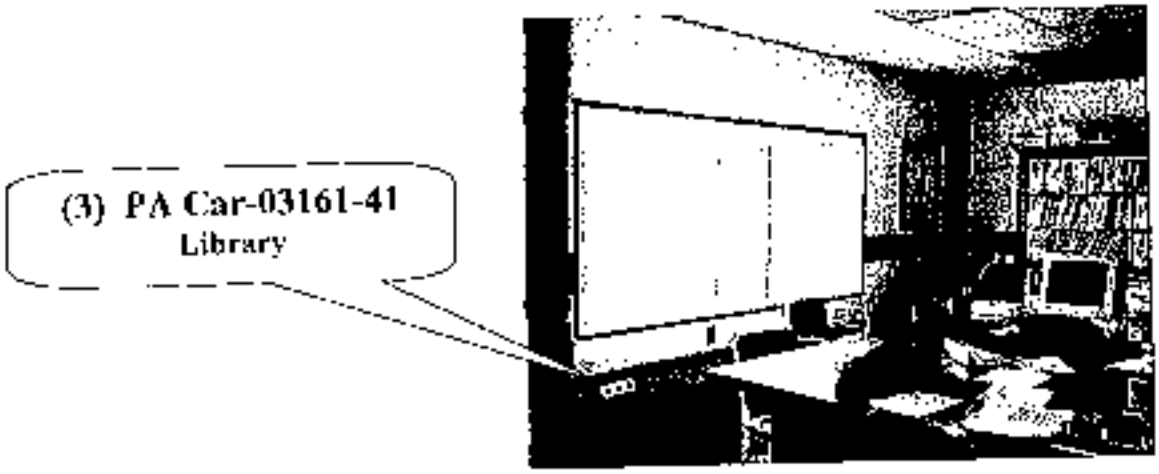
(#) = 1ST Visit Samples

[#] = 2ND Visit Samples

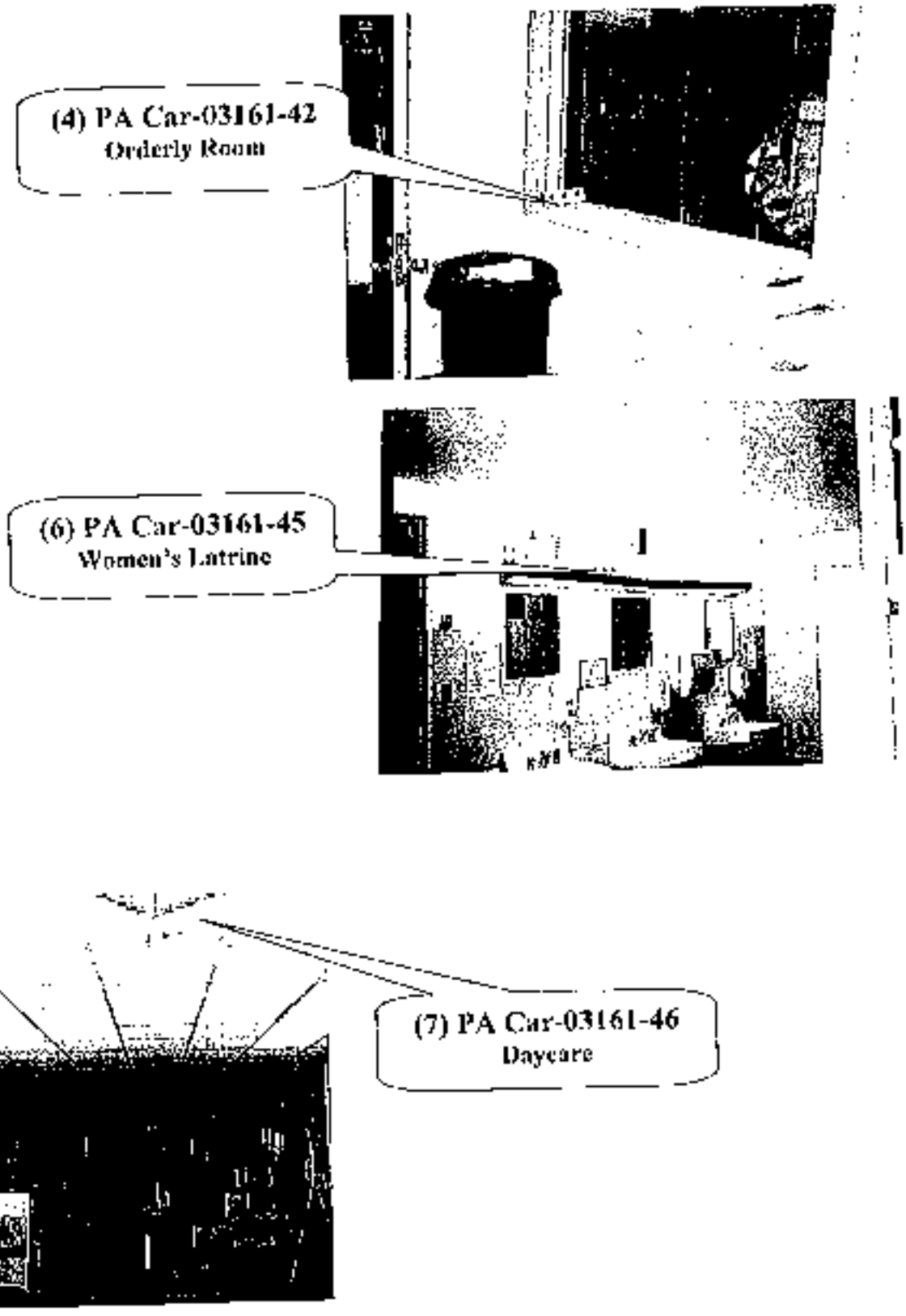
CO E 1/109TH INF (MECH)
CARBONDALE, PENNSYLVANIA
WIPE SAMPLING LOCATIONS



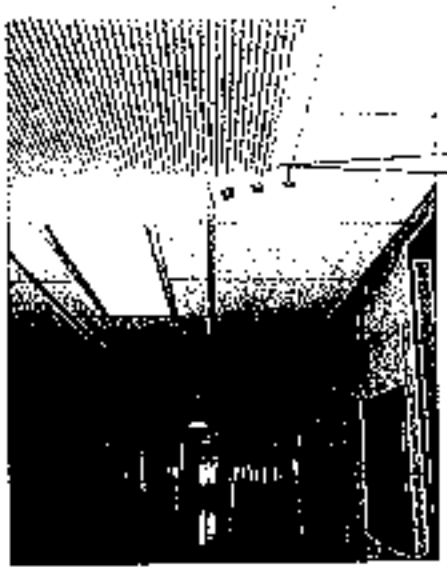




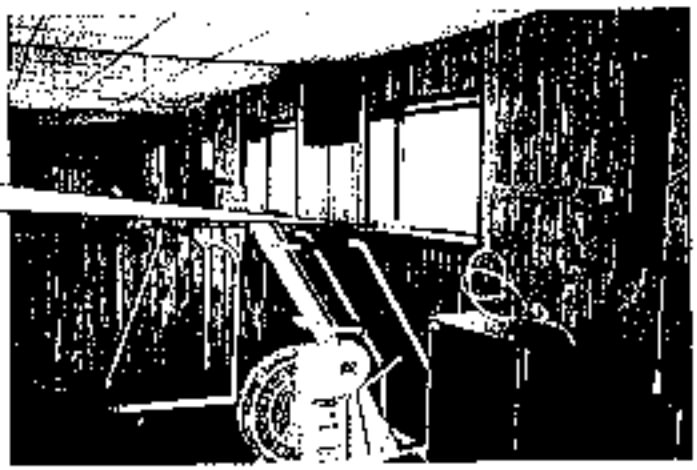
Attachment B



Attachment B



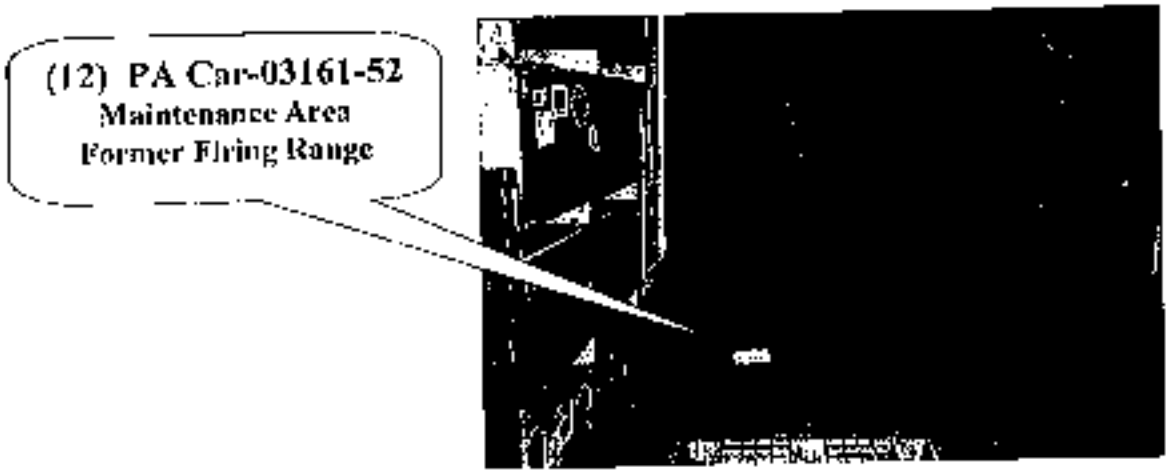
(8) PA Car-03161-47
Hallway

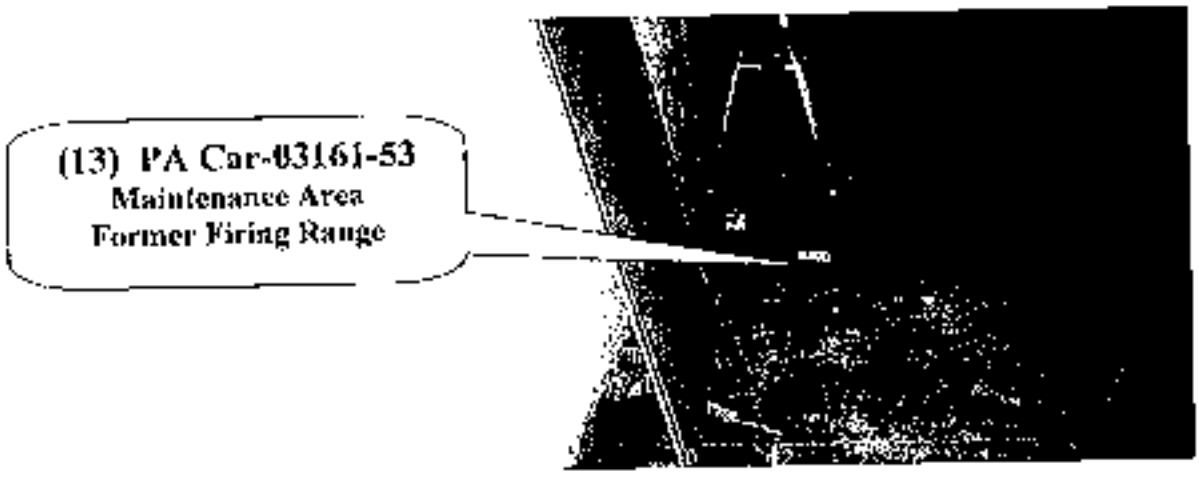


(9) PA Car-03161-48
Break Room

(10) PA Car-03161-49
Hallway Outside Platoon Room

Attachment B





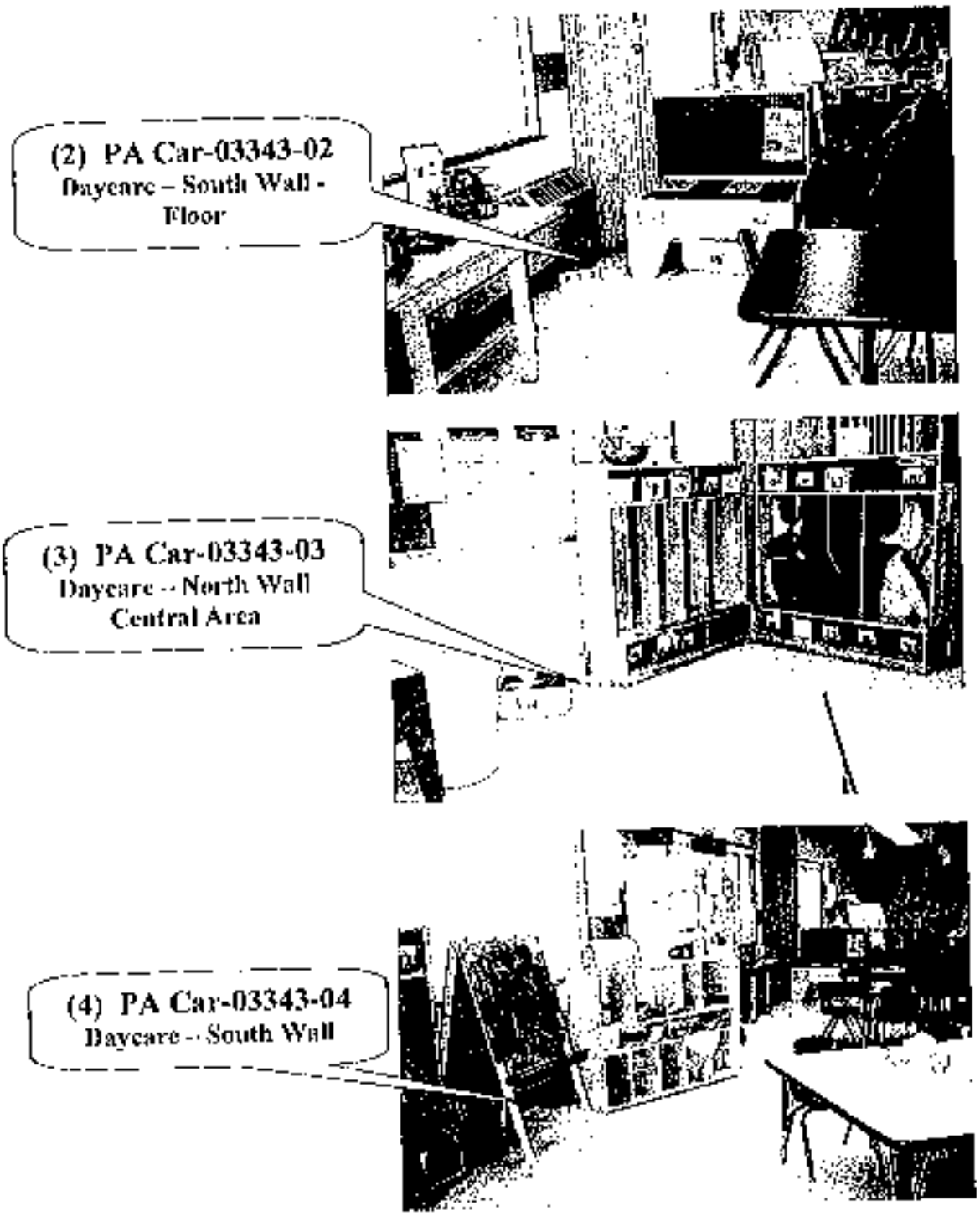
Attachment B

(14) PA Car-03161-54
Maintenance Area
Former Firing Range

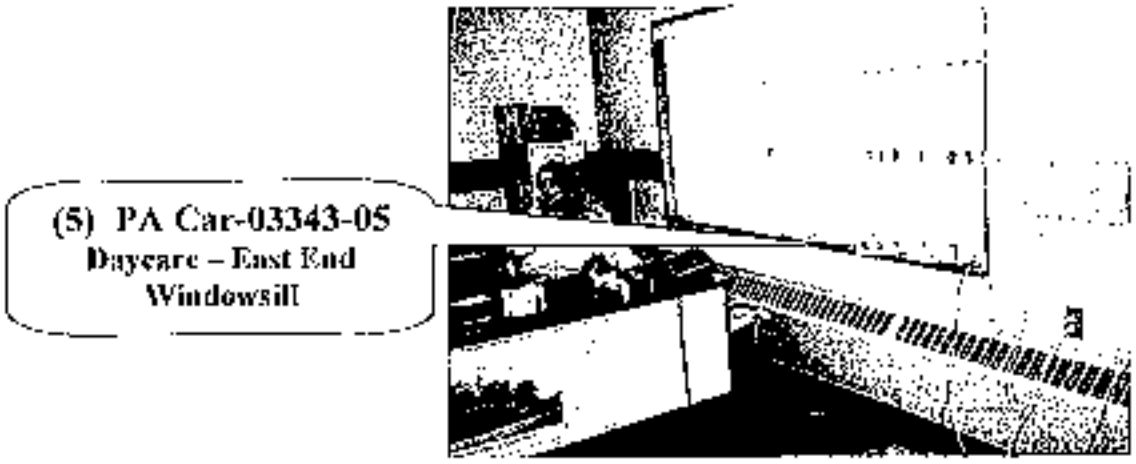
(15) PA Car-03161-55
Maintenance Area
Former Firing Range

2ND TRIP DAYCARE WIPE SAMPLES

(1) PA Car-03343-01
Daycare – West End



Attachment B



RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
AIHA Certificate of Accreditation #480 LAB ID 101533

TABLE I. ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	RES 94604-1
Client:	Operational Technologies, Corp.
Client Project Number / P.O.:	06 03
Client Project Description:	Armories/Pennsylvania
Date Samples Received:	June 24, 2003
Analysis Type:	USEPA SW846 3050B / AA(7420)
Turnaround:	3-5 Day
Date Samples Analyzed:	July 1, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA Car-03161-39	EM 787963	0.11	4.7	23	43
PA Car-03161-40	EM 787964	0.11	13.0	23	118
PA Car-03161-41	EM 787965	0.11	11.2	23	102
PA Car-03161-42	EM 787966	0.11	BDL	23	BDL
PA Car-03161-43	EM 787967	0.11	166.0	23	1509
PA Car-03161-44	EM 787968	0.11	BDL	23	BDL
PA Car-03161-51	EM 787969	0.11	BDL	23	BDL
PA Car-03161-52	EM 787970	0.11	BDL	23	BDL
PA Car-03161-53	EM 787971	0.11	BDL	23	BDL
PA Car-03161-54	EM 788008	0.11	BDL	23	BDL
PA Car-03161-55	EM 788009	0.11	BDL	23	BDL
PA Car-03161-56	EM 788010	0.11	BDL	23	BDL
PA Ser-03162-03	EM 788011	0.11	6.8	23	62
PA Ser-03162-04	EM 788012	0.11	BDL	23	BDL
PA Ser-03162-05	EM 788013	0.11	BDL	23	BDL
PA Ser-03162-06	EM 788014	0.11	5.4	23	49
PA Ser-03162-07	EM 788015	0.11	16.0	23	145
PA Ser-03162-08	EM 788016	0.11	BDL	23	BDL
PA Ser-03162-15	EM 788017	0.11	11.0	23	100
PA Ser-03162-16	EM 788018	0.11	66.3	23	603
PA Ser-03162-17	EM 788019	0.11	17.2	23	156
PA Ser-03162-18	EM 788020	0.11	9.0	23	82
PA Ser-03162-19	EM 788021	0.11	58.1	23	528
PA Ser-03162-20	EM 788022	0.11	BDL	23	BDL

*Calculations Based On A 1 sq.ft. Sample Area Unless Otherwise Noted

BDL = Below Detection Limit

Data Qa R.K

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
AIHA Certificate of Accreditation #480 LAP ID 101533

TABLE ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	RES 95353-1R
Client:	Operational Technologies, Corp.
Client Project Number / P.O.:	06 03
Client Project Description:	Armories/Pennsylvania
Date Samples Received:	July 11, 2003
Analysis Type:	USEPA SW846 3050B / AA(7420)
Turnaround:	3-5 Day
Date Samples Analyzed:	July 15, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA CAR-03161-45	EM 794785	0.11	3.5	23	32
PA CAR-03161-46	EM 794786	0.11	BDL	23	BDL
PA CAR-03161-47	EM 794787	0.11	2.5	23	23
PA CAR-03161-48	EM 794788	0.11	BDL	23	BDL
PA CAR-03161-49	EM 794789	0.11	8.5	23	77
PA CAR-03161-50	EM 794790	0.11	BDL	23	BDL

*Calculations Based On A 1 sq.ft. Sample Area Unless Otherwise Noted

BDL = Below Detection Limit

Data Qa

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client:	National Guard Bureau	**Job Name:**	Pennsylvania Armories	**Chain Of Custody:**	121312
Address:	301-IH Old Bay Lane, Attn: NGB-AVN-SI, State Military Reservation	**Job Location:**	Carbondale, Pottsville	**Date Analyzed:**	12/31/2003
	Havre de Grace, Maryland 21078	**Job Number:**	Not Provided	**Person Submitting:**	[redacted]
		P.O. Number:	12-02	**Report Date:**	02-Jan-04

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
0414430	PA Car-03343-01	Furnace	Wipe	****	0.111	2.70	ug/ft²	8.6	ug/ft²	
0414431	PA Car-03343-02	Furnace	Wipe	****	0.111	2.70	ug/ft²	10	ug/ft²	
0414432	PA Car-03343-03	Furnace	Wipe	****	0.111	2.70	ug/ft²	16	ug/ft²	
0414433	PA Car-03343-04	Furnace	Wipe	****	0.111	2.70	ug/ft²	13	ug/ft²	
0414434	PA Car-03343-05	Furnace	Wipe	****	0.111	2.70	ug/ft²	11	ug/ft²	
0414435	PA Car-03343-06	Furnace	Wipe	****	0.111	2.70	ug/ft²	5.5	ug/ft²	
0414436	PA Pot-03343-07	Flame	Wipe	****	0.111	108.01	ug/ft²	890	ug/ft²	
0414437	PA Pot-03343-08	Flame	Wipe	****	0.111	108.01	ug/ft²	360	ug/ft²	
0414438	PA Pot-03343-09	Furnace	Wipe	****	0.111	67.51	ug/ft²	190	ug/ft²	
0414439	PA Pot-03343-10	Furnace	Wipe	****	0.111	67.51	ug/ft²	400	ug/ft²	
0414440	PA Pot-03343-11	Furnace	Wipe	****	0.111	13.50	ug/ft²	77	ug/ft²	
0414441	PA Pot-03343-12	Furnace	Wipe	****	0.111	2.70	ug/ft²	18	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.

Analyst: [redacted] **Technical Manager:** [redacted]

An AIHA (#8863), NVLAP (# 101143), & New York ELAP (#10920) Accredited Laboratory
4475 Forbes Blvd. • Lanham, MD 20706 • (301) 459-2640 • Toll Free (800) 346-0961 • Fax (301) 459-2643

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m³
PA Her-03154-01	03-20664	370.5	ND	<0.003
PA Her-03154-02	03-20665	382.4	ND	<0.003
PA New-03154-22	03-20666	465.6	ND	<0.002
PA New-03154-23	03-20667	450.1	ND	<0.002
PA Cor 03155-01	03-20668	305.5	ND	<0.003
PA Cor 03155-02	03-20669	292.0	ND	<0.003
PA Bea-03156-01	03-20670	312.3	ND	<0.003
PA Bea-03156-02	03-20671	294.7	ND	<0.003
PA Pit-03156-22	03-20672	263.9	ND	<0.004
PA Pit-03156-23	03-20673	247.1	ND	<0.004
PA Pit-03157-01	03-20674	384.5	ND	<0.003
PA Pit-03157-02	03-20675	380.9	ND	<0.003
PA Pit-03157-22	03-20676	421.3	ND	<0.002
PA Pit-03157-23	03-20677	404.6	ND	<0.002
PA Wil-03161-01	03-20678	445.6	ND	<0.002
PA Wil-03161-02	03-20679	437.2	ND	<0.002
PA New-03161-22	03-20680	148.1	ND	<0.007
PA New-03161-23	03-20681	139.1	ND	<0.007
PA Car-03161-37	03-20682	248.3	ND	<0.004
PA Car-03161-38	03-20683	240.0	ND	<0.004
	Prep Blank		ND	
% Recovery	LCS 1		97.	
% Recovery	LCS 2		99.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non- [redacted] @md.ngb.army.mil

Attachment D

REFERENCE LIST INDEX

1. General Regulations and National Consensus Standards
2. Specific Regulations and Guidance
   a. Abrasive Blasting
   b. Asbestos
   c. Battery Charging Room
   d. Bird and Bat Manure
   e. Bloodborne Pathogens
   f. Chemical Agent Resistant Coating (CARC) Paint
   g. Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE)
   h. Confined Space Entry Program
   i. Design Review
   j. Ergonomics
   k. Flammable Storage Room
   l. Hazard Communication
   m. Hearing Conservation
   n. Indoor Air Quality
   o. Indoor Firing Ranges
   p. Lead
   q. Lighting
   r. Occupational Vision
   s. Paint Spray Booth
   t. Personal Protection
   u. Radiation Protection
   v. Respiratory Protection
   w. Sanitation
   x. Smoking
   y. Vehicle Exhaust
   z. Welding Operation

GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

Attachment D

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REFERENCE LIST

1. General Regulations and National Consensus Standards
   a. DODI 6055.1, DOD SOH Program, 19 August 1998.
   b. DODI 6055.5, DOD OEH. *[DRAFT]*
   c. DOD 6055.5-M, DOD Occupational Health Surveillance Manual, 13 May 1987.
   d. DODI 6050.5, DOD Hazard Communication, 29 Oct 90. Change 1, 6 May 1996.
   e. AR 40-5, Preventive Medicine, 15 October 1990. [05/2002 Being Updated]
   f. DA PAM 40-5, Preventive Medicine. *[DRAFT]*
   g. AR 385-10, The Army Safety Program, 29 February 2000.
   h. NGR 385-10, ARNG SOH Program, 7 October 1988, Change 1, 29 December 1989.
   i. Title 29, Part 1910, Occupational Safety and Health Standards. [Current Date]
   j. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 2002.
   k. ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th edition, 2001.
   l. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.
   m. TG 141, USACHPPM Industrial Hygiene Sampling Guide, November 1997.
   n. National Safety Council, Fundamentals of Industrial Hygiene, 5th Edition, 2002.
   o. NIOSH, Pocket Guide to Chemical Hazards, 2001.
   p. NFC, A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. [Current date]
   q. ASHRAE Standards. [Current Dates]
   r. ANSI Standards. [Current Dates]

2. Specific Regulations/Guidance
   a. **ABRASIVE BLASTING**
      (1) ANSI Z9.4 1997, Abrasive Blasting Operations - Ventilation and Safe Practices.
      (2) 29 CFR 1910.94 Ventilation
      (3) 42 CFR 84

   b. **ASBESTOS**
      (1) AR 40-5, Preventive Medicine, 15 October 1990. *[05/2002 Being Updated]*
      (2) AR 200-1, Environmental Protection and Enhancement, Chapter 8, 21 February 1997.
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(2) 29 CFR 1910.147 (Lockout/Tagout)
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(2) Chemical Protective Clothing, Vol 1 and 2, Johnson, J. and Anderson, K., American Industrial Hygiene Association, 1990.

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v. **RESPIRATORY PROTECTION**

(1) AR 11-34, The Army Respiratory Protection Program, 15 February 1990. *[11/02 Being Updated]*

(2) 29 CFR 1910.134

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(5) ANSI/CGA G-7.1-1997, Commodity Specification for Air.

(6) ANSI Z88.2-1992, Standard for Respiratory Protection.

w. **SANITATION**

(1) ANSI Z4.1-1986, Change REAF 1995, Sanitation in Places of Employment-Minimum Requirements.

(2) 29 CFR 1910.141

x. **SMOKING**

(1) AR 600-63, Army Health Promotion, 28 April 1996.

(2) DODI 1010.15, Smoke-Free DOD Facilities, 2 January 2001.

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(1) ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th Edition, 2001.

(2) TI-300f 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

z. **WELDING OPERATION**

(1) 29 CFR 1910.252

(2) 29 CFR 1910.253

(3) 29 CFR 1910.254

(4) ANSI/AWS Z49.1-1999, Safety in Welding and Cutting and Allied Processes.

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Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 $\mu g/ft^2$) and windowsills (250 $\mu g/ft^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of 200 $\mu g/ft^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 $\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

Attachment 1

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 $\mu g/ft^2$ on floors and 250 $\mu g/ft^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

Industrial Hygiene Survey

Pennsylvania Army National Guard (PA ARNG)

Prepared For: NGB ARNG– Region North IH Office

Survey Location:

Chambersburg Readiness Center
1010 Lincoln Way West
Chambersburg, PA 17201

Prepared By: Aria Environmental, Inc. (AEI)
PO Box 286
Woodbine, MD 21797

Survey Date: September 19, 2011

AEI Project #: J11-590 3i PA Chambersburg RC

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Non- **CIH, CSP**
Industrial Hygienist

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List of Tables and Appendices

Executive Summary

Aria Environmental, Inc. (AEI) was contracted to perform an industrial hygiene evaluation for the Pennsylvania Army National Guard (PA ARNG) Chambersburg Readiness Center located at 1010 Lincoln Way West, Chambersburg, PA 17201. Non-[redacted], CIH, CSP performed the evaluation on September 19, 2011. The point of contact for the facility was Non-[redacted]. The purpose of the evaluation was to identify and measure the existence and extent of potentially hazardous operations or conditions at Army National Guard (ARNG) facilities. The survey included: (1) evaluations of operations including ventilation system evaluations, noise dosimetry if appropriate, lighting surveys, hazard control evaluations and any additional information pertinent to the operations; (2) an evaluation of the physical condition of the facility and personnel concerns including visual inspections for peeling potentially lead-based paint, damaged suspect asbestos-containing materials, water damage or mold problems; indoor air quality concerns; and housekeeping practices; and (3) photographs of the exterior and interior of the readiness center. The results of the evaluation indicated the following:

Vehicle Exhaust Ventilation – One local vehicle exhaust ventilation system with one drop serves the maintenance garage. The flow rate was 839 cubic feet per minute (CFM) which indicates that the ACGIH Ventilation Manual flow requirements for the types of vehicles that could be serviced in the garage are not met in the one drop. The maintenance garage is reportedly not used for vehicle maintenance currently. The ventilation should be upgraded only if vehicles will be serviced in the future at this maintenance garage.

Paint Chip and Wipe Samples for Lead Contamination: A visual inspection was performed to determine if there were any areas of peeling paint at the facility that could pose a lead exposure hazard. No peeling paint was observed in the facility. Results of dust wipe samples taken throughout the facility were below the recommended maximum criterion for surface contamination of lead (200 µg/ft^2) with the exception of the floor of the former firing range where the bullet trap would have been located (250 µg/ft^2).

Visual Inspection for Damaged Asbestos-Containing Materials: A visual inspection was performed to determine if there were any suspect asbestos-containing material and its condition. No damaged suspect material was observed.

Visual Inspection for Water Damage and Mold Growth: A visual inspection was performed to determine if there was any water damage or visible mold growth at the facility. No water damage or evidence of mold growth was observed on the day of the survey.

Visual Inspection for Housekeeping Concerns: A visual inspection was performed to assess the state of housekeeping in the facility. The housekeeping was good.

Emergency Eyewash and Shower Maintenance: A plumbed emergency eyewash station was not being inspected and flushed on a weekly basis and required a general cleaning.

Lighting: A lighting survey was performed in all areas within the readiness center. The evaluation indicated illumination deficiencies in the maintenance garage. The illumination measurements indoors ranged from a low of 12 foot candles (fc) to a high of 125 fc.

Indoor Air Quality: Temperature measurements were below the comfort range and relative humidity measurements were acceptable on the day of the survey. The outdoor temperature was 68.4° F on the day of monitoring, and some doors and windows were open. Employees did not

complain of discomfort related to temperature or relative humidity. Indoor concentrations of carbon dioxide (CO_2) and carbon monoxide (CO) were below the guidelines in all areas.

Material Safety Data Sheets: The Material Safety Data Sheet (MSDS) notebook was reviewed and found to require updates including retiring old data sheets per OSHA 29 CFR 1910.1200.

Overall, the Chambersburg Readiness Center has few industrial hygiene issues, and programs are in place to protect, inform and train employees and maintain the facility.

1 Introduction

Aria Environmental, Inc. (AEI) was contracted to perform an industrial hygiene evaluation for the Pennsylvania Army National Guard (PA ARNG) Chambersburg Readiness Center located at 1010 Lincoln Way West, Chambersburg, PA 17201. Non- , CIH, CSP performed the evaluation on September 19, 2011. The point of contact for the facility was Non-Responsive . The purpose of the evaluation was to identify and measure the existence and extent of potentially hazardous operations or conditions at Army National Guard (ARNG) facilities.

The Chambersburg Readiness Center was built in the 1980s with a major renovation and addition in 2009. The operations conducted at the facility include supply and administrative duties. A diagram of the building layout is provided in Appendix A. All sampling sheets and laboratory certificates of analysis are provided in Appendix B. Selected photographs taken during the evaluation are provided in Appendix C. Indoor air quality and lighting survey measurement log sheets are provided in Appendix D. Lists of all references used during the evaluation are included in the main body of the report.

2 Evaluation Methods

The industrial hygiene survey of the Chambersburg Readiness Center consisted of visual inspections, interviews with employees, and sampling plan development in order to achieve the following: (1) evaluations of operations including operation description, sampling for lead in air or on surfaces if appropriate, ventilation system evaluations, noise measurements if appropriate, lighting surveys, hazard control evaluations and any additional information pertinent to the operations; (2) an evaluation of the physical condition of the facility and personnel concerns including visual inspections for peeling potentially lead-based paint, damaged suspect asbestos-containing materials, water damage or mold problems; indoor air quality concerns; and housekeeping practices; and (3) a building layout and photographic documentation of the interior of the facility.

The National Guard Bureau (NGB) Region North IH Office provided all industrial hygiene equipment for air sampling (equipment and media), ventilation, lighting, noise and indoor air quality (IAQ) survey instruments and paid for laboratory analytical fees. Laboratories were chosen or approved by the NGB IH office.

3 Operations

Operations conducted at the Chambersburg facility consists exclusively of supply and administrative duties. Some vehicle stenciling is performed. No other maintenance of vehicles or other physical tasks are performed at the facility. Ground maintenance and upkeep of the building are the responsibility of the state employed Armorer and not part of the duties of National Guard personnel.

4 Noise Hazards

No noise-generating activities were taking place on the day of the survey. Due to the nature of the tasks performed onsite, no activities requiring noise monitoring are anticipated to occur at the RC.

5 Hazard Controls

Ventilation Systems

Local exhaust ventilation systems were present in the maintenance garage. Ventilation systems were evaluated using a TSI VelociCalc Plus model 9555-P. The unit was factory calibrated in March 2011. Flow rates were measured on all local exhaust ventilation units, by taking measurements at each drop or across the face of grills or vents. Measurements were compared to the American Conference of Governmental Industrial Hygienists (ACGIH) Industrial Ventilation Manual, latest edition or the Department of the Army Technical Manual 5-810-1 Mechanical Design Heating, Ventilating, and Air-conditioning to determine adequacy.

Vehicle Exhaust Ventilation – One local vehicle exhaust ventilation system with one drop serves the maintenance garage. Airflow was measured at the drop face. The calculated flow rate is shown in Table 1A (839 cubic feet per minute (CFM)). The measurement indicates that the ACGIH Ventilation Manual flow requirements for the types of vehicles that could be serviced in the garage are not met in the one drop. The maintenance garage is reportedly not used for vehicle maintenance currently. Ventilation requirements for tactical vehicles typically serviced in National Guard facilities are listed in Table 1B. However, vehicles are rarely run above idle or half throttle which is typically only about 600-700 RPM. Therefore, the necessary exhaust volumes may be less than those required by the ACGIH manual where volumes are calculated for engines running at full speed or higher when under load.

Table 1A - Vehicle Tailpipe Exhaust Ventilation Measurements for the PA ARNG Chambersburg Readiness Center.

LEV Point ID	Location	Dimensions	Measured Value (cfm)	Meets Requirements?
A	Maintenance Garage	8" Diameter LEV	839	**No**

Table 1B - Representative Vehicle Tailpipe Ventilation Requirements Based on the ACGIH Industrial Ventilation Manual, Figure VA-85-02.

Vehicle Type	Tailpipe Temperature (°F)	Engine Displacement (ft^3)	Engine Revolutions per Minute (RPM)	Required Exhaust Flow (CFM)
5 Ton Cargo Truck	300	0.293	1,700	857
2.5 Ton Cargo Truck	300	0.277	2,500	1,192
High Mobility Multipurpose Wheeled Vehicle (HMMWV)	297	0.219	3,300	1,284
Commercial Utility Cargo or Sport Utility Vehicle (CUCV or SUV)	267	0.219	3,800	1,370
Heavy Expanded Mobility Tactical Truck (HEMTT)	300	0.426	2,350	1,722

6 Physical Condition of the Facility and Personnel Concerns

An evaluation of the physical condition of the facility and personnel concerns was performed including visual inspections for water damage or mold problems; potential ergonomic problems;

and housekeeping practices. Lighting measurements were taken in all areas of the facility, and indoor air quality measurements were taken in select areas.

Paint Chip and Dust Wipe Samples for Lead Contamination

A visual inspection was performed to determine if there were any areas of peeling paint at the facility that could pose a lead exposure hazard. Peeling paint was observed and sampled from the Annex Building's locker storage room floor where lines had been painted. The paint chip (CHA-LBP-19) was submitted to Aerosol Monitoring and Analysis Analytical Services, Inc. (AMA) for atomic absorption spectrophotometry (AAS) following the analytical method ASTM D3335-85A and found to contain 0.22% lead by weight which is less than the EPA and Pennsylvania definition for lead-based paint (>0.5% by weight).

To determine if any cross contamination of lead from any source into areas of the facility existed, wipe samples were collected using ghost wipes and 10cm x 10cm templets. The Environmental Protection Agency (EPA) and the Commonwealth of Pennsylvania limits for lead in dust are 40 micrograms per square foot (µg/ft^2) on floors, 250 µg/ft^2 on window sills, and 400 µg/ft^2 in window troughs. These limits apply to pre-1978 Army facilities only if children under 6 years of age occupy them for 60 or more hours per year. The NGB Region North Industrial Hygiene Office concurs with the US Army Public Health Command recommended maximum level for adult exposures of 200 µg/ft^2 on floors and frequently contacted surfaces, which is more stringent for window sills than the EPA/State standards. Dust wipe samples were submitted to AMA for atomic absorption spectrophotometry (AAS) following the analytical method ASTM D3335-85A. All wipe samples collected from the facility were below the recommended maximum criterion with the exception the floor in the bullet trap area of the former firing range. Results are given in Table 2 and certificates of analysis are included in Appendix B.

Table 2 – Results of Dust Wipe Sampling for PA ARNG Chambersburg Readiness Center on September 19, 2011.

Wipe Sample #	Sample Location	Result (µg/ft^2)*
CHA-LBP-01	Break Room - counter top	<110
CHA-LBP-02	Drill Hall – table	<110
CHA-LBP-03	Drill Hall – floor with painted line	<110
CHA-LBP-04	Drill Hall – service counter to kitchen	<110
CHA-LBP-05	Kitchen – prep table	<110
CHA-LBP-06	Drill Hall – podium	<110
CHA-LBP-07	Rec Room (Former Firing Range) – bar top	<110
CHA-LBP-08	Rec Room (Former Firing Range) – center of floor	<110
CHA-LBP-09	Rec Room (Former Firing Range) – dusty shelf	<110
CHA-LBP-10	Rec Room (Former Firing Range) – floor in former bullet trap	**250**
CHA-LBP-11	Outside door to Rec Room (Former Firing Range)	<110

CHA-LBP-12	Front Lobby – floor	<110
CHA-LBP-13	Floor in Hall at entrance to Drill Hall	<110
CHA-LBP-14	Maintenance Shop Room - wooden work bench	<110
CHA-LBP-15	Penthouse HVAC Room – floor	<110
CHA-LBP-16	Annex – treadmill	<110
CHA-LBP-17	Annex – chair in fitness center	<110
CHA-LBP-18	Annex – Locker storage room – floor	110

*The recommended maximum level for adult exposures is 200 µg/ft^2 lead on surfaces.

Visual Inspection for Damaged Asbestos-Containing Materials

A visual inspection was performed to determine if there was any damaged suspect asbestos-containing material (ACM). No damaged suspect ACM was observed.

Visual Inspection for Water Damage and Mold Growth

A visual inspection was performed to determine if there was any water damage or visible mold growth at the facility. No water damage or evidence of mold growth was observed on the day on the inspection.

Visual Inspection for Housekeeping Concerns

A visual inspection was performed to assess the state of housekeeping in the facility. The housekeeping was good. Most areas were clean and tidy.

Lighting

Illumination levels were measured using a Cal-Light 400L, calibrated on March 9, 2011, and compared to minimum lighting requirements for various facilities and functions based on the following references: American National Standards Institute/Illumination Engineering Society of North America (ANSI/IESNA) Standard RP-1-04 (Office Lighting) and ANSI/IESNA Standard RP-7-01 (Lighting Industrial Facilities).

A lighting survey was performed in all areas within the readiness center. The evaluation indicated illumination deficiencies in the maintenance garage. The illumination measurements indoors ranged from 12 foot candles (fc) to 125 fc. The complete results of the evaluation are presented in Appendix D, including whether the results met minimum requirements for illumination.

Indoor Air Quality (IAQ)

Indoor air quality measurements (i.e., temperature, relative humidity, carbon dioxide and carbon monoxide) were taken using a TSI Q-Trak Plus Model 8554, factory calibrated in February, 2011. Temperature, relative humidity and carbon dioxide (CO_2) measurements were compared to the recommended levels established by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE). Carbon monoxide (CO) concentrations were compared to the ACGIH Threshold Limit Value (TLV) for CO and the Environmental Protection Agency's (EPA's) National Ambient Air Quality Standard (NAAQS) for CO.

Industry guidelines or standards for seasonal temperature and humidity ranges for thermal comfort are established by ASHRAE standard 55-2010. These ranges are presented in Table 3. The U.S. EPA also recommends maintaining relative humidity below 60% and ideally between 30 and 50% to prevent mold growth. Complete results are provided in Appendix D with the lighting survey measurements.

Table 3 - Acceptable Ranges of Temperature and Relative Humidity in Summer and Winter[a]

Relative Humidity	Winter Temperature	Summer Temperature
30%	68.5°F – 76.0°F	74.0°F – 80°F
40%	68.5°F – 75.5°F	73.5°F – 79.5°F
50%	68.5°F – 74.5°F	73.0°F – 79.0°F
60%	68.0°F – 74.0°F	72.5°F – 78.0°F

[a]adapted from ASHRAE Standard 55-2010

Temperature and Relative Humidity
Indoor temperature and relative humidity (Rh) measurements in the facility ranged from 69.6 to 74.6° F and 49.7 to 58.7% Rh. Temperatures were mostly below the summer comfort range and relative humidity measurements were acceptable in most of the facility. The outdoor temperature and relative humidity was 68.4° F and 53.7% on the day of monitoring, and some doors and windows were open. The employees did not complain of any discomfort related to the temperature or humidity.

Carbon Dioxide (CO_2) and Carbon Monoxide (CO)
Carbon dioxide and carbon monoxide measurements are used to assess ventilation system performance. The exhaled breath of building occupants is the main indoor source of carbon dioxide; therefore, the build up of CO_2 indicates inadequate ventilation. The concentration of concern for carbon dioxide is set by ASHRAE standard 62.1–2010 as 700 ppm above outdoor concentrations. Indoor levels of CO_2 ranged from 404 to 604 parts per million (ppm). The outdoor CO_2 measurement was 456 ppm on the day of the survey. CO_2 measurements were below the guideline in all areas, indicating adequate fresh air exchange.

Carbon monoxide is a byproduct of incomplete combustion. Indoor concentrations indicate contamination caused by improperly vented or malfunctioning boilers, furnaces or stoves or from vehicle exhaust entering the building from garages, loading docks, nearby roads or parking lots. The concentration of interest set by ASHRAE standard 62.1-2010 and the National Ambient Air Quality Standards (NAAQS) for carbon monoxide is an 8 hour average of 9 ppm. The ACGIH TLV for CO is 25 ppm. Indoor levels of CO ranged from 0.1 to 0.6 ppm; therefore, concentrations are below occupational exposure limits, ASHRAE and the NAAQS-recommended CO concentrations.

Additional Information

Emergency Shower and Eyewash Station - There was an emergency eyewash and shower station in the maintenance area that was not being inspected and flushed weekly. According to the latest guidance, ANSI Z358.1-2009, plumbed eyewash and shower stations should be flushed weekly. Flushing prevents buildup of sediments (rust) and naturally-occurring and potentially pathogenic microorganisms such as *Acanthamoeba*, *Pseudomonas*, and *Legionella*. An article from the Occupational Health and Safety Magazine about eyewash station

maintenance is available at the following internet web link: ohsonline.com/articles/2005/07/keep-an-eye-on-the-maintenance.aspx?sc_lang=en, and a fact sheet from Lab Safety Supply is provided at: http://www.labsafety.com/refinfo/ezfacts/ezf129.htm.

Material Safety Data Sheets
The Material Safety Data Sheet (MSDS) notebook was reviewed and required updating including retiring old data sheets per the OSHA Hazard Communication Standard: 29 CFR 1910.1200.

7 Conclusions

The results of the evaluation indicated no concerns with the following at the facility: contamination of clean air sources, water intrusion, peeling potentially lead-based paints, noise hazards, visible mold, the presence of damaged suspect asbestos-containing materials and housekeeping. The results of the evaluation indicated industrial hygiene concerns in the following areas: vehicle exhaust ventilation in the maintenance garage, one area with accumulated lead-containing dust, eye wash station maintenance, temperature and lighting. Overall, the Chambersburg Readiness Center has few industrial hygiene issues, and programs are in place to protect, inform and train employees and maintain the facility.

8 Limitations

This report has been prepared for the exclusive use of the U.S. Army National Guard (USARNG) and/or their agents. This service has been performed in accordance with generally accepted industrial hygiene and environmental practices. No other warranty, expressed or implied, is made. Our conclusions and recommendations are based, in part, upon information provided to us by others and our site observations. We have not verified the completeness or accuracy of the information provided to us by others, unless otherwise noted. Our observations and recommendations are based upon conditions readily visible at the site at the time of our site visit, and upon current industry standards.

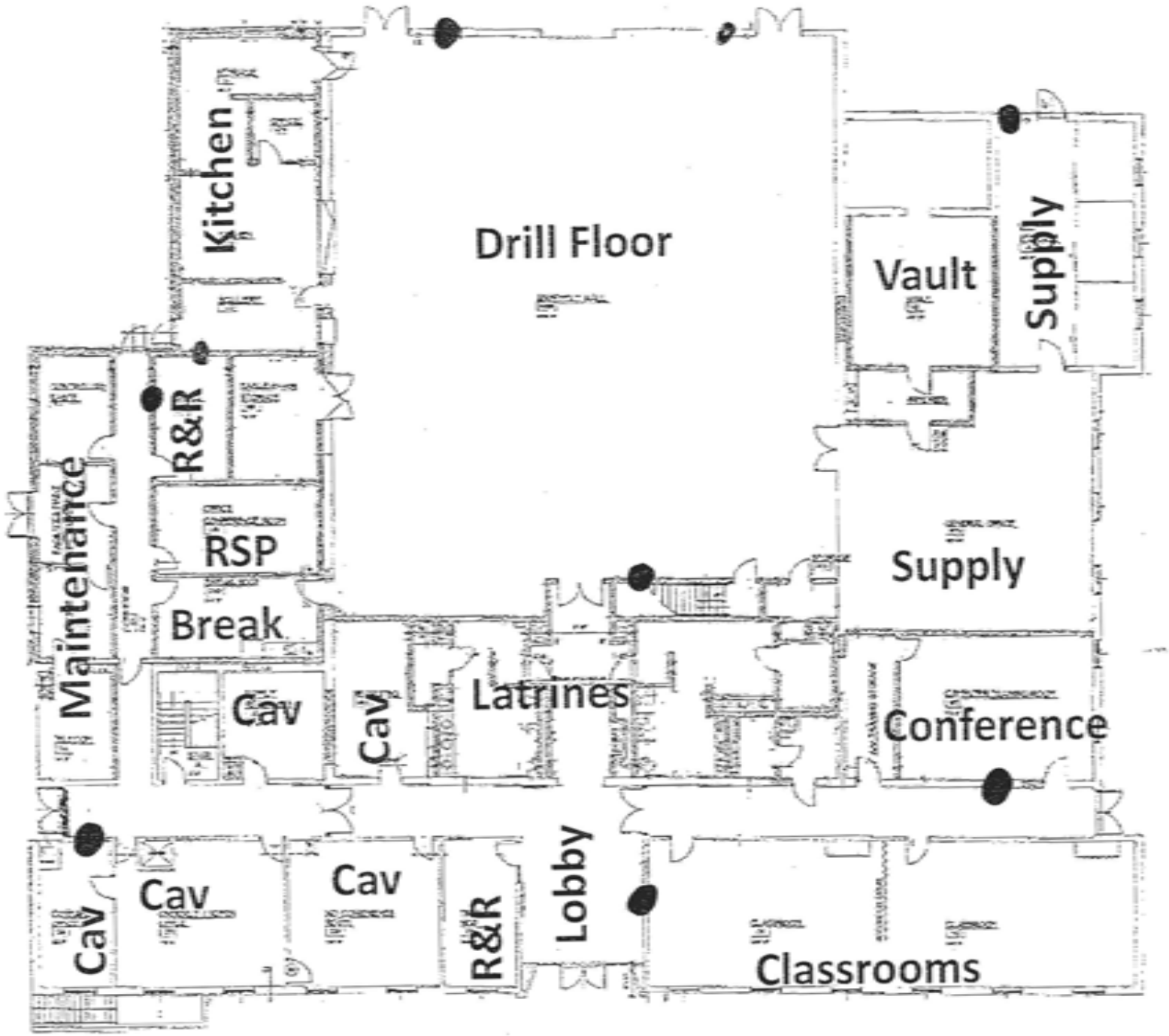
By virtue of providing the services described in this report, the preparer does not assume the responsibility of the person(s) in charge of the site, or otherwise undertake responsibility for reporting to any local, state, or federal public agencies any conditions at the site that my present a potential danger to public health, safety, or the environment. It is the Client's responsibility to notify the appropriate local, state, or federal public agencies as required by law, or otherwise to disclose, in a timely manner, any information that may be necessary to prevent any danger to public health, safety, or the environment. Under this scope of services, the preparer assumes no responsibility regarding response actions initiated as a result of these findings. Response actions are the sole responsibility of the Client and should be conducted in accordance with local, state, and/or federal requirements, and should be performed by appropriately licensed personnel as warranted.

9 References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current edition.
2. Title 24, Code of Federal Regulations (CFR), Part 35, Subpart B, Sections 35.110, Definitions of Lead-Based Paint, Housing and Urban Development, U.S. Department of Housing.
3. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998.

4. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, May 25, 2007.
5. Army Regulation (AR) 385-10, The Army Safety Program, August 23, 2007.
6. Army Regulation (AR) 420-70 Buildings and Structures, 29 May 1992.
7. Army Regulation (AR) 200-1 Environmental Protection and Enhancement, 21 February 1997.
8. Army Regulation (AR) 420-1 Army Facilities Management, 19 February 2008.
9. Department of the Army Pamphlet (DA PAM) 40-501, Medical Service, Hearing Conservation Program, December 15, 1998.
10. Department of the Army Pamphlet (DA PAM) 40-503, Medical Service, Industrial Hygiene Program, October 30, 2000.
11. Technical Manual (TM) 5-810-1, Mechanical Design, Heating, Ventilation, and Air Conditioning, June 1991.
12. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current edition.
13. RP-1-2004 (Office Lighting) and RP-7-2001 (Industrial Lighting), Illuminating Engineering Society of North America (IESNA)/ANSI.
14. The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), Standard 62.1-2010, "Ventilation for Acceptable Indoor Air Quality" and Standard 55-2010, "Thermal Environmental Conditions for Human Occupancy".
15. NIOSH website: http://www.cdc.gov/niosh/.
16. OSHA website: http://www.osha.gov/.
17. Army Public Health Command website: http://phc.amedd.army.mil/Pages/default.aspx.
18. EPA website: http://www.epa.gov.

Appendix A
Building Layout



Location of Fire Extinguishers

Appendix B
Certificates of Analysis for Dust Wipe and Bulk Samples

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY
INDUSTRIAL HYGIENE, ENVIRONMENTAL LEAD & ENVIRONMENTAL MICROBIOLOGY
ISO/IEC 17025:2005
www.aihaaccreditedlabs.org
LAP #100470

Client:	National Guard Bureau	**Job Name:**	Chambersburg RC	**Chain Of Custody:**	511436
Address:	301-IH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation	**Job Location:**	Chambersburg, PA	**Date Submitted:**	9/23/2011
	Havre de Grace, Maryland 21078	**Job Number:**	J11-590	**Person Submitting:**	Non-R
		P.O. Number:	W912K6-09-A-0003	**Date Analyzed:**	10/11/2011
Attention:	Non-			**Report Date:**	10/14/2011

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		Total ug	Final Result		Comments
12002815	CHA-LBP-01	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
12002816	CHA-LBP-02	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
12002817	CHA-LBP-03	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
12002818	CHA-LBP-04	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
12002819	CHA-LBP-05	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
12002820	CHA-LBP-06	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
12002821	CHA-LBP-07	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
12002822	CHA-LBP-08	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
12002823	CHA-LBP-09	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
12002824	CHA-LBP-10	Flame	Wipe	****	0.108	110	ug/ft²	27	250	ug/ft²	
12002825	CHA-LBP-11	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
12002826	CHA-LBP-12	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
12002827	CHA-LBP-13	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
12002828	CHA-LBP-14	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
12002829	CHA-LBP-15	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
12002830	CHA-LBP-16	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
12002831	CHA-LBP-17	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
12002832	CHA-LBP-18	Flame	Wipe	****	0.108	110	ug/ft²	12	110	ug/ft²	
12002833	CHA-LBP-19	Flame	Paint Chip	****	N/A	0.011	%Pb		0.22	%Pb	

AMA Analytical Services, Inc.

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CERTIFICATE OF ANALYSIS

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ISO/IEC 17025:2005
www.aihaaccreditedlabs.org
LAB #100470

Client:	National Guard Bureau	**Job Name:**	Chambersburg RC	**Chain Of Custody:**	511436
Address:	301-IH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation	**Job Location:**	Chambersburg, PA	**Date Submitted:**	9/23/2011
	Havre de Grace, Maryland 21078	**Job Number:**	J11-590	**Person Submitting:**	Non-Responsive
		P.O. Number:	W912K6-09-A-0003	**Date Analyzed:**	10/11/2011

Report Date: 10/14/2011

Attention: Non-Responsive

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft^2)	Reporting Limit	Total ug	Final Result	Comments

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B

N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)

%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)

Note: All samples were received in good condition unless otherwise noted.

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results

Final results for air and wipe samples are based on client supplied information nor verified by this laboratory.

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

See QC Summary for analytical results of quality control samples associated with these samples.

Analyst: Non-Responsive

Technical Manager: Non-Responsive

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AMA Analytical Services, Inc.
Focused on Results www.amalab.com
AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)
4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This Number For Inquires) 511436

P1/2

Mailing/Billing Information:
1. Client Name: National Guard Bureau
2. Address 1: 301-IH Old Bay Lane
3. Address 2: Attn: NGB-AVN-SI, State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:
1. Job Name: Chambersburg RC
2. Job Location: Chambersburg, PA
3. Job #: JI-590 P.O. #: W912K6-09-A-0003
4. Contact Person [redacted]
5. Submitted By: [redacted] Signature: [redacted]

Reporting Information (Results will be provided as soon as technically feasible):

AFTER HOURS (must be pre-scheduled)
☐ Immediate Date Due:
☐ 24 Hours Time Due:
Comments:

NORMAL BUSINESS HOURS
☐ Immediate ☐ 3 Day
☐ Next Day ☒ 5 Day
☐ 2 Day Date Due: 9/30/11
☐ Results Required By Noon (Every Attempt Will Be Made to Accomodate)

REPORT TO:
☒ Include [redacted] with Report ariaenviro.com
☒ [redacted] us.army.mil
☐ Fax [redacted] us.army.mil
☐ Verbal [redacted]

Asbestos Analysis

PCM Air – Please Indicate Filter Type:
☐ NIOSH 7400 ____ (QTY)
☐ Fiberglass ____ (QTY)

TEM Air – Please Indicate Filter Type:
☐ AHERA ____ (QTY)
☐ NIOSH 7402 ____ (QTY)
☐ Other (specify ____) ____ (QTY)

PLM Bulk
☐ EPA 600 – Visual Estimate ____ (QTY)
☐ EPA Point Count ____ (QTY)
☐ NY State Friable 198.1 ____ (QTY)
☐ Grav. Reduction ELAP 198.6 ____ (QTY)
☐ Other (specify ____) ____ (QTY)

MISC
☐ Vermiculite
☐ Asbestos Soil PLM __ (Qual) PLM __ (Quan) PLM/TEM __ (Qual) PLM/TEM __ (Quan)

TEM Bulk
☐ ELAP 198.4/Chatfield ____ (QTY)
☐ NY State PLM/TEM ____ (QTY)
☐ Residual Ash ____ (QTY)

TEM Dust
☐ Qual. (pres/abs) Vacuum/Dust ____ (QTY)
☐ Quan. (s/area) Vacuum D5755-95 ____ (QTY)
☐ Quan. (s/area) Dust D6480-99 ____ (QTY)

TEM Water
☐ Qual. (pres/abs) ____ (QTY)
☐ ELAP 198.2/EPA 100.2 ____ (QTY)
☐ EPA 100.1 ____ (QTY)

☒ All samples received in good condition unless otherwise noted. (TEM Water samples: ____ °C)

Metals Analysis
☒ Pb Paint Chip 1 (QTY) total
☒ Pb Dust Wipe (wipe type 10x10cm) 18 (QTY) - total
☐ Pb Air ____ (QTY)
☐ Pb Soil/Solid ____ (QTY)
☐ Pb TCLP ____ (QTY)
☐ Drinking Water ☐ Pb ____ (QTY) ☐ Cu ____ (QTY) ☐ As ____ (QTY)
☐ Waste Water ☐ Pb ____ (QTY) ☐ Cu ____ (QTY) ☐ As ____ (QTY)
☐ Pb Furnace (Media ____) ____ (QTY)

Fungal Analysis
Collection Apparatus for Spore Traps/Air Samples: ____
Collection Media ____
☐ Spore-Trap ____ (QTY) ☐ Surface Vacuum Dust ____ (QTY)
☐ Surface Swab ____ (QTY) ☐ Culturable ID Genus (Media ____) ____ (QTY)
☐ Surface Tape ____ (QTY) ☐ Culturable ID Species (Media ____) ____ (QTY)
☐ Other (Specify ____) ____ (QTY)

SAMPLE INFORMATION / **ANALYSIS** / **METHOD**

CLIENT ID NUMBER	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPE AREA	TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	[illegible]	[illegible]	TAPE	SWAB
CHA-LBP-01	Breakroom counter	9-19-11		10x10cm				X				X				
CHA-LBP-02	Drill Hall table	↓		↓				↓				↓				
CHA-LBP-03	Drill Hall floor															
CHA-LBP-04	Drill Hall counter															
CHA-LBP-05	Kitchen prep table															
CHA-LBP-06	Drill Hall podium															
CHA-LBP-07	IFR bar top															
CHA-LBP-08	IFR floor															
CHA-LBP-09	IFR shelf															
CHA-LBP-10	IFR toilet trap															
CHA-LBP-11	Outside IFR floor															
CHA-LBP-12	Front lobby floor	↓		↓				↓				↓				

CLIENT CONTACT (LABORATORY STAFF ONLY)
Date/Time: Contact: By:
Date/Time: Contact: By:
Date/Time: Contact: By:

LABORATORY STAFF ONLY: (CUSTODY)
1. Date/Time RCVD: 9/23/11 @ 1000 Via: FedEx By [redacted]
2. Date/Time Analyzed: ____/____/____ @ ____ By (Print): ____ Sign: ____
3. Results Reported To: ____ Via: ____ Date: ____/____/____ Time: ____ Initials: ____
4. Comments: 7950 7792 0900

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(410) 267-0024

AMA Analytical Services, Inc.
Focused on Results www.amalab.com
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4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

10/2002 210 REV 6.08

CHAIN OF CUSTODY

(Please Refer To This Number For Inquires) 514436 P2/2

(2)

Mailing/Billing Information:
1. Client Name: National Guard Bureau
2. Address 1: 301-IH Old Bay Lane
3. Address 2: Attn: NGB-AVN-SI, State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:
1. Job Name: Chambersburg PC
2. Job Location: Chambersburg, PA
3. Job #: [redacted] W912K6-09-A-0003
4. Contact Per: [redacted]
5. Submitted B: [redacted]

Reporting Information (Results will be provided as soon as technically feasible):

AFTER HOURS (must be pre-scheduled)
- ☐ Immediate Date Due:
- ☐ 24 Hours Time Due:
- Comments:

NORMAL BUSINESS HOURS
- ☐ Immediate
- ☐ Next Day
- ☐ 2 Day
- ☐ 3 Day
- ☒ 5 Day +
- Date Due:
- ☐ Results Required By Noon (Every Attempt Will Be Made to Accomodate)

REPORT TO:
- ☒ Include [redacted] with Report @ ariaenvire.com
- ☐ Fax: [redacted] @us.army.mil
- ☐ Verbal: [redacted] @us.army.mil

Asbestos Analysis

PCM Air – Please Indicate Filter Type:
- ☐ NIOSH 7400 (QTY)
- ☐ Fiberglass (QTY)

TEM Air – Please Indicate Filter Type:
- ☐ AHERA (QTY)
- ☐ NIOSH 7402 (QTY)
- ☐ Other (specify) (QTY)

PLM Bulk
- ☐ EPA 600 – Visual Estimate (QTY)
- ☐ EPA Point Count (QTY)
- ☐ NY State Friable 198.1 (QTY)
- ☐ Gravimetric Reduction ELAP 198.6 (QTY)
- ☐ Other (specify) (QTY)

MISC
- ☐ Vermiculite
- ☐ Asbestos Soil PLM (Qual) PLM (Quant) PLM/TEM (Qual) PLM/TEM (Quant)

TEM Bulk
- ☐ ELAP 198.4/Chatfield (QTY)
- ☐ NY State PLM/TEM (QTY)
- ☐ Residual Ash (QTY)

TEM Dust
- ☐ Qual. (pres/abs) Vacuum/Dust (QTY)
- ☐ Quan. (#/area) Vacuum D5755-95 (QTY)
- ☐ Quan. (#/area) Dust D6480-99 (QTY)

TEM Water
- ☐ Qual. (pres/abs) (QTY)
- ☐ ELAP 198.2/EPA 100.2 (QTY)
- ☐ EPA 100.1 (QTY)

☐ All samples received in good condition unless otherwise noted. (TEM Water samples °C)

Lead Analysis
- ☐ Pb Paint Chip 1 (QTY)
- ☐ Pb Dust Wipe (wipe type Ghostwipes) 18 (QTY) – total
- ☐ Pb Air (QTY)
- ☐ Pb Soil/Solid (QTY)
- ☐ Pb TCLP (QTY)
- ☐ Drinking Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY)
- ☐ Waste Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY)
- ☐ Pb Furnace (Media) (QTY)

Fungal Analysis
- Collection Apparatus for Spore Traps/Air Samples:
- Collection Media
- ☐ Spore-Trap (QTY)
- ☐ Surface Swab (QTY)
- ☐ Surface Tape (QTY)
- ☐ Other (Specify) (QTY)
- ☐ Surface Vacuum Dust (QTY)
- ☐ Culturable ID Genus (Media) (QTY)
- ☐ Culturable ID Species (Media) (QTY)

CLIENT ID NUMBER	SAMPLE INFORMATION: SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPE AREA	ANALYSIS: TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	MATRIX: WIPE	AIR	BULK	TAPE	SWAB
CHA-LBP-13	Hall floor	9/9/10		10"x10"sq				X				X					
CHA-LBP-14	Weight bench																
CHA-LBP-15	cardio open floor																
CHA-LBP-16	treadmill																
CHA-LBP-17	fitness ctr bench																
CHA-LBP-18	Locker room floor			↓								↓					
CHA-LBP-19	painted floor lines	↓						W			X						

CLIENT CONTACT

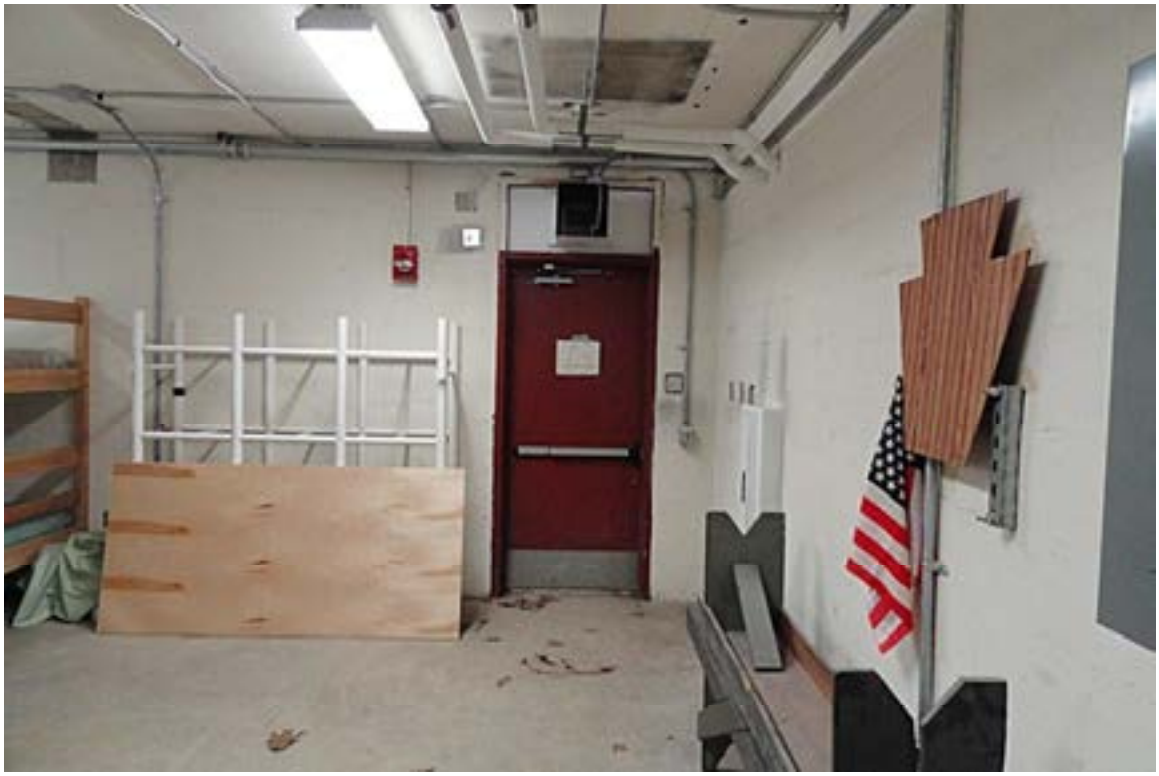
(LABORATORY STAFF ONLY)

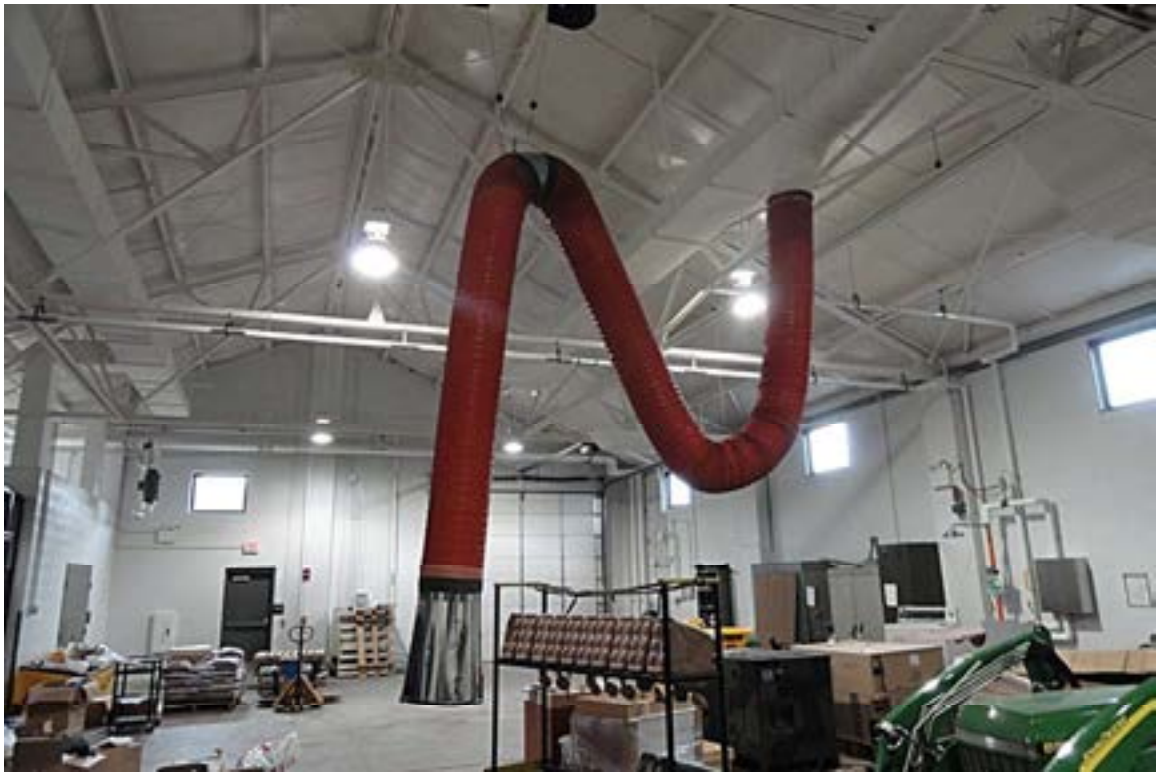
Date/Time:	Contact:	By:
Date/Time:	Contact:	By:
Date/Time:		

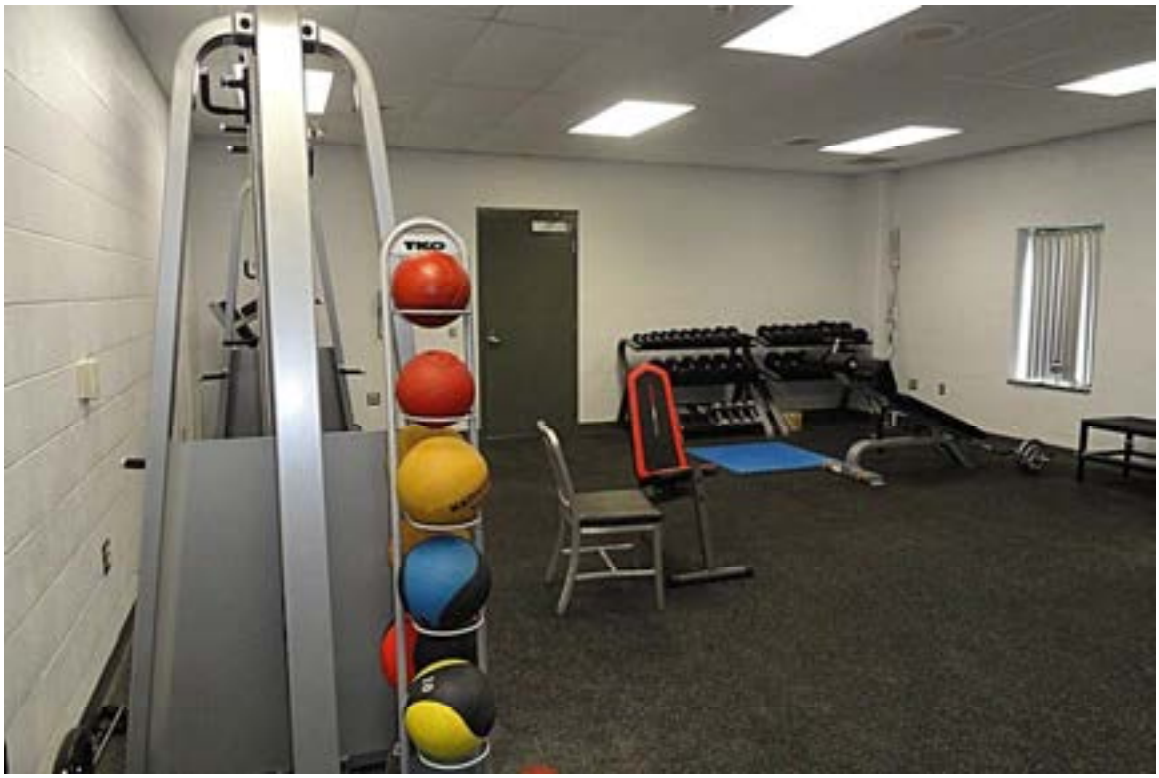
[redacted]

LABORATORY STAFF ONLY: (CUSTODY)
1. Date/Time RCVD: / / @ Via: By (Print):
2. Date/Time Analyzed: / / @ By (Print): Sign:
3. Results Reported To: Via: Date: / / Time:
4. Comments:

Appendix C
Photo Documentation







Appendix D
IAQ and Lighting Survey Log Sheets

National Guard Industrial Hygiene Survey For Indoor Air Quality and Light Level

State	PA	City	Chambersb	IAQ								Light		
Date	9/19/2011	Inspector	Non-Responsive	Instrument		TSI Q-Trak Plus Model 7565-X						Instrument		CAL-LIGHT 400
Facility Description	**Readiness Center**			Serial Number		7565-X0839020						Serial Number		k070003
Weather Conditions				Last Calibration		Feb-11						Last Calibration		9-Mar-11
Location		No. Occupants	Time	Temp. (°F)	Exceeded	RH (%)	Exceeded	CO_2 (ppm)	Exceeded	CO (ppm)	Exceeded	Illuminance (fc)	Insufficient	Illuminance Reference Value (fc)
Break Room		1	9:30 AM	72.7		53.5		527		0.1		45-74		10
Drill Hall		1	9:38 AM	73.8		52.5		521		0.6		40-102		30-50
Kitchen		1	9:40 AM	74.6		51.4		502		0.1		51-107		50
Foyer		1	10:07 AM	72.8		49.7		516		0.2		25-70		10
Hall near Conference room #3		1	10:08 AM	72.6		50.5		525		0.4		12-62		5
Conference Room #3		1	10:09 AM	72.6		51.6		543		0.2		100-125		30-50
Readiness Office		1	10:10 AM	72.5		52.7		520		0.3		92-105		30-50
Hall near AV storage		1	10:11 AM	72.0	X	53.0		535		0.4		65-102		5
Conference Room near Classrooms		1	10:13 AM	71.4	X	55.3		515		0.4		95-125		30-50
Classrooms		1	10:15 AM	69.6	X	51.4		470		0.2		38-95		30-50
Janitors closet		1	10:18 AM	69.7	X	56.5		511		0.1		38-45		10
Hall between bathrooms		1	10:19 AM	71.1	X	53.6		524		0.2		65.0		5
R&R Office		2	10:20 AM	70.5	X	55.1		504		0.1		55-65		30-50
RSP Office		2	10:22 AM	71.9	X	52.7		474		0.1		40-105		30-50
Family Readiness Room		2	10:25 AM	72.1	X	52.8		514		0.2		65-85		30-50
Maintenance Office		2	10:26 AM	72.0	X	53.7		503		0.1		110-125		30-50
Telecom Room		2	10:27 AM	71.8	X	54.5		476		0.1		55-85		30
Maintenance Shop and Storage Room		2	10:31 AM	71.8	X	55.1		588		0.4		45-75		30-50
Maintenance Office		3	10:32 AM	72.6		55.5		604		0.2		55-85		30-50
Rec Room		2	10:40 AM	72.3	X	57.9		491		0.2		20-60		10
Storage and Mechanical Room		2	10:45 AM	72.9		58.7		530		0.2		46-75		30
Supply Room		1	11:05 AM	71.3	X	51.8		495		0.2		45-85		30-50
Annex - Maintenance bay		2	11:47 AM	72.1	X	54.5		404		0.4		28-60	X	75

National Guard Industrial Hygiene Survey For Indoor Air Quality and Light Level

State	PA	City	Chambersb	IAQ							Light		
Date	9/19/2011	Inspector	Non-Responsive	Instrument		TSI Q-Trak Plus Model 7565-X					Instrument		CAL-LIGHT 400
Facility Description	**Readiness Center**			Serial Number		7565-X0839020					Serial Number		k070003
Weather Conditions				Last Calibration		Feb-11					Last Calibration		9-Mar-11
Location		No. Occupants	Time	Temp. (°F)	Exceeded	RH (%)	Exceeded	CO_2 (ppm)	Exceeded	CO (ppm)	Exceeded	Illuminance (fc)	Insufficient	Illuminance Reference Value (fc)
Annex - Cardio room		1	11:48 AM	71.8	X	54.4		453		0.3		80-115		30
Annex - Fitness center		1	11:49 AM	71.4	X	55.1		504		0.2		55-85		30
Annex - Locker storage room		1	11:50 AM	69.9	X	56.5		426		0.1		25-60		30
Outside			11:40 AM	68.4		53.7		456		0.2				

Prepared for:

National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland




Industrial Hygiene Survey for PAARNG – Chambersburg Readiness Center 1010 Lincoln Way West Chambersburg, Pennsylvania 17201

AECOM
January 2013
Document No.: 60276421/Chambersburg Readiness Center

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland

Industrial Hygiene Survey for PAARNG – Chambersburg Readiness Center 1010 Lincoln Way West Chambersburg, Pennsylvania 17201

Non-Responsive
Ind
Non-Responsive
Project Manager
Non-Responsive
Northeast District Health & Safety Manager

AECOM Environment
January 2013
Document No.: 60276421/Chambersburg Readiness Center

AECOM

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Executive Summary

On November 5, 2012, AECOM Technical Services Northeast, Inc. (AECOM) conducted an Industrial Hygiene (IH) survey of the Chambersburg Readiness Center facility located at 1010 Lincoln Way West in Chambersburg, Pennsylvania. Maintenance Repairman Non-Responsive was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Chambersburg Readiness Center operations.

The industrial hygiene survey was conducted in general accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings", dated January 2012.

The Chambersburg Readiness Center is currently staffed by 8 personnel. The facility is configured as administrative areas with a drill hall and associated spaces.

Personnel at the facility were undertaking normal daily activities, which are administrative in nature, at the time of the survey.

The activities undertaken during the industrial hygiene survey included facility descriptions, lead wipe sampling, evaluation of housekeeping, illumination studies, ventilation system evaluation, and a review of the physical building condition.

The Chambersburg Readiness Center is housed in a single story masonry building with basement constructed circa 1965, with a complete renovation in 2009.

Lighting levels measured throughout the facility were generally adequate as per American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

Wipe samples collected in association with several areas of the former firing range indicated lead levels above the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 micrograms per square foot (ug/ft^2) for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

No damaged suspect asbestos containing materials were observed during the evaluation.

No peeling paint was observed during the evaluation.

No evidence of water intrusion or suspect mold growth was observed during the evaluation.

The Heating Ventilation & Air Conditioning (HVAC) system in the building consists of air handling units that provide fresh air to occupied spaces.

1.0 Facility Description and Operations

The Chambersburg Readiness Center is located in a single story masonry building constructed circa 1965 with a complete renovation in 2009. The drill hall is at the center of the facility surrounded by administrative spaces on the north, kitchen to the east, and supply to the west side. The Interior finishes are typically comprised of painted block walls; acoustical drop ceilings, and floor tile.

The basement space is primarily a former firing range that has been converted to bunk space and a recreation room.

The primary activity at the Chambersburg Readiness Center is routine administrative duties. The Chambersburg Readiness Center is currently staffed by approximately 8 personnel.

2.0 Sampling in Readiness Centers

2.1.1 Wipe Sampling

Wipe sampling for lead was conducted in the drill hall and administrative areas, following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost Wipes.

The following table presents the results of the lead wipe sampling conducted at the facility.

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
CH-01	HVAC – Supply Side of Filters – Inside Duct	<110 ug/ft^2
CH-02	HVAC – Fan Side of Filters – Inside Duct	<110 ug/ft^2
CH-03	Drill Hall – Floor	<110 ug/ft^2
CH-04	Kitchen – Top of Refrigerator	<110 ug/ft^2
CH-05	Readiness Office – Supply Grille	<110 ug/ft^2
CH-06	Recruiter Office – Desk	<110 ug/ft^2
CH-07	Readiness Office – Cabinet	<110 ug/ft^2
CH-08	Corridor – Floor	<110 ug/ft^2
CH-09	Break Room - Supply Grille	<110 ug/ft^2
CH-10	Former Range – Bullet Trap Area	570 ug/ft^2
CH-11	Former Range – Light Fixture	<110 ug/ft^2
CH-12	Former Range – Stored Item	380 ug/ft^2
CH-13	Former Range – Floor	290 ug/ft^2
CH-14	Outside Former Range – Floor	<110 ug/ft^2

ug/ft^2 = Micrograms per square foot.

Wipe samples in association with the former range (bullet trap area, floor, and a stored item) were found to contain lead in excess of the action level of 200 micrograms per square foot (ug/ft^2) per NG-PAM 420-15. Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

Per Non-Responsive of NGB-IH, the requirement for Lead air sampling has been removed from the Statement of work. It was reported that historically, air samples collected at administrative facilities are typically below the limit of detection.

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. No peeling paint was observed during the survey.

3.1.2 Suspect Asbestos Containing Materials

AECOM did not observe damaged, friable suspect asbestos-containing materials (ACM) in readily accessible areas of the Chambersburg Readiness Center during this survey. The facility is newly renovated.

Typical miscellaneous building materials observed but not sampled include floor tiles and associated mastic, fiberglass pipe insulation, cove base and associated mastic, and ceiling tiles.

3.1.3 Water Damage/Mold

AECOM did not observe evidence of water intrusion or suspect mold growth during this survey.

3.1.4 Housekeeping

The Chambersburg Readiness Center was observed to be generally clean and orderly during this assessment. AECOM did not observe dust accumulation on readily accessible horizontal surfaces within areas commonly used in the facility.

3.1.5 Indoor Air Quality/ Ergonomics

The administration section contains general office space. The administration section is generally utilized by all of the Chambersburg Readiness Center staff members. No Indoor Air Quality concerns were noted by the Chambersburg Readiness Center personnel.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (^{o} Fahrenheit), and relative humidity (as percentage) are presented in the following table. All readings were within acceptable guidelines.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (^{o}F)	Relative Humidity (%)
Outside - Baseline	0.8	380	44.5	31.5
Break Room	1.4	617	73.7	37.5
Office	0.6	682	69.6	27.0
Drill Hall	0.9	527	68.5	33.1

Table 3-1 Guidelines:
Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard.
OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25 ppm.
Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.
Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 5.10.1).
Temperature: Winter (clothing insulation = 1.0 clo) Relative humidity 30-60% - Temp - 68 – 75°F
Summer Temp - 73 – 79°F. (Derived from ASHRAE Standard 55-2010)

Chambersburg Readiness Center personnel did not report any ergonomics issues or concerns. Office furniture and accessories designed to promote ergonomically correct behaviors were observed.

4.0 Ventilation and HVAC System

4.1.1 Ventilation Systems and Potential for Contamination of Clean Air Sources

No regular potential for contamination of clean air sources was observed at the facility. A vehicle was observed to be parked in the drill hall at the time of the survey.

AECOM did not observe any obvious indications of maintenance issues with the general ventilation system from readily accessible areas. Percentage of outside air supplied by the HVAC system was calculated using CO_2 levels, and was determined to be approximately 21%, using the ASHRAE formula $\%OA=((C_{RA}-C_{SA})/(C_{RA}-C_{OA}))X100$, where C_{RA}=605 ppm CO_2, C_{SA}=580 ppm CO_2, and C_{OA}=486 ppm CO_2. Based on the carbon dioxide levels observed inside the building during this assessment, there appears to be a sufficient quantity of outside air being delivered via the HVAC system in order to satisfy the occupant load.

Very little of dust was observed at diffusers. Site personnel indicated that the system seems to work well. Temperature readings were constant in all areas occupied by readiness center personnel.

4.1.2 HVAC Maintenance

HVAC maintenance is reportedly performed biannually. The system is new as of the 2009 renovation. Very little dust was observed on supply grilles in the facility.

5.0 Lighting

Lighting levels in all areas were measured utilizing an Extech model 401-025 light meter that displays lighting levels in foot-candles. Lighting levels were adequate in all areas.

Table 5-1: Light Survey

Location	Results (Foot candles)	Met Standard (Y/N)	Standard*
Mechanical Room	33.5	Y	30
Former Range (Bunk/Lounge)	58.6	Y	10
Readiness Office	82.4	Y	50
Orderly Office	58.4	Y	50
Office	75.0	Y	50
Classroom	60.5-95.2	Y	30
Conference Room	79.8	Y	30
Men's Room	54.9	Y	5
Women's Room	50.5	Y	5
Lobby	75.8	Y	10
Stairwell	44.4	Y	5
Office	64.3	Y	50
Break Room	119.4	Y	10
Family Support	55.9	Y	50
East Vestibule	47.0	Y	10
Kitchen	84.8	Y	50
Drill Hall	58.6	Y	30
Supply	33.2-62.4	Y	30
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI/IESNA RP-7-01)			

6.0 Evaluation of Attached Garage

There is a no garage associated with the Chambersburg Readiness Center. There is an FMS shop located on the property to the east of the readiness center.

7.0 Conclusions and Limitations

AECOM has conducted this survey in accordance with applicable OSHA methods and standard industrial hygiene practice. The following conclusions were based on the observations and assessments of activities that occurred during the on-site evaluation:

Housekeeping is performed regularly at the Chambersburg Readiness Center.

Lighting levels measured throughout the facility were generally adequate as per American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

Wipe samples collected in association with several areas of the former firing range indicated lead levels above the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft^2 for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

No damaged suspect asbestos containing materials were observed during the evaluation.

No peeling paint was observed during the evaluation.

No evidence of water intrusion or suspect mold growth was observed during the evaluation.

The HVAC system in the building consists of air handling units that provide fresh air to occupied spaces.

AECOM provided these services consistent with the level and skill ordinarily exercised by members of the profession currently providing similar services under similar circumstances at the time the services were provided. This statement is in lieu of other statements either expressed or implied. This report is intended for the sole use of National Guard Bureau – Army National Guard. The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, and use or re-use of this document, the findings, conclusions, or recommendations is at the risk of said user.

As with all such surveys, the results of the sampling represent conditions found on the date of the survey and may not represent conditions found at other times. Additionally, this survey was limited with respect to the specific parameters indicated above and should not be construed to be a comprehensive evaluation or a definitive representation of conditions within the facility. The information presented in this report is intended to be used as a guide to evaluate the need for further investigation or the need for modifications to the processes or procedures surveyed.

The Client recognizes and agrees that all testing and remediation methods have reliability limitations, no method nor number of sampling locations can guarantee that a condition will be discovered within the performance of the services as authorized by the Client. Additionally, the passage of time may result in a change in the environmental characteristics at this site. This report does not warrant against future operations or conditions that could affect the recommendations made. The results, findings, conclusions, and recommendations expressed in this report are based only on conditions that were observed during AECOM's inspection of the site.

Appendix A

Chambersburg Readiness Center Facility Layout

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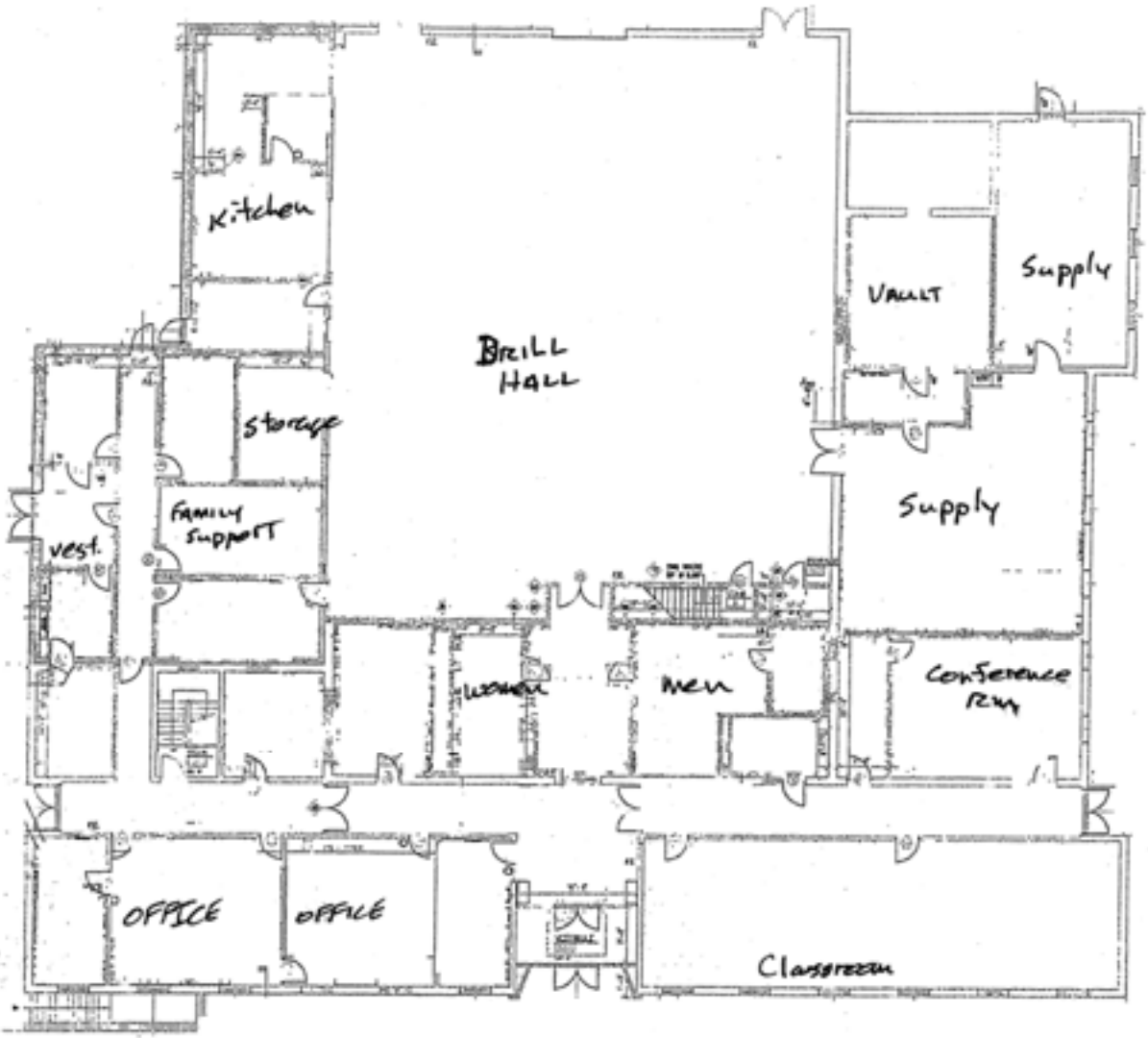

Fire Escape Plan

Appendix B

Chambersburg Readiness Center Photographs

AECOM

Photograph 1

Facility Front

Photograph 2

Drill Hall

Photograph 3
 Drill Hall HVAC Duct
Photograph 4
 Drill Hall HVAC Fan Unit

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Photograph 5

Boiler Room

Photograph 6

Former Firing Range

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Photograph 7

Kitchen

Photograph 8

Lobby

Appendix C

Analytical Results

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AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	PA-Group 4c RCx	Chain Of Custody:	514473
Address:	301-H Old Boy Lane, Attn: ANNG-CIG-P, State Military Reservation	Job Location:	Chambersburg EC	Date Submitted:	10/12/2012
	Havre de Grace, Maryland 21078	Job Number:	60276423.1	Person Submitting:	AECOM
		P.O. Number:	W912G6-05-A-0030	Date Analyzed:	10/17/2012 Report Date: 10/17/2012

Attention: Non-Responsive

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	Total ug	Final Result	Comments
I3014086	CH-01	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
I3014087	CH-02	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
I3014088	CH-03	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
I3014089	CH-04	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
I3014090	CH-05	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
I3014091	CH-06	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
I3014092	CH-07	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
I3014093	CH-08	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
I3014094	CH-09	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
I3014095	CH-10	Flame	Wipe	****	0.111	110 ug/ft²	63	570 ug/ft²	
I3014096	CH-11	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
I3014097	CH-12	Flame	Wipe	****	0.111	110 ug/ft²	43	390 ug/ft²	
I3014098	CH-13	Flame	Wipe	****	0.111	110 ug/ft²	32	290 ug/ft²	
I3014099	CH-14	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	

An AIHA (#100470) and NY ELAP (#10920) Accredited Laboratory

4475 Forbes Blvd. · Lanham, MD, 20706 · (301) 459-2640 · Toll Free (800) 346-0961 · Fax (301) 459-2643

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AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	PA Group 4e RCs	Chain Of Custody:	51403		
Address:	301-81 Old Bay Lane, Attn: ATZN-CG-P, State Military Reservation	Job Location:	Chambersburg RC	Date Submitted:	11/12/2012		
	Havre de Grace, Maryland 21078	Job Number:	60276421.1	Person Submitting:	AECOM		
		P.O. Number:	W912DQ-08-A-3003	Date Analyzed:	11/27/2012	Report Date:	11/27/2012

Attention: Non-Responsive

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (SF)	Reporting Limit	Total ug	Final Result	Comments

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B

NA = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)

%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)

Note: All samples were received in good condition unless otherwise noted.

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results

Final results for air and wipe samples are based on client supplied information nor verified by this laboratory.

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

See QC Summary for analytical results of quality control samples associated with these samples.

An Non-Responsive Technical Manager: Non-Responsive

An AIHA (#100478) and NY ELAP (#10920) Accredited Laboratory

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Focused on Results www.amalab.com
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4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

[Please Refer To This Number For Inquiries]

514473

Mailing/Billing Information:

1. Client Name: National Guard Bureau
2. Address 1: 301-H Old Bay Lane
3. Address 2: Attn: NGB-AVN-SL State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:

Pb-Group HE RC's

Chambersburg, PC

3. Job # 60276121.1 P.O. #: W91248-09-A-0002

4. Contact Person [redacted]

5. Submitted by: AECOM [redacted]

Reporting Info (Results provided as soon as technically feasible). If no TAT/Reporting Info is provided, AMA will assign defaults of 5-Day [redacted] in contacts on file.

NORMAL BUSINESS HOURS

Next Day

REPORT TO

PLM Bulk

TEM Bulk

TEM Dust*

TEM Water

*PCM Air - Please Indicate Filter Type:

TEM Air* - Please Indicate Filter Type:

☐ Pb Paint Chip

☒ *Pb Dust Wipe (wipe type) Ghost, 14 (QTY)

☐ *Pb Air (QTY)

☐ Pb Soil/Solid (QTY)

☐ Pb TCLP (QTY)

☐ Drinking Water

☐ Waste Water

☐ Pb Paraaco (Media (QTY)

Collection Apparatus for Spore Trap/Air Samples:

Collection Media:

☒ All samples received in good condition unless otherwise noted.

TEM Water samples: °C

MISC

CLIENT ID #	SAMPLE LOCATION/ID	DATE TIME	VOL/AREA	ANALYSIS	MATRIX	CLIENT CONTACT (LABORATORY STAFF ONLY)
						Date/Time: Contact: By:
	SEE ATTACHED FIELD DATA SHEETS					
						Date/Time: Contact: By:
						Date/Time: Contact: By:
						[redacted]

LABORATORY STAFF ONLY CUSTODY

1) Date/Time Rec'd: 11 12 12 1000 BHK

2) Date/Time Analyzed:

3) Results Reported:

4) Comments: 7839 6500 3697

January 2013

AECOM

Surface Sampling Field Data Sheet

Date Collected: 11/5/12
Job Number: 60274121.1
Contact Person: [redacted]

Job Name: ~~Chambersburg RC~~ PA Group 4 RCs
Job Location: Chambersburg RC
Address: 1010 Lincoln Way West
Chambersburg, PA

Company: AECOM
Page 1 of 1
Phone Number: 5154320506
Collected By: [redacted]
COC Number:

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in^2/ft^2)	Collection Media
CH-01	HVAC Supply SIDE	In Duct	16 in^2	Ghost
CH-02	HVAC Fan SIDE	In Duct	↓	↓
CH-03	Drill Hall	Floor		
CH-04	Kitchen	Top of Fridge		
CH-05	OFFICE (Readiness)	Supply Grille		
CH-06	OFFICE (recruiter)	Desk		
CH-07	OFFICE (readiness)	on cabinet		
CH-08	Corridor	Floor		
CH-09	Break Rm	Supply Grille		
CH-10	Former Range	Bullet Trap		
CH-11	↓	light Fixture		
CH-12	↓	Stored Item		
CH-13	↓	Floor		
CH-14	OUTSIDE RANGE	Floor	↓	↓

Please Return Samples To:
AMA Analytical Services, Inc., 4475 Forbes Blvd, Lanham, MD 20706, (800) 346-0961/(301) 459-2640 Fax, www.amalab.com, info@amalab.com

BEST AVAILABLE COPY

Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. http://www.osha.gov/comp-links.html

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INDUSTRIAL HYGIENE SURVEY

GENERAL EDWIN C. SHANNON ARMORY

COLUMBIA, PA

March 17, 2003
August 19, 2003
And
December 10, 2003

OPTECH

OPERATIONAL TECHNOLOGIES
CORPORATION

INDUSTRIAL HYGIENE SURVEY
DET 1 BTRY A 1ST BN 108TH FA
GEN. EDWIN C. SHANNON ARMORY
COLUMBIA, PENNSYLVANIA

1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the General Edwin C. Shannon Armory, Columbia, Pennsylvania on March 17, 2003, with return visits on August 19 and December 11, 2003. NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. Non-Responsive from OpTech, completed this survey. Non-Responsive a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the III Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D.

RECOMMENDATIONS

1. ILLUMINATION

1.1. Illumination levels were below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting would improve some areas.

2. WIPE SAMPLES

2.1. Samples for inorganic lead collected in the classroom, assembly hall, state maintenance area, library, FAX/copy area and the dining area exceeded the 200 $\mu g/ft^2$ criteria. Suspect that lead-contamination is from lead paint and former indoor firing range activities. Lead dust from the range has migrated throughout the facility and has accumulated over time. Recommend that the facility be wet-wiped/mopped or cleaned using a high efficiency particulate air (HEPA) vacuum. This method of cleaning should be repeated during routine housekeeping duties, to further lower lead dust levels.

2.0. EXECUTIVE SUMMARY

2.1. No indoor air quality problems were noted.

2.2. Illumination levels were below recommended minimum standards in most areas of the facility.

2.3. Wipe samples for inorganic lead were collected throughout the facility. Samples in the classroom, assembly hall, state maintenance area, library, FAX/copy area and the dining area exceeded the 200 $\mu g/ft^2$ criteria. Suspect that lead-contamination is from lead paint and former indoor firing range activities. Lead dust from the range has migrated throughout the facility and has accumulated over time.

2.4. Air sampling for inorganic lead was conducted. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building.

2.5. Paint was peeling on the east stairway wall due to a previous water intrusion problem. The paint is considered lead-contaminated. It was noted during the third visit that the area had been repaired.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	GEN EDWIN C. SHANNON ARMORY		
ADDRESS	DET 1 BTRY A 1ST BN 108TH FA		
	229 Walnut Street		
	Columbia, PA 17512		
CONTACT	SSG Non-Responsive		
PHONE	717-864-2163 (or Hanover 717-632-9131)		
DATE BUILT	1879 / 1906	FACILITY SIZE	13,200 sq.ft.
INDOOR FIRING RANGE	CLOSED		2 floors plus basement
ASSISTED	Non-Responsive – State Maintenance		
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	1 (State Maint.) Visited biweekly by Hanover Armory		
TRADITIONAL (MIL)	Approximately 40		
CHILD ACTIVITIES	None		
ADULT ACTIVITIES	None		

3.1.1. The exterior is brick and appears to be in good condition. The interior has been kept in good condition. A hot air fuel oil steam furnace provides heat. The facility formerly contained an indoor firing range. The range had been closed and cleaned over 20 years prior to this survey. It is presently being utilized as a kitchen and dining area.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 indoor air quality standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ANSI/ASHRAE 62-2001 states that concentrations of 1,000 ppm CO_2 are not considered a health risk. However, USAF Armstrong Laboratories and other independent studies have concluded that health complaints begin at levels greater than 600 ppm, with significantly greater complaints above 800 ppm.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ANSI/ASHRAE 62-2001 recommends that the temperature range should be between 73 to 77 degrees Fahrenheit (°F) during the summer and 68 to 75°F during the winter. Relative humidity levels should remain between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE 1
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO2 (ppm)	Temp. (°F)	RH (%)
0845	Outdoors - Background	0.0	432	48.3	80.0
0905	Library	0.0	552	73.6	33.7
0920	2ND Floor	0.0	562	74.0	34.7
0930	Drill Floor	0.0	550	72.0	36.9
0945	Basement – Kitchen	0.0	534	68.2	45.6
0955	Basement - State Maintenance Area	0.0	542	67.8	46.0
1005	Library	0.0	557	71.5	36.7

3.2.5. No indoor air quality problems were noted. Carbon monoxide and carbon dioxide levels were within recommended ranges.

3.3. ILLUMINATION

3.3.1. Illumination levels were taken in most areas of the facility. Outdoor sunlight was excluded, as much as possible for this survey, by closing doors and blocking sunlight. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 – 463); and Industrial Lighting, ANSI/IES RP7, 1991, (pages 33 – 38). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
1st Floor				
Library	18 - 62	41	75	NO
Mail Area	18 - 20	19	75	NO
Corridor	10 - 42	28	7.5	YES
Copier / Fax Area	12 – 18	15	75	NO
Entry	12 - 18	14	15	NO

Location	Luminance Range (fc)	Average	Standard	Standard Met
2nd Floor				
Commander's Office	10 – 20	16	70	NO
Desk	26	26	70	NO
Office	14 – 64	38	70	NO
Latrine	38 - 38	38	40	NO
Shower	16	16	20	NO
Classroom	20 - 56	35	75	NO
Section 1 Office	4 – 20	14	70	NO
Desk	4	4	70	NO
Section 2 Office	10 – 18	13	70	NO
Desk	6	6	70	NO
Section 4 Office	16 – 22	18	70	NO
Basement				
Mess Hall (former firing range)	14 - 92	46	7.5	YES
Kitchen	10 – 56	29	75	NO
Kitchen Storage	22 - 30	26	40	NO
State Maintenance Area	20 – 56	44	75	NO
Workbench	40	40	75	NO
Desk	34	34	70	NO

3.3.2. Levels were well below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3.4. WIPE SAMPLES

3.4.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples were taken at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot ($\mu g/ft^2$) and are listed in Table 3. Initially five samples were collected in the facility plus five samples in the former indoor firing range area. These ten samples had suspected laboratory error, which was confirmed by repeat sampling and analysis. Table 3 lists the results from the second visit. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
LEAD WIPE SAMPLING RESULTS (Second Visit)

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Col-03231-34	2nd Floor Classroom	280
PA Col-03231-35	Drill Floor – West Wall – Flag Stand	490
PA Col-03231-36	Kitchen - Floor by Refrigerator	BDL
PA Col-03231-37	State Maintenance Area - Top of Cabinet	490
PA Col-03231-38	Library	9300
PA Col-03231-39	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.2. Since four of the five sample results exceeded the recommended criteria (see Section 3.4.4.), a third visit was scheduled. These samples were collected to further analyze the extent of contamination. Results are listed in Tables 4.

TABLE 4
LEAD WIPE SAMPLING RESULTS (Third Visit)

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Col-03344-14	Assembly Hall - Northwest Corner – Floor	18000
PA Col-03344-15	Assembly Hall – Southeast Stairs	4100
PA Col-03344-16	Assembly Hall - South End – Counter	680
PA Col-03344-17	FAX/Copy Area	1100
PA Col-03344-18	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.3. CLOSED FIRING RANGE WIPE SAMPLING

3.4.3.1. Additional wipe samples were collected in the former indoor firing range area. The range has been closed for over 30 years. This area is presently being utilized as the kitchen and dining hall. The laboratory analysis results are listed in Table 5.

TABLE 5
FORMER FIRING RANGE LEAD WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Col-03344-08	North End – Former Backstop Area	510
PA Col-03344-09	¾ of the way Down Range - Floor	100
PA Col-03344-10	½ way Down Range – Pipe	12000
PA Col-03344-11	Floor by Kitchen	160
PA Col-03344-12	Club Floor – Immediately Outside Range	98
PA Col-03344-13	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.4. WIPE SAMPLING RESULTS

3.4.4.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 $\mu g/ft^2$. This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. (See memorandum in Attachment E, Recommendations for Surface Lead Dust in Armories.) Samples in the classroom, assembly hall, state maintenance area, library, FAX/copy area and the dining area exceeded the 200 $\mu g/ft^2$ criteria. Suspect that lead-contamination is from lead paint and former indoor firing range activities. Lead dust from the range has migrated throughout the facility and has accumulated over time.

3.4.3. AIR SAMPLING

3.4.3.1. Air Sampling for inorganic lead was performed during this survey. Table 6 lists the sampling results, and is reported in milligrams per cubic meter (mg/m^3) of air.

TABLE 6
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
Area – Basement	PA Col-03076-01	Lead	<0.003 mg/m^3	0.05 mg/m^3	YES
Area – Assembly Hall	PA Col-03076-02	Lead	<0.003 mg/m^3	0.05 mg/m^3	YES
Non-Responsive	PA Col-03076-03	Lead	<0.003 mg/m^3	0.05 mg/m^3	YES

mg/m^3 = milligrams per cubic meter < = less than (below detection limits)

3.4.3.2. Air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this building.

3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION DAMAGE

3.5.1.1. Water intrusion damage was located on the east wall of the stairway from the second floor offices to the assembly hall. The State Maintenance worker stated that the damage is about three years old. The intrusion was corrected with a new roof. No other water intrusion problems were reported or observed within the building. It was noted during the third visit that the area had been repaired.

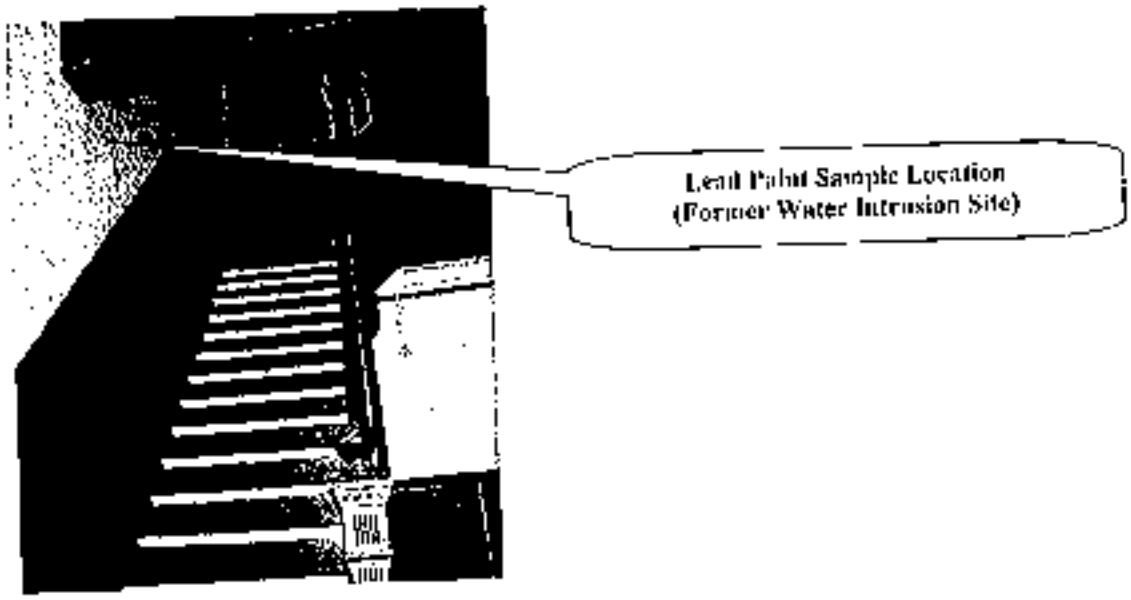
3.5.2. LEAD PAINT

3.5.2.1. Paint is chipping at the water intrusion site on the east wall of the stairway. A paint chip sample was collected for lead analysis. The results of the laboratory analysis are listed in Table 7.

TABLE 7
LEAD PAINT SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (percent)
PA Col-03076-17	Paint Chips – East Wall of Stairway to Drill Floor	1.5%

3.5.2.2. The Environmental Protection Agency (EPA) considers paint with a lead content equal to or greater than 0.5% by weight as contaminated. Therefore, the peeling paint on the stairway wall is considered lead-contaminated. It was noted during the third visit that the area had been repaired.



3.5.3. PROGRAMS

3.5.3.1. There are no designated confined space areas within this facility. A need has not been established for a HAZCOM program, the need for personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.4. HOUSEKEEPING

3.5.4.1. The facility is very clean with the exception of the exhaust fan duct in the kitchen. The duct had a thick layer of dirt and grime. The building is in fairly good condition.

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

E – Recommendations for Surface Lead in Armories

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
Columbia, PA	PENNSYLVANIA ARNG ARMORY	Columbia Armory

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR (Initials)
17 March, 19 Aug, 10 Dec 2003	JSS

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	NA	SSG Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
717-684-2163	DET 1 BTRY A 1ST BN 108TH FA	3	9

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
1+	50			

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	CONROLS 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			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	½ FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	½ 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 WEATHR 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	/		

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	3	C

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

SECTION 6. COMMENTS

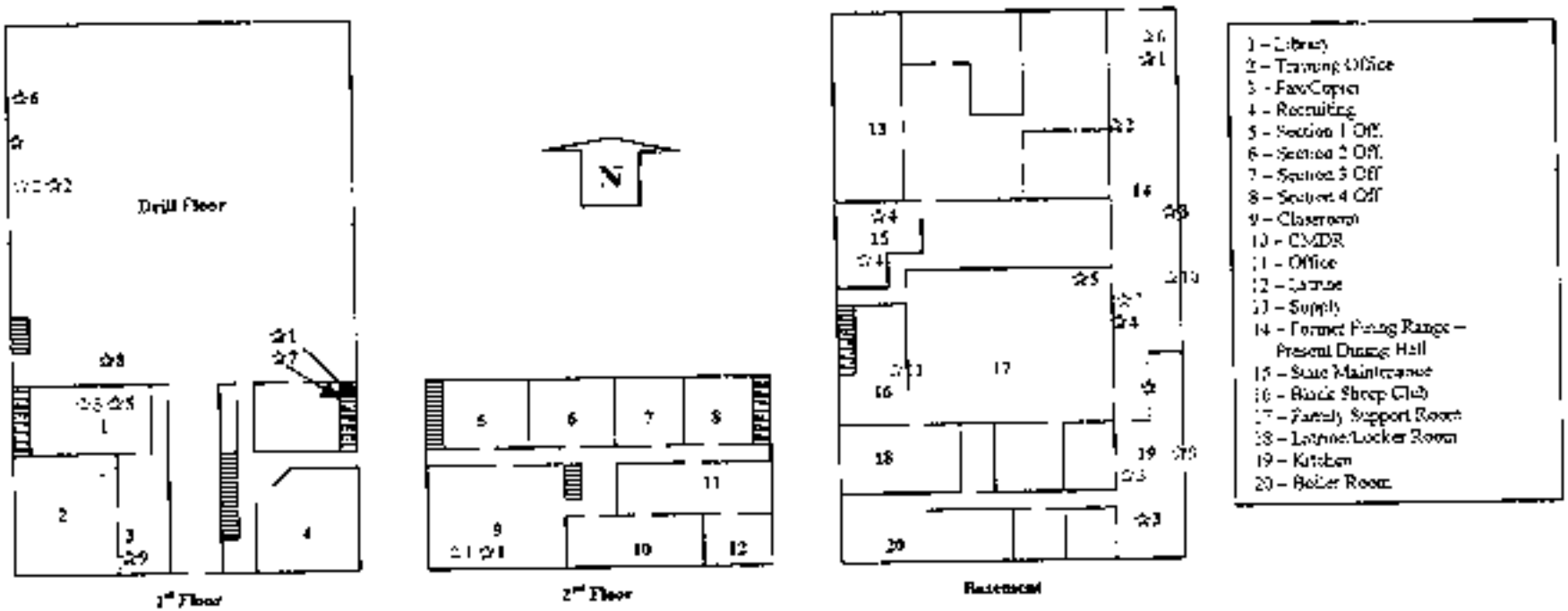
☐ No comments ☐ See attached sheet

PRIVACY ACT STATEMENT

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

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

COLUMBIA, PENNSYLVANIA



☆ = Wipe Sample (first visit) (second visit) (third visit) ☆ = Bulk Samples (Lead paint chips) ☆ = Area Air Sample

DET 1 RTRY A 1ST BN 108TH FA
COLUMBIA, PENNSYLVANIA
WIPE SAMPLING POINTS

1ST VISIT

(A) PA Col-03076-04
2nd Floor Classroom

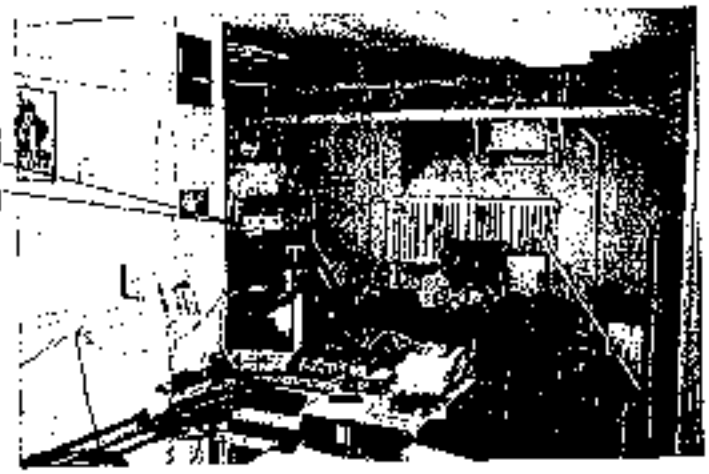
Area Air Sampling

(2) PA Col-03076-05
Drill Floor – West Wall

(3) PA Col-03076-06
Kitchen – Top of Refrigerator

Attachment B

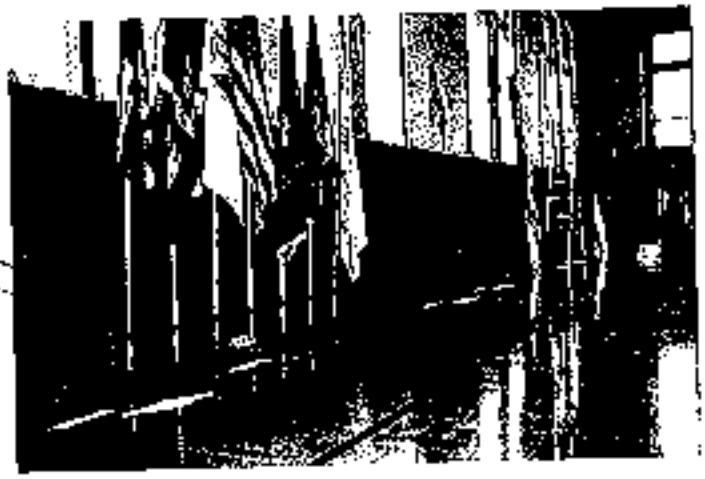
(4) PA Col-03076-07
Basement – State Maint. Area



(5) PA Col-03076-08
1st Floor Library
(Sign Should Be #5)

WIPE SAMPLING
2ND VISIT

(1) PA Col-03231-34
2nd Floor Classroom

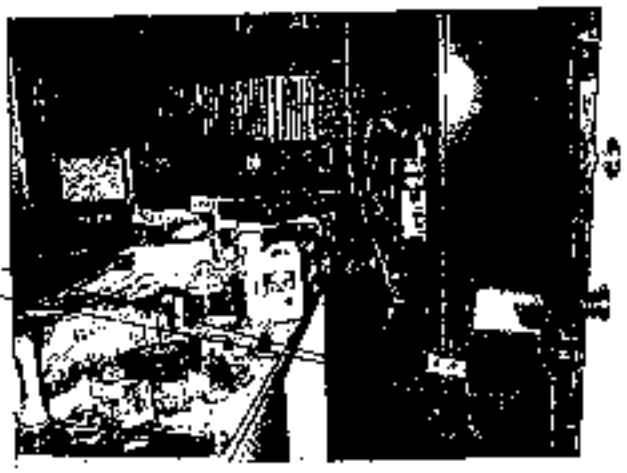


(2) PA Col-03231-35
Assembly Hall – West End

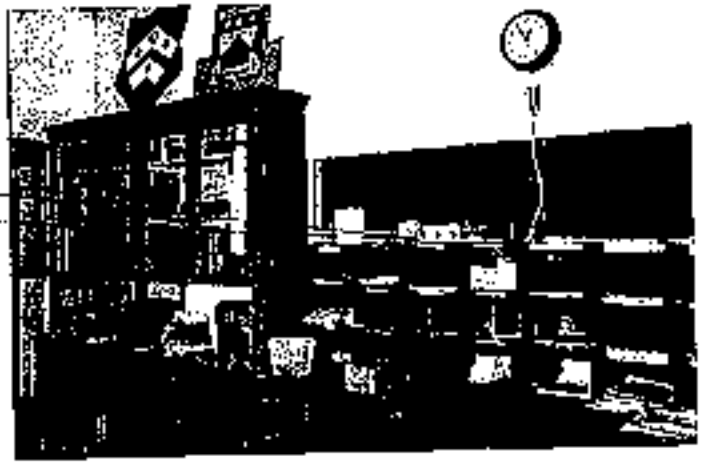
(3) PA Col-03231-36
Basement – Kitchen Floor

Attachment B

(4) PA Col-03231-37
Basement – State Maintenance



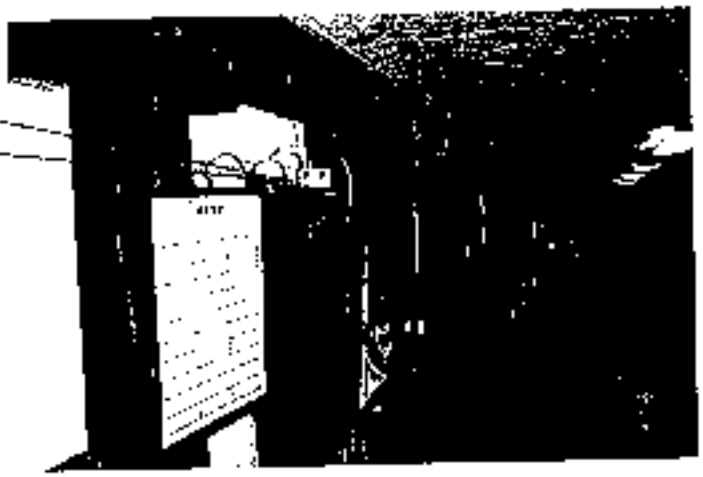
(5) PA Col-03231-38
Library



ADDITIONAL SAMPLING AT FORMER FIRING RANGE

(6) PA Col-03076-10
North End of Former Range

(7) PA Col-03076-11
Shelf – West Shelf of Former Range



(8) PA Col-03076-12
Kitchen Exhaust Duct Extremely Dirty

Attachment B

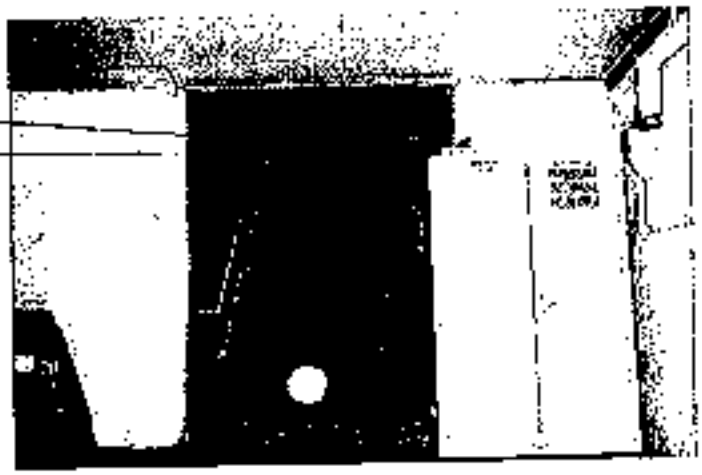
(9) PA Col-03076-13
East Side of Former Range

(10) PA Col-03076-14
Floor – Center of Former Range

(11) PA Col-03076-15
Break Room
(Next to Former Range)

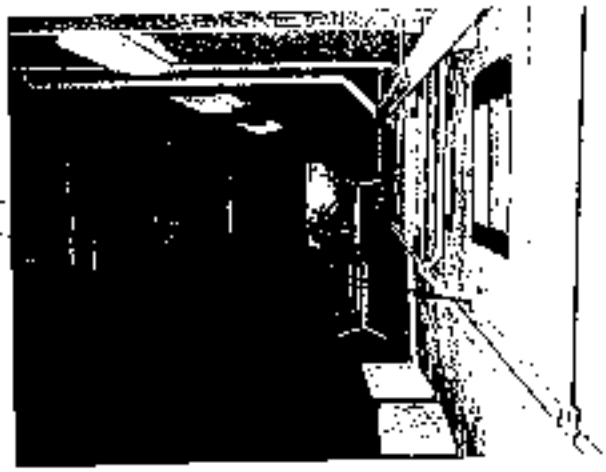
3RD VISIT

(1) PA Col-03344-08
Former Range
Backstop Area



(2) PA Col-03344-09
Former Range
¾ of the Way Down Range

(3) PA Col-03344-10
Former Range
¾ of the Way Down Range



Attachment B

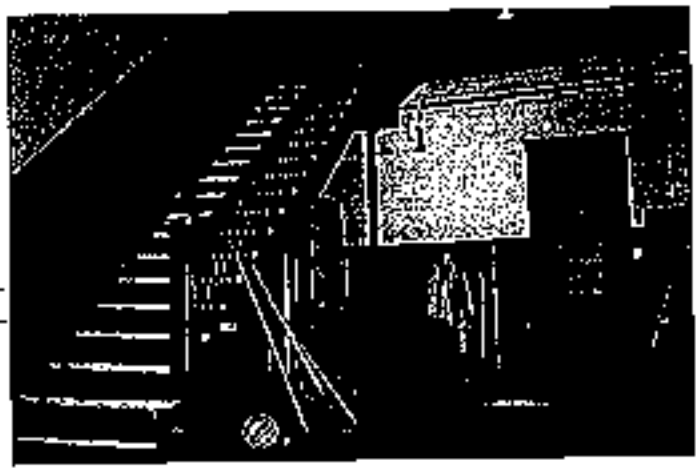
(4) PA Col-03344-11
Close to Kitchen
Behind Former Firing Line

(5) PA Col-03344-12
Outside Former Range
Break Area – Floor

(6) PA Col-03344-14
Assembly Hall
NW Corner

Attachment B

(7) PA Col-03344-15
Assembly Hall
Southeast Stairs



(8) PA Col-03344-16
Assembly Hall
South End - Counter

(9) PA Col-03344-17
FAX/Copy Room - Floor

BEST AVAILABLE COPY

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client:	National Guard Bureau	**Job Name:**	Pennsylvania Armories-Columbia/Plymouth Meeting	**Chain Of Custody:**	117195
Address:	301-2R Old Bay Lane, Attn: NGB-AVN-SI, State Military Reservation	**Job Location:**	Not Provided	**Date Analyzed:**	9/12/2003
	Havre de Grace, Maryland 21078	**Job Number:**	Not Provided	**Person Submitting:**	[redacted]
		P.O. Number:	Not Provided	**Report Date:**	12-Sep-03

Page 1 of 1

Attention: [redacted]

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft^2)	Reporting Limit	Final Result	Comments
0366518	PACol-03231-34	Flame	Wipe	****	0.111	108.00 ug/ft²	280 ug/ft²	
0366519	PACol-03231-35	Flame	Wipe	****	0.111	108.00 ug/ft²	490 ug/ft²	
0366520	PACol-03231-36	Flame	Wipe	****	0.111	108.00 ug/ft²	< 110 ug/ft²	
0366521	PACol-03231-37	Flame	Wipe	****	0.111	108.00 ug/ft²	450 ug/ft²	
0366522	PACol-03231-38	Flame	Wipe	****	0.111	108.00 ug/ft²	9300 ug/ft²	
0366523	PACol-03231-39	Flame	Wipe	****	0.111	108.00 ug/ft²	< 110 ug/ft²	
0366524	PAPly-03232-01	Flame	Wipe	****	0.111	108.00 ug/ft²	< 110 ug/ft²	
0366525	PAPly-03232-02	Flame	Wipe	****	0.111	108.00 ug/ft²	< 110 ug/ft²	
0366526	PAPly-03232-03	Flame	Wipe	****	0.111	108.00 ug/ft²	150 ug/ft²	
0366527	PAPly-03232-04	Flame	Wipe	****	0.111	108.00 ug/ft²	150 ug/ft²	
0366528	PAPly-03232-05	Flame	Wipe	****	0.111	108.00 ug/ft²	160 ug/ft²	
0366529	PAPly-03232-06	Flame	Wipe	****	0.111	108.00 ug/ft²	< 110 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]

Analyst: [redacted] **Technical Manager:**

An AIHA (#08863), NVLAP (# 101143), & New York ELAP (#10920) Accredited Laboratory
4475 Forbes Blvd. • Lanham, MD 20706 • (301) 459-2640 • Toll Free (800) 346-0961 • Fax (301) 459-2643

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client:	National Guard Bureau	**Job Name:**	Pennsylvania Armories	**Chain Of Custody:**	121314
Address:	301-IH Old Bay Lane, Attn: NGB-AVN-SI, State Military Reservation	**Job Location:**	Columbia	**Date Analyzed:**	12/31/2003
	Havre de Grace, Maryland 21078	**Job Number:**	Not Provided	**Person Submitting:**	[redacted]
		P.O. Number:	12-02	**Report Date:**	02-Jan-04

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
0414448	PA Col-03344-08	Flame	Wipe	****	0.111	108.01	ug/ft²	510	ug/ft²	
0414449	PA Col-03344-09	Furnace	Wipe	****	0.111	67.51	ug/ft²	100	ug/ft²	
0414450	PA Col-03344-10	Flame	Wipe	****	0.111	108.01	ug/ft²	12000	ug/ft²	
0414451	PA Col-03344-11	Furnace	Wipe	****	0.111	67.51	ug/ft²	160	ug/ft²	
0414452	PA Col-03344-12	Furnace	Wipe	****	0.111	67.51	ug/ft²	98	ug/ft²	
0414453	PA Col-03344-13	Furnace	Wipe	****	0.111	2.70	ug/ft²	11	ug/ft²	
0414454	PA Col-03344-14	Flame	Wipe	****	0.111	108.01	ug/ft²	18000	ug/ft²	
0414455	PA Col-03344-15	Flame	Wipe	****	0.111	108.01	ug/ft²	4100	ug/ft²	
0414456	PA Col-03344-16	Flame	Wipe	****	0.111	108.01	ug/ft²	680	ug/ft²	
0414457	PA Col-03344-17	Flame	Wipe	****	0.111	108.01	ug/ft²	1100	ug/ft²	
0414458	PA Col-03344-18	Furnace	Wipe	****	0.111	2.70	ug/ft²	8.4	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.

Analyst: [redacted]

Technical Manager: [redacted]

An AIHA (#8863), NVLAP (# 101143), & New York ELAP (#10920) Accredited Laboratory

4475 Forbes Blvd. • Lanham, MD 20706 • (301) 459-2640 • Toll Free (800) 346-0961 • Fax (301) 459-2643

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m³
PA Ann-03065-18	03-17790	186.7	ND	<0.005
PA Ann-03065-26	03-17791	206.4	ND	<0.005
PA Ann-03065-27	03-17792	215.1	ND	<0.005
PA Ann-03066-27	03-17793	158.6	ND	<0.006
PA Ann-03066-28	03-17794	168.4	ND	<0.006
PA Yor-03073-19	03-17795	448.9	ND	<0.002
PA Yor-03073-20	03-17796	436.7	ND	<0.002
PA Yor-03073-21	03-17797	460.6	ND	<0.002
PA Col-03076-01	03-17798	309.1	ND	<0.003
PA Col-03076-02	03-17799	306.5	ND	<0.003
PA Col-03076-03	03-17800	319.4	ND	<0.003
PA Han-03076-18	03-17801	370.6	ND	<0.003
PA Han-03076-19	03-17802	375.2	ND	<0.003
PA Han-03076-20	03-17803	390.9	ND	<0.003
PA Get-03077-01	03-17804	265.1	ND	<0.004
PA Get-03077-02	03-17805	284.6	ND	<0.004
PA Way-03078-01	03-17806	331.4	ND	<0.003
PA Way-03078-02	03-17807	355.8	ND	<0.003
PA Cha-03078-15	03-17808	406.1	ND	<0.002
PA Cha-03078-16	03-17809	411.3	ND	<0.002
	Prep Blank 2		ND	
% Recovery	LCS 3		110.	
% Recovery	LCS 4		108.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Analyst

Reviewer

TEST REPORT
Page 2 of 2
03-S-1724

Results
Lead

Client #	DCL #	mg/Kg (ppm)
PA Col-03076-17	03-11327	15000.
PA Can-03080-18	03-11328	74.
PA Can-03080-19	03-11329	ND
PA Can-03080-20	03-11330	ND
PA Can-03080-22	03-11331	75000.
PA Can-03080-23	03-11332	64000.
PA Can-03080-24	03-11333	14000.
PA Phi-03087-28	03-11334	23000.
PA Phi-03087-27	03-11335	23.
PA Phi-03087-26	03-11336	ND
PA Phi-03087-25	03-11337	1100.
PA Phi-03090-21	03-11338	1000.
PA Phi-03091-09	03-11339	990.
PA Phi-03092-16	03-11340	2400.
PA Phi-03092-17	03-11341	460.
	Prep. Blank	ND
% Recovery	LCS/QC14866	88.
% Recovery	11748 Matrix Spike	97.
Reporting Limit		22.

ND indicates not detected at or above the reporting limit.
LCS= Laboratory Control Sample

Non-Responsive

Analyst

Non-Responsive

Reviewer

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non-Responsive@md.ngb.army.mil

Attachment D

REFERENCE LIST INDEX

1. General Regulations and National Consensus Standards
2. Specific Regulations and Guidance
   a. Abrasive Blasting
   b. Asbestos
   c. Battery Charging Room
   d. Bird and Bat Manure
   e. Bloodborne Pathogens
   f. Chemical Agent Resistant Coating (CARC) Paint
   g. Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE)
   h. Confined Space Entry Program
   i. Design Review
   j. Ergonomics
   k. Flammable Storage Room
   l. Hazard Communication
   m. Hearing Conservation
   n. Indoor Air Quality
   o. Indoor Firing Ranges
   p. Lead
   q. Lighting
   r. Occupational Vision
   s. Paint Spray Booth
   t. Personal Protection
   u. Radiation Protection
   v. Respiratory Protection
   w. Sanitation
   x. Smoking
   y. Vehicle Exhaust
   z. Welding Operation

GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REFERENCE LIST

1. General Regulations and National Consensus Standards
   a. DODI 6055.1, DOD SOH Program, 19 August 1998.
   b. DODI 6055.5, DOD OEH. *[DRAFT]*
   c. DOD 6055.5-M, DOD Occupational Health Surveillance Manual, 13 May 1987.
   d. DODI 6050.5, DOD Hazard Communication, 29 Oct 90. Change 1, 6 May 1996.
   e. AR 40-5, Preventive Medicine, 15 October 1990. [05/2002 Being Updated]
   f. DA PAM 40-5, Preventive Medicine. *[DRAFT]*
   g. AR 385-10, The Army Safety Program, 29 February 2000.
   h. NGR 385-10, ARNG SOH Program, 7 October 1988, Change 1, 29 December 1989.
   i. Title 29, Part 1910, Occupational Safety and Health Standards. [Current Date]
   j. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 2002.
   k. ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th edition, 2001.
   l. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.
   m. TG 141, USACHPPM Industrial Hygiene Sampling Guide, November 1997.
   n. National Safety Council, Fundamentals of Industrial Hygiene, 5th Edition, 2002.
   o. NIOSH, Pocket Guide to Chemical Hazards, 2001.
   p. NFC, A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. [Current date]
   q. ASHRAE Standards. [Current Dates]
   r. ANSI Standards. [Current Dates]

2. Specific Regulations/Guidance
   a. **ABRASIVE BLASTING**
      (1) ANSI Z9.4 1997, Abrasive Blasting Operations - Ventilation and Safe Practices.
      (2) 29 CFR 1910.94 Ventilation
      (3) 42 CFR 84

   b. **ASBESTOS**
      (1) AR 40-5, Preventive Medicine, 15 October 1990. *[05/2002 Being Updated]*
      (2) AR 200-1, Environmental Protection and Enhancement, Chapter 8, 21 February 1997.
      (3) TB MED 513, Guidelines for the Evaluation and Control of Asbestos Exposure, 15 December 1986. *[05/2000 Under Revision as DA PAM 40-513]*
      (4) TG 157, USAEHA, The Installation Asbestos Management Program Assessment Checklists, July 1994.
      (5) 29 CFR 1910.1001
      (6) 29 CFR 1926.58 (prior to 1994 CFR)
      (7) 29 CFR 1926.1101

(8) MEMORANDUM SGPS-PSP, OTSG, subject: AMEDD Role Supporting Asbestos Abatement/Asbestos Management Programs, 19 Jan 89.

(9) EPA, Guidance for Controlling Asbestos-Containing Materials in Buildings, June 1985.

(10) DD Form 2493-1 (Asbestos Exposure, Part I--Initial Medical Questionnaire)

(11) DD Form 2493-2 (Asbestos Exposure, Part II--Periodic Medical Questionnaire)

(12) EPA NESHAPS Asbestos Regulation (40 CFR 61, Subpart M).

c. **BATTERY CHARGING ROOM**

(1) TG 022, USAEHA, page 81, Industrial Hygiene Evaluation Guide, October 1975. *[Out of Print]*

(2) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

d. **BIRD AND BAT MANURE**

(1) TG 142, USAEHA, Managing Health Hazards Associated with Bird and Bat Excrement, Dec 1992.

e. **BLOODBORNE PATHOGENS**

(1) 29 CFR 1910.1030

(2) TG 190, USAEHA, Guide to Managing Occupational Exposure to Bloodborne Pathogens, Jan 94.

f. **CHEMICAL AGENT RESISTANT COATING (CARC) PAINT**

(1) TG 144, USAEHA, Guidelines for Controlling Health Hazards in Painting Operations, 24 August 1987.

(2) DA LTR, USAEHA, HSHB-MI-WR, subject: Respiratory Protection When Spraying CARC, 19 November 1992.

(3) TM 43-0139, Painting Instructions for Army Material, 27 July 19881 Aug 86.

(4) MEMORANDUM SGPS-PSP, OTSG, subject AMEDD, Occupational Health Requirements in Support of Painting in the Army, 22 February 1985.

(5) AR 750-1, Army Materiel Maintenance Policy and Retail Maintenance Operations (Prohibits welding on CARC paint) 1 July 1996.

g. **CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR, EXPLOSIVE (CBRNE)**

(1) DODI 2000.gg, DOD Installation CBRNE Emergency Response Guidelines.

(2) DHHS, NIOSH Pub No. 2002 139, Guidance for Protecting Building Environments from Airborne Chemical, Biological, or Radiological Attacks, May 2002.

(3) TG 275, USACHPPM, Personal Protective Equipment Guide for Medical Treatment Facility Personnel Handling Casualties from Weapons of Mass Destruction and Terrorism Events. *[Draft]*

h. **CONFINED SPACE**

(1) 29 CFR 1910.146 (Confined Space Entry)
(2) 29 CFR 1910.147 (Lockout/Tagout)
(3) ANSI Z117.1-Safety Requirements for Confined Spaces, 1995.
(4) SOP for ARNG Confined Space Entry Program, 25 April 1991.
(5) Letter, US Dept of Labor (DOL) addressed to Vanessa Char, 22 Apr 1994.
(6) OSHA Instruction STD 1-7.3, US DOL, subject: 29 CFR 1910.147, the Control of Hazardous Energy (Lockout/Tagout)--Inspection Procedures and Interpretive Guidance, 11 Sep 90.
(7) DHHS, NIOSH Pub No. 87113, A Guide to Safety in Confined Spaces, July 1987.
(8) Confined Space Entry Program for Helicopters, 2003.

i. **DESIGN REVIEW**

(1) DG 415-1, Design Guide for Armories, current.
(2) DG 415-2, Design Guide for Logistics Facilities, current.
(3) DG 415-3, Design Guide for Training Site Facilities, current.
(4) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.
(5) TI-300, 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.
(6) UFGS 15940A, Overhead Vehicle Tailpipe (and welding Fume) Exhaust Removal Systems, December 2001.
(7) ASHRAE, Standard 62-2002, Ventilation for Acceptable Indoor Air Quality.
(8) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

j. **ERGONOMICS**

(1) DA PAM 40-21, Medical Services, Ergonomics Program, 15 May 2000.
(2) ANSI Z-365, Management of Work Related Musculoskeletal Disorders, 2000.
(3) 29 CFR 1910. *[PROPOSED STANDARD]*

k. **FLAMMABLE STORAGE ROOM**

(1) 29 CFR 1910.106
(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

l. **HAZARD COMMUNICATION**

(1) 29 CFR 1910.1200
(2) NGR 385-10, Chapter 6

m. **HEARING CONSERVATION**

(1) DA PAM 40-501, Medical Services, Hearing Conservation Program, 10 December 1998.

(2) TG 181, USAEHA, Noise Dosimetry and Risk Assessment, May 1999.

(3) TG 175, USAEHA, Readiness thru Hearing Conservation: Guide for Unit Commanders and Supervisors, June 1999.

(4) 29 CFR 1910.95

n. **INDOOR AIR QUALITY (IAQ)**

(1) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

(2) USACERL Technical Report P-91/42, IAQ Management for Operations and Maintenance Personnel, September 1991.

(3) EPA 400/1-91/003 or DHHS, NIOSH, Publication No. 91-114, Building IAQ, A Guide for Building Owners and Facility Managers, December 1991.

(4) ASHRAE, Standard 62-2002, Ventilation for Acceptable IAQ.

(5) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

(6) NIOSH, IAQ Selected References, Sep 1989.

(7) OSHA Instruction CPL 2-2.20B CH-1, Directorate of Technical Support, 13 Nov 90.

(8) DA PAM 25-52, Mail Facility Security and Handling Suspicious Mail, 6 November 2001.

(9) ASTM, D 5952-96, 10 May 1996.

o. **INDOOR FIRING RANGES**

(1) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(2) NGR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges, 30 March 1990. *[11/02 Under Revision]*

(3) CEHND 1110-1-18, USACE Design Manual for Indoor Firing Range, June 1990.

(4) HQDA LTR, Office of the Adjutant General, DACS-SF, subject: Inspection and Evaluation of US Army Indoor Firing Ranges, 26 March 1993.

(5) Departments of the Army and Air Force, NGB-ADE-OM, subject: All State Log Number (J920323) Indoor Range Clean-up at State Owned Armories, 28 July 1992.

(6) NIOSH, Technical Information, December 1975, subject: Lead Exposure and Design Considerations for Indoor Firing Ranges.

(7) All-States Ltr P01-0075, 5 December 2001.

(8) Information Paper, Alternative Ammunition, 15 March 1996.

(9) Information Paper, Bullet Traps, 26 April 1996.

(10) Information Paper, ARNG IFR Action Plan, 28 January 2002.

p. **LEAD**

(1) 29 CFR 1910.1025

(2) 29 CFR 1926.62

(3) 24 CFR 35.61 (HUD, Percentage of Lead in Paint)

(4) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(5) OSHA Instruction CPL 2-2.58, Office of Health Compliance Assistance, 13 December 1993.

(6) Federal Register, 18 April 1990, Vol. 55, No. 75, HUD, Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing, as amended, September 1990, Office of Public and Indian Housing, Department of Housing and Urban Development, 451 Seventh Street, SW, Washington, DC 20410.

(7) NIOSH, Request for Assistance in Preventing Lead Poisoning in Construction Workers, April 1992.

(8) EPA, Strategy for Reducing Lead Exposures, 21 Feb 91.

q. **LIGHTING**

(1) RP-1-1993, Office Lighting, ANSI/IESNA.

(2) RP-7-2001, Industrial Lighting, IES.

r. **OCCUPATIONAL VISION**

(1) DA PAM 40-506, Medical Services, The Army Vision Conservation and Readiness Program, 20 July 2001.

(2) ANSI Z87.1, Practice for Occupational and Educational Eye and Face Protection, 1989, Change A, REAF 1998.

(3) ANSI Z358.1 for Emergency Eyewash and Shower Equipment, 1998.

(4) OTSG Memorandum SGPS-PSP, subject: Acanthameoba Keratitis and Eyewash Stations, 8 May 89.

(4) 29 CFR 1910.133

s. **PAINT SPRAY BOOTH**

(1) NFPA No. 33, Standard for Spray Application Using Flammable and Combustible Materials, 1995.

(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

(3) 29 CFR 1910.94

(4) 29 CFR 1910.107

(5) ANSI Z9.3-1995 for Exhaust Systems - Spray Finishing Operations - Safety Code for Design, Construction, and Ventilation.

(6) ANSI Z9.2-2001, Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems.

t. **PERSONAL PROTECTIVE EQUIPMENT**

(1) Quick Selection Guide to Chemical Protective Clothing, 2nd edition, Forsberg, K and Mansdorf, S., 1993.

(2) Chemical Protective Clothing, Vol I and 2, Johnson, J. and Anderson, K., American Industrial Hygiene Association, 1990.

(3) Guidelines for the Selection of Chemical Protective Clothing, 3rd Edition, ACGIH, Inc., Feb 1987.

u. **RADIATION PROTECTION PROGRAM**

(1) NGR 385-11, Safety, Ionizing and Nonionizing Radiation Protection, 18 February 1999.

(2) AR 11-9, Army Radiation Safety Program, 28 May 1999.

(3) 29 CFR 1910.96

(4) 29 CFR 1910.97

v. **RESPIRATORY PROTECTION**

(1) AR 11-34, The Army Respiratory Protection Program, 15 February 1990. *[11/02 Being Updated]*

(2) 29 CFR 1910.134

(3) 42 CFR 84

(4) TB MED 502, Respiratory Protection Program, February 1992. *[11/02 Being Updated as DA PAM 40-502]*

(5) ANSI/CGA G-7.1-1997, Commodity Specification for Air.

(6) ANSI Z88.2-1992, Standard for Respiratory Protection.

w. **SANITATION**

(1) ANSI Z4.1-1986, Change REAF 1995, Sanitation in Places of Employment-Minimum Requirements.

(2) 29 CFR 1910.141

x. **SMOKING**

(1) AR 600-63, Army Health Promotion, 28 April 1996.

(2) DODI 1010.15, Smoke-Free DOD Facilities, 2 January 2001.

(3) DODD1010.10, Health Promotion, 11 March 1986.

y. **VEHICLE EXHAUST**

(1) ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th Edition, 2001.

(2) TI-300f 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

z. **WELDING OPERATION**

(1) 29 CFR 1910.252

(2) 29 CFR 1910.253

(3) 29 CFR 1910.254

(4) ANSI/AWS Z49.1-1999, Safety in Welding and Cutting and Allied Processes.

(5) TM 5-805-7, Welding Design, Procedures and Inspection, 20 May 85.

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 $\mu g/ft^2$) and windowsills (250 $\mu g/ft^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of 200 $\mu g/ft^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 $\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 $\mu g/ft^2$ on floors and 250 $\mu g/ft^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

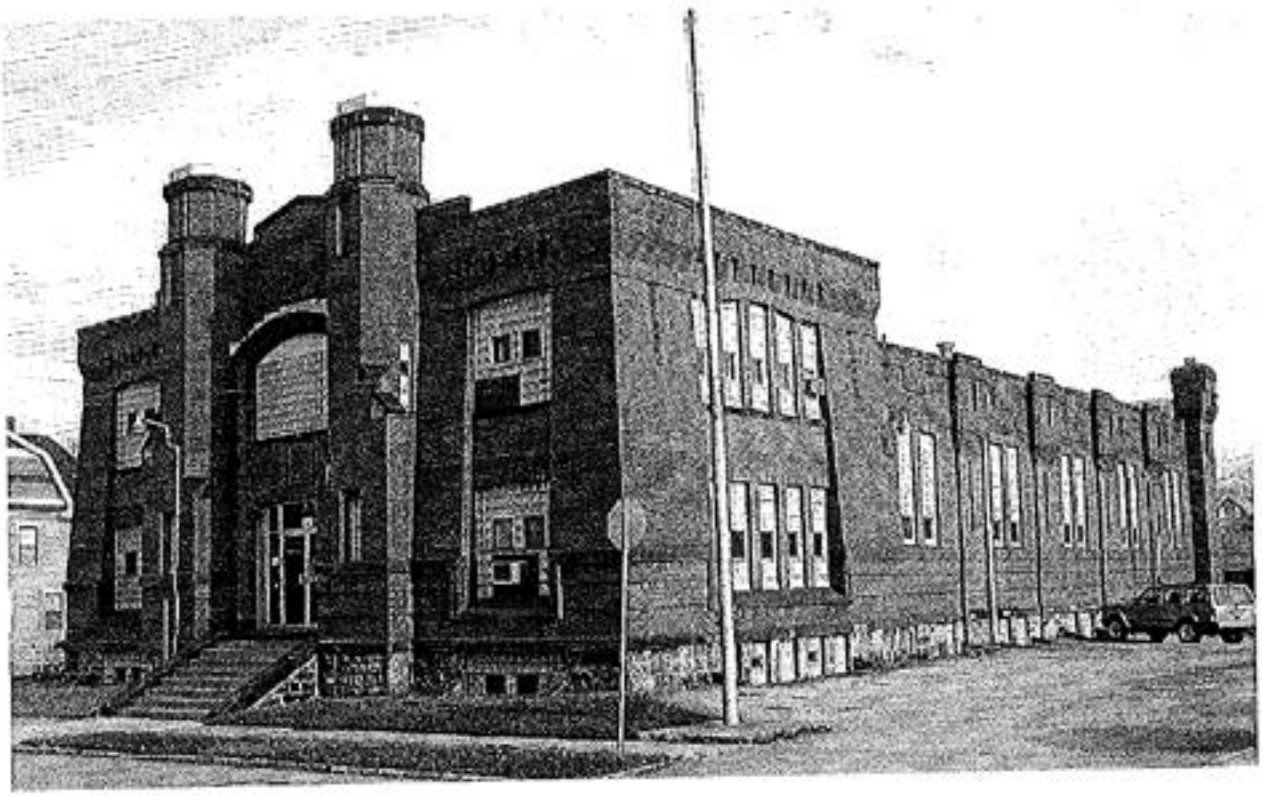
INDUSTRIAL HYGIENE SURVEY

CO D 1/103RD ARMOR
CONNELLSVILLE, PA

April 16, 2003

OPTECH
OPERATIONAL TECHNOLOGIES
CORPORATION

CO D 1/103RD ARMOR
CONNELLSVILLE, PENNSYLVANIA
INDUSTRIAL HYGIENE SURVEY



1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the armory in Connellsville, Pennsylvania on April 16, 2003. NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. [redacted] from OpTech, completed this survey. Non-Responsive a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the IH Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D. A copy of the field notes and a list of industrial hygiene equipment utilized during this survey are presented in Attachment E.

RECOMMENDATIONS

1. INDOOR AIR QUALITY

1.1. Slightly elevated levels of carbon dioxide were measured in occupied areas of the facility. This condition is normally due to steam heat, which does not provide for air circulation.

2. ILLUMINATION

2.1. Illumination levels were below recommended minimum standards in a many areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting would improve some areas.

3. WIPE SAMPLES

3.1. Wipe sampling results for inorganic lead taken in four of ten locations throughout the facility exceeded the 200 micrograms per square foot criteria. Four of five samples taken in the former indoor firing range also exceeded these standards. Recommend that the facility be wet-wiped/mopped or cleaned using a high efficiency particulate air (HEPA) vacuum during routine housekeeping duties, to reduce lead levels. Equipment and furniture should be wet-wiped prior to moving to a new facility.

4. LEAD PAINT

4.1. Paint chip samples taken in the assembly hall exceeded the EPA's lead criteria of 0.5% by weight, and is therefore considered lead-contaminated. The demolition contractors or the new occupants should be notified of this condition. In the interim, disturbing the paint in the assembly hall should be avoided and the area wet-wiped/mopped or HEPA vacuumed during routine housecleaning.

2.0. EXECUTIVE SUMMARY

Slightly elevated levels of carbon dioxide were measured in the building. These conditions are normally due to insufficient fresh air being introduced into the HVAC system. Heat is provided by a steam system, which does not circulate air throughout the facility. Illumination levels were below recommended minimum standards in most areas of the facility. Wipe samples for inorganic lead were taken. Eight of fifteen sample results exceeded recommended levels. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 $\mu g/ft^2$. This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. Air sampling for inorganic lead was taken. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building. Paint is pealing in three locations. Paint chip samples were analyzed for lead content. A sample of paint on the wall of the assembly hall exceeded the EPA's criteria of 0.5% by weight and is therefore considered lead contaminated. Paint chip samples taken in the basement latrine and the kitchen were below the 0.5% criteria and therefore not considered lead contaminated. There is significant water intrusion and termite damage, mainly in the drill floor area. The State maintenance worker stated that many attempts have been taken to seal the roof areas to stop these leaks over the past twenty years. Personnel have been informed that ground breaking for a new facility is to take place later this year.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	CO D 1/103RD ARMOR		
ADDRESS	Building 7-25		
	108 West Washington		
	Connellsville, PA 15425		
CONTACT	SFC Non-Responsive		
PHONE	724-628-1230		
DATE BUILT	1906	FACILITY SIZE	12,103 sq. ft.
INDOOR FIRING RANGE	CLOSED		2 floors plus basement
ASSISTED	SGT Non-Responsive - State Maintenance		
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	4		
TRADITIONAL (MIL)	90		
CHILD ACTIVITIES	None		
ADULT ACTIVITIES	Approximately 30 in a weekly AA meeting		

3.1.1. A new facility is slated to be constructed in the near future. The exterior is brick and stone and is showing deterioration. With the exception of a water intrusion problem, the interior has been kept in as good of a condition as possible. A steam natural gas boiler provides heat.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 indoor air quality standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ANSI/ASHRAE 62-2001 states that concentrations of 1,000 ppm CO_2 are not considered a health risk. However, USAF Armstrong Laboratories and other independent studies have concluded that health complaints begin at levels greater than 600 ppm, with significantly greater complaints above 800 ppm.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ANSI/ASHRAE 62 2001 recommends that the temperature range should be between 73 to 77 degrees Fahrenheit (°F) during the summer and 68 to 75°F during the winter. Relative humidity levels should remain between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE 1
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO2 (ppm)	Temp. (°F)	RH (%)
0835	Outdoors Background	0.0	460	65.1	47.3
0850	Orderly Room (occupied)	0.0	634	72.5	38.9
0905	Drill Floor	0.0	524	74.3	38.7
0910	Recruiter's Office (occupied)	0.0	555	74.0	36.6
0914	Commander's Office	0.0	545	73.8	37.4
0920	2nd Floor – Locker Area	0.0	622	74.5	37.6
0925	2nd Floor FTUS Office (occupied)	0.0	639	75.0	36.9

TIME	AREA	CO (ppm)	CO2 (ppm)	Temp. (°F)	RH (%)
0930	Basement – Latrine	0.0	590	73.9	41.6
0934	Basement – Fitness Area	0.0	640	72.9	41.3
0940	Basement – Kitchen	0.0	679	73.7	42.2
0944	Basement – Dining Room	0.0	737	73.8	42.0
0950	Basement – Locker Room	0.0	701	72.6	42.7
0955	Basement – Boiler Room	0.0	698	72.1	45.5
1125	Orderly Room (occupied)	0.0	703	74.6	39.3

3.2.5. Slightly elevated levels of carbon dioxide were measured in the building. These conditions are normally due to insufficient fresh air being introduced into the HVAC system. Heat is provided by a steam system, which does not circulate air throughout the facility.

3.3. ILLUMINATION

3.3.1. Illumination levels were taken in most areas of the facility. Outdoor sunlight was excluded, as much as possible for this survey, by closing doors and blocking sunlight. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 – 463); and Industrial Lighting, ANSI/IES RP7, 1991, (pages 33 – 38). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
1ST FLOOR				
Orderly Room	32 – 62	46	70	NO
Desks	32 – 48	41	70	NO
Copier Room (back office)	28 – 68	53	70	NO
Desk	66	66	70	NO
Washroom	22	22	40	NO
Drill Floor	30 – 44	41	75	NO
Recruiter's Office	48 – 62	53	70	NO
Desk	58	58	70	NO
Commander's Office	24 – 50	38	70	NO
Desks	30 – 32	31	70	NO
Commander's Latrine	26 – 42	33	40	NO
Entry	12 – 36	25	15	YES

Location	Luminance Range (fc)	Average	Standard	Standard Met
2ND FLOOR				
Locker Area	20 – 38	28	30	NO
FTUS Office	28 – 62	42	70	NO
Desk	42	42	70	NO
BASEMENT				
Latrine	20 - 30	23	40	NO
Showers	22 - 26	25	20	YES
Fitness Area / Storage (as storage)	12 - 46	22	30	NO
Fitness Area / Storage (as Fitness)	12 – 46	22	50	NO
Kitchen Storage	30 - 44	36	30	YES
Kitchen	32 - 60	42	75	NO
Dining Room/Classroom (as dining Rm.)	34 – 68	55	7.5	YES
Dining Room/Classroom (as classroom)	34 - 68	55	75	NO
Corridor	16 - 48	17	7.5	YES
Locker Room	8 – 60	23	40	NO
Boiler Room	12 – 32	23	15	YES

3.3.2. Levels were well below recommended minimum standards in many areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting would improve some areas.

3.4. LEAD STUDIES

3.4.1. LEAD WIPE SAMPLES

3.4.1.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples were taken at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot ($\mu g/ft^2$) and are listed below in Table 3. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
LEAD WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Con-03106-04	Orderly Room – Table	BDL
PA Con-03106-05	Drill Floor – West Wall Window Sill	BDL
PA Con-03106-06	2nd Floor – FTUS Office	BDL
PA Con-03106-07	Basement – Kitchen – Stove Shelf	BDL
PA Con-03106-08	Basement – Outside Former Range	236
PA Con-03106-09	BLANK Sample	ND

µg = micrograms per sample ND = none detected

3.4.2. Additional wipe samples were taken during this survey. These samples were taken to further analyze the extent of contamination should the first five samples indicate a possible hazard. Since the sample taken in the basement outside the former range exceeded the 200 µg/ft^2 criteria (see Section 3.4.4 below), these additional samples were analyzed. The results are presented below in Table 4.

TABLE 4
WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Con-03106-16	Boiler Room – Workbench Shelf	510
PA Con-03106-17	Fitness / Storage Area	320
PA Con-03106-18	1st Floor – Recruiting	BDL
PA Con-03106-19	NCOIC's Office – TV Cart	BDL
PA Con-03106-20	Drill Floor – NE Corner – Floor	3900
PA Con-03106-21	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.3. CLOSED FIRING RANGE WIPE SAMPLING

3.4.3.1. Additional wipe samples were take in the former indoor firing range. This area is presently being utilized for storage. The laboratory analysis results are listed below in Table 5.

TABLE 5
FORMER FIRING RANGE WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Con-03106-10	South End – Top of Locker	178
PA Con-03106-11	South End -- Floor	962
PA Con-03106-12	Light Fixture – ½ Way Down Range	731
PA Con-03106-13	North End – Top of Locker	488
PA Con-03106-14	Outside of Range -- Floor	209
PA Con-03106-15	BLANK Sample	ND

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.4. WIPE SAMPLING RESULTS

3.4.4.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 µg/ft². This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. Four of ten samples exceeded the 200 µg/ft² criteria. Four of the five samples taken in the former firing range also exceeded the criteria. The source of lead contamination was apparently from the inactive indoor firing range and from lead paint.

3.4.4.1.1. EPA standards (40 CFR 745.227(e)(8)(viii)) are not directly applicable because they are developed for floors (40 µg/ft²), windowsills (250 µg/ft²) and window troughs (400 µg/ft²) in residential and childcare facilities. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards. In addition, the armories are not residential facilities and rarely have childcare activities associated with them.

3.4.4.1.2. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead. In workplaces where lead is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

3.4.4.1.3. OSHA used to cite a level of 200 µg/ft² in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

3.4.4.1.4. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, USACHPPM has determined that 200 µg/ft² is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

3.4.4.1.5. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

3.4.5. AIR SAMPLING

3.4.5.1. Air Sampling for inorganic lead was performed during this survey. Table 6 lists the results of these samples, and is reported in milligrams per cubic meter (mg/m^3) of air.

TABLE 6
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
John Sarsan	PA Con-03106-01	Lead	<0.002 mg/m^3	0.05 mg/m^3	YES
Area - Basement	PA Con-03106-02	Lead	<0.002 mg/m^3	0.05 mg/m^3	YES
Area – 1st Floor	PA Con-03106-03	Lead	<0.002 mg/m^3	0.05 mg/m^3	YES

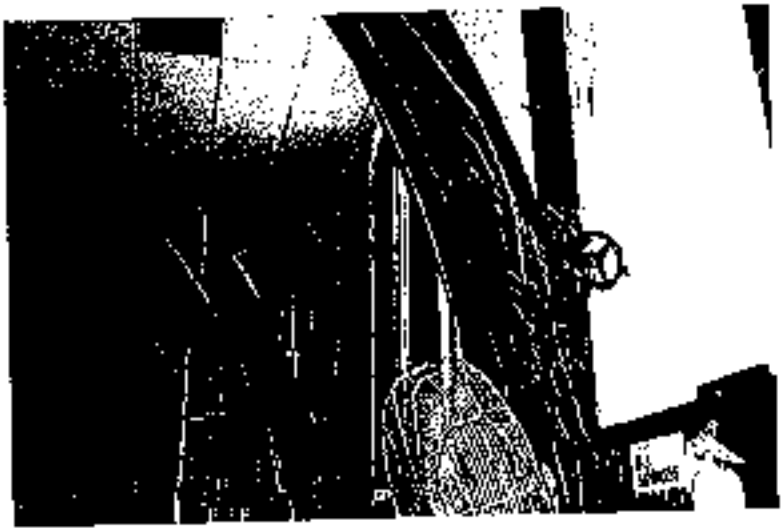
mg/m3 = milligrams per cubic meter < = less than (below detection limits)

3.4.5.2. Air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this building.

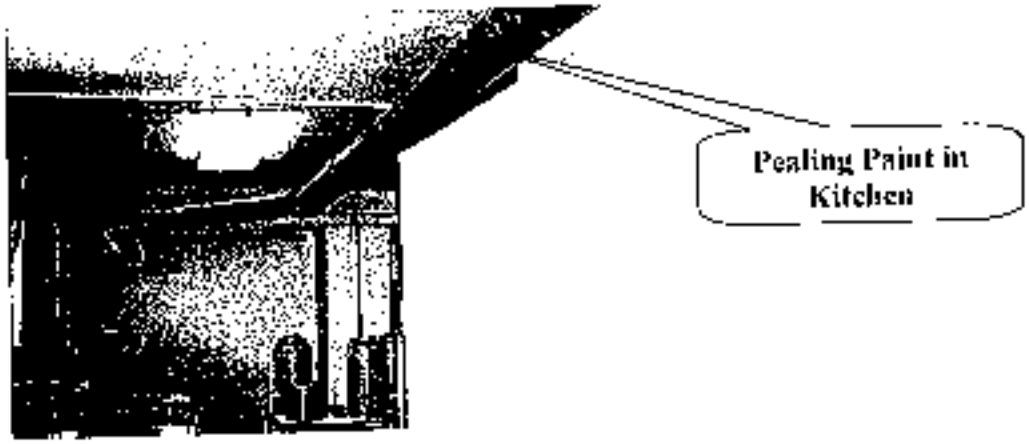
3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION DAMAGE

3.5.1.1. **ASSEMBLY HALL** Serious water intrusion and termite damage is present in the assembly hall. The State maintenance worker stated that many attempts have been taken to seal the roof areas to stop these leaks over the past twenty years. A paint chip sample was taken of pealing paint on the west wall and analyzed for lead content. The results are listed below in Table 7.



3.5.1.2. STEAM PIPES IN KITCHEN Paint is chipping from a steam line that is located in the kitchen. A paint chip sample was taken and analyzed for lead content. The results are listed below in Table 7.



3.5.1.3. BASEMENT LATRINE Paint is pealing near the sinks in the basement latrine. Moisture appears to be seeping through the wall. A paint chip sample was taken and analyzed for lead content. The results are listed below in Table 7.

Industrial Hygiene Survey
CO D 1/103rd ARMOR
Connellsville, Pennsylvania

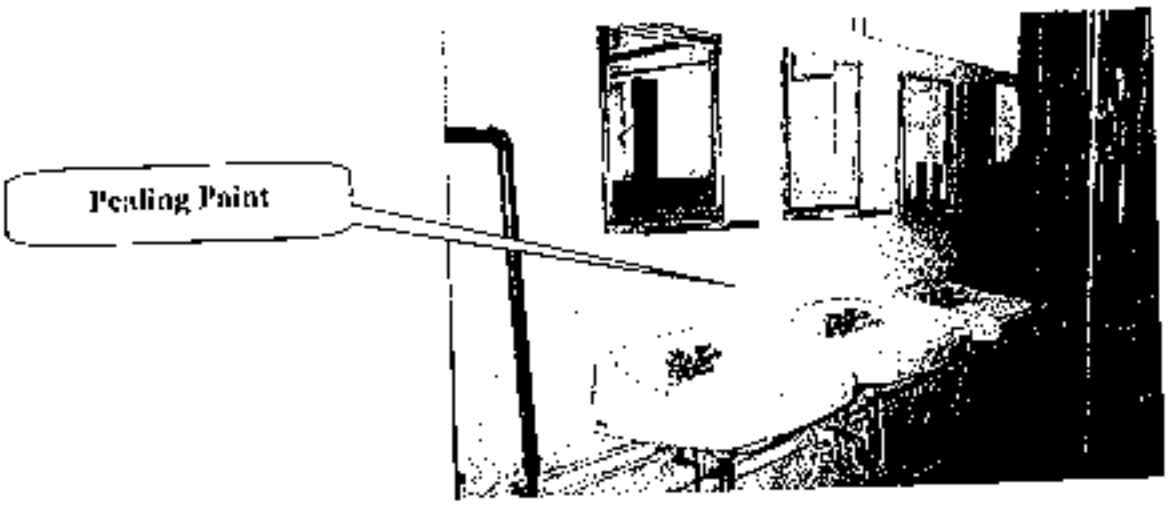


TABLE 7
PAINT CHIP SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (percent)
PA Con-03106-22	Drill Floor West Wall	8.3
PA Con-03106-23	Basement -- Latrine Sink Area	0.014
PA Con-03106-24	Kitchen Steam Pipes	0.23

BDL = Below Detection Limits

3.5.1.4. The Environmental Protection Agency (EPA) considers paint with a lead content equal to or greater than 0.5% by weight as contaminated. Therefore, the paint on the drill floor wall is considered as lead contaminated. The basement latrine and the kitchen steam pipe paint is not considered lead contaminated.

3.5.2. PROGRAMS

3.5.2.1. There are no designated confined space areas within this facility. A need has not been established for a HAZCOM program, the need for personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.3. HOUSEKEEPING

3.5.3.1. Personnel keep the facility very clean and orderly.

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

E - Field Notes
- Equipment Listing

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
Connellsville, PA	PENNSYLVANIA ARNG ARMORY	Connellsville Armory

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR (initials)
	JSS

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	NA	SFC Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
724-628-1230	COD 1/103RD ARMOR	3	9

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
4	90			

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	CONROLS 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			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	½ FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	¼ 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 WEATHR 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	/		

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	2	C
124-38-9	Carbon Dioxide	2	C

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

SECTION 6. COMMENTS

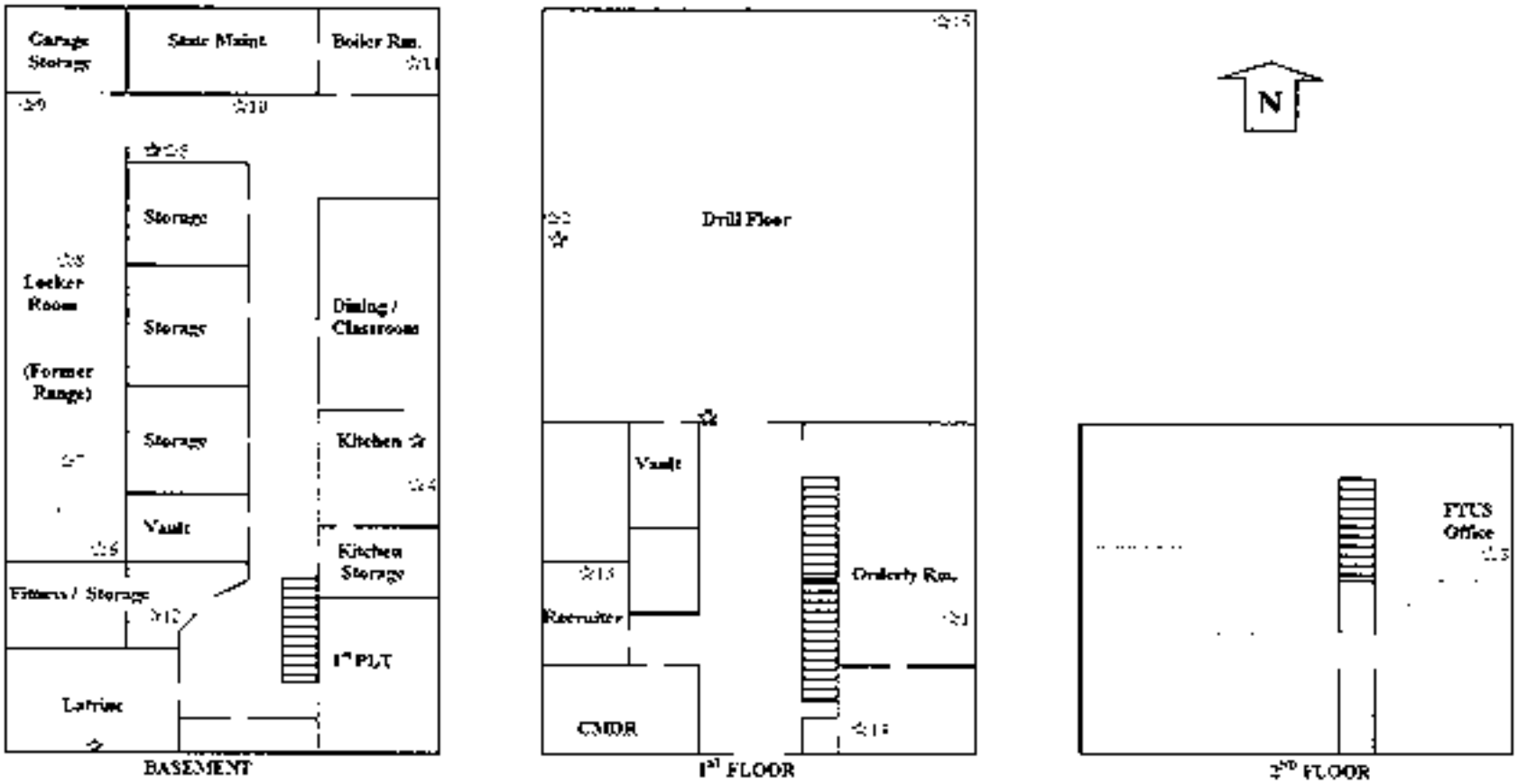
☐ No comments ☐ See attached sheet

PRIVACY ACT STATEMENT

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

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

CONNELLSVILLE, PENNSYLVANIA



= Wipe Sample ☆ = Bulk Samples (Lead and/or Asbestos) ☆ = Area Air Sample

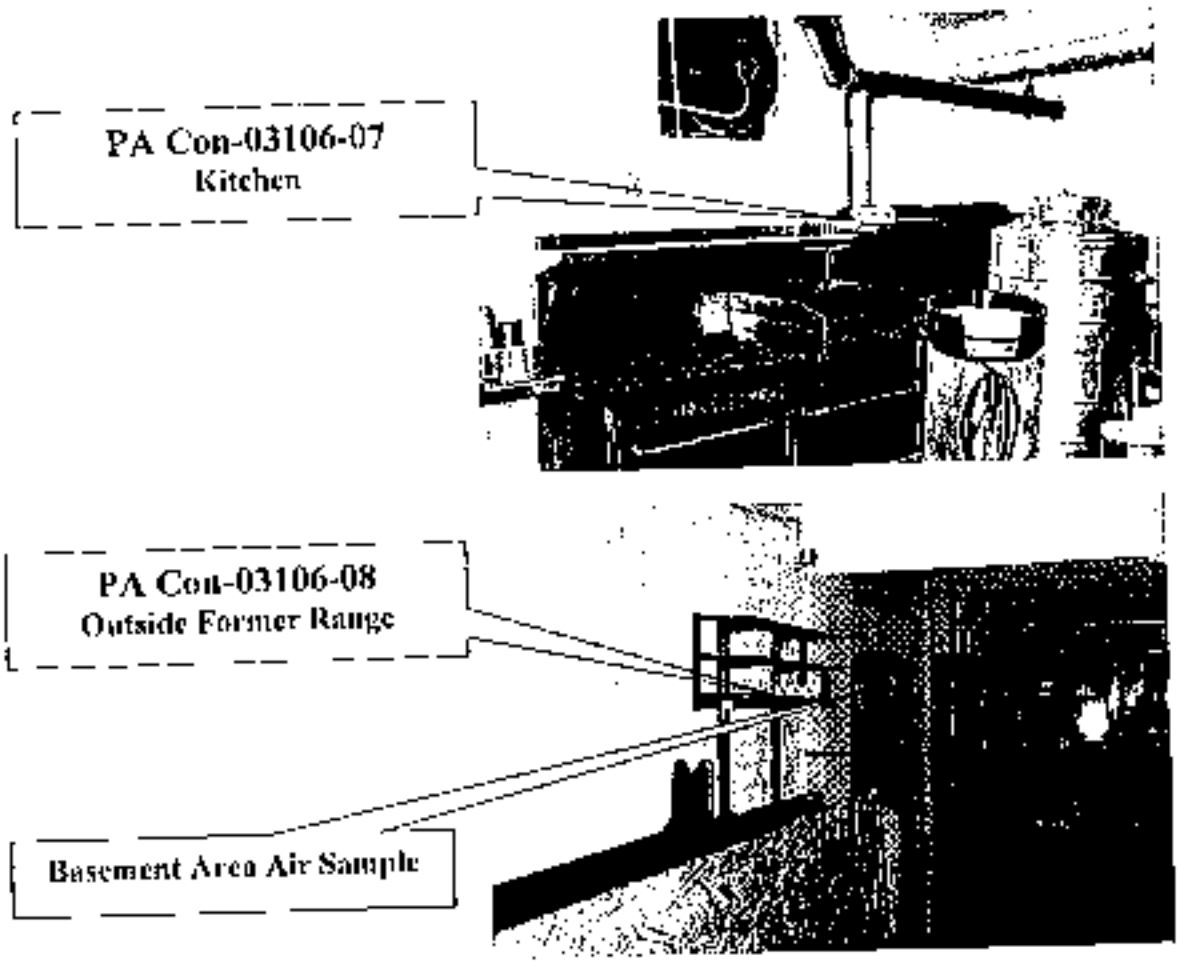
CO D 1/103RD ARMOR
CONNELLSVILLE, PENNSYLVANIA
WIPE SAMPLING POINTS

PA Con-03106-04
Orderly Room

PA Con-03106-05
Assembly Hall – West Wall

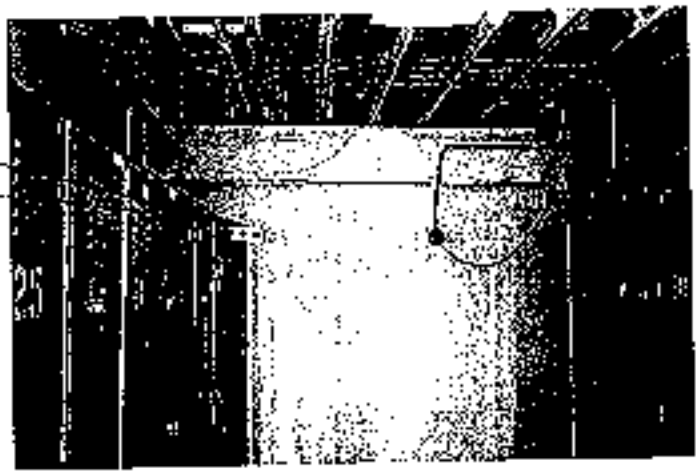
PA Con-03106-06
2nd Floor – FTUS Office

Attachment B



Attachment B

FORMER FIRING RANGE SAMPLING



PA Con-03106-10
South End of Range
(Former Bullet Trap Area)

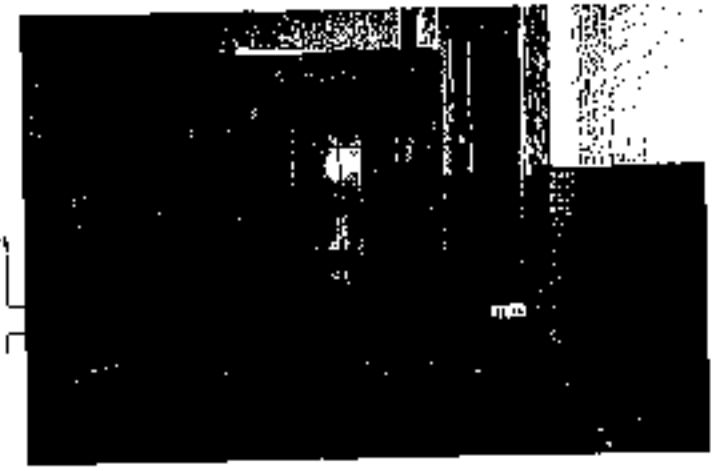
PA Con-03106-11
South End - Floor

PA Con-03106-12
Light Fixture – ½ Way Down
Range

Attachment B

PA Con-03106-13
North End

PA Con-03106-14
Floor – Outside Range



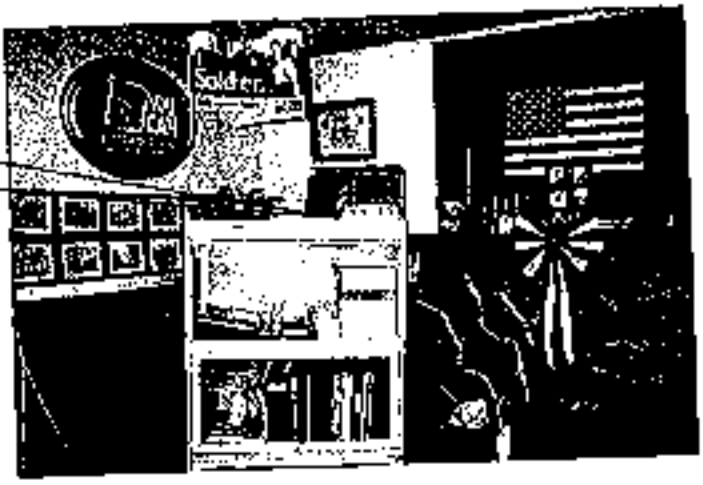
Attachment B

ADDITIONAL SAMPLES

PA Con-03106-16
Boiler Room – Workbench

PA Con-03106-17
Fitness / Storage

PA Con-03106-18
Recruiter's Office



Attachment 3

PA Con-03106-19
Orderly Room – Back Office

PA Con-03106-20
Assembly Hall – NE Corner

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
AIHA Certificate of Accredidation #480 LAB ID 101533

TABLE I. ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	RES 92698-1
Client:	Operational Technologies, Corp.
Client Project Number / P.O.:	05 01
Client Project Description:	Armorics/ Pennsylvania
Date Samples Received:	May 8, 2003
Analysis Type:	USEPA SW846 3050B / AA(7420)
Turnaround:	3-5 Day
Date Samples Analyzed:	May 13, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA WAY-03105-03	EM 767009	0.11	3.2	23	29
PA WAY-03105-04	EM 767010	0.11	4.6	23	42
PA WAY-03105-05	EM 767011	0.11	BDL	23	BDL
PA WAY-03105-06	EM 767012	0.11	3.1	23	28
PA WAY-03105-07	EM 767013	0.11	2.6	23	24
PA WAY-03105-08	EM 767014	0.11	BDL	23	BDL
PA CON-03106-04	EM 767015	0.11	BDL	23	BDL
PA CON-03106-05	EM 767016	0.11	BDL	23	BDL
PA CON-03106-06	EM 767017	0.11	BDL	23	BDL
PA CON-03106-07	EM 767018	0.11	BDL	23	BDL
PA CON-03106-08	EM 767019	0.11	26.0	23	236
PA CON-03106-09	EM 767020	0.11	BDL	23	BDL
PA CON-03106-10	EM 767021	0.11	19.6	23	178
PA CON-03106-11	EM 767022	0.11	105.8	23	962
PA CON-03106-12	EM 767023	0.11	80.4	23	731
PA CON-03106-13	EM 767024	0.11	53.7	23	488
PA CON-03106-14	EM 767025	0.11	23.0	23	209
PA CON-03106-15	EM 767026	0.11	BDL	23	BDL
PA MTP-03106-26	EM 767027	0.11	4.0	23	36
PA MTP-03106-27	EM 767028	0.11	BDL	23	BDL
PA MTP-03106-28	EM 767029	0.11	BDL	23	BDL
PA MTP-03106-29	EM 767030	0.11	3.0	23	27
PA MTP-03106-30	EM 767031	0.11	3.3	23	30
PA MTP-03106-31	EM 767032	0.11	BDL	23	BDL
PA LIG-03107-03	EM 767033	0.11	19.2	23	175
PA LIG-03107-04	EM 767034	0.11	13.5	23	123
PA LIG-03107-05	EM 767035	0.11	BDL	23	BDL
PA LIG-03107-06	EM 767036	0.11	BDL	23	BDL
PA LIG-03107-07	EM 767037	0.11	BDL	23	BDL
PA LIG-03107-08	EM 767038	0.11	BDL	23	BDL

[redacted]

Data Qa

BDL = Below Detection Limit

RESERVOIRS ENVIRONMENTAL SERVICES, INC.

2059 Bryant St., Denver CO 80211

RESI Job #: RES 92698
Due Date: 5-13 / 5-15
Due Time: 10:00

Phone: (303) 964-1986 Fax: (303) 477-4275 WATS: 1-866-RESI-ENV (737-4368)
PAGER: ONCALL Pager number available at Lab. Alternate Pagers: FLM/TEM 605-2187 PCM/Metals 609-2088 (AFTER HOURS USE ONLY)

SAMPLES SUBMITTED BY:

Company: Operational Technologies Corp
Address: 1370 N Fairfield Road, Suite A
Beavercreek, Ohio 45432
Contact: [redacted]
Phone: 410-942-0273 x18 Fax: 410-942-0254 Pager
Phone: cell 937-831-3333 Fax Pager: 800-951-4367
Project Number and/or P.O. #: 05 01
Project Description/Location: Armories / Pennsylvania

INVOICE TO: (IF DIFFERENT)
Army National Guard B-3
4014 Old Bay Ln Havre de Grace MD 21078

After Hours/Weekend CHARGE: Amount $ ______ Authorized by: ______

Additional fees apply for after hours and holidays for all analysis types. Samples will be analyzed during normal laboratory hours unless otherwise arranged and specified on the chain of custody. Turnaround is subject to laboratory volume. You will be notified if delays are expected.

ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm

PCM/PLM ___ 2 Hour RUSH ___ 24 hour ___ 3-5 weekdays

TEM ___ 5 Hour RUSH ___ 24 hour ___ 3-5 weekdays

Prior Notice REQUIRED for TEM 5 Hour RUSH

METALS LABORATORY HOURS: Weekdays: 8am - 5pm

(AA) ___ SPECIAL RUSH ___ 24 Hour ✓ 3-5 Day

RCRA 8 ___ SPECIAL RUSH ___ 5 Day ___ 10 Day

TCLP ___ SPECIAL RUSH ___ 5 Day ___ 10 Day

Prior Notice REQUIRED for SPECIAL RUSH AA, RCRA or TCLP

RCRA and TCLP SPECIAL RUSH is 3 Day Turnaround

ANALYTICAL METHOD

AIR: PCM 7400A, 7400B, OSHA; TEM AHERA, Level II, 7402, ISO; Preparation: ISO-Indirect Prep, Confluent; AA / ICP ______ Metal ___ RCRA 8; Dust, Total, Respirable

BULK: PLM Short report, Long report, Point Count; TEM NL, Quant, Semi-quant; [# 65] AA / ICP ___ x PB; Paint, Soil, Dust, (Wipe), TCLP; (ASTM E 1792 approved wipes only)

WATER: TEM Drinking, Waste Water; AA Water ______ Metal ___ RCRA 8; Drinking, Waste Water

OTHER: Specify Wipes - Lead

Special Instructions: Email results to ken forsythe@md.ngb.army.mil

	Client Sample Number	Volume	EM # 067007
1	PA Way-03105-03		10
2	PA Way-03105-04		11
3	PA Way-03105-05		12
4	PA Way-03105-06		13
5	PA Way-03105-07		14
6	PA Way-03105-08		15
7	PA Con-03105-04		16
8	PA Con-03105-05		17
9	PA Con-03105-06		18
10	PA Con-03105-07		19
11	PA Con-03105-08		20
12	PA Con-03105-09		21
13	PA Con-03105-10		22
14	PA Con-03105-11		23
15	PA Con-03105-12		

(Use as many additional sheets as needed.)

Number of samples received: 60

NOTE: If the package has sustained substantial damage or the custody seal is broken, stop and contact project manager and shipper. RESI will analyze incoming samples based upon information received with those samples. RESI is not responsible for [redacted] Turnaround times are based upon times of receipt by laboratory. Call Laboratory for number of samples guaranteed [redacted]

Date/Time: May 8, 2003 / 1300

Relinquished [redacted]

Laboratory U[redacted] 5/8/03 10:00

Received By [redacted]

Carrier: [redacted] Condition of package upon receipt: undamaged

Page Phone Fax [redacted] Time Initials

RESULTS:

Lab Bench/Count Sheets Received By:
Date: Date:

SPLITS: Authorization By/Time:
Analytical Method/Turnaround:
Results Due: Results Call:

Rev 5/2/01

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client:	National Guard Bureau	**Job Name:**	Pennsylvania Armories	**Chain Of Custody:**	117502
Address:	301-IH Old Bay Lane, Attn: NGB-AVN-SI, State Military Reservation	**Job Location:**	Not Provided	**Date Analyzed:**	9/11/2003
	Havre de Grace, Maryland 21078	**Job Number:**	Not Provided	**Person Submitting:**	[redacted]
		P.O. Number:	Not Provided	**Report Date:**	12-Sep-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 (ft^2)	Reporting Limit		Final Result		Comments
0366411	PACon-03106-16	Flame	Wipe	****	0.111	108.00	ug/ft^2	510	ug/ft^2	
0366412	PACon-03106-17	Flame	Wipe	****	0.111	108.00	ug/ft^2	320	ug/ft^2	
0366413	PACon-03106-18	Flame	Wipe	****	0.111	108.00	ug/ft^2	< 110	ug/ft^2	
0366414	PACon-03106-19	Flame	Wipe	****	0.111	108.00	ug/ft^2	< 110	ug/ft^2	
0366415	PACon-03106-20	Flame	Wipe	****	0.111	108.00	ug/ft^2	3900	ug/ft^2	
0366416	PACon-03106-21	Flame	Wipe	****	0.111	108.00	ug/ft^2	< 110	ug/ft^2	
0366417	PAHol-03113-11	Flame	Wipe	****	0.111	108.00	ug/ft^2	160	ug/ft^2	
0366418	PAHol-03113-12	Flame	Wipe	****	0.111	108.00	ug/ft^2	1800	ug/ft^2	
0366419	PAHol-03113-13	Flame	Wipe	****	0.111	108.00	ug/ft^2	740	ug/ft^2	
0366420	PAHol-03113-14	Flame	Wipe	****	0.111	108.00	ug/ft^2	< 110	ug/ft^2	
0366421	PAHol-03113-15	Flame	Wipe	****	0.111	108.00	ug/ft^2	< 110	ug/ft^2	
0366422	PAHol-03113-16	Flame	Wipe	****	0.111	108.00	ug/ft^2	< 110	ug/ft^2	
0366423	PAHol-03113-17	Flame	Wipe	****	0.111	108.00	ug/ft^2	180	ug/ft^2	
0366424	PAHol-03113-18	Flame	Wipe	****	0.111	108.00	ug/ft^2	< 110	ug/ft^2	
0366425	PAHol-03113-19	Flame	Wipe	****	0.111	108.00	ug/ft^2	190	ug/ft^2	
0366426	PAHol-03113-20	Flame	Wipe	****	0.111	108.00	ug/ft^2	< 110	ug/ft^2	
0366427	PAAlt-03113-39	Flame	Wipe	****	0.111	108.00	ug/ft^2	< 110	ug/ft^2	
0366428	PAAlt-03113-40	Flame	Wipe	****	0.111	108.00	ug/ft^2	300	ug/ft^2	
0366429	PAAlt-03113-41	Flame	Wipe	****	0.111	108.00	ug/ft^2	< 110	ug/ft^2	
0366430	PAAlt-03113-42	Flame	Wipe	****	0.111	108.00	ug/ft^2	< 110	ug/ft^2	

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client:	National Guard Bureau	Job Name:	Pennsylvania Armories	Chain Of Custody:	117502
Address:	301-III Old Bay Lane, Attn: NGB-AVN-SI, State Military Reservation	Job Location:	Not Provided	Date Analyzed:	9/11/2003
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	[redacted]
		P.O. Number:	Not Provided	Report Date:	12-Sep-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
0366451	PALew-03119-37	Flame	Wipe	****	0.111	108.00	ug/ft²	<	110	ug/ft²	
0366452	PALew-03119-38	Flame	Wipe	****	0.111	108.00	ug/ft²		21000	ug/ft²	
0366453	PALew-03119-39	Flame	Wipe	****	0.111	108.00	ug/ft²	<	110	ug/ft²	
0366454	PAHan-03120-09	Flame	Wipe	****	0.111	108.00	ug/ft²	<	110	ug/ft²	
0366455	PAHan-03120-10	Flame	Wipe	****	0.111	108.00	ug/ft²	<	110	ug/ft²	
0366456	PAHun-03120-11	Flame	Wipe	****	0.111	108.00	ug/ft²	<	110	ug/ft²	
0366457	PAHun-03120-12	Flame	Wipe	****	0.111	108.00	ug/ft²	<	110	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.

Analyst: [redacted]

Technical Manager: [redacted] Non-Responsive

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m³
PA Phi-03090-16	03-17830	160.3	ND	<0.006
PA Phi-03091-01	03-17831	226.0	ND	<0.004
PA Phi-03091-02	03-17832	222.2	ND	<0.005
PA Phi-03091-10	03-17833	54.6	ND	<0.02
PA Phi-03092-01	03-17834	476.7	ND	<0.002
PA Phi-03092-02	03-17835	501.0	ND	<0.002
PA Phi-03092-03	03-17836	464.1	ND	<0.002
PA Way-03105-01	03-17837	280.4	ND	<0.004
PA Way-03105-02	03-17838	262.2	ND	<0.004
PA Con-03106-01	03-17839	501.0	ND	<0.002
PA Con-03106-02	03-17840	458.8	ND	<0.002
PA Con-03106-03	03-17841	412.6	ND	<0.002
PA Mtp-03106-25	03-17842	335.1	ND	<0.003
PA Lig-03107-01	03-17843	266.0	ND	<0.004
PA Lig-03107-02	03-17844	302.8	ND	<0.003
PA Tor-03107-17	03-17845	462.5	ND	<0.002
PA Tor-03107-18	03-17846	549.5	ND	<0.002
PA Ind-03108-01	03-17847	275.2	ND	<0.004
PA Ind-03108-02	03-17848	326.3	ND	<0.003
PA Eve-03112-01	03-17849	250.1	ND	<0.004
	Prep Blank 4		ND	
% Recovery	LCS 7		104.	
% Recovery	LCS 8		106.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Results
Lead

Client #	DCL #	mg/Kg (ppm)	% by weight
PAWay-03105-15	03-14037	55.	0.0055
PACon-03106-22	03-14038	83000.	8.3
PACon-03106-23	03-14039	140.	0.014
PACon-03106-24	03-14040	2300.	0.23
PALig-03107-15	03-14041	15000.	1.5
PALig-03107-16	03-14042	220.	0.022
PAInd-03108-15	03-14043	36.	0.0036
PAEve-03112-15	03-14044	1600.	0.16
PAHol-03113-21	03-14045	8300.	0.83
PAHol-03113-22	03-14046	16000.	1.6
PAHol-03113-23	03-14047	2200.	0.22
PAHol-03113-24	03-14048	7700.	0.77
PAHol-03113-25	03-14049	5400.	0.54
PAHol-03113-26	03-14050	840.	0.084
PATyr-03114-16	03-14051	220.	0.022
PATyr-03114-17	03-14052	100.	0.010
PAWil-03115-23	03-14053	140000.	14.
PAWil-03115-40	03-14054	2200.	0.22
PAWil-03115-41	03-14055	96.	0.0096
	Prep Blank	ND	
% Recovery	LCS	88.	
% Recovery	14045 MS	NA	
% Recovery	14045 MSD	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.
NA indicates the sample result was greater than four times the spiked amount.

Non-Responsive
Analyst

Reviewer

Submitted To: Ken Forsythe
Army National Guard IH-N
301 IH Old Bay Lane
Havre de Grace, MD 21078

Reference Data:	**Lead**
Client Sample No.:	PAWay-03105-15 through PAHun-03120-16
P.O. No.:	05-02
Sample Location:	Pennsylvania Armories
Sample Type:	Paint Chip
Method Reference:	3050B/6010B
DCL Set ID No.:	03-S-2185
DCL Sample ID No.:	03-14037 through 03-14060
Sample Receipt Date:	5/7/2003
Preparation Date:	5/8/2003
Analysis Date:	5/9/2003

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

Analyst

Reviewer

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non-Responsive nd.ngb.army.mil

Attachment D

REFERENCE LIST INDEX

1. General Regulations and National Consensus Standards
2. Specific Regulations and Guidance
   a. Abrasive Blasting
   b. Asbestos
   c. Battery Charging Room
   d. Bird and Bat Manure
   e. Bloodborne Pathogens
   f. Chemical Agent Resistant Coating (CARC) Paint
   g. Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE)
   h. Confined Space Entry Program
   i. Design Review
   j. Ergonomics
   k. Flammable Storage Room
   l. Hazard Communication
   m. Hearing Conservation
   n. Indoor Air Quality
   o. Indoor Firing Ranges
   p. Lead
   q. Lighting
   r. Occupational Vision
   s. Paint Spray Booth
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   u. Radiation Protection
   v. Respiratory Protection
   w. Sanitation
   x. Smoking
   y. Vehicle Exhaust
   z. Welding Operation

GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

Attachment D

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REFERENCE LIST

1. General Regulations and National Consensus Standards
   a. DODI 6055.1, DOD SOH Program, 19 August 1998.
   b. DODI 6055.5, DOD OEH. *[DRAFT]*
   c. DOD 6055.5-M, DOD Occupational Health Surveillance Manual, 13 May 1987.
   d. DODI 6050.5, DOD Hazard Communication, 29 Oct 90. Change 1, 6 May 1996.
   e. AR 40-5, Preventive Medicine, 15 October 1990. [05/2002 Being Updated]
   f. DA PAM 40-5, Preventive Medicine. *[DRAFT]*
   g. AR 385-10, The Army Safety Program, 29 February 2000.
   h. NGR 385-10, ARNG SOH Program, 7 October 1988, Change 1, 29 December 1989.
   i. Title 29, Part 1910, Occupational Safety and Health Standards. [Current Date]
   j. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 2002.
   k. ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th edition, 2001.
   l. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.
   m. TG 141, USACHPPM Industrial Hygiene Sampling Guide, November 1997.
   n. National Safety Council, Fundamentals of Industrial Hygiene, 5th Edition, 2002.
   o. NIOSH, Pocket Guide to Chemical Hazards, 2001.
   p. NFC, A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. [Current date]
   q. ASHRAE Standards. [Current Dates]
   r. ANSI Standards. [Current Dates]

2. Specific Regulations/Guidance
   a. **ABRASIVE BLASTING**
      (1) ANSI Z9.4 1997, Abrasive Blasting Operations - Ventilation and Safe Practices.
      (2) 29 CFR 1910.94 Ventilation
      (3) 42 CFR 84

   b. **ASBESTOS**
      (1) AR 40-5, Preventive Medicine, 15 October 1990. *[05/2002 Being Updated]*
      (2) AR 200-1, Environmental Protection and Enhancement, Chapter 8, 21 February 1997.
      (3) TB MED 513, Guidelines for the Evaluation and Control of Asbestos Exposure, 15 December 1986. *[05/2000 Under Revision as DA PAM 40-513]*
      (4) TG 157, USAEHA, The Installation Asbestos Management Program Assessment Checklists, July 1994.
      (5) 29 CFR 1910.1001
      (6) 29 CFR 1926.58 (prior to 1994 CFR)
      (7) 29 CFR 1926.1101

(8) MEMORANDUM SGPS-PSP, OTSG, subject: AMEDD Role Supporting Asbestos Abatement/Asbestos Management Programs, 19 Jan 89.

(9) EPA, Guidance for Controlling Asbestos-Containing Materials in Buildings, June 1985.

(10) DD Form 2493-1 (Asbestos Exposure, Part I--Initial Medical Questionnaire)

(11) DD Form 2493-2 (Asbestos Exposure, Part II--Periodic Medical Questionnaire)

(12) EPA NESHAPS Asbestos Regulation (40 CFR 61, Subpart M).

c. **BATTERY CHARGING ROOM**

(1) TG 022, USAEHA, page 81, Industrial Hygiene Evaluation Guide, October 1975. *[Out of Print]*

(2) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

d. **BIRD AND BAT MANURE**

(1) TG 142, USAEHA, Managing Health Hazards Associated with Bird and Bat Excrement, Dec 1992.

e. **BLOODBORNE PATHOGENS**

(1) 29 CFR 1910.1030

(2) TG 190, USAEHA, Guide to Managing Occupational Exposure to Bloodborne Pathogens, Jan 94.

f. **CHEMICAL AGENT RESISTANT COATING (CARC) PAINT**

(1) TG 144, USAEHA, Guidelines for Controlling Health Hazards in Painting Operations, 24 August 1987.

(2) DA LTR, USAEHA, HSHB-MI-WR, subject: Respiratory Protection When Spraying CARC, 19 November 1992.

(3) TM 43-0139, Painting Instructions for Army Material, 27 July 1988[1 Aug 86.

(4) MEMORANDUM SGPS-PSP, OTSG, subject AMEDD, Occupational Health Requirements in Support of Painting in the Army, 22 February 1985.

(5) AR 750-1, Army Materiel Maintenance Policy and Retail Maintenance Operations (Prohibits welding on CARC paint) 1 July 1996.

g. **CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR, EXPLOSIVE (CBRNE)**

(1) DODI 2000.gg, DOD Installation CBRNE Emergency Response Guidelines.

(2) DHHS, NIOSH Pub No. 2002 139, Guidance for Protecting Building Environments from Airborne Chemical, Biological, or Radiological Attacks, May 2002.

(3) TG 275, USACHPPM, Personal Protective Equipment Guide for Medical Treatment Facility Personnel Handling Casualties from Weapons of Mass Destruction and Terrorism Events. *[Draft]*

h. **CONFINED SPACE**

(1) 29 CFR 1910.146 (Confined Space Entry)
(2) 29 CFR 1910.147 (Lockout/Tagout)
(3) ANSI Z117.1-Safety Requirements for Confined Spaces, 1995.
(4) SOP for ARNG Confined Space Entry Program, 25 April 1991.
(5) Letter, US Dept of Labor (DOL) addressed to [redacted] 2 Apr 1994.
(6) OSHA Instruction STD 1-7.3, US DOL, subject: 29 CFR 1910.147, the Control of Hazardous Energy (Lockout/Tagout)--Inspection Procedures and Interpretive Guidance, 11 Sep 90.
(7) DHHS, NIOSH Pub No. 87113, A Guide to Safety in Confined Spaces, July 1987.
(8) Confined Space Entry Program for Helicopters, 2003.

i. **DESIGN REVIEW**

(1) DG 415-1, Design Guide for Armories, current.
(2) DG 415-2, Design Guide for Logistics Facilities, current.
(3) DG 415-3, Design Guide for Training Site Facilities, current.
(4) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.
(5) TI-300, 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.
(6) UFGS 15940A, Overhead Vehicle Tailpipe (and welding Fume) Exhaust Removal Systems, December 2001.
(7) ASHRAE, Standard 62-2002, Ventilation for Acceptable Indoor Air Quality.
(8) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

j. **ERGONOMICS**

(1) DA PAM 40-21, Medical Services, Ergonomics Program, 15 May 2000.
(2) ANSI Z-365, Management of Work Related Musculoskeletal Disorders, 2000.
(3) 29 CFR 1910. *[PROPOSED STANDARD]*

k. **FLAMMABLE STORAGE ROOM**

(1) 29 CFR 1910.106
(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

l. **HAZARD COMMUNICATION**

(1) 29 CFR 1910.1200
(2) NGR 385-10, Chapter 6

m. **HEARING CONSERVATION**

(1) DA PAM 40-501, Medical Services, Hearing Conservation Program, 10 December 1998.

(2) TG 181, USAEHA, Noise Dosimetry and Risk Assessment, May 1999.

(3) TG 175, USAEHA, Readiness thru Hearing Conservation: Guide for Unit Commanders and Supervisors, June 1999.

(4) 29 CFR 1910.95

n. **INDOOR AIR QUALITY (IAQ)**

(1) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

(2) USACERL Technical Report P-91/42, IAQ Management for Operations and Maintenance Personnel, September 1991.

(3) EPA 400/1-91/003 or DHHS, NIOSH, Publication No. 91-114, Building IAQ, A Guide for Building Owners and Facility Managers, December 1991.

(4) ASHRAE, Standard 62-2002, Ventilation for Acceptable IAQ.

(5) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

(6) NIOSH, IAQ Selected References, Sep 1989.

(7) OSHA Instruction CPL 2-2.20B CH-1, Directorate of Technical Support, 13 Nov 90.

(8) DA PAM 25-52, Mail Facility Security and Handling Suspicious Mail, 6 November 2001.

(9) ASTM, D 5952-96, 10 May 1996.

o. **INDOOR FIRING RANGES**

(1) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(2) NGR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges, 30 March 1990. *[11/02 Under Revision]*

(3) CEHND 1110-1-18, USACE Design Manual for Indoor Firing Range, June 1990.

(4) HQDA LTR, Office of the Adjutant General, DACS-SF, subject: Inspection and Evaluation of US Army Indoor Firing Ranges, 26 March 1993.

(5) Departments of the Army and Air Force, NGB-ADE-OM, subject: All State Log Number (I920323) Indoor Range Clean-up at State Owned Armories, 28 July 1992.

(6) NIOSH, Technical Information, December 1975, subject: Lead Exposure and Design Considerations for Indoor Firing Ranges.

(7) All-States Ltr P01-0075, 5 December 2001.

(8) Information Paper, Alternative Ammunition, 15 March 1996.

(9) Information Paper, Bullet Traps, 26 April 1996.

(10) Information Paper, ARNG IFR Action Plan, 28 January 2002.

p. **LEAD**

(1) 29 CFR 1910.1025

(2) 29 CFR 1926.62

(3) 24 CFR 35.61 (HUD, Percentage of Lead in Paint)

(4) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(5) OSHA Instruction CPL 2-2.58, Office of Health Compliance Assistance, 13 December 1993.

(6) Federal Register, 18 April 1990, Vol. 55, No. 75, HUD, Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing, as amended, September 1990, Office of Public and Indian Housing, Department of Housing and Urban Development, 451 Seventh Street, SW, Washington, DC 20410.

(7) NIOSH, Request for Assistance in Preventing Lead Poisoning in Construction Workers, April 1992.

(8) EPA, Strategy for Reducing Lead Exposures, 21 Feb 91.

q. **LIGHTING**

(1) RP-1-1993, Office Lighting, ANSI/IESNA.

(2) RP-7-2001, Industrial Lighting, IES.

r. **OCCUPATIONAL VISION**

(1) DA PAM 40-506, Medical Services, The Army Vision Conservation and Readiness Program, 20 July 2001.

(2) ANSI Z87.1, Practice for Occupational and Educational Eye and Face Protection, 1989, Change A, REAF 1998.

(3) ANSI Z358.1 for Emergency Eyewash and Shower Equipment, 1998.

(4) OTSG Memorandum SGPS-PSP, subject: Acanthameoba Keratitis and Eyewash Stations, 8 May 89.

(4) 29 CFR 1910.133

s. **PAINT SPRAY BOOTH**

(1) NFPA No. 33, Standard for Spray Application Using Flammable and Combustible Materials, 1995.

(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

(3) 29 CFR 1910.94

(4) 29 CFR 1910.107

(5) ANSI Z9.3-1995 for Exhaust Systems - Spray Finishing Operations - Safety Code for Design, Construction, and Ventilation.

(6) ANSI Z9.2-2001, Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems.

t. **PERSONAL PROTECTIVE EQUIPMENT**

(1) Quick Selection Guide to Chemical Protective Clothing, 2nd edition, Forsberg, K and Mansdorf, S., 1993.

(2) Chemical Protective Clothing, Vol 1 and 2, Johnson, J. and Anderson, K., American Industrial Hygiene Association, 1990.

(3) Guidelines for the Selection of Chemical Protective Clothing, 3rd Edition, ACGIH, Inc., Feb 1987.

u. **RADIATION PROTECTION PROGRAM**

(1) NGR 385-11, Safety, Ionizing and Nonionizing Radiation Protection, 18 February 1999.

(2) AR 11-9, Army Radiation Safety Program, 28 May 1999.

(3) 29 CFR 1910.96

(4) 29 CFR 1910.97

v. **RESPIRATORY PROTECTION**

(1) AR 11-34, The Army Respiratory Protection Program, 15 February 1990. *[11/02 Being Updated]*

(2) 29 CFR 1910.134

(3) 42 CFR 84

(4) TB MED 502, Respiratory Protection Program, February 1992. *[11/02 Being Updated as DA PAM 40-502]*

(5) ANSI/CGA G-7.1-1997, Commodity Specification for Air.

(6) ANSI Z88.2-1992, Standard for Respiratory Protection.

w. **SANITATION**

(1) ANSI Z4.1-1986, Change REAF 1995, Sanitation in Places of Employment-Minimum Requirements.

(2) 29 CFR 1910.141

x. **SMOKING**

(1) AR 600-63, Army Health Promotion, 28 April 1996.

(2) DODI 1010.15, Smoke-Free DOD Facilities, 2 January 2001.

(3) DODD1010.10, Health Promotion, 11 March 1986.

y. **VEHICLE EXHAUST**

(1) ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th Edition, 2001.

(2) TI-300f 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

z. **WELDING OPERATION**

(1) 29 CFR 1910.252

(2) 29 CFR 1910.253

(3) 29 CFR 1910.254

(4) ANSI/AWS Z49.1-1999, Safety in Welding and Cutting and Allied Processes.

(5) TM 5-805-7, Welding Design, Procedures and Inspection, 20 May 85.

INDUSTRIAL HYGIENE SURVEY
PENNSYLVANIA

	SURVEY DATE	16 Apr 03	
FACILITY	CO D 1/103rd ARMOR		
ADDRESS	108 W. Washington Ave.		
	Connellsville, PA 15425		
CONTACT	Non-Responsive SFC		
PHONE	724-628-1230		
DATE BUILT	1906	FACILITY SIZE	12,103 SqFt
RANGE	Closed		3,928
ASSISTED	Non-Responsive SGT		Non-Responsive

PAINT CONDITION:		
INDOORS		Sample?
OUTDOORS		Sample?

ASBESTOS		
Area/condition		
Area/condition		

WATER DAMAGE	Termites
Area/condition	Drill Floor W. Wall - Leaked for 20+ years
Area/condition	Basement Latrine. Steam pipes in Kitchen
HOUSEKEEPING	Very good

TIME	AREA	CO	CO_2	TEMP	RH
0835	Outdoors	0.0	460	65.1°F	47.3 %
0850	Orderly Rm (occupied)	0.0	634	72.5°F	38.7 %
0905	Drill Floor	0.0	524	74.3 °F	38.7 %
0910	Recruiters (occupied)	0.0	455	79.0 °F	34.6 %
0914	CMDR	0.0	545	73.8°F	37.4 %
0920	2nd Floor Lockers	0.0	622	74.5 °F	37.6 %
0925	" FTVS Office (occ)	0.0	639	75.0 °F	36.9 %
0930	Basement Latrine	0.0	590	73.9 °F	41.6 %
0934	" Fitness	0.0	640	72.9 °F	41.3 %
0940	" Kitchen	0.0	679	73.7 °F	41.2 %
0944	" Dining Room	0.0	737	73.6 °F	42.0 %
0950	" Locker Rm	0.0	701	72.6 °F	43.7 %
0955	" Boiler Room	0.0	698	72.1 °F	45.5 %
1005	Utility Room (occ)	0.0	703	74.6 °F	39.5 %
				°F	%
				°F	%
				°F	%

INDUSTRIAL HYGIENE SURVEY
PENNSYLVANIA

Connellsville

WIPE SAMPLES	ARMORY	Picture #
PA Con-03 106 - 04	~~HVAC supply side of filter~~ Orderly Rm. Table	1
PA Con-03 05	~~HVAC on fan side of filter~~ Drill Floor - W. wall window Sill	2
PA Con-03 06	~~Assembly Hall~~ 2ND Floor - FTVS Office	3
PA Con-03 07	Kitchen - Top of shelf above stove	4
PA Con-03 08	~~Supply air grille in occupied office~~ Basement - Outside Range	5
PA Con-03 09	BLANK	
PA Con-03 16	Boiler Room Workbench Shelf	11
PA Con-03 17	Fitness/Storage	12
PA Con-03 18	1st Floor - Recruiters Office	13
PA Con-03 19	NCOIC's Office TV Cart	14
PA Con-03 20	Drill Floor - NE Corner - Floor	15
PA Con-03 21	BLANK	
PA Con-03 22	BULK - DRILL FLOOR W. Wall - paint chips	P.x
PA Con-03 23	BULK - Basement [illegible] - Sink paint chips	P.x
PA Con-03 24	BULK - Kitchen Steam pipes - paint chips	P.x
PA Con-03		
PA Con-03		
PA Con-03	BLANK	

AIR SAMPLING

Sample #	Pump #	Person/Area	Precal lpm	Postcal lpm	Time On	Time Off	Run Time	Volume (Liters)
PA Con-03 106-01	447609	[redacted]	3.171	3.192	0848	1126	158	501.0
PA Con-03 106-02	648393	Area - Basement	2.960	2.964	0849	1124	155	458.8
PA Con-03 106-03	647654	Area - 1st Floor	2.697	2.705	0852	1125	153	412.6

Natural Gas/Steam

INDUSTRIAL HYGIENE SURVEY
PENNSYLVANIA

No vent, indoor

CONVERTED INDOOR FIRING RANGE WIPE SAMPLES			
PA Con-03 06 - 10	~~Inside any remaining ventilation ductwork~~ S. End - Locker		6
PA Con-03 11	~~Exhaust ventilation system~~ S. End - Floor		7
PA Con-03 12	~~Bullet trap~~ Light fixture Hallway		8
PA Con-03 13	~~Light fixtures~~ N. End - Locker		9
PA Con-03 14	~~Overhead heaters~~ Floor - Outside Range Floor		10
PA Con-03	~~Stored~~ Items		
PA Con-03	Floor		
PA Con-03	Outside ~~the range~~		
PA Con-03 15	Blank		

HVAC SYSTEM: evaluate maintenance schedule and quality of maintenance for HVAC syst.
Range closed & cleaned about 1990

PROGRAMS	
CONFINED SPACES?	Y – N
HEARING CONSERVATION?	Y – N
RESPIRATORY PROTECTION?	Y – N
HAZCOM?	Y – N
PPE?	Y – N
TRAINING?	Y – N

VENTILATION:

NOISE:

[illegible]

[1st Floor]

Orderly Room
52, 52 32 60 44 — 232/5 = 46.4 Sq. Avg.
D - 48, 44, 32 — [illegible]

Battalion Office (Supply)
34, 64, 60 — 160/3 = 53.3
D - 60

[illegible]
[illegible]

[illegible]
[illegible]
[illegible]
[illegible]

Recruiter
50 30 62 48 — [illegible]
D - 58

CMDR
[illegible]
D - [illegible] 32 — [illegible]

Center Latrine
26, 30, 42 — 98/3 = [illegible]

Entry
12, 22 36 22 — [illegible]

[2ND FLOOR]

Bldg. Lockers
28, [illegible] 38, 60, [illegible], 20 — [illegible]

Exec Office
30, 28, 48, 62,
D - 42

BASEMENT

Latrine
20, 30, 26, 20, 20 — 116/5 = 23.2

Showers
[illegible], 26, 26 — [illegible]

Armory / Storage
16, 22, 46, 17, 14, — 110/5 = 22.0

Kit Storage
38, 30, 44, 32 — 144/4 = 36.0

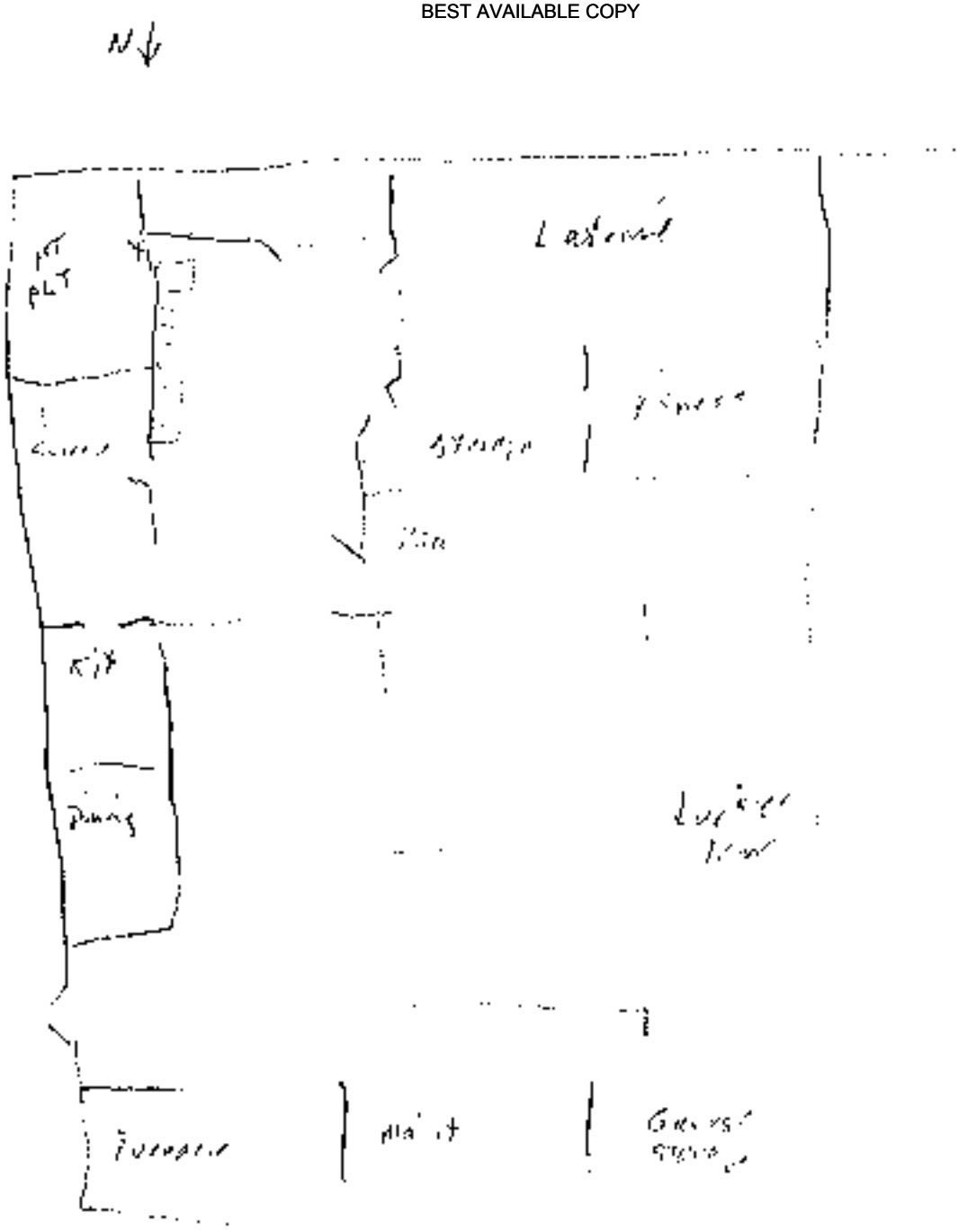
Kitchen
38, 34, [illegible], 60, 32 — [illegible]

Dining Room / Classroom
34, 58, 50, 48 60 — 296/5 = [illegible]

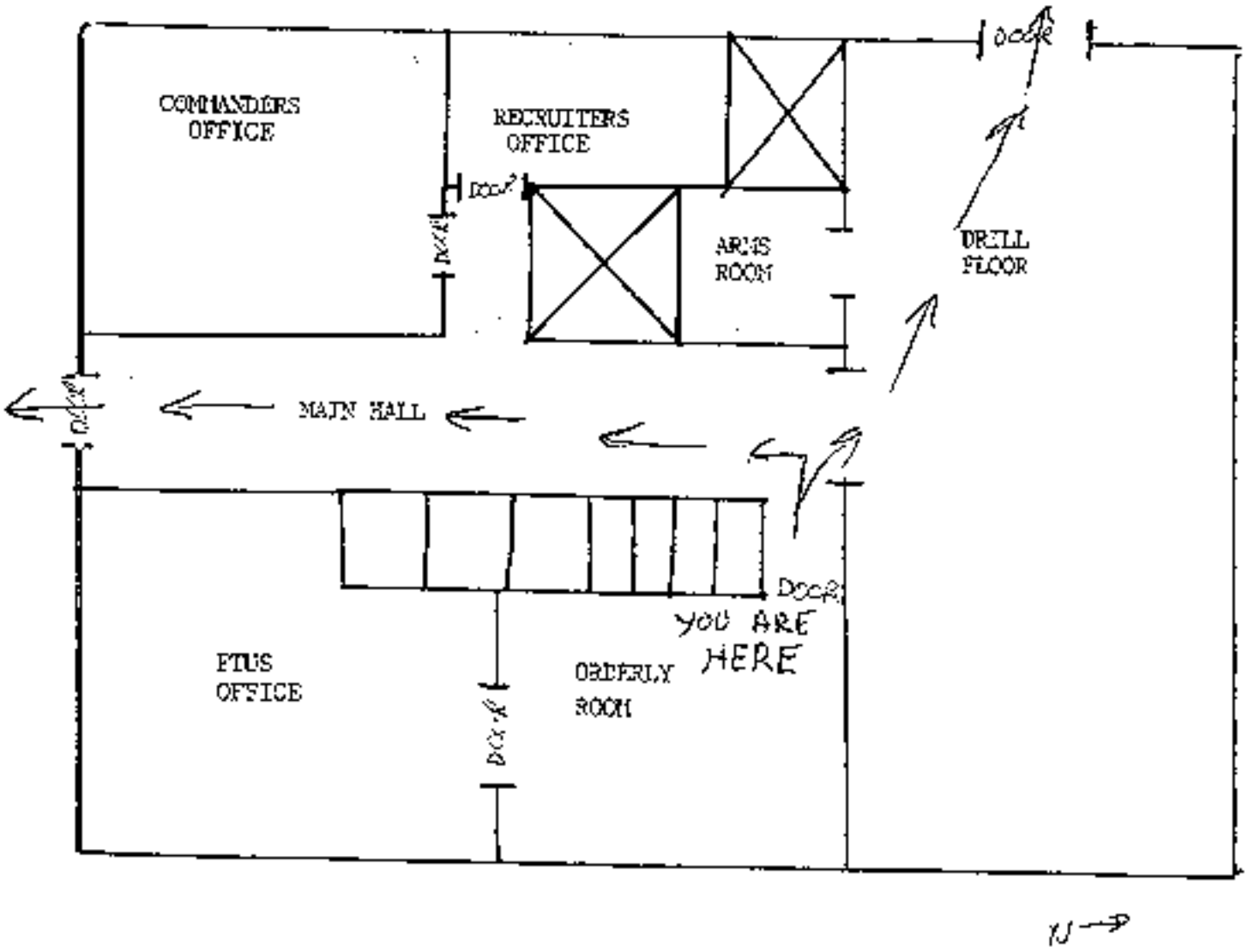
Corridor
[illegible] 8, 14, [illegible] 48, [illegible]

[illegible] (Clothing Storage)
52, 44, 10, 10, 36, 8, 14, 60 — [illegible]

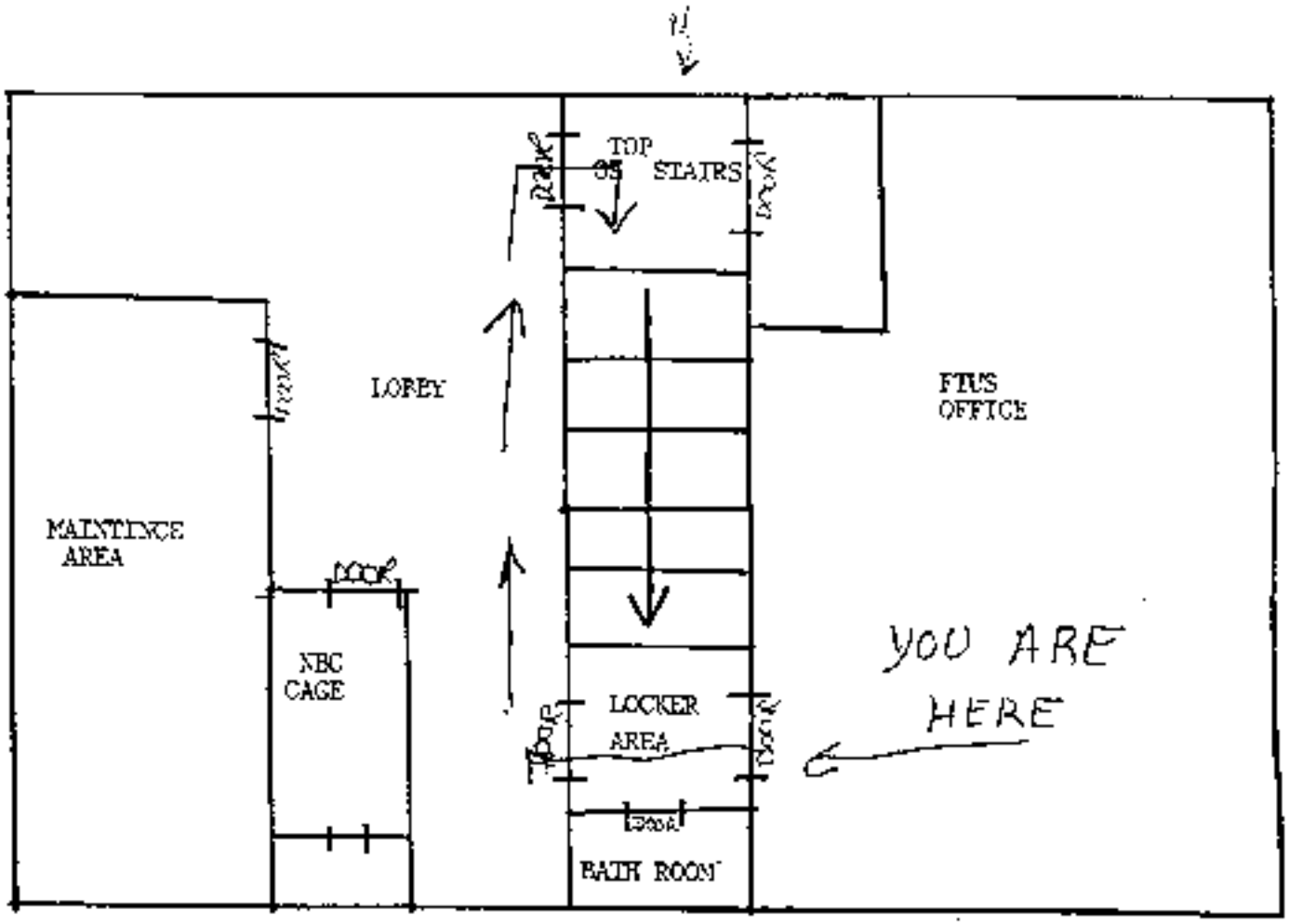
Boiler Room
32, 24, 22, 50, 16 — [illegible]



Comp[illegible] 1st [illegible]034
108 W. Washington Avenue
Connellsville, PA 15425-4453



Company D 1st Bn. 103d Armor
108 W. Washington Avenue
Connellsville, PA 15425-4453



PENNSYLVANIA ARMORY
INDUSTRIAL HYGIENE SURVEY
EQUIPMENT LISTING

Air Sampling Pumps
SKC Aircheck Samplers 224-44XR
S/N: 647609, 647610, 647626, 647627, 647654, 648324, 648349, 648393

Air Pump Calibrator
DryCal Base m: DC-1B Rev 2.06F S/N B 1827
DryCal Med Cell: m: DC-MC-1 Rev E S/N 1745

Indoor Air Quality
TSI Q-Trak m: 8550 S/N 11050
Metrosonics Carbon Monoxide Logger m: pm7700 S/N 1129
Metrosonics CO Sensor m: gs 7701 S/N 5073

Noise
Quest Sound Level Meter m: 2800 S/N HS4090023
Quest Octave Filter Set m: OB-300 S/N HV4070020
Quest Acoustic Calibrator m: QC-10 S/N QE4090140
Metrosonics db-3080 Noise Dosimeters S/N 4667, 4685
Microphones

ATTACHMENT E

NATIONAL GUARD BUREAU
111 SOUTH GEORGE MASON DRIVE
ARLINGTON VA 22204-1382

ARNG-CSG-P

1 May 2012

MEMORANDUM TO MAJ Non-Responsive Pennsylvania State Safety and Occupational Health Manager, FTIG Bldg 11-9, Annville, PA 17003

SUBJECT: Annual Survey of Connellsville Readiness Center, 108 W. Washington Avenue, Connellsville, PA 15425

1. Purpose. At the request of the Northeast Region Industrial Hygienist, an industrial hygiene survey was completed for the Connellsville Readiness Center, Connellsville, PA. This IH survey was conducted to identify, assess and make recommendations for the reduction or elimination of potential health hazards present in the workplace.

2. Findings and Recommendations. The enclosed report contains findings and recommendations.

3. The technical point of contact is, Non-Responsive at 410-942-0273 ext 3, Non-Responsive@us.army.mil III at 410-942-0273 ext 4, army.mil.

Non-Responsive
Regional Industrial Hygienist

CF:
LT Non-Responsive OHN
Mr BPOM
SF Facility Manager

Hofman Safety & Industrial Hygiene Consulting, Inc.

OSHA Compliance
Exposure Monitoring
Facility Audits
Employee Training

Non-Responsive
NGB Region North IH Office
ATTN: ARNG-CSG-P
301-IH Old Bay Lane
Havre de Grace, MD 21078

April 30, 2012

Re: PA RC Connellsville - Recommendations

Dear Ms. Non-Responsive

As a result of the Industrial Hygiene Survey Conducted on October 13, 2011 at Connellsville RC, in Connellsville, PA we recommend the following:

1. A 14.5 linear foot hood over the stove was measured at 2759 cubic feet per minute (cfm) air flow and should be 4350 cfm; and a 3.16 linear foot griddle hood was measured at 545 cfm air flow and should be 949 cfm. Increase the blower speed for these hoods. **(RAC 4 – Health (Ventilation)),** Reference - Industrial Mechanical Code 2006, International Code Council Inc. 2006.

2. The kitchen hood fire suppression system was not inspected every six months and should be inspected. **(RAC 4 – Safety (Fixed Extinguishing Systems)),** Reference - OSHA Fixed Extinguishing Systems, General 29 CFR 1910.160.

3. An employee mows the lawn without hearing protection with a lawnmower noise level reported at 91 Decibels. Hearing protection should be worn per the Hearing Conservation Program requirements when mowing the lawn. **(RAC 4 – Health (Hearing)),** Reference - DA PAM 40-501, Medical Services, Hearing Conservation Program, 10 December 1998, and OSHA Hearing Conservation Standard 29 CFR 1910.95.

4. Documentation of Hazard Communication Program employee training was not available for review. A training roster for the hazard communication program should be maintained at the facility and available for review. **(RAC 5 – Health (Hazard Communication)),** Reference - OSHA Hazard Communication 29 CFR 1910.1200.

5. Material Safety Data Sheets (MSDS) as part of the Hazard Communication Program have not been maintained. A person should be assigned the responsibility to maintain the MSDS book. **(RAC 4 – Health (Hazard Communication)),** Reference - OSHA Hazard Communication 29 CFR 1910.1200.

6. A hazard assessment for Personal Protective Equipment use was not available for review and should be conducted. **(RAC 5 – Health (PPE)),** Reference - OSHA Personal Protective Equipment 29 CFR 1910.132.

7. There are water damaged ceiling tiles from leaking pipes and roof leaks that could result in mold growth. The pipe and roof leaks should be repaired and damaged ceiling tiles replaced. **(RAC 4 – Health (Mold)),** Reference - CHPPM Technical Guides on Mold, TG 277 and TG 278.

Technical issues should be referred directly to Mr. Non-Responsive or Non-Responsive
Thank you for your continued support and input.

Sincerely,

Non-Responsive

Vice President

Industrial Hygiene Report

Survey Performed by: Hofman Safety & Industrial Hygiene Consulting, Inc.
2 Pennwood Road
Lebanon, PA 17042
Phone: 717-274-1611

Facility: PA RC Connellsville

Date of Survey: 13 Oct 2011
Location: Connellsville, PA
Address: 108 West Washington Ave.
Connellsville, PA 15425

Draft Report Submitted: 16 April 2012
Comments Received: 24 April 2012
Final Report Submitted: 30 April 2012

POC: SFC [redacted]
POC Phone: 724-628-6369

Report submitted to:
NGB Region North IH Office
301-IH Old Bay Lane
Havre de Grace, MD 21078
Phone: 410-942-0273

State OH Officer:
Non-Responsive
Phone: (717) 861-8895

Table of Contents

Industrial Hygiene Report of Findings
Pennsylvania Army National Guard
Connellsville Readiness Center, Connellsville, PA
October 13, 2011

Executive Summary

An industrial hygiene evaluation was conducted at the Pennsylvania Army National Guard Readiness Center located in Connellsville, Pennsylvania on September 22, 2011. The facility was in excellent condition. There are seven Industrial Hygiene/Safety areas of concern identified. The kitchen stove exhaust hood did not exhaust enough air and the hood fire suppression system was not inspected every six months. Hearing protection was not worn when mowing the lawn. Hazard Communication training documentation was not available for inspection. Materials Safety Data Sheets have not been maintained. There was no Personal Protective Equipment hazard assessment available for inspection. There are stained and/or damaged ceiling tiles from pipe leaks and roof leaks with a concern for mold growth.

Operation Description

Two (2) full time employees plus one State Maintenance Employee are located at Connellsville Readiness Center. Personnel include one supply and one trainer. Other personnel normally stationed at this facility are deployed. (see Personnel Roster Appendix D) There is no work performed on vehicles and there is no firing range.

The facility, constructed in 2005 with concrete blocks and steel, consists of 6 offices, 2 classrooms, 2 training areas, a break room, kitchen, supply rooms/areas, a drill floor, mechanical room, two locker rooms, a vault, a library, an exercise room, and a briefing room. Flammable and combustible liquid storage is in flammable storage cabinets located in the hangar. The floor diagram can be found in Appendix B. Photographs can be found in Appendix C. A chemical list can be found in Appendix D along with a roster of personnel. During the day of the evaluation, employees worked in their offices. Potential hazards include: noise when on drills. There is limited exposure to operational hazards at this facility.

Chemical and Physical Agents

This was a routine workday and hazardous chemicals are not used in durations or concentrations of concern. Quick Check surface indicators for cadmium, chromate, lead, and nickel were used to identify the presence of those contaminants as a residue from troop activities but not generated at the facility. Quick Check Samples were collected on top of the ice machine in the kitchen room 142, and on top of door hardware for a door from the kitchen to the drill floor (see Table A). Quick Check swabs did not show a color change.

One hundred (100) square centimeter wipe samples were collected using Ghost-Wipe sample media and analyzed for lead by AMA Analytical Services, Inc., an American Industrial Hygiene Association Accredited laboratory. Wipe sample PARC-CON-101311-01 was collected on top of a Flammable Cabinet in the Bay Room 132, sample PARC-CON-101311-02 was collected on top of the refrigerator in the break room, and sample PARC-CON-101311-03 was collected on top of an ice machine in the kitchen. Lead was not detected in the wipe sample (see Table B). The U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) screening level for lead is 204 $\mu g/ft^2$. (Ref 22)

Table A – Quick Check Surface Sampling Results

Location	Chromate	Nickel	Lead	Cadmium
Top of Ice Machine in the Kitchen	ND	ND	ND	ND
Top of Door Hardware From Kitchen to the Drill Floor	ND	ND	ND	ND
Color Change Detection Limit (µg)	3µg	1µg	2µg	1µg
USACHPPM Screening Level	12 µg/100cm^2	4400 µg/100cm^2	22 µg/100cm^2	2.9 µg/100cm^2

Sample Media: Quick Check Tubes - If target metal is present, the swab turns to an indicator color.

µg/100 cm^2 = micrograms per 100 square centimeters ND = none detected

A copy of the chemical lists for flammable storage cabinets is attached in Appendix D. Chemicals in the cabinets were labeled and stored in designated flammable storage cabinets (three) in the garage maintained by the facility maintenance person. Not all chemicals were flammable or combustible.

Table B – Wipe Sampling Results

Sample No.	Location	Lead µg/ft^2
PARC-CON-101311-01	Top of Locker on Drill Floor	<110
PARC-CON-101311-02	Top of Ice Machine in the Kitchen	<110
PARC-CON-101311-03	Top of Locker in Men's Locker Room	<110
PARC-FRE-101311-BL	Blank - Reporting Limit 12 µg	ND
	USACHPPM Screening Level	204

Sample Media: Ghost Wipes

µg/ft^2 = micrograms per square foots

Shaded area exceeds USACHPPM Screening Level

< = less that or equal to the number shown

ND = none detected

Ventilation

There is one maintenance exhaust ventilation system in the maintenance bay. The bay is not used for maintaining vehicles. The vehicle exhaust system was checked for air flow volume in the event that the future propose of the bay would be vehicle maintenance. See Table C for exhaust duct air flow measurements.

Under the conditions measured, the exhaust drop leg does not meet the recommended flow rate of 1280 to 1370 cfm (cubic feet per minute). The reference for this is Figure VS-85-02, Tailpipe Exhaust Ventilation Volumes American Conference of Governmental Industrial Hygienists (ACGIH), Industrial Ventilation: A Manual of Recommended Practices, 27th ed. 2010 (Ref. 14).

No recommendations are made for this system since it is not currently used for vehicle maintenance.

Table C – Ventilation Survey Results

Location of Measurement	Duct Diameter (inches)	Air Volume (cubic feet per minute (cfm))	Met Standard?
Maintenance Bay Room 132	9.5	1002	No

The kitchen is used for cooking and has a ventilation exhaust hood for the stove, convection oven, steamer and kettle. There are also hoods over each of the following: the griddle, the wash sink and the dishwasher. The wash sink hood is not operational. The exhaust volume measured for the 14.5-foot long hood located over the stove, convection oven, steamer, and kettle was less than the standard of 4,350 cfm. The 3.16-foot griddle hood exhaust was less than the standard of 934 cfm (Ref. 34) **(RAC 4– Health (Ventilation))** Following is the results of the kitchen hood measurements (see Table D).

The fire suppression system was not inspected within the past six months. The fire suppression system for the range hood has not been maintained. (Ref. 31) **(RAC 4 – Safety (Fixed Extinguishing Systems))**.

Table D – Kitchen Hood Ventilation Survey Results

Location of Measurement	Duct Area	Air Volume (cubic feet per minute (cfm))	Standard/Met Standard?
Stove, Convection Oven, Steamer and Kettle Hood	50" x 174"	2759 cfm	4350 / No
Griddle Hood	36" x 38"	545	949 / No
Sink Hood		Not Operational	Not Tested
Dishwasher Hood	45" x 57"	1384 cfm	475 / Yes

Noise

There are no high noise activities during routine activities at this facility. When staff go off site to a firing range or for maneuvers they reportedly wear hearing protection and are in the PA ARNG Hearing conservation program.

Lighting

A lighting survey of the facility was conducted and found to be sufficient for the work performed in all area (See Table E). The references for this are (Ref 8) the American National Standards Institute, Inc. / Illuminating Engineering Society of North America (ANSI/IESNA) RP-7-01, Lighting Industrial Facilities, 2001 and (Ref 33) (ANSI/IESNA) RP-1-2004, Office Lighting, 2004.

Table E - Lighting Survey Results

Location of Measurement	Foot Candles	Standard (Ref. 8)
Supply Office	58	30
Supply	17-30	30
Drill Floor	55	30
Men's Locker	18-25	7
Men's Shower	31	7
Men's Latrine	40-70	7
Women's Latrine	40-70	7
Women's Locker	24-30	7
Women's Shower	33	7
Physical Fitness	80	30
Dish Wash	57-70	10
Kitchen	87-90	50
Food Storage	118	10
Recruiting Office - 104	51	30
Administration - 106	100-120	30
Room 107	130	30
Room 108	135	30
Commander Office - 109	124	30
Classroom - 113	95-105	30
Library-111	120	30
Learning Center -113	126	30
Break Room - 112	100	30
Janitor	99	30
Mechanical Room - 148	45-60	30
Bay 1 132 Outer Bay (Used for Storage)	50	5 to 75*
Bay 2 132 Inner Bay (Used as Classroom)	34	5 to 75*

(1) Area measurements taken approximately 4 ½ feet from floor level; measurements taken at desks were approximately 30 inches from floor level.
(2) Shaded areas are below the lighting standard.
(3) * Requirement for active maintenance bay is 75 foot candles (FC). Requirement for bay being used for storage: 30 FC – Active Small Items; 15 FC – Active Bulky Items; 5 FC - Inactive.

Personal Protective Equipment & Other Controls

Several types of personnel protective equipment (PPE) were available for worker use. Each worker is required to wear steel-toe shoes. Each worker had PPE elements as part of their supplies. These generally consisted of safety glasses, goggles, ear muffs and/or ear plugs, and leather or other work glove.

The PA State worker reportedly cuts the lawn with a rider mower for approximately 2.5 hours per week and does not use hearing protection. The noise level of the mower was reported as 91 dBA. (Ref. 3 and 18) **(RAC 4 – Health (Hearing))** Safety glasses, jeans and boots are worn. A respirator and chemical resistant gloves are not used.

There are no eyewash stations or deluge showers although corrosive chemicals were not identified during this inspection.

Ergonomics
Employees were aware of their work surroundings and how to adjust their chairs to reduce stress. Workers were observed working safely.

Written Programs
1. Confined Spaces (29 CFR 1910.146) – There were no confined spaces identified at this facility so a Confined Space Program is not required.
2. Hearing Conservation (29 CFR 1910.95 and DA PAM 40-501) - There is no site-specific written Hearing Conservation Program. There is a general State Program and workers participate in the program. There were no noise hazards at this location. Annual audiograms are conducted and the records are stored in the state's occupational health office (not independently verified). Hearing protection is available.
3. Respiratory Protection (29 CFR 1910.134) - There is no need for a respiratory protection program at this facility since there is limited use of hazardous chemicals and no expectation that there would be a high enough exposure to require a respirator.
4. Hazard Communication (29 CFR 1910.1200) - There is a PA State Written Hazard Communication Program available at the facility. A list of chemicals is available for the facility and is included in Appendix D. Personnel were aware of material safety data sheets and where chemicals are stored. The Materials Safety Data Sheet (MSDS) book is not current for all chemicals used at the facility due to the lack of personnel assigned to the facility. A full chemical vs. MSDS audit was not conducted during this evaluation. Training records on elements of a hazard communication program were not available. (Ref. 20) **(RAC 5– Health (Hazard Communication))**
5. PPE (29 CFR 1910.132) - A Personal Protective Equipment (PPE) Program hazard assessment was not available for inspection. Employees stated that they use PPE including steel toe shoes, hearing protection and gloves as the situation requires. (Ref. 21) **(RAC 4 – Health (PPE))**
6. Other: There are no Brake Maintenance, Battery Charging, or Surface Lead Contamination programs required at this facility.

General comment on Pennsylvania's written programs: This Recruitment Center had at least two very large binders of safety programs and procedures. These "programs" were all standard military (army) issue, Department of Defense issue, or Pennsylvania State Issue. These documents form the basis for a good reference library of information that could be consulted if issues arise and the facility personnel can locate the needed information in a timely manner. The site did not have a facility-specific safety program.

Indoor Air Quality
The indoor air quality was acceptable with carbon dioxide (CO_2) close to the outside CO_2 level. CO_2 concentrations were slightly higher in administrative areas, however below the recommended maximum level of 1120 parts of contaminant per million parts of air (ppm) (700 ppm greater than the outdoor background level) based on outdoor air levels of 420 ppm (Ref. 6).

The temperature was 68° F and the relative humidity (71%) high on the relative humidity comfort range for the day. The sky was mostly clear. Measurements taken on the day of the survey are shown below (see Table F):

Table F – Indoor Air Quality Survey Results

Outside Temp – 68° F RH – 71% CO_2 – 420 ppm CO – 0 ppm	**Inside (Supply Office 130):** Temp – 68° F RH – 71% CO_2 – 432 ppm CO – 0 ppm	**Inside (Supply Area):** Temp – 69° F RH – 69% CO_2 – 459 ppm CO – 0 ppm
Inside (Drill Floor): Temp – 70° F RH – 68% CO_2 – 429 ppm CO – 0 ppm	**Inside (Men's Locker-125):** Temp – 72° F RH – 64% CO_2 – 446 ppm CO – 0 ppm	**Inside (Men's Latrine):** Temp – 73° F RH – 59% CO_2 – 441 ppm CO – 0 ppm
Inside (Women's Latrine): Temp – 74° F RH – 59% CO_2 – 450 ppm CO – 0 ppm	**Inside(Women's Locker121):** Temp – 74° F RH – 59% CO_2 – 478 ppm CO – 0 ppm	**Inside (Physical Fitness):** Temp – 73° F RH – 58% CO_2 – 422 ppm CO – 0 ppm
Inside (Dish Wash Room) Temp – 70° F RH – 68% CO_2 – 448 ppm CO – 0 ppm	**Inside (Kitchen)** Temp – 71° F RH – 65% CO_2 – 449 ppm CO – 0 ppm	**Inside (Recruiting - 104)** Temp – 72° F RH – 62% CO_2 – 447 ppm CO – 0 ppm
Inside (Administration - 106): Temp – 72° F RH – 60% CO_2 – 454 ppm CO – 0 ppm	**Inside (Office - 109):** Temp – 72° F RH – 68% CO_2 – 449 ppm CO – 0 ppm	**Inside (Classroom - 113)):** Temp – 72° F RH – 58% CO_2 – 444 ppm CO – 0 ppm
Inside (Library): Temp – 72° F RH – 58% CO_2 – 440 ppm CO – 0 ppm	**Inside (Learning Center):** Temp – 72° F RH – 58% CO_2 – 490 ppm CO – 0 ppm	**Inside (Break Room - 112):** Temp – 73° F RH – 61% CO_2 – 709 ppm CO – 0 ppm

Table F – Indoor Air Quality Survey Results, Continued

Inside (Janitor):	Inside (Mechanical - 148):	Inside (Bay 1 - 132 Outer):
Temp 72° F	Temp 77° F	Temp 78° F
RH – 60%	RH – 59%	RH – 52%
CO_2 – 486 ppm	CO_2 – 437 ppm	CO_2 – 446 ppm
CO 0 ppm	CO 0 ppm	CO 0 ppm
Inside (Bay 2 – 132 Inner):		
Temp 73° F		
RH 56%		
CO_2 437 ppm		
CO – 0 ppm		

Other Issues
Housekeeping -- Housekeeping was in good condition in the work areas.

Building Issues The building was new construction in 2005 with block and steel exterior. The interior of the building is well maintained. There have been several moisture leakage problems (observed with stained and/or damaged ceiling tile) from fire sprinkler pipes and fittings; and from leaks in the new roof. There is a concern that mold could grow from wet ceiling tile (see photos in Appendix C). (Ref. 30) **(RAC 4 – Health (Mold))**

Conclusion
PA RC Connellsville is a multi-function facility that houses recruiting, and instructors managing training operations for Pennsylvania Army National Guard. The Industrial Hygiene Survey identified several areas of concern including the kitchen stove hoods that did not meet exhaust ventilation requirements and the fire suppression system on the kitchen hood was not inspected within the past six months. Hearing protection is not worn when mowing the lawn. Training documentation of the Hazard Communication Program was not available for review and the Materials Safety Data Sheets have not been maintained. A Personal Protective Equipment hazard assessment to identify specific PPE required for various tasks was not available for inspection. There were several water leaks from sprinkler system piping and the roof that have stained and/or damaged ceiling tile with a concern for potential mold growth.

On the positive side, this was a new building that supports troops that are currently deployed and troops who receive weekend training. A chemical list for the flammable storage cabinet was available. Employees are part of the PA ARNG State hearing conservation program in the event they go on maneuvers or to a firing range where high noise activities may require hearing protection be worn. There is no noise level expected to exceed the action level under normal activities. When troops are on maneuvers, this may change. Annual audiograms and training is reportedly conducted. Hearing protection should continue to be worn when performing tasks where noise will exceed 85 dBA. There is a State written Hazard Communication Program to describe the chemical inventory system and use of MSDSs and label requirements.

Appendix A

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

2. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007.

3. DA PAM 40-501, Medical Services, Hearing Conservation Program, 10 December 1998.

4. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.

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6. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 62.1-2010, Ventilation for Acceptable Indoor Air Quality.

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8. ANSI/IESNA RP-7-01, American National Standards Institute, Inc. / Illuminating Engineering Society of North America, Lighting Industrial Facilities 2001.

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10. AR 385-10, The Army Safety Program, 23 August 2007, Rapid Action Revision (RAR) Issue Date: 4 Oct 2011.

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13. CHPPM memorandum, subject: National Guard Criteria for Converting Indoor Ranges.

14. ACGIH, Industrial Ventilation: A Manual of Recommended Practices, 27th ed. 2010.

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16. OSHA Regulations at 29 CFR 1910.146 on Confined Spaces.

17. Department of Defense (DOD) 4145.19-R-2, Storage & Handling of Liquefied and Gaseous Compressed Gases and Their Full and Empty Cylinders, 16 Jun 2000.

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19. OSHA Regulations at 29 CFR 1910.134 on Respiratory Protection.

Appendix A

REFERENCES (Page 2)

20. OSHA Regulations at 29 CFR 1910.1200 on Hazard Communication.

21. OSHA Regulations at 29 CFR 1910.132 on Personal Protective Equipment.

22. U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM), Derivation of Wipe Surface Screening Levels for Environmental Chemicals, Aug 4, 1999.

23. OSHA Regulations at 29 CFR 1910.1000 - .1052 on air contaminant exposures.

24. Design Guide DG 415-2, Logistics Facilities, published by the National Guard Bureau Installation Division, 18 May 2006.

25. ANSI/ISEA Z87.1-2010, American National Standards Institute, Inc. American National Standard for Occupational and Educational Personal Eye and Face Protection Devices.

26. OSHA Regulations at 29 CFR 1910 Subpart D Walking Working Surfaces.

27. OSHA Regulations at 29 CFR 1910.106 on Flammable and Combustible Liquids and 1910.307 concerning use of equipment in hazardous locations.

28. National Electrical Code, National Fire Protection Association, 2011.

29. HUD Lead Safe Housing Rule 24 CFR 35 Subpart B General Lead Paint Definitions.

30. CHPPM Technical Guides on Mold, TG 277 and TG 278

31. OSHA Regulations at 29 CFR 1910.160 on Fixed Extinguishing Systems, General.

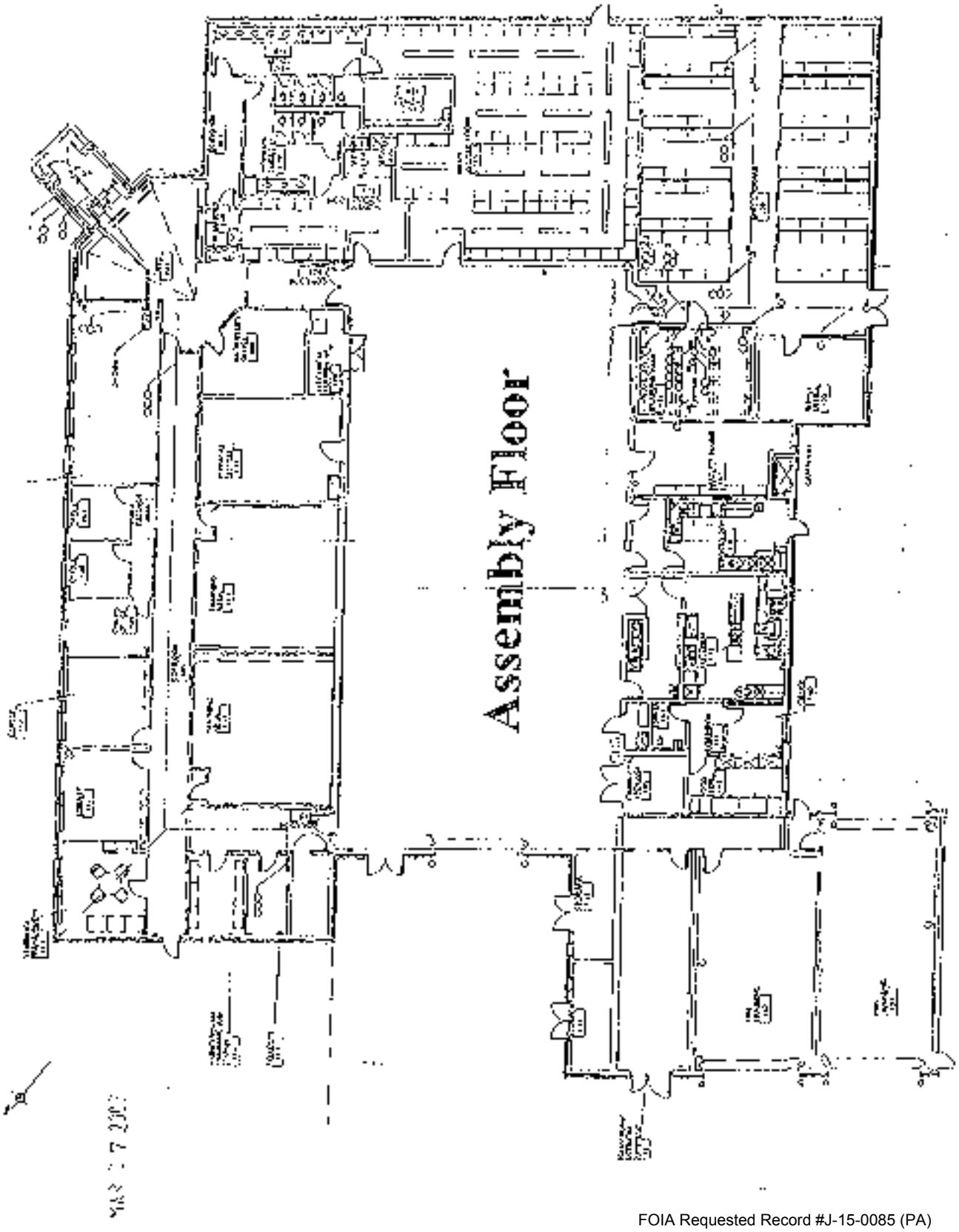
32. OSHA Regulations at 29 CFR 1910.211 - 212 on Machine Guarding General Requirements

33. ANSI/IESNA RP-1-2004, American National Standards Institute, Inc. / Illuminating Engineering Society of North America, Office Lighting, 2004.

34. Industrial Mechanical Code 2006, International Code Council Inc. 2006

35. OSHA Regulations at 29 CFR 1910.1001 on Asbestos

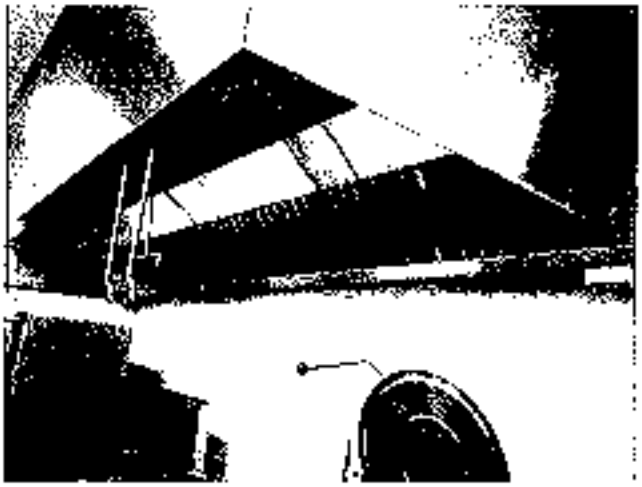
Appendix B – Building Layout - PA RC Connellsville



Appendix C
Photographs PA RC Connellsville 2011 October 13, 2011

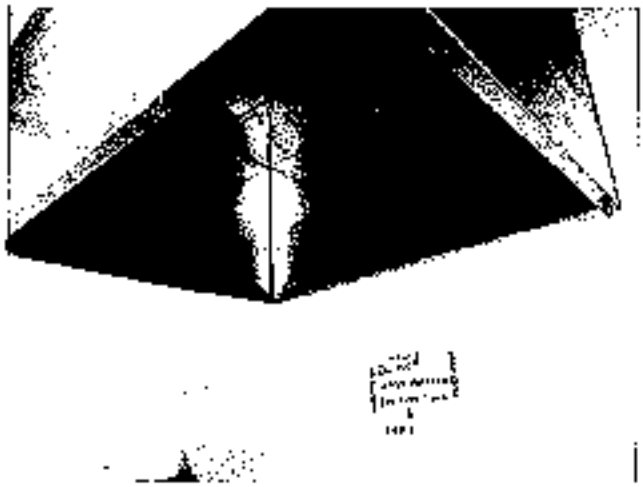
PA RC Connellsville Readiness Center Front of Building

Kitchen Convection Oven with Exhaust Hood



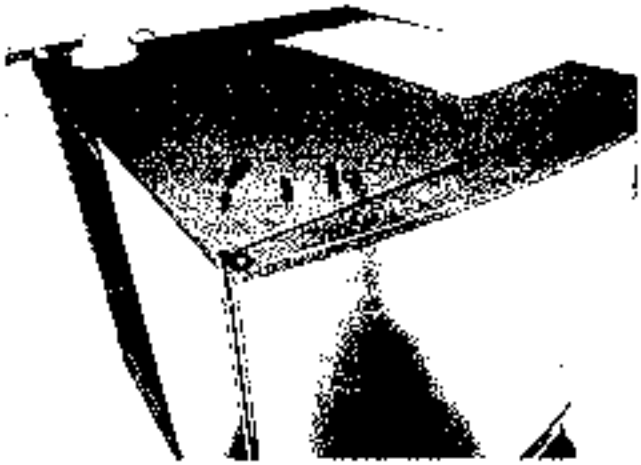
Exhaust Hood

Kitchen Dishwasher Hood

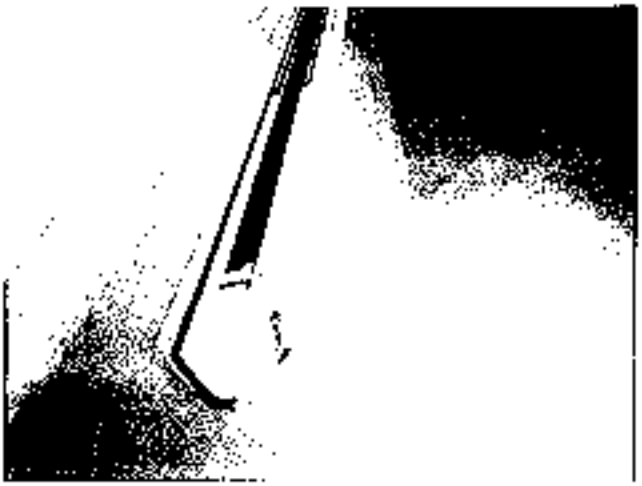


Dishwasher Sink Hood

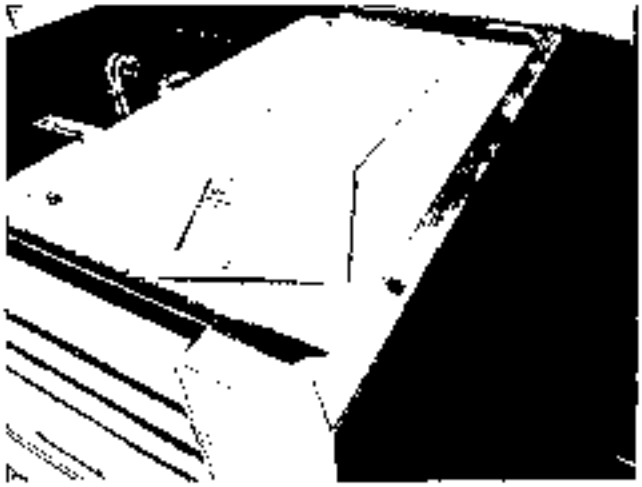
Kitchen Hood over Griddle



Tube tests Top of Ice Machine in Kitchen



Tube Test on top of door closer to door to Drill Floor from Kitchen

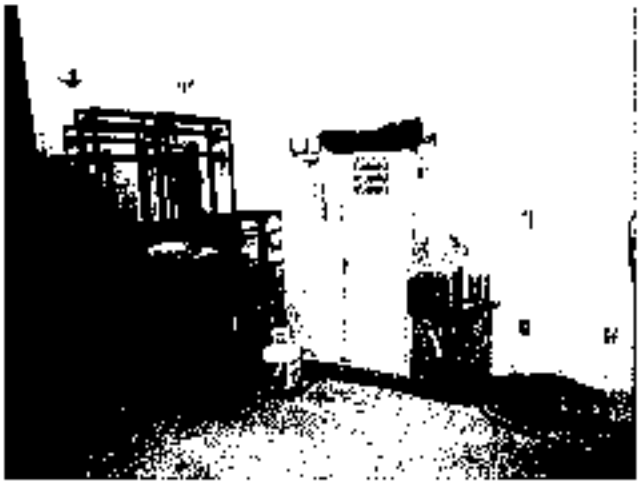


10cm x 10 Template for Wipe Samples

#01 Top of Flammable Cabinet in Bay

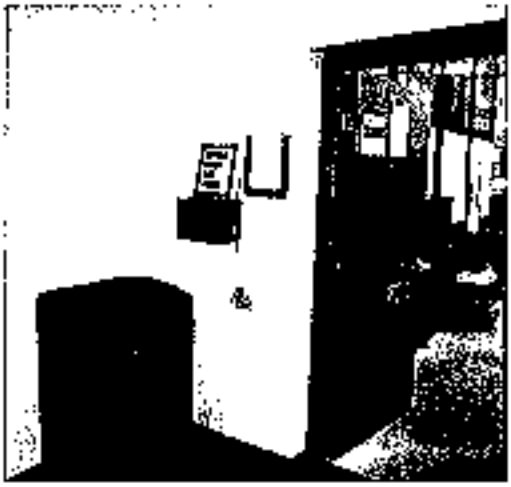
#02 Top of Refrigerator in Break Rm

Appendix C - Continued

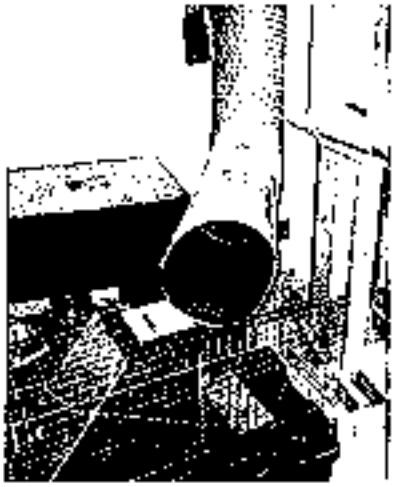


Flammable Cabinet in Bay

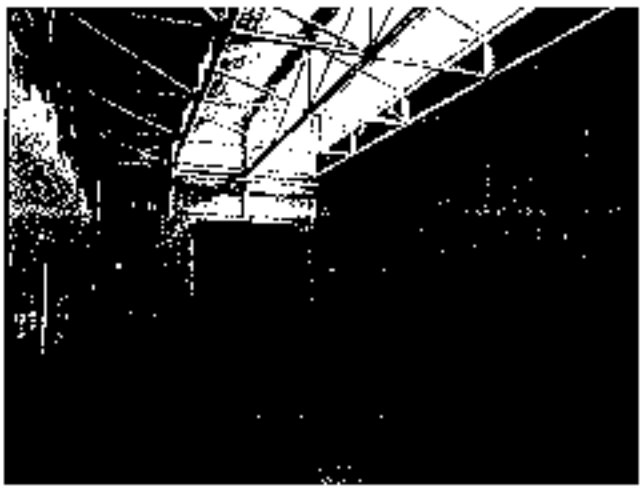
Break Room with Refrigerator



MSDS Books Outside of Supply

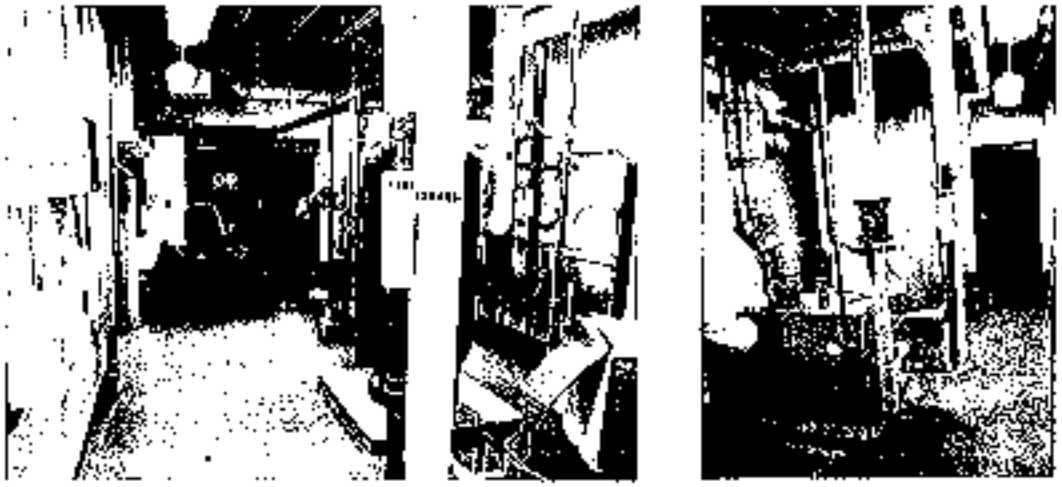


Vent Duct and Hood in Maintenance Bay



Drill Floor Towards Garage Door

Drill Floor Towards Kitchen and MSDS Book



Mechanical Room

Water Leakage Through New Roof

Appendix D – Chemical List

CLOSET	PRODUCT	QUANITY
3	AMMONIA	
3	LEMON AJAX CLEANER	
3	CLOROX LIQUID BLEACH	
3	WAX	
3	LYSOL SPRAY	
3	LYSOL CLEANER	
3	COMET SPRAY	
3	GLASS CLEANER	
3	AMMONIA	

Appendix D – Chemical List

CLOSET	PRODUCT	QUANITY
1	CLOROX WIPES	
1	PURELL HANDSANITIZER	
1	CLOROX LIQUID BLEACH	
1	BOWL CLEANER PACKS	
1	COMET	
1	LEMON AJAX SCOURING	
1	MR CLEAN ERASER	
1	PINK FLOR GENTLE LOTION	
1	FOAMING ANTI BAC H. W.	
1	LYSOL SPRAY	
1	LYSOL CLEANER	
1	WAX	
1	COMET SPRAY	
1	LIQUID PLUMBER	
1	GLASS CLEANER	
1	MR CLEAN	
1	PINE SOL	
1	FURNITURE POLISH	
1	RESOLVE CARPET CLEANER	
1	GO-JO CLEANING TOWELS	
1	WAX	
11	FEBRTDZE	
1	VIRA-QUAT DISINFECT	
1	OIL	
1	RAID	
1	AMMONIA	
1	OASIS BATHROOM CLNER	
1	URIN BLOCKS	
1		
1		

Appendix D – Personnel Roster

PA ARNG Connellsville Readiness Center Staff

Name	Last 4	Rank
Non-Responsive	5796	SGT
	9132	SFC
	0000	State Maintenance

13 October 2011

AMA Analytical Services, Inc.
Focused on Results www.amalab.com
AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)
4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To The Number For Inquires) 512003

Mailing/Billing Information:
1. Client Name: National Guard Bureau
2. Address 1: 301-34 Old Bay Lane
3. Address 2: Attn: NGB-AVN-SI State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:
1. Job Name: FRC [illegible]
2. Job Location: [illegible]
3. Job #: P.O. #: W912K8-09-A-0003
4. Contact Person: [redacted]
5. Submitted by: [redacted]

Reporting Information (Results will be provided as soon as technically feasible): 717 [illegible]

AFTER HOURS (must be prescheduled)	NORMAL BUSINESS HOURS	REPORT TO:
☐ Immediate Date Due: ☐ 24 Hours Time Due: Comments:	☐ Immediate ☐ Next Day ☐ 2 Day ☐ 3 Day ☒ 5 Day + Date Due: [illegible] 12/23/11 ☐ Results Required By Noon (Every Attempt Will Be Made to Accommodate)	☒ Incl[redacted] ☒ Em[redacted] ☐ Fax ☐ Ver — us.army.mil; us.army.mil

Asbestos Analysis
PCM Air - Please Indicate Filter Type:
☐ NIOSH 7400 ____ (QTY)
☐ Fiberglass ____ (QTY)
TEM Air - Please Indicate Filter Type:
☐ AHERA ____ (QTY)
☐ NIOSH 7402 ____ (QTY)
☐ Other (specify) ____ (QTY)
PLM Bulk
☐ EPA 600 - Visual Estimate ____ (QTY)
☐ EPA Point Count ____ (QTY)
☐ NY State Friable 198.1 ____ (QTY)
☐ Grav. Reduction ELAP 198.6 ____ (QTY)
☐ Other (specify) ____ (QTY)
MISC
☐ Vermiculite
☐ Asbestos Soil PLM __(Qual) PLM __(Quant) PLM/TEM __(Qual) PLM/TEM __(Quant)

TEM Bulk
☐ ELAP 198.4/Chatfield ____ (QTY)
☐ NY State PLM/TEM ____ (QTY)
☐ Residual Ash ____ (QTY)
TEM Dust
☐ Qual. (presence) Vacuum/Dust ____ (QTY)
☐ Quan. (area) Vacuum D5755-95 ____ (QTY)
☐ Quan. (area) Dust D6480-99 ____ (QTY)
TEM Water
☐ Qual. (presence) ____ (QTY)
☐ ELAP 198.2/EPA 100.2 ____ (QTY)
☐ EPA 100.1 ____ (QTY)
☒ All samples received in good condition unless otherwise noted. (TEM Water samples ____ °C)

Metals Analysis
☐ Pb Paint Chip ____ (QTY)
☐ Pb Dust Wipe (wipe type [illegible]) 3 (QTY)
☐ Pb Air ____ (QTY) [illegible handwriting]
☐ Pb Soil/Solid ____ (QTY) [illegible handwriting]
☐ Pb TCLP ____ (QTY)
☐ Drinking Water ☐ Pb ____ (QTY) ☐ Cu ____ (QTY) ☐ As ____ (QTY)
☐ Waste Water ☐ Pb ____ (QTY) ☐ Cu ____ (QTY) ☐ As ____ (QTY)
☐ Pb Furnace (Media ____) ____ (QTY)
Fungal Analysis
Collection Apparatus for Spore Trap/Air Samples: ____
Collection Media ____
☐ Spore-Trap ____ (QTY) ☐ Surface Vacuum Dust ____ (QTY)
☐ Surface Swab ____ (QTY) ☐ Culturable ID Genus (Media ____) ____ (QTY)
☐ Surface Tape ____ (QTY) ☐ Culturable ID Species (Media ____) ____ (QTY)
☐ Other (Specify) ____ (QTY)

CLIENT ID NUMBER	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPE AREA	PCM	TEM	PLM	LEAD	MOLD	AIR	BULK	WIPE	SOIL	WATER	TAPE	SWAB	CLIENT CONTACT (LABORATORY STAFF ONLY)
[illegible]-01		[illegible]		[illegible]				✓				✓					Date/Time: Contact: By:
-02		↓		↓				✓				✓					
-03		↓		↓				✓				✓					
[illegible handwriting]																	Date/Time: Contact: By:
[illegible handwriting]																	
[illegible handwriting]																	
																	Date/Time: Contact: By:

LABORATORY STAFF ONLY: (CUSTODY)
1. Date/Time RCVD: 12 / 16 / 11 @ 1010 Via: FedEx By (Print) [illegible] Sign: [redacted]
2. Date/Time Analyzed: ___ / ___ / ___ @ ___ By (Print) ____ Sign: ____
3. Results Reported To: ____ Via: ____ Date: ___ / ___ / ___ Time: ____ Initials: ____
4. Comments: ____

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CERTIFICATE OF ANALYSIS

AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE, ENVIRONMENTAL LEAD & ENVIRONMENTAL MICROBIOLOGY
(NVLAP) 101143-0

Client:	National Guard Bureau	**Job Name:**	PARC Connellsville	**Chain Of Custody:**	512003
Address:	301-311 Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation	**Job Location:**	Connellsville, PA	**Date Submitted:**	12/16/2011
	Havre de Grace, Maryland 21078	**Job Number:**	Not Provided	**Person Submitting:**	[redacted]
		P.O. Number:	W912K6-09-A-0003	**Date Analyzed:**	12/20/2011 **Report Date:** 12/20/2011

Attention: [redacted]

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft^2)	Reporting Limit		Total ug	Final Result		Comments
12021712	PARC-CON-101311-01	Flame	Wipe	****	0.108	110	ug/ft^2	<12	<110	ug/ft^2	
12021713	PARC-CON-101311-02	Flame	Wipe	****	0.108	110	ug/ft^2	<12	<110	ug/ft^2	
12021714	PARC-CON-101311-03	Flame	Wipe	****	0.108	110	ug/ft^2	<12	<110	ug/ft^2	

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B

See QC Summary for analytical results of quality control samples associated with these samples.

N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)

%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)

Note: All samples were received in good condition unless otherwise noted.

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results

Final results for air and wipe samples are based on client supplied information nor verified by this laboratory.

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

Analyst: [redacted] Non-Responsive

Technical Manager: [redacted] Non-Responsive

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland




Industrial Hygiene Survey
for PAARNG – Connellsville Readiness Center
701 Petersburg Road
Connellsville, Pennsylvania 15425

AECOM
January 2013
Document No.: 60276421.1/Connellsville Readiness Center

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland

Industrial Hygiene Survey
for PAARNG – Connellsville Readiness Center
701 Petersburg Road
Connellsville, Pennsylvania 15425

Non-Responsive
Industrial Hygienist

Non-Responsive
Project Manager

Non-Responsive
Northeast District Health & Safety Manager

AECOM
January 2013
Document No.: 60276421.1/Connellsville Readiness Center

AECOM

Contents

List of Appendices

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Executive Summary

On November 5, 2012, AECOM conducted an Industrial Hygiene (IH) survey of the Connellsville Readiness Center facility located at 701 Petersburg Road in Connellsville, Pennsylvania. Non-Responsive, SFC was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Connellsville Readiness Center operations.

The industrial hygiene survey was generally conducted in accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings", dated January 2012.

The Connellsville Readiness Center is currently staffed by five personnel. Some of the personnel were not present at the time of the survey due to active duty assignments or other off-site responsibilities. The facility is configured as an administrative area and a Drill/Assembly Hall.

Personnel at the facility were undertaking normal daily activities, which are primarily administrative in nature, at the time of the survey.

The activities undertaken during the Industrial Hygiene survey included facility descriptions, lead wipe/air sampling, evaluation of housekeeping, illumination studies, ventilation system evaluation, and a review of the physical building condition.

The Connellsville Readiness Center is housed in a one-story masonry building, and consists of approximately 70% administrative space and 30% Assembly Hall.

Lighting levels measured throughout the facility were generally inadequate as per ANSI/IESNA RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

Wipe samples collected for lead-containing dust throughout the facility did not indicate lead levels above the ARNG action level.

No peeling lead-based paint was observed at the Connellsville Readiness Center during this survey.

No visible damaged suspect asbestos-containing material (ACM) was observed.

No visible water damaged or visible signs of mold growth were observed.

The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of air handling units that provide fresh air from outside the building exterior to administrative areas.

1.0 Facility Description and Operations

The Connellsville Readiness Center, constructed in 2005, is a one-story administrative facility slab on-grade masonry structure. The building consists of two main sections. The larger one-story section, located around the perimeter of the building, consists primarily of offices, training/classroom, locker/shower rooms, storage and administrative areas, and is finished with sheetrock walls, lay-in ceiling tiles and floor tile. The two-story Assembly/Drill Hall area, located in the center of the building, is finished with painted block walls and a concrete floor. According to site personnel there is no firing range at the facility.

The primary activity at the Connellsville Readiness Center is routine administrative duties and occasional use by units for support and training of soldiers. The Assembly Hall is not currently, but may in the future be, rented out for limited civic activities such as group meetings, trade shows and to other related local groups and organizations. The Connellsville Readiness Center is currently staffed by five personnel. No vehicle maintenance activities are undertaken at the facility.

2.0 Sampling in Readiness Centers

2.1.1 Wipe Sampling

Wipe sampling for lead was conducted in the Assembly Hall and administrative areas following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost wipes. Samples were collected in areas that are not frequently cleaned and showed signs of dust whenever possible.

The following table presents the results of the lead wipe sampling conducted at the facility.

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
W – 001	Assembly Hall - table	<110 ug/ft^2
W – 002	Kitchen - counter	<110 ug/ft^2
W – 003	Recruiter Office - desk top	<110 ug/ft^2
W – 004	Recruiter Office - file cabinet	<110 ug/ft^2
W – 005	Foyer - floor	<110 ug/ft^2

ug/ft^2 = Micrograms per square foot.

Wipe samples collected in association with the administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U. S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 ug/ft^2 for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

The wipe samples collected throughout the facility did not detect levels of lead in excess of the ARNG action level of 200 ug/ft^2. Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

Per Non-Responsive of NGB-IH, the requirement for Lead air sampling has been removed from the Statement of Work. It was reported that historically, air samples collected at administrative facilities are typically below the limit of detection.

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls appeared to be generally in good condition. Concrete flooring was generally tiled or unpainted. AECOM did not observe damaged or peeling paint during this evaluation.

3.1.2 Suspect Asbestos Containing Materials

AECOM did not observe damaged, friable suspect asbestos containing materials (ACM) in readily accessible areas of the Connellsville Readiness Center during this survey. Thermal system piping is typically covered in typical fiberglass insulation with associated fittings and appeared in good condition.

Other typical miscellaneous building materials observed but not sampled include floor tiles and associated mastic, cove base and associated mastic, ceiling tiles, and window glazing compound and caulks.

3.1.3 Water Damage/Mold

AECOM did not observe evidence of water intrusion during this survey.

3.1.4 Housekeeping

The Connellsville Readiness Center was observed to be generally clean and orderly during this assessment. AECOM did not observe dust accumulation on readily accessible horizontal surfaces within areas commonly used in the facility.

3.1.5 Indoor Air Quality/ Ergonomics

The administration section of the building contains general office space. The administration section is generally utilized by all of the Connellsville Readiness Center staff members including a recruiter. No Indoor Air Quality concerns were noted by the Connellsville Readiness Center personnel.

Connellsville Readiness Center personnel did not report any ergonomics issues or concerns. Office furniture and accessories designed to promote ergonomically correct behaviors were observed.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (^{o} Fahrenheit), and relative humidity (as percentage) are presented in the following table.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (^{o}F)	Relative Humidity (%)
Outside	0.4	256	68.2	26.4
Men's Restroom	1.0	325	70.2	28.7
Female Restroom	1.0	315	69.6	27.8
Foyer	1.0	325	69.5	27.8
Front Administration Area	0.8	345	69.5	27.4
Recruiter Office	0.6	339	69.8	28.0
Administrative Corridor	0.6	335	70.1	26.8
Assembly/Drill Hall	0.8	343	71.0	26.5
Men's Locker Room	0.8	320	70.2	27.4

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (^{o}F)	Relative Humidity (%)
Female Locker Room	0.9	315	70.6	26.9
State Maintenance Office	0.6	344	70.8	25.8
Kitchen	0.6	331	70.3	25.2
Mechanical Room	0.5	340	70.9	24.7
Physical Fitness room	0.9	357	71.8	25.6
General office	0.8	360	70.4	24.7
General Office	0.8	341	69.9	25.9
Garage/Service Bay #1	0.8	352	68.5	24.4
Storage/Service Bay #2	0.8	367	68.5	24.2

Table 3-1 Guidelines:
Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard. OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.
Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.
Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 5.10.1).
Temperature: Winter (clothing insulation = 1.0 clo) Relative humidity 30-60% - Temp - 68 – 75°F
Summer Temp - 73 – 79°F. (Derived from ASHRAE Standard 55-2010)

4.0 Ventilation and HVAC System

4.1.1 Ventilation Systems and Potential for Contamination of Clean Air Sources

There is no Field Maintenance Shop (FMS) located at the Connellsville Readiness Center. As such, no potential for contamination of clean air sources was observed at the facility.

The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of air handling units that provide fresh air from outside the building exterior to administrative areas.

4.1.2 HVAC Maintenance

The HVAC system is reported to be on a yearly maintenance/service agreement. Further, building personnel informed AECOM that the HVAC filters are changed at least twice a year.

5.0 Lighting

Lighting levels in all areas were measured utilizing a Cal-Light 400 light meter that displays lighting levels in foot-candles. Lighting levels were generally inadequate.

Table 5-1: Light Survey

Location	Results – (Foot candles)	Met Standard (Y/N)	Standard*
Men's Restroom	79.6	Y	5
Female Restroom	37.9	Y	5
Foyer	23.7	Y	10
Front Administration Area	49.5	N	50
Recruiter Office	60.1	Y	50
Administrative Corridor	37.3	Y	5
Assembly/Drill Hall	45.5	Y	10
Men's Locker Room	19.3	Y	7
Female Locker Room	21.4	Y	7
State Maintenance Office	85.4	Y	50
Kitchen	60.8	Y	50
Mechanical Room	36.9	Y	30
Physical Fitness room	97.7	Y	30
General Office	41.6	N	50
General Office	49.4	N	50
Garage/Service Bay #1	28.5	N	30
Storage/Service Bay #2	18.4	N	30
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI RP-7-01)			

6.0 Evaluation of Attached Garage

There is no attached garage associated with the Connellsville Readiness Center.

7.0 Conclusions and Limitations

AECOM has conducted this survey in accordance with applicable OSHA methods and standard industrial hygiene practice. The following conclusions were based on the observations and assessments of activities that occurred during the on-site evaluation:

Housekeeping is performed regularly at the Connellsville Readiness Center.

AECOM did not observe any damaged, suspect asbestos-containing materials at the Connellsville Readiness Center.

AECOM did not observe peeling paint during at the Connellsville Readiness Center.

AECOM did not observe evidence of water intrusion at the Connellsville Readiness Center.

Lighting levels measured throughout the facility were generally inadequate as per ANSI/IESNA RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

Wipe samples collected in association with the administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft^2 for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

AECOM provided these services consistent with the level and skill ordinarily exercised by members of the profession currently providing similar services under similar circumstances at the time the services were provided. This statement is in lieu of other statements either expressed or implied. This report is intended for the sole use of National Guard Bureau – Army National Guard. The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, and use or re-use of this document, the findings, conclusions, or recommendations is at the risk of said user.

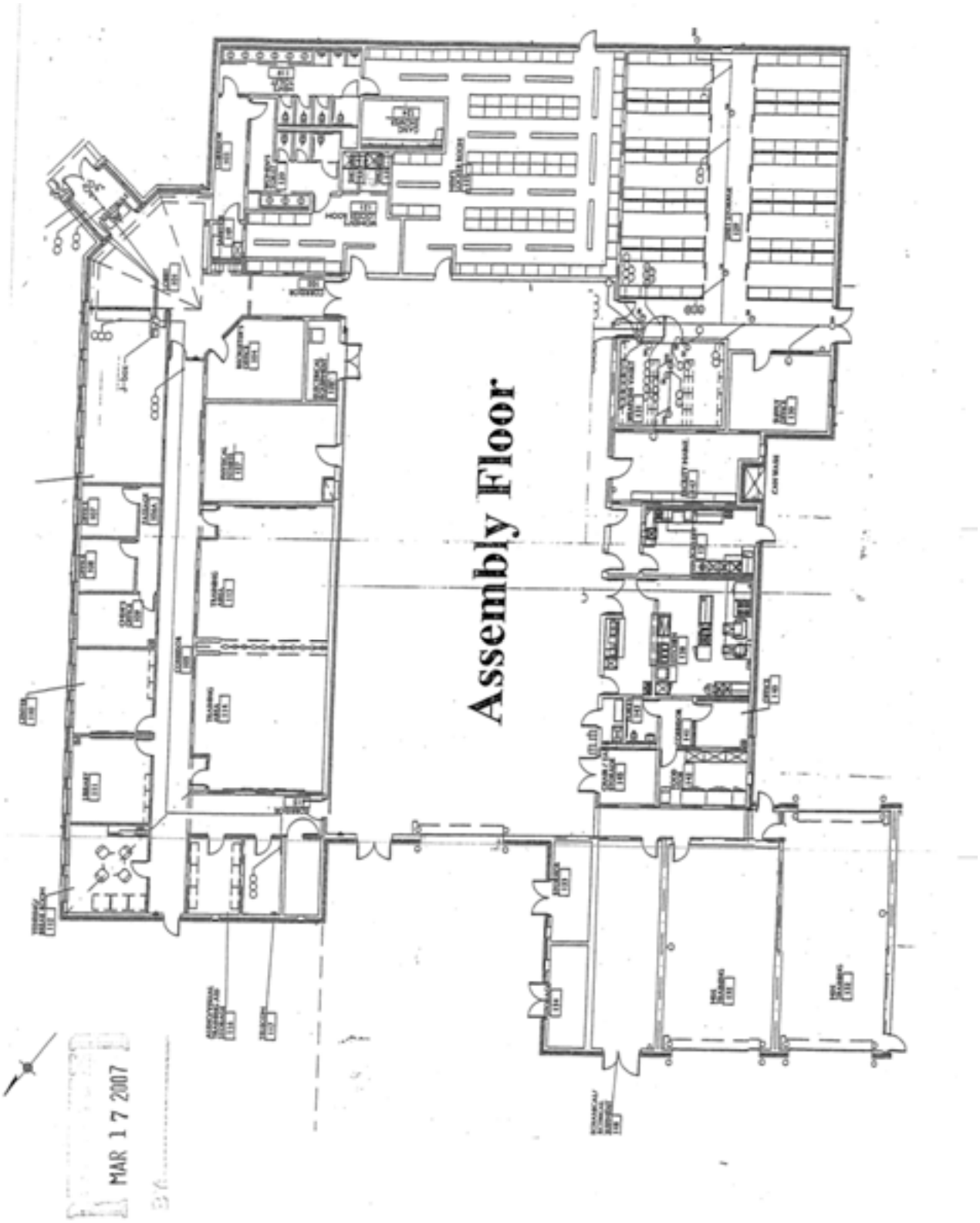
As with all such surveys, the results of the sampling represent conditions found on the date of the survey and may not represent conditions found at other times. Additionally, this survey was limited with respect to the specific parameters indicated above and should not be construed to be a comprehensive evaluation or a definitive representation of conditions within the facility. The information presented in this report is intended to be used as a guide to evaluate the need for further investigation or the need for modifications to the processes or procedures surveyed.

The Client recognizes and agrees that all testing and remediation methods have reliability limitations, no method nor number of sampling locations can guarantee that a condition will be discovered within the performance of the services as authorized by the Client. Additionally, the passage of time may result in a change in the environmental characteristics at this site. This report does not warrant against future operations or conditions that could affect the recommendations made. The results, findings, conclusions, and recommendations expressed in this report are based only on conditions that were observed during AECOM's inspection of the site.

Appendix A

Connellsville Readiness Center Facility Layout

AECOM



Appendix B

Connellsville Readiness Center Photographs

Photograph 1

View of Building Exterior

Photograph 2

View of Foyer

Photograph 3

View of Administrative Corridor

Photograph 4

View of Assembly Hall

AECOM

Photograph 5

View of Break Room

Photograph 6

View of Kitchen

AECOM

Photograph 7

View of General Office Area

Photograph 8

View of Locker Room

AECOM

Photograph 9

View of Physical Fitness Room

Photograph 10

View of Classroom

AECOM

Photograph 11

View of Service Bay

Photograph 12

View of Mechanical Room

Appendix C

Analytical Results

AECOM

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	Connellsville, PA	Chain Of Custody:	514635
Address:	301-E1 Old Bay Lane, Attn: ARNG-CIG-P, State Military Reservation	Job Location:	Not Provided	Date Submitted:	11/30/2012
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM
		P.O. Number:	W912K6-09-A-0003	Date Analyzed:	12/6/2012 Report Date: 12/7/2012

Attention: Non-Responsive

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	Total ug	Final Result	Comments
13008530	W-001	Flame	Wipe	****	0.111	1.0 ug/ft²	<2.0	<1.0 ug/ft²	
13008531	W-002	Flame	Wipe	****	0.111	1.0 ug/ft²	<2.0	<1.0 ug/ft²	
13008532	W-003	Flame	Wipe	****	0.111	1.0 ug/ft²	<2.0	<1.0 ug/ft²	
13008533	W-004	Flame	Wipe	****	0.111	1.0 ug/ft²	<2.0	<1.0 ug/ft²	
13008534	W-005	Flame	Wipe	****	0.111	1.0 ug/ft²	<2.0	<1.0 ug/ft²	

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(Mb-7000; Water: SM-3111B

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B

See QC Summary for analytical results of quality control samples associated with these samples.

N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)

%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)

Note: All samples were received in good condition unless otherwise noted.

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results

Final results for air and wipe samples are based on client supplied information nor verified by this laboratory.

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

Analyst: Non-R i

Technical Manager: Non-Responsive

An AIHA (#100479) and NY ELAP (#10920) Accredited Laboratory

4475 Forbes Blvd. · Lanham, MD. 20706 · (301) 459-2640 · Toll Free (800) 346-0961 · Fax (301) 459-2643

AECOM

AMA Analytical Services, Inc.
Focused on Results www.amalab.com
AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)
4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This Number For Inquiries) 514635

Mailing/Billing Information:
1. Client Name: National Guard Bureau
2. Address 1: 301-IH Old Bay Lane
3. Address 2: Attn: NGB-AVN-SL State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:
1) (Site Name) Connellsville, PA
2) (Site Location)
3. Job #: PO #: W912K6-09-A-2003
4. Contact Person [redacted] @ phone #:
5. Submitted by: AECOM (Signature)

Reporting Info (Results provided as soon as technically feasible). If no TAT/Reporting Info is provided, AMA will assign defaults of 5-Day and email/fax to contacts on file.

AFTER HOURS (must be pre-scheduled)	NORMAL BUSINESS HOURS	REPORT TO:
☐ Immediate Date Due: ___ ☐ 24 Hours Time Due: ___ Comments: ___	☐ Immediate ☐ 3 Day ☐ Next Day ☒ 5 Day + ☐ 2 Day Due Date: 12/7/12 ☐ Results Rec'd By Name	☒ Include COC/Field Data Sheets w/ Report ☒ Email: george.fischer@aecom.com ☐ Fax: shirley.macmanus@us.army.mil ☐ Verbal: gordon.forsythe@us.army.mil

Asbestos Analysis
*PCM Air – Please Indicate Filter Type:
☐ NIOSH 7400 ___ (QTY)
☐ Fiberglass ___ (QTY)
TEM Air* – Please Indicate Filter Type:
☐ AHERA ___ (QTY)
☐ NIOSH 7402 ___ (QTY)
☐ Other (specify ___) ___ (QTY)
PLM Bulk
☐ EPA 600 – Visual Estimate ___ (QTY)
☐ EPA Point Count ___ (QTY)
☐ NY State Friable 198.1 ___ (QTY)
☐ Grav. Reduction ELAP 198.6 ___ (QTY)
☐ Other (specify ___) ___ (QTY)
MISC
☐ Vermiculite
☐ Asbestos Soil PLM ___ (Qual) PLM ___ (Quant) PLM/TEM ___ (Qual) PLM/TEM ___ (Quant)
*If sample submitted for fiber analysis, please indicate the volume of air and surface samples

TEM Bulk
☐ ELAP 198.4/Chatfield ___ (QTY)
☐ NY State PLM/TEM ___ (QTY)
☐ Residual Ash ___ (QTY)
TEM Dust*
☐ Qual. (possible) Vacuum/Dust ___ (QTY)
☐ Quan. (s/cm²) Vacuum D5755-95 ___ (QTY)
☐ Quan. (s/cm²) Dust D6480-99 ___ (QTY)
TEM Water
☐ Qual. (possible) ___ (QTY)
☐ ELAP 198.2/EPA 100.2 ___ (QTY)
☐ EPA 100.1 ___ (QTY)

☒ All samples received in good condition unless otherwise noted. (TEM Water samples ___ °C)

If field data sheets are submitted, there is no need to complete the bottom section.

Metals Analysis
☐ Pb Paint Chip ___ (QTY)
☒ *Pb Dust Wipe (wipe type 1/4 grid) 5 (QTY)
☐ *Pb Air ___ (QTY)
☐ Pb Soil/Solid ___ (QTY)
☐ Pb TCLP ___ (QTY)
☐ Drinking Water ☐ Pb ___ (QTY) ☐ Cu ___ (QTY) ☐ As ___ (QTY)
☐ Waste Water ☐ Pb ___ (QTY) ☐ Cu ___ (QTY) ☐ As ___ (QTY)
☐ Pb Furnace (Media ___) ___ (QTY)
Fungal Analysis
Collection Apparatus for Spore Trap/Air Samples: ___
Collection Media ___
☐ *Spore-Trap ___ (QTY) ☐ Surface Vacuum Dust ___ (QTY)
☐ *Surface Swab ___ (QTY) ☐ Culturable ID Genus (Media ___) ___ (QTY)
☐ *Surface Tape ___ (QTY) ☐ Culturable ID Species (Media ___) ___ (QTY)
☐ Other (Specify ___) ___ (QTY)

CLIENT ID #	SAMPLE INFORMATION SAMPLE LOCATION/ID	DATE/ TIME	VOL (L)/ Wipe Area	TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	WIPE	WATER	TAPE	SWAB	CLIENT CONTACT (LABORATORY STAFF ONLY)
W-001	Table - D Hall	11/5	16 sq in				X									Date/Time: Contact: By:
W-002	Kitchen Counter	↓	↓				X									
W-003	Office Desk						X									
W-004	SEE ATTACHED FIELD DATA SHEETS Office Cab...		↓				X									
W-005	Foyer Floor	↓														Date/Time: Contact: By:
																Date/Time: Contact: By:

LABORATORY STAFF ONLY: (CUSTODY)
1. Date/Time RCVD: 11 / 30 / 12 ... Via FEDEX By: [redacted]
2. Date/Time Analyzed: ___ / ___ / ___ @ ___ By: ___ Sign: ___
3. Results Reported To: ___ Via: ___ Date: ___ / ___ / ___ Time: ___ Initials: ___
4. Comments: 794176944 5331

Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. http://www.osha.gov/comp-links.html

2. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998. http://www.dtic.mil/whs/directives/corres/pdf/605501p.pdf

3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF

4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://armypubs.army.mil/epubs/pdf/R40_5.PDF

5. AR 385-10, The Army Safety Program, 23 August 2007; Rapid Action Revision (RAR) issue date: 4 October 2011. http://armypubs.army.mil/epubs/pdf/R385_10.PDF

6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://armypubs.army.mil/epubs/pdf/P40_501.pdf

7. DA PAM 40-11, Preventive Medicine, 22 July 2005, RAR issue date: 19 October 2009. http://armypubs.army.mil/epubs/pdf/p40_11.pdf

8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://armypubs.army.mil/epubs/pdf/P40_503.PDF

9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf

10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current Ed.

11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.

12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.

13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.

14. ANSI/ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality.

15. RP-1-2004, Office Lighting, ANSI/IESNA.

16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.

17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.

18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.

19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf

Industrial Hygiene Survey

HHC 1/112TH MECH INF
CO E 1/112TH MECH INF
ERIE, PENNSYLVANIA

May 28, 2003

OPTECH

OPERATIONAL TECHNOLOGIES
CORPORATION

HHC 1/112TH MECH INF
CO E 1/112TH MECH INF
ERIE, PENNSYLVANIA
INDUSTRIAL HYGIENE SURVEY

1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Armory in Erie, Pennsylvania on May 28, 2003. The NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. Non-Responsive from OpTech, completed this survey. Non-Responsive a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the IH Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D.

RECOMMENDATIONS

1. ILLUMINATION

1.2. Levels were well below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

2. WIPE SAMPLES

2.1. Wipe sampling results for inorganic lead were below the 200 $\mu g/ft^2$ criteria; however, lower levels of lead were detected in many portions of the facility. Recommend that the facility be wet-wiped/mopped or cleaned using a high efficiency particulate air (HEPA) vacuum during routine housecleaning duties to further reduce lead dust levels.

2.0. EXECUTIVE SUMMARY

2.1. No indoor air quality problems were noted.

2.2. Illumination levels were well below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

2.3. All lead wipe sample results were below the 200 $\mu g/ft^2$ criteria; however, lower levels of lead were detected in most areas of the facility.

2.4. Air sampling for inorganic lead was conducted. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building.

2.2. 2.5. Personnel stated that asbestos is present on steam lines and possibly in ceiling tiles. Air sampling for asbestos was conducted. The analysis was well below the OSHA standard.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	HHC 1/112th MECH INF		
ADDRESS	350 East 6th Street		
	Erie, PA 16507-1695		
CONTACT	CPT Non-Responsive		
PHONE	814-871-4216		
DATE BUILT	1920	FACILITY SIZE	27,856 sq. ft.
INDOOR FIRING RANGE	Inactive		2-floors plus basement
ASSISTED			
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	12		
TRADITIONAL (MIL)	400 (3 units with 120 being the largest group)		
CHILD ACTIVITIES	NA		
ADULT ACTIVITIES	NA		

3.1.1. The exterior of the building is brick and appears to be in good condition. The interior of the building is in good condition. A steam furnace supplies heat to the building. Asbestos is known to exist on steam pipes.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity (RH) in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 Indoor Air Quality Standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ASHRAE 62-2001, Section 6.1.3, states that concentrations up to 700 ppm CO_2 above outdoor concentrations will achieve an acceptable level of indoor air quality.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ASHRAE 55-1992 recommends that temperature ranges be 73 to 79 degrees Fahrenheit (°F) during the summer and 68 to 74°F during the winter. Relative humidity levels be maintained between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE 1
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO_2 (ppm)	Temp. (°F)	RH (%)
1046	Outside air	0.0	494	71.9	51.6
1100	Personal section	0.0	521	71.9	53.6
1103	Recruiting office	0.0	519	72.3	54.0
1105	Latrine	0.0	509	72.5	54.4
1110	Logistics	0.0	517	72.5	54.5
1114	Hallway (basement)	0.0	526	71.9	54.1
1118	Kitchen	0.0	518	72.2	54.3
1119	Office supply room occupied	0.0	545	72.4	54.7
1122	Supply room	0.0	556	72.7	55.0
1126	EC offices occupied	0.0	560	72.2	54.7
1127	Weapons	0.0	520	72.2	54.6
1128	Conferences room	0.0	551	72.5	55.0
1130	Headquarters offices	0.0	520	73.3	55.8

3.2.5. No indoor air quality problems were noted.

3.3. ILLUMINATION

3.3.1. Illumination levels were measured in most areas of the facility. Sunlight was excluded, as much as possible for this survey, by closing doors and blocking windows. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 – 463). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
Drill	20 – 44	35	75	NO
Locker room	38 – 46	41	40	YES
Personal office	42 – 62	52	70	NO
Recruiting	52 – 72	59	70	NO
Latrine	30 – 70	50	40	YES
Logistics	42 – 64	49	70	NO
Hallway Basement	20 – 46	35	7.5	YES
Kitchen	40 – 70	57	75	NO
Supply room	42 – 50	44	70	NO
PC offices	42 – 70	55	70	NO
Weapons	56 – 70	62	40	YES
Conference room	46 – 62	54	70	NO
Headquarters office	42 – 52	47	70	NO

3.3.2. Levels were well below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3.4. WIPE SAMPLES

3.4.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples were taken at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot ($\mu g/ft^2$) and are listed in Table 3. A facility diagram

showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Eri-03148-04	Assembly Hall	BDL
PA Eri-03148-05	Hallway Outside NBC Room	98
PA Eri-03148-06	Kitchen	137
PA Eri-03148-07	2nd Floor - HC Office	BDL
PA Eri-03148-08	Locker Room	BDL
PA Eri-03148-09	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.2. Additional wipe samples were collected during this survey. These samples were collected to further analyze the extent of contamination should the first five samples indicate a possible hazard. Since the samples taken did not exceed the 200 µg/ft² criteria (see Section 3.4.4 below), these additional samples were not analyzed.

3.4.3. CLOSED FIRING RANGE WIPE SAMPLING

3.4.3.1. Additional wipe samples were collected in the former indoor firing range. This area is presently being utilized for storage. Laboratory analysis results are listed in Table 4.

TABLE 5
FORMER FIRING RANGE WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Eri-03148-16	Former Range – Floor	183
PA Eri-03148-17	Former Range – Locker	66
PA Eri-03148-18	Former Range – Cage	99
PA Eri-03148-19	Former Range – Floor	36
PA Eri-03148-20	Former Range – Floor	93
PA Eri-03148-21	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.4. WIPE SAMPLING RESULTS

3.4.4.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 µg/ft². This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. (See memorandum in Attachment E, Recommendations for Surface Lead Dust in Armories.) All sample results were below the 200 µg/ft² criteria. Lower levels of lead were detected in most areas of the facility.

3.4.5. AIR SAMPLING

3.4.5.1. Air Sampling for inorganic lead was performed during this survey. Table 6 lists the results of these samples, and is reported in milligrams per cubic meter (mg/m^3) of air.

TABLE 6
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
Non-R I	PA Eri-03148-01	Lead	<0.002 mg/m^3	0.05 mg/m^3	YES
Hallway 1st floor	PA Eri-03148-02	Lead	<0.002 mg/m^3	0.05 mg/m^3	YES

mg/m^3 = milligrams per cubic meter < = less than (below detection limits)

3.4.5.2. Air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this building.

3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION DAMAGE

3.5.1.1. There were no known or observed water intrusion damage.

3.5.2. ASBESTOS

3.5.2.1. Asbestos is present in the facility. Asbestos insulation in the boiler room has been replaced or encapsulated. There is possible asbestos in the ceiling tiles. An air sample for asbestos was done. Laboratory analysis results are presented in Attachment C.

TABLE 8
ASBESTOS AIR SAMPLING RESULTS

SAMPLE #	LOCATION	Asbestos (f/cc)
PA Eri-03148-03	Area Air Sample – 2nd Floor – Weapons Room	0.007 f/cc

f/cc = asbestos fibers per cubic centimeter of air

3.5.2.2. The standards set forth by the American Conference of Governmental Industrial Hygienists (ACGIH) and Occupational Safety and Health Association (OSHA) set airborne levels of asbestos at 0.1 fibers per cubic centimeters (f/cc). This air sample was approximately 100 times lower than the standard.

3.5.3. PROGRAMS

3.5.3.1. There are no designated confined space areas within this facility. There are no exhaust ventilation systems to control a hazard. No chemicals besides normal cleaning materials are present. Therefore, a need has not been established for a HAZCOM program, the need for personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.4. HOUSEKEEPING

3.5.4.1. The facility is maintained and cleaned in an orderly fashion.

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

E – Recommendations for Surface Lead in Armories

F – Field Notes
- Equipment Listing

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC: Erie, PA	INSTALLATION: PENNSYLVANIA ARNG ARMORY	BLDG/RM NO.: Erie Armory
LOCATION/CODE: AA		OPERATION/CODE: ADO
SURVEY DATE: 28 May 2003		EVALUATOR (initials): JSS
MACOM/CODE: ARMY NATIONAL GUARD	SUBMACOM/CODE: NA	SUPERVISOR: CPT Non-Responsive
TELEPHONE/DSN NO.: 814-871-4216	UNIT/ORGANIZATION: 1/112TH MECH INF	RAC: 3
		FREQUENCY (hrs/day): 9
NO. CIV(S): 12	NO. MIL: 400	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	CONROLS 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			
NBC AGENTS		FULL FACE AIR PURIFYING			
OIL		½ FACE AIR PURIFYING			
SOLVENTS		POWERED AIR PURIFYING			
SURGICAL GLOVES		¼ 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 WEATHR BOOTS/HATS	
FULL FACE SHIELD		EARPLUGS		COLD WEATHR 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			

AEHA Form 271-R (Test), 1 Jan 92 (HSHB-MI-I)

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	3	C

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

SECTION 6. COMMENTS

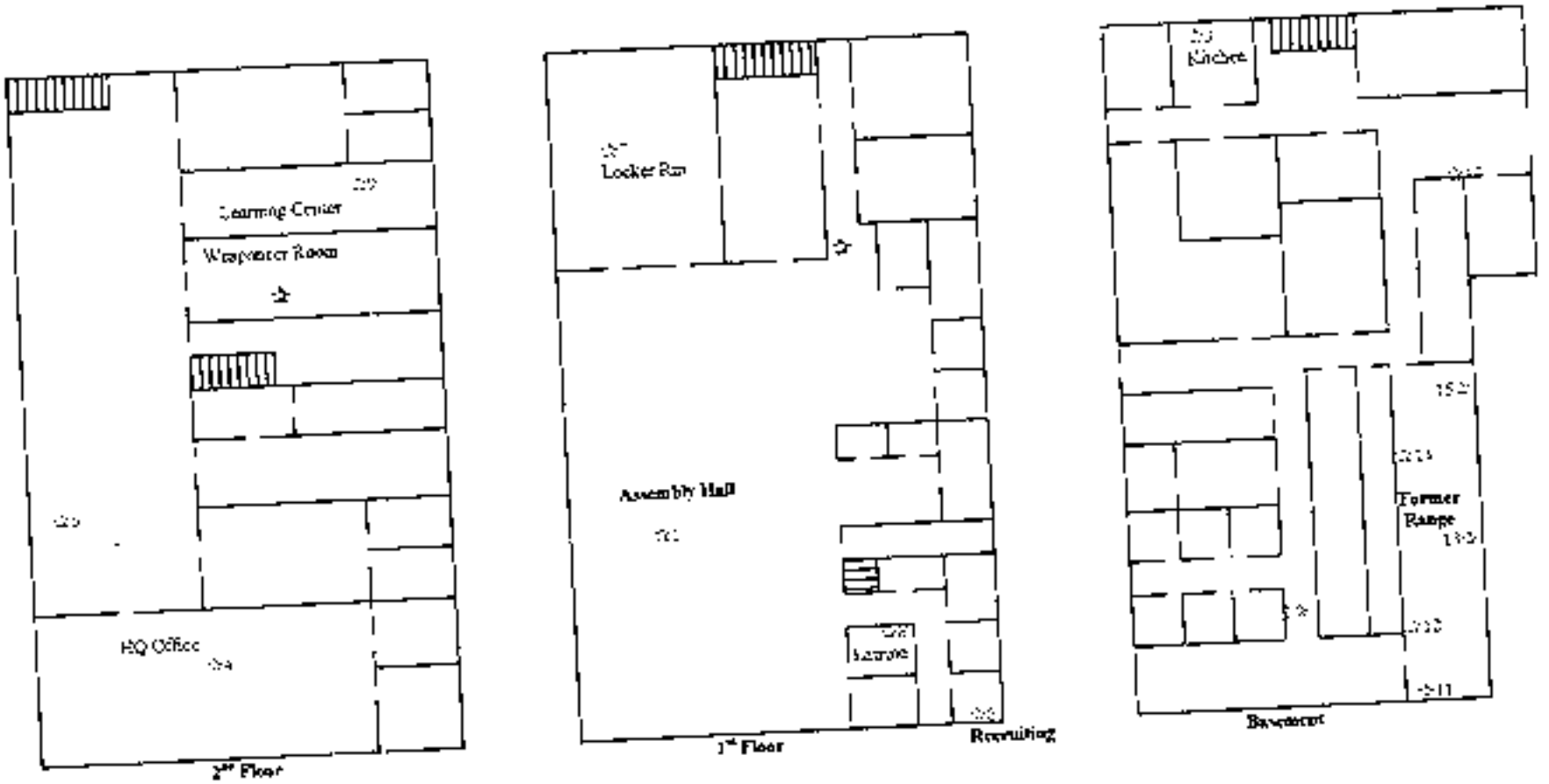
☐ No comments ☐ See attached sheet

PRIVACY ACT STATEMENT

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

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

ERIE, PENNSYLVANIA

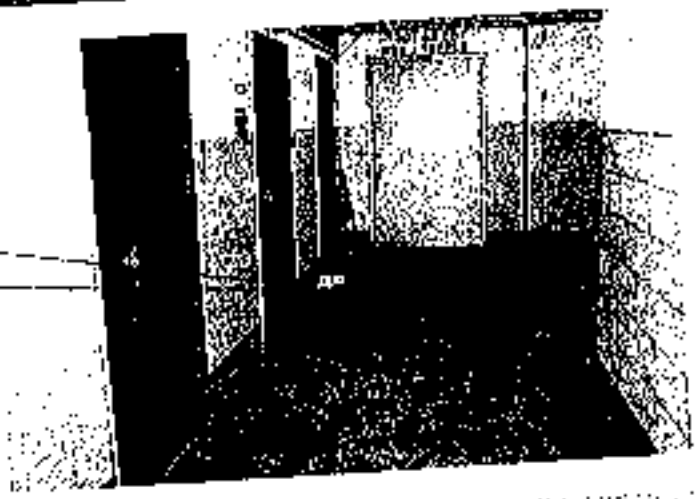


☆ = Area Air Sample

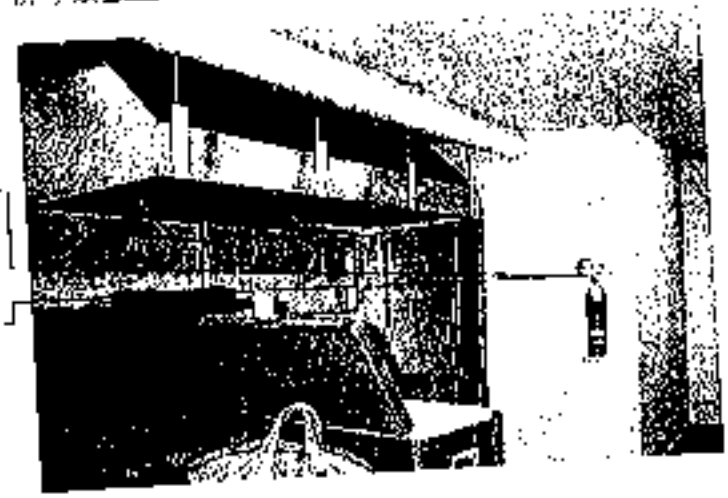
HHC 1/112TH MECH INF
CO E 1/112TH MECH INF
ERIE, PENNSYLVANIA
WIPE SAMPLING POINTS

(1) PA Eri-03148-04
Assembly Hall

(2) PA Eri-03148-05
Basement Hallway
Outside NBC Room

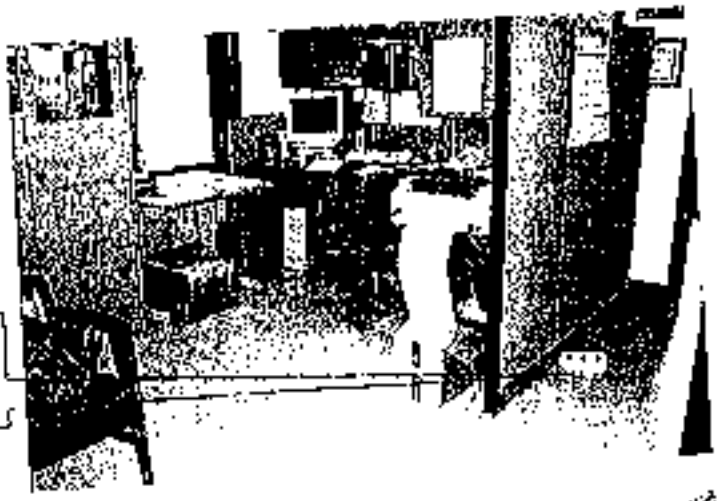


(3) PA Eri-03148-06
Kitchen
(card should read #3)

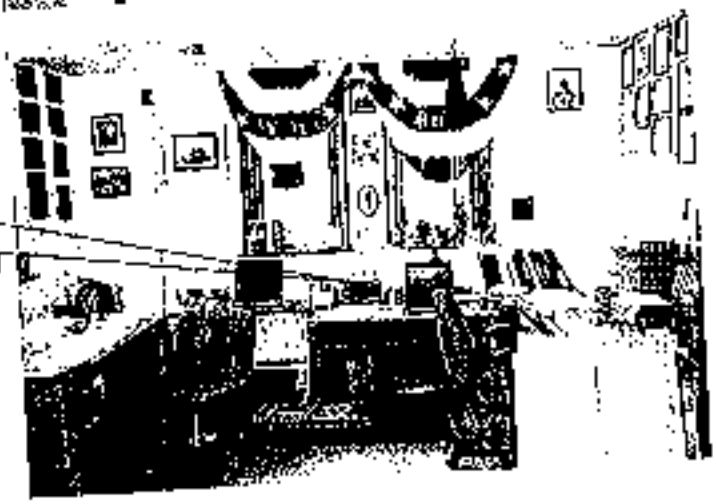


Attachment B

(4) PA Eri-03148-07
2nd Floor – HC Office

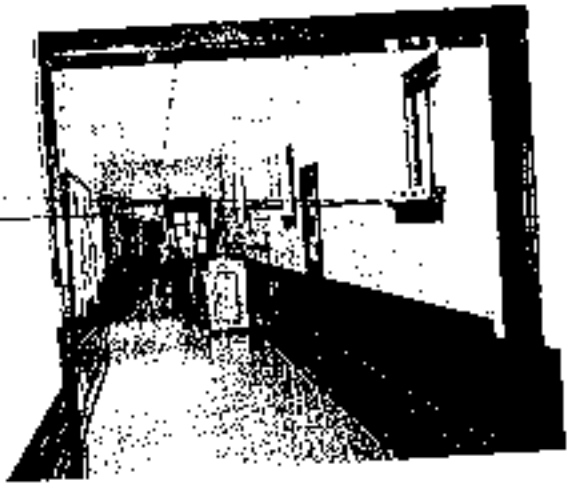


(5) PA Eri-03148-08
Recruiting Office

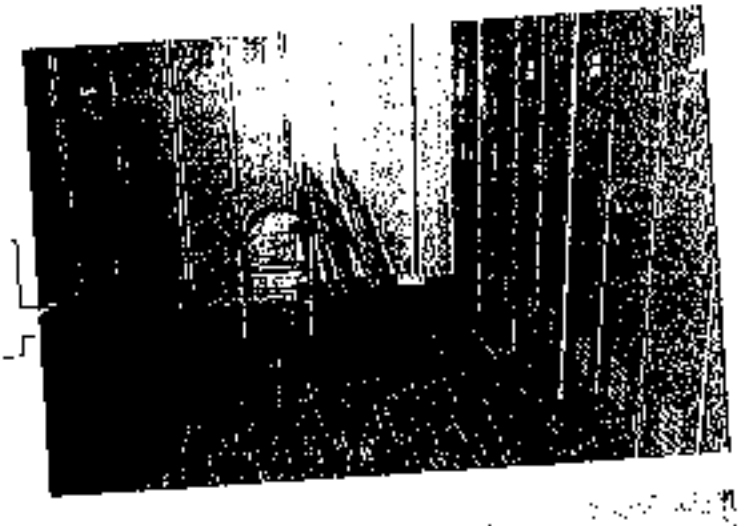


ADDITIONAL SAMPLES

(6) PA Eri-03148-10
2nd Floor Hallway



Attachment 13



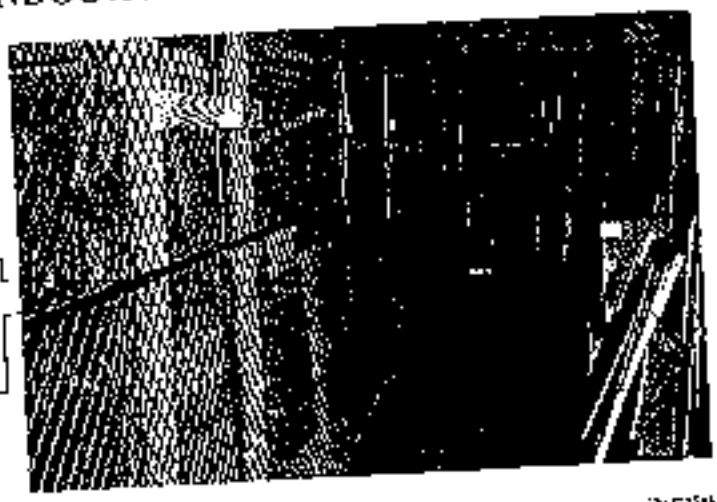
(7) PA Eri-03148-11
Locker Room

(9) PA Eri-03148-13
Logistics Center

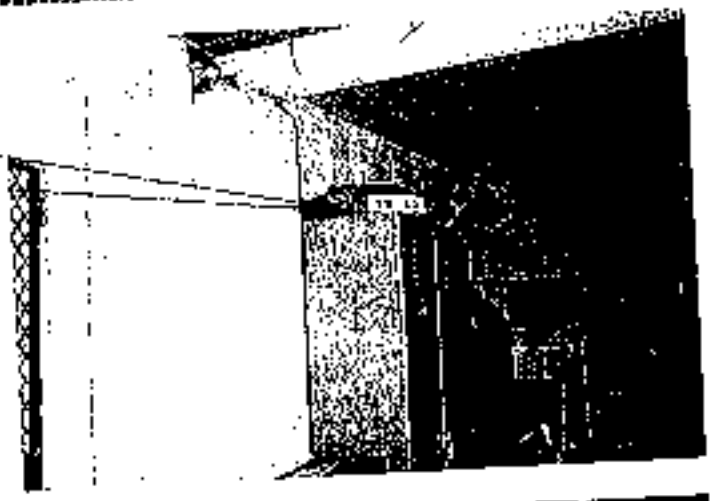
(10) PA Eri-03148-14
Break Area

Attachment 15

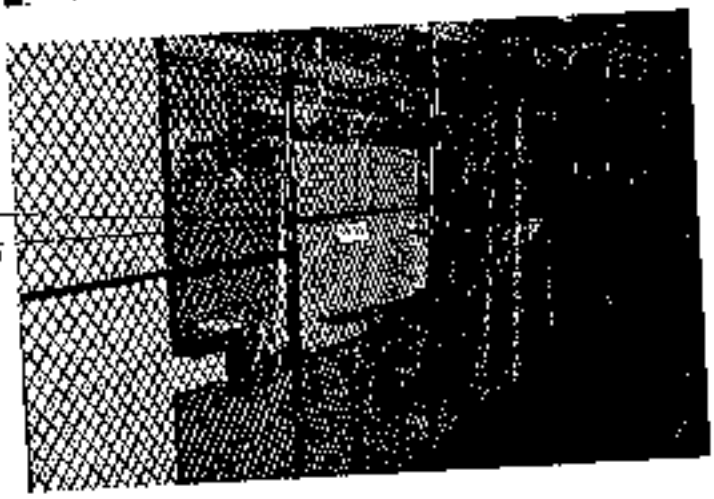
FORMER INDOOR FIRING RANGE



(11) PA Eri-03148-16
Former Range
Backstop Area Floor



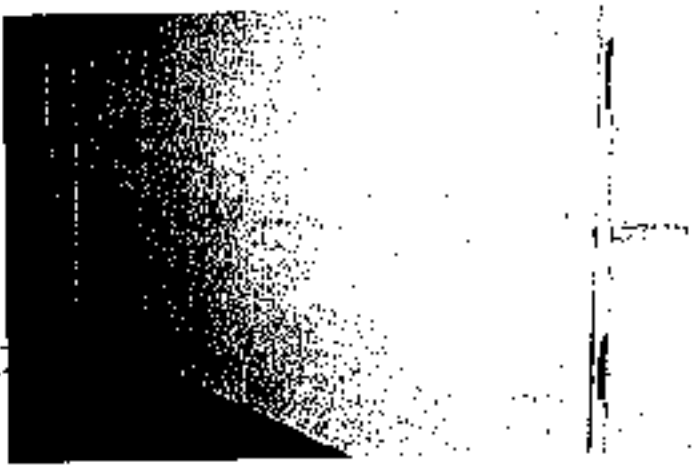
(12) PA Eri-03148-17
Former Range
Top of Cabinet



(13) PA Eri-03148-18
Former Range

Attachment 15

(14) PA Eri-03148-19
Former Range - Floor



(15) PA Eri-03148-20
Former Range - Floor

Attachment B

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
AIHA Certificate of Accreditation #480 LAB ID 101533

TABLE I. ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number: RES 93716-1
Client: Operational Technologies, Corp.
Client Project Number / P.O.: 06 01
Client Project Description: Armories/Pennsylvania
Date Samples Received: June 6, 2003
Analysis Type: USEPA SW846 3050B / AA(7420)
Turnaround: 3-5 Day
Date Samples Analyzed: June 14, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA Rid-03141-36	EM 778593	0.11	BDL	23	BDL
PA Bea-03142-03	EM 778594	0.11	18.6	23	169
PA Bra-03142-04	EM 778595	0.11	97.9	23	890
PA Bea-03142-05	EM 778596	0.11	BDL	23	BDL
PA Bra-03142-06	EM 778597	0.11	BDL	23	BDL
PA Bea-03142-07	EM 778598	0.11	9.2	23	84
PA Bra-03142-08	EM 778599	0.11	BDL	23	BDL
PA Pun-03142-18	EM 778600	0.11	5.5	23	50
PA Pun-03142-19	EM 778601	0.11	158.0	23	1436
PA Pun-03142-20	EM 778602	0.11	3.8	23	35
PA Pun-03142-21	EM 778603	0.11	BDL	23	BDL
PA Pun-03142-22	EM 778604	0.11	2.9	23	26
PA Pun-03142-23	EM 778605	0.11	BDL	23	BDL
PA Pun-03142-30	EM 778606	0.11	140.0	23	1273
PA Pun-03142-31	EM 778607	0.11	9.5	23	86
PA Pun-03142-32	EM 778608	0.11	33.0	23	300
PA Pun-03142-33	EM 778609	0.11	6.7	23	61
PA Pun-03142-34	EM 778610	0.11	12.0	23	109
PA Pun-03142-35	EM 778611	0.11	BDL	23	BDL
PA Man-03143-03	EM 778612	0.11	BDL	23	BDL
PA Man-03143-04	EM 778613	0.11	BDL	23	BDL
PA Man-03143-05	EM 778614	0.11	9.2	23	84
PA Man-03143-06	EM 778615	0.11	41.6	23	378
PA Man-03143-07	EM 778616	0.11	3.2	23	29
PA Man-03143-08	EM 778617	0.11	BDL	23	BDL
PA Eri-03148-04	EM 778618	0.11	BDL	23	BDL
PA Eri-03148-05	EM 778619	0.11	10.8	23	98
PA Eri-03148-06	EM 778620	0.11	15.1	23	137
PA Eri-03148-07	EM 778621	0.11	BDL	23	BDL
PA Eri-03148-08	EM 778622	0.11	BDL	23	BDL

Data Qa

BDL = Below Detection Limit

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
AIHA Certificate of Accreditation #480 LAB ID 101533

TABLE I. ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	RES 03716-1
Client:	Operational Technologies, Corp.
Client Project Number / P.O.:	06 01
Client Project Description:	Armories/Pennsylvania
Date Samples Received:	June 6, 2003
Analysis Type:	USEPA SW846 3050B / AA(7420)
Turnaround:	3-5 Day
Date Samples Analyzed:	June 14, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA Eri-03148-09	EM 778623	0.11	BDL	23	BDL
PA Eri-03148-16	EM 778624	0.11	20.1	23	183
PA Eri-03148-17	EM 778625	0.11	7.3	23	66
PA Eri-03148-18	EM 778626	0.11	10.9	23	99
PA Eri-03148-19	EM 778650	0.11	4.0	23	36
PA Eri-03148-20	EM 778651	0.11	10.2	23	93
PA Eri-03148-21	EM 778652	0.11	BDL	23	BDL
PA Cor-03149-25	EM 778653	0.11	21.2	23	193
PA Cor-03148-26	EM 778654	0.11	BDL	23	BDL
PA Cor-03148-27	EM 778655	0.11	BDL	23	BDL
PA Cor-03148-28	EM 778656	0.11	BDL	23	BDL
PA Cor-03148-29	EM 778657	0.11	BDL	23	BDL
PA Cor-03148-30	EM 778658	0.11	BDL	23	BDL
PA Cor-03148-37	EM 778659	0.11	7.5	23	68
PA Cor-03148-38	EM 778660	0.11	21.5	23	195
PA Cor-03148-39	EM 778661	0.11	15.2	23	138
PA Cor-03148-40	EM 778662	0.11	40.0	23	364
PA Cor-03148-41	EM 778663	0.11	4.8	23	44
PA Cor-03148-42	EM 778664	0.11	BDL	23	BDL

*Calculations Based On A 1 sq-ft. Sample Area Unless Otherwise Noted

Data Qa

BDL = Below Detection Limit

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m³
PA Eri-03148-01	03-17910	431.4	ND	<0.002
PA Eri-03148-02	03-17911	433.2	ND	<0.002
PA Cor-03148-22	03-17912	337.1	ND	<0.003
PA Cor-03148-23	03-17913	319.3	ND	<0.003
PA Cor-03148-24	03-17914	316.5	ND	<0.003
PA Mea-03149-01	03-17915	352.1	ND	<0.003
PA Mea-03149-02	03-17916	363.9	ND	<0.003
PA Mea-03149-03	03-17917	340.6	ND	<0.003
PA Gro-03149-22	03-17918	245.1	ND	<0.004
PA Gro-03149-23	03-17919	243.5	ND	<0.004
PA Oil-03150-01	03-17920	340.2	ND	<0.003
PA Oil-03150-02	03-17921	327.7	ND	<0.003
	Prep Blank 8		ND	
% Recovery	LCS 15		93.	
% Recovery	LCS 16		94.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer

DataChem Laboratories Phase Contrast Microscopy Test Report

Client: Army National Guard IH-N

Sample Location: Pennsylvania Armories P.O. No.: 06-03

ANALYSIS INFORMATION								
Graticule Area (mm^2):	0.00817							
SAMPLE INFORMATION			SAMPLE RESULTS				LOD	
Client Sample Nos.	DCL Nos.	Vol. (L)	Fib/Field	Fib/mm^2	Fib/Filter	Fib/mL	(Fib/mm^2)	(Fib/mL)
PAJen-03134-04	03-17634	350.90	0.050	<LOD	<LOD	<LOD	7	0.008
PAEri-03148-03	03-17635	404.30	0.035	<LOD	<LOD	<LOD	7	0.007

**Comments: none.

*NOTES: "NA" indicates no volume was given or the sample is a blank.
All samples counted using the "A" rules.

Non-Responsive

Analyst

Non-Responsive

Reviewer

4 December 2002

NGB-AVS-SI

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non-Responsive md.ngb.army.mil

Attachment D

REFERENCE LIST INDEX

1. General Regulations and National Consensus Standards
2. Specific Regulations and Guidance
   a. Abrasive Blasting
   b. Asbestos
   c. Battery Charging Room
   d. Bird and Bat Manure
   e. Bloodborne Pathogens
   f. Chemical Agent Resistant Coating (CARC) Paint
   g. Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE)
   h. Confined Space Entry Program
   i. Design Review
   j. Ergonomics
   k. Flammable Storage Room
   l. Hazard Communication
   m. Hearing Conservation
   n. Indoor Air Quality
   o. Indoor Firing Ranges
   p. Lead
   q. Lighting
   r. Occupational Vision
   s. Paint Spray Booth
   t. Personal Protection
   u. Radiation Protection
   v. Respiratory Protection
   w. Sanitation
   x. Smoking
   y. Vehicle Exhaust
   z. Welding Operation

GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

Attachment D

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REFERENCE LIST

1. General Regulations and National Consensus Standards

a. DODI 6055.1, DOD SOH Program, 19 August 1998.

b. DODI 6055.5, DOD OEH. *[DRAFT]*

c. DOD 6055.5-M, DOD Occupational Health Surveillance Manual, 13 May 1987.

d. DODI 6050.5, DOD Hazard Communication, 29 Oct 90. Change 1, 6 May 1996.

e. AR 40-5, Preventive Medicine, 15 October 1990. [05/2002 Being Updated]

f. DA PAM 40-5, Preventive Medicine. *[DRAFT]*

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

h. NGR 385-10, ARNG SOH Program, 7 October 1988, Change 1, 29 December 1989.

i. Title 29, Part 1910, Occupational Safety and Health Standards. [Current Date]

j. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 2002.

k. ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th edition, 2001.

l. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.

m. TG 141, USACHPPM Industrial Hygiene Sampling Guide, November 1997.

n. National Safety Council, Fundamentals of Industrial Hygiene, 5th Edition, 2002.

o. NIOSH, Pocket Guide to Chemical Hazards, 2001.

p. NFC, A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. [Current date]

q. ASHRAE Standards. [Current Dates]

r. ANSI Standards. [Current Dates]

2. Specific Regulations/Guidance

a. **ABRASIVE BLASTING**

(1) ANSI Z9.4 1997, Abrasive Blasting Operations - Ventilation and Safe Practices.

(2) 29 CFR 1910.94 Ventilation

(3) 42 CFR 84

b. **ASBESTOS**

(1) AR 40-5, Preventive Medicine, 15 October 1990. *[05/2002 Being Updated]*

(2) AR 200-1, Environmental Protection and Enhancement, Chapter 8, 21 February 1997.

(3) TB MED 513, Guidelines for the Evaluation and Control of Asbestos Exposure, 15 December 1986. *[05/2000 Under Revision as DA PAM 40-513]*

(4) TG 157, USAEHA, The Installation Asbestos Management Program Assessment Checklists, July 1994.

(5) 29 CFR 1910.1001

(6) 29 CFR 1926.58 (prior to 1994 CFR)

(7) 29 CFR 1926.1101

(8) MEMORANDUM SGPS-PSP, OTSG, subject: AMEDD Role Supporting Asbestos Abatement/Asbestos Management Programs, 19 Jan 89.

(9) EPA, Guidance for Controlling Asbestos-Containing Materials in Buildings, June 1985.

(10) DD Form 2493-1 (Asbestos Exposure, Part I--Initial Medical Questionnaire)

(11) DD Form 2493-2 (Asbestos Exposure, Part II--Periodic Medical Questionnaire)

(12) EPA NESHAPS Asbestos Regulation (40 CFR 61, Subpart M).

c. **BATTERY CHARGING ROOM**

(1) TG 022, USAEHA, page 81, Industrial Hygiene Evaluation Guide, October 1975. *[Out of Print]*

(2) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

d. **BIRD AND BAT MANURE**

(1) TG 142, USAEHA, Managing Health Hazards Associated with Bird and Bat Excrement, Dec 1992.

e. **BLOODBORNE PATHOGENS**

(1) 29 CFR 1910.1030

(2) TG 190, USAEHA, Guide to Managing Occupational Exposure to Bloodborne Pathogens, Jan 94.

f. **CHEMICAL AGENT RESISTANT COATING (CARC) PAINT**

(1) TG 144, USAEHA, Guidelines for Controlling Health Hazards in Painting Operations, 24 August 1987.

(2) DA LTR, USAEHA, HSHB-MI-WR, subject: Respiratory Protection When Spraying CARC, 19 November 1992.

(3) TM 43-0139, Painting Instructions for Army Material, 27 July 19881 Aug 86.

(4) MEMORANDUM SGPS-PSP, OTSG, subject AMEDD, Occupational Health Requirements in Support of Painting in the Army, 22 February 1985.

(5) AR 750-1, Army Materiel Maintenance Policy and Retail Maintenance Operations (Prohibits welding on CARC paint) 1 July 1996.

g. **CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR, EXPLOSIVE (CBRNE)**

(1) DODI 2000.gg, DOD Installation CBRNE Emergency Response Guidelines.

(2) DHHS, NIOSH Pub No. 2002 139, Guidance for Protecting Building Environments from Airborne Chemical, Biological, or Radiological Attacks, May 2002.

(3) TG 275, USACHPPM, Personal Protective Equipment Guide for Medical Treatment Facility Personnel Handling Casualties from Weapons of Mass Destruction and Terrorism Events. *[Draft]*

h. **CONFINED SPACE**

(1) 29 CFR 1910.146 (Confined Space Entry)
(2) 29 CFR 1910.147 (Lockout/Tagout)
(3) ANSI Z117.1-Safety Requirements for Confined Spaces, 1995.
(4) SOP for ARNG Confined Space Entry Program, 25 April 1991.
(5) Letter, US Dept of Labor (DOL) addressed to Vanessa Chan, 22 Apr 1994.
(6) OSHA Instruction STD 1-7.3, US DOL, subject: 29 CFR 1910.147, the Control of Hazardous Energy (Lockout/Tagout)--Inspection Procedures and Interpretive Guidance, 11 Sep 90.
(7) DHHS, NIOSH Pub No. 87113, A Guide to Safety in Confined Spaces, July 1987.
(8) Confined Space Entry Program for Helicopters, 2003.

i. **DESIGN REVIEW**

(1) DG 415-1, Design Guide for Armories, current.
(2) DG 415-2, Design Guide for Logistics Facilities, current.
(3) DG 415-3, Design Guide for Training Site Facilities, current.
(4) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.
(5) TI-300, 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.
(6) UFGS 15940A, Overhead Vehicle Tailpipe (and welding fume) Exhaust Removal Systems, December 2001.
(7) ASHRAE, Standard 62-2002, Ventilation for Acceptable Indoor Air Quality.
(8) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

j. **ERGONOMICS**

(1) DA PAM 40-21, Medical Services, Ergonomics Program, 15 May 2000.
(2) ANSI Z-365, Management of Work Related Musculoskeletal Disorders, 2000.
(3) 29 CFR 1910. *[PROPOSED STANDARD]*

k. **FLAMMABLE STORAGE ROOM**

(1) 29 CFR 1910.106
(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

l. **HAZARD COMMUNICATION**

(1) 29 CFR 1910.1200
(2) NGR 385-10, Chapter 6

m. **HEARING CONSERVATION**

(1) DA PAM 40-501, Medical Services, Hearing Conservation Program, 10 December 1998.

(2) TG 181, USAEHA, Noise Dosimetry and Risk Assessment, May 1999.

(3) TG 175, USAEHA, Readiness thru Hearing Conservation: Guide for Unit Commanders and Supervisors, June 1999.

(4) 29 CFR 1910.95

n. **INDOOR AIR QUALITY (IAQ)**

(1) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

(2) USACERL Technical Report P-91/42, IAQ Management for Operations and Maintenance Personnel, September 1991.

(3) EPA 400/1-91/003 or DHHS, NIOSH, Publication No. 91-114, Building IAQ, A Guide for Building Owners and Facility Managers, December 1991.

(4) ASHRAE, Standard 62-2002, Ventilation for Acceptable IAQ.

(5) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

(6) NIOSH, IAQ Selected References, Sep 1989.

(7) OSHA Instruction CPL 2-2.20B CH-1, Directorate of Technical Support, 13 Nov 90.

(8) DA PAM 25-52, Mail Facility Security and Handling Suspicious Mail, 6 November 2001.

(9) ASTM, D 5952-96, 10 May 1996.

o. **INDOOR FIRING RANGES**

(1) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(2) NGR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges, 30 March 1990. *[11/02 Under Revision]*

(3) CEHND 1110-1-18, USACE Design Manual for Indoor Firing Range, June 1990.

(4) HQDA LTR, Office of the Adjutant General, DACS-SF, subject: Inspection and Evaluation of US Army Indoor Firing Ranges, 26 March 1993.

(5) Departments of the Army and Air Force, NGB-ADE-OM, subject: All State Log Number (I920323) Indoor Range Clean-up at State Owned Armories, 28 July 1992.

(6) NIOSH, Technical Information, December 1975, subject: Lead Exposure and Design Considerations for Indoor Firing Ranges.

(7) All-States Ltr P01-0075, 5 December 2001.

(8) Information Paper, Alternative Ammunition, 15 March 1996.

(9) Information Paper, Bullet Traps, 26 April 1996.

(10) Information Paper, ARNG IFR Action Plan, 28 January 2002.

p. **LEAD**

(1) 29 CFR 1910.1025

(2) 29 CFR 1926.62

(3) 24 CFR 35.61 (HUD, Percentage of Lead in Paint)

(4) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(5) OSHA Instruction CPL 2-2.58, Office of Health Compliance Assistance, 13 December 1993.

(6) Federal Register, 18 April 1990, Vol. 55, No. 75, HUD, Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing, as amended, September 1990, Office of Public and Indian Housing, Department of Housing and Urban Development, 451 Seventh Street, SW, Washington, DC 20410.

(7) NIOSH, Request for Assistance in Preventing Lead Poisoning in Construction Workers, April 1992.

(8) EPA, Strategy for Reducing Lead Exposures, 21 Feb 91.

q. **LIGHTING**

(1) RP-1-1993, Office Lighting, ANSI/IESNA.

(2) RP-7-2001, Industrial Lighting, IES.

r. **OCCUPATIONAL VISION**

(1) DA PAM 40-506, Medical Services, The Army Vision Conservation and Readiness Program, 20 July 2001.

(2) ANSI Z87.1, Practice for Occupational and Educational Eye and Face Protection, 1989, Change A, REAF 1998.

(3) ANSI Z358.1 for Emergency Eyewash and Shower Equipment, 1998.

(4) OTSG Memorandum SGPS-PSP, subject: Acanthamoeba Keratitis and Eyewash Stations, 8 May 89.

(4) 29 CFR 1910.133

s. **PAINT SPRAY BOOTH**

(1) NFPA No. 33, Standard for Spray Application Using Flammable and Combustible Materials, 1995.

(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

(3) 29 CFR 1910.94

(4) 29 CFR 1910.107

(5) ANSI Z9.3-1995 for Exhaust Systems - Spray Finishing Operations - Safety Code for Design, Construction, and Ventilation.

(6) ANSI Z9.2-2001, Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems.

t. **PERSONAL PROTECTIVE EQUIPMENT**

(1) Quick Selection Guide to Chemical Protective Clothing, 2nd edition, Forsberg, K and Mansdorf, S., 1993.

(2) Chemical Protective Clothing, Vol 1 and 2, Johnson, J. and Anderson, K., American Industrial Hygiene Association, 1990.

(3) Guidelines for the Selection of Chemical Protective Clothing, 3rd Edition, ACGIH, Inc., Feb 1987.

u. **RADIATION PROTECTION PROGRAM**

(1) NGR 385-11, Safety, Ionizing and Nonionizing Radiation Protection, 18 February 1999.

(2) AR 11-9, Army Radiation Safety Program, 28 May 1999.

(3) 29 CFR 1910.96

(4) 29 CFR 1910.97

v. **RESPIRATORY PROTECTION**

(1) AR 11-34, The Army Respiratory Protection Program, 15 February 1990. *[11/02 Being Updated]*

(2) 29 CFR 1910.134

(3) 42 CFR 84

(4) TB MED 502, Respiratory Protection Program, February 1992. *[11/02 Being Updated as DA PAM 40-502]*

(5) ANSI/CGA G-7.1-1997, Commodity Specification for Air.

(6) ANSI Z88.2-1992, Standard for Respiratory Protection.

w. **SANITATION**

(1) ANSI Z4.1-1986, Change REAF 1995, Sanitation in Places of Employment-Minimum Requirements.

(2) 29 CFR 1910.141

x. **SMOKING**

(1) AR 600-63, Army Health Promotion, 28 April 1996.

(2) DODI 1010.15, Smoke-Free DOD Facilities, 2 January 2001.

(3) DODD1010.10, Health Promotion, 11 March 1986.

y. **VEHICLE EXHAUST**

(1) ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th Edition, 2001.

(2) TI-300f 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

z. **WELDING OPERATION**

(1) 29 CFR 1910.252

(2) 29 CFR 1910.253

(3) 29 CFR 1910.254

(4) ANSI/AWS Z49.1-1999, Safety in Welding and Cutting and Allied Processes.

(5) TM 5-805-7, Welding Design, Procedures and Inspection, 20 May 85.

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgement, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(b)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 $\mu g/ft^2$) and windowsills (250 $\mu g/ft^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of 200 $\mu g/ft^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 $\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

Attachment F

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 $\mu g/ft^2$ on floors and 250 $\mu g/ft^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

Attachment E

HHC 1/112TH MECH INF
CO E 1/112TH MECH INF

5-28-03

INDUSTRIAL HYGIENE SURVEY
PENNSYLVANIA

PA189

SURVEY DATE	5-28-03

FACILITY			
ADDRESS	350 East 6th Street + Parade Sts.		
	Erie, PA 16507 - 1695		
CONTACT	CPT [redacted]		
PHONE	814-871-4216		
DATE BUILT	1920	FACILITY SIZE	27,856 SqFt
RANGE	Inactive		
ASSISTED			

STAFF - 12
DRILL 400

PAINT CONDITION:		
INDOORS	BRICK	Sample? No
OUTDOORS	BRICK	Sample? NO

ASBESTOS	POSSIBLY IN CEILING TILES / AIR SAMPLE	
Area/condition	—	AIR SAMPLE
Area/condition		

WATER DAMAGE		
Area/condition	NO	
Area/condition	NO	

HOUSEKEEPING	GOOD

TIME	AREA	CO	CO_2	TEMP	RH
1046	OUTSIDE AIR	0.0	494	71.9 °F	51.6 %
1100	PERSONEL SECTION	0.0	521	71.9 °F	53.6 %
1103	RECRUTING OFFICE	0.0	519	72.3 °F	54.0 %
1105	LATRIN	0.0	509	72.5 °F	54.4 %
1110	LOGISTICS	0.0	517	72.5 °F	54.5 %
1114	HALL WAY BASEMENT	0.0	526	71.9 °F	54.1 %
1118	KITCHEN	0.0	514	72.2 °F	54.3 %
1119	SUPPLY RM (OCCUPIED)	0.0	545	72.4 °F	54.7 %
1122	SUPPLY RM	0.0	556	72.7 °F	55.0 %
1126	EC OFFICES OCCUPIED	0.0	560	72.8 °F	54.7 %
1127	WEAPONS	0.0	520	72.2 °F	54.6 %
1128	CONFERENCE RM	0.0	531	72.5 °F	55.0 %
1130	HEAD QUATERS OFFICES	0.0	520	73.3 °F	55.8 %
				°F	%
				°F	%
				°F	%
				°F	%

INDUSTRIAL HYGIENE SURVEY
PENNSYLVANIA

WIPE SAMPLES	ARMORY	Picture #
PA Eri-03 148-01	~~HVAC supply side of filter~~ DRILL AREA	1
PA Eri-03 148-02	~~HVAC on return side of filter~~ HALLWAY BASE DAT NBC	2
PA Eri-03 148-03	~~Assembly Hall~~ KITCHEN	3
PA Eri-03 148-04	~~Kitchen~~ HC OFFICE 2ND FLR	4
PA Eri-03 148-05	~~Supply air grille in occupied office~~ RECRUITER OFFICE	5
PA Eri-03 148-06	BLANK	
PA Eri-03 148-07	HALLWAY WINDOWSILL 2ND FLR	6
PA Eri-03 148-08	LOCKER RM	7
PA Eri-03 148-09	~~LAB~~ LAUNDRY 1ST FLR	8
PA Eri-03 148-10	LOGISTICS CENTER	9
PA Eri-03 148-11	BREAK AREA	10
PA Eri-03 148-12	BLANK	
PA Eri-03 148-13		
PA Eri-03 148-14		
PA Eri-03 148-15		
PA Eri-03		
PA Eri-03		
PA Eri-03		
PA Eri-03		
PA Eri-03		
PA Eri-03	BLANK	

AIR SAMPLING

Sample #	Pump #	Person/Area	Precal lpm	Postcal lpm	Time On	Time Off	Run Time	Volume (Liters)
PA Eri-03 148-01	647864	Person	3.06	2.975	1042	1207	145	431.4
PA Eri-03 148-02	648393	HALLWAY 1ST FLR	3.116	3.094	1045	1305	140	433.2
PA Eri-03 148-03	642341	WEAPONS RM 2ND FLR SOUTH	2.975	1049	1304	135	404.3	
		ASBESTOS TESTING						

INDUSTRIAL HYGIENE SURVEY
PENNSYLVANIA

CONVERTED INDOOR FIRING RANGE WIPE SAMPLES

PA Eri-03	46-16	Inside any remaining ventilation ductwork	FLOOR 11
PA Eri-03	46-17	Exhaust ventilation system	LOCKER 12
PA Eri-03	46-18	Bullet trap	CAGE 13
PA Eri-03	46-19	Light fixtures	FLOOR 14
PA Eri-03	46-20	Overhead beams	FLOOR 15
PA Eri-03	46-21	Stored items	BLANK —
PA Eri-03		Floor	
PA Eri-03		Outside the range	
PA Eri-03		Blank	

HVAC SYSTEM: evaluate maintenance schedule and quality of maintenance for HVAC syst.

PROGRAMS	
CONFINED SPACES?	Y – N
HEARING CONSERVATION?	Y – N
RESPIRATORY PROTECTION?	Y – N
HAZCOM?	Y – N
PPE?	Y – N
TRAINING?	Y – N

VENTILATION:

NOISE:

DRILL 36, 40, 2044 - 35.0 90 AVG

LOCKER RM/DRILL AREA
40, 42, 38, 46 - 41.5

PERSONNEL SECTION
42, 62 52.0

RECRUITING OFFICE
52, 54, 72 - 59.3

KATRINA 30, 70 - 50.0

LOGISTICS 50, 42, 64, 42 49.5

HALLWAY BASEMENT 20, 40, 46 - 35.3

KITCHEN 62 70 40 - 57.3

SUPPLY RM - 50, 42, 40 - 44.0

EC OFFICES 2ND FLR - 42, 42, 68, 70 - 55.5

WEAPONS - 62 70 56 - 62.7

CONFERENCE RM 62 46 - 54.0

HEADQUARTERS OFFICE - 52, 42 47.0

PENNSYLVANIA ARMORY
INDUSTRIAL HYGIENE SURVEY
EQUIPMENT LISTING

Air Sampling Pumps
SKC Aircheck Samplers 224-44XR
S/N: 647609, 647610, 647626, 647627, 647654, 648324, 648349, 648393

Air Pump Calibrator
DryCal Base m: DC-1B Rev 2.06P S/N B 1827
DryCal Med Cell; m: DC-MC-1 Rev E S/N 1745

Indoor Air Quality
TSI Q-Trak m: 8550 S/N 11050
Metrosonics Carbon Monoxide Logger m: pm7700 S/N 1129
Metrosonics CO Sensor m: gs 7701 S/N 5073

Noise
Quest Sound Level Meter m: 2800 S/N HS4090023
Quest Octave Filter Set m: OB-300 S/N HV4070020
Quest Acoustic Calibrator m: QC-10 S/N QE4090140
Metrosonics db-3080 Noise Dosimeters S/N 4667, 4685
Microphones

ATTACHMENT E

INDUSTRIAL HYGIENE SURVEY

DET 1 28TH MP CO
CO B 1/110TH MECH INF

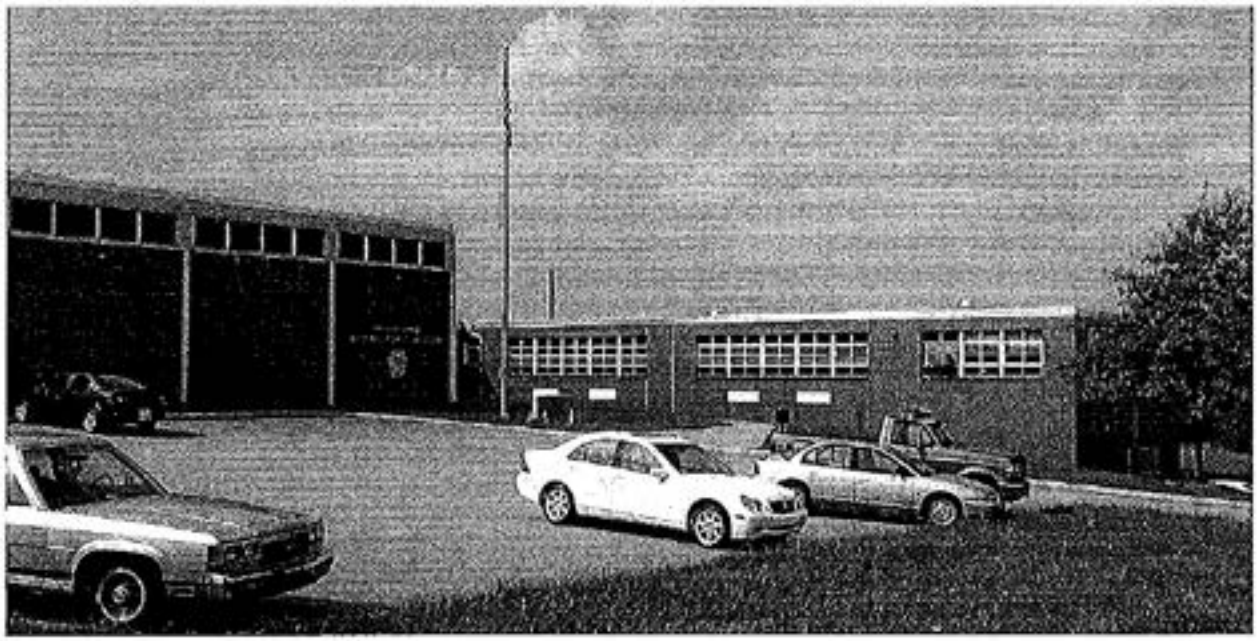
GREENSBURG, PA

August 18, 2003

OPTECH

OPERATIONAL TECHNOLOGIES
CORPORATION

INDUSTRIAL HYGIENE SURVEY
DET 1 28TH MP CO
CO B 1/110TH MECH INF
JOHNSTOWN, PENNSYLVANIA



1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Armory in Greensburg, Pennsylvania on August 18, 2003. NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. Non-Respo Non- from OpTech, completed this survey. Non- , a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the IH Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D.

RECOMMENDATIONS

1. INDOOR AIR QUALITY

1.1. Carbon monoxide, carbon dioxide and indoor temperature readings were within recommended ranges. Relative humidity readings were above the 60% acceptable range. Humidity levels should be maintained below 60% relative humidity for occupant comfort and controlling mold growth. No mold was noted during the survey.

2. ILLUMINATION

2.1. Illumination levels were below recommended minimum standards in many areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3. LEAD WIPE SAMPLES

3.1. Wipe samples for inorganic lead were collected throughout the facility. Samples collected in the entryway, basement floor, assembly hall, along with two of four samples in the former indoor firing range area, exceeded the 200 $\mu g/ft^2$ criteria. Suspect that the majority of the contamination is from former firing range activities. Lead dust has migrated throughout the facility and has collected over the years. Since the facility was constructed in 1971, lead based paint and vehicle exhaust from vehicles using leaded gasoline driven into the facility prior to 1978, may have also contributed to lead dust levels. Recommend that the facility be wet-wiped/mopped or cleaned using a high efficiency particulate air (HEPA) vacuum. This method of cleaning should be repeated during routine housekeeping duties, to further reduce lead dust levels.

2.0. EXECUTIVE SUMMARY

2.1. Carbon monoxide, carbon dioxide and indoor temperature readings were within recommended ranges. Relative humidity readings were above the 60% acceptable range. Humidity levels should be maintained below 60% relative humidity for occupant comfort and controlling mold growth. No mold was noted during the survey.

2.2. Illumination levels were below recommended minimum standards in many areas of the facility.

2.3. Wipe samples for inorganic lead were collected throughout the facility. Samples collected in the entryway, basement floor, assembly hall, along with two of four samples in the former indoor firing range area, exceeded the 200 $\mu g/ft^2$ criteria. Suspect that the majority of the contamination is from former firing range activities. Lead dust has migrated throughout the facility and has collected over the years. Since the facility was constructed in 1971, lead based paint and vehicle exhaust from vehicles using leaded gasoline driven into the facility prior to 1978, may have also contributed to lead dust levels.

2.4. Air sampling for inorganic lead was accomplished. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	DET 1 28TH MP CO		
	CO B 1/110TH MECH INF		
ADDRESS	RD #12 Box 232		
	Donohue Road		
	Greensburg, PA 15601		
CONTACT	Non-Responsive		
PHONE	724-832-5318		
DATE BUILT	1971	FACILITY SIZE	17,560 sq.ft.
INDOOR FIRING RANGE	CLOSED		1 floor plus basement
ASSISTED	Non-Responsive - State Maintenance		
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	7		
TRADITIONAL (MIL)	135		
CHILD ACTIVITIES	The facility has not been rented		
ADULT ACTIVITIES			

3.1.1. The exterior of the building is brick and appears to be in good condition. The interior has been kept in good condition. The former indoor firing range has been cleaned and is used for mobilization storage.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity (RH) in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 Indoor Air Quality Standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ASHRAE 62-2001, Section 6.1.3, states that concentrations up to 700 ppm CO_2, above outdoor concentrations will achieve an acceptable level of indoor air quality.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ASHRAE 55-1992 recommends that temperature ranges be 73 to 79 degrees Fahrenheit (°F) during the summer and 68 to 74°F during the winter. Relative humidity levels be maintained between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE 1
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO2 (ppm)	Temp. (°F)	RH (%)
0945	Classrooms	0.0	523	71.5	66.1
0953	Recruiting Office	0.0	539	72.9	63.2
0959	Room 119 - Classroom	0.0	539	73.8	60.5
1010	Outdoors - Background	0.0	455	73.9	62.8
1017	Basement - Supply Room (occupied)	0.0	544	73.3	65.0

3.2.5. Carbon monoxide, carbon dioxide and indoor temperature readings were within recommended ranges. Relative humidity readings were above the 60% acceptable range. Humidity levels should be maintained below 60% relative humidity for occupant comfort and controlling mold growth. No mold was noted during the survey.

3.3. ILLUMINATION

3.3.1. Illumination levels were measured in most areas of the facility. Sunlight was excluded, as much as possible for this survey, by closing doors and blocking windows. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 - 463). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
1ST FLOOR				
Room 123 Classroom (North)	62 – 82	72	75	NO
Room 123 Classroom (South)	44 – 78	64	75	NO
Corridor	18 – 44	34	7.5	YES
Room 122 - Recruiting Office	66 – 86	76	70	YES
Desks	74 – 82	78	70	YES

Location	Luminance Range (fc)	Average	Standard	Standard Met
Room 119 – Classroom	40 – 62	46	75	NO
Room 117 – Copier Room	14 – 40	26	75	NO
Stairs	20 – 38	30	7.5	YES
Room 101 – Assembly Hall	40 – 62	52	75	NO
Kitchen	56 – 106	89	85	YES
Basement				
Supply Area	24 – 30	27	40	NO
Supply Office	42 – 48	45	70	NO
Desk	42	42	70	NO

3.3.2. Levels were below recommended minimum standards in many areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3.4. WIPE SAMPLES

3.4.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples collected taken at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot ($\mu g/ft^2$) and are listed in Table 3. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
LEAD WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead ($\mu g/ft^2$)
PA Gre-03230-10	Room 123 – Classroom Windowsill	BDL
PA Gre-03230-11	Entry – Floor	**280**
PA Gre-03230-12	Assembly Hall – West Side – Food Serving Cart	BDL
PA Gre-03230-13	Kitchen – Floor	BDL
PA Gre-03230-14	Basement – Supply	BDL
PA Gre-03230-15	BLANK Sample	BDL

$\mu g/ft^2$ – micrograms per square foot BDL – Below Detection Limits

3.4.2. Additional wipe samples were collected during this survey. These samples were collected to further analyze the extent of contamination should the first five samples indicate a possible hazard. Since the sample collected in the entryway exceeded the recommended criteria (see Section 3.4.4.), the additional samples were analyzed. Results are listed in Table 4.

TABLE 4
ADDITIONAL LEAD WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Gre-03230-16	Basement – South Hallway – Floor	350
PA Gre-03230-17	Stairs – Assembly Hall to Basement	170
PA Gre-03230-18	Assembly Hall – Northeast Area	4100
PA Gre-03230-19	Assembly Hall – Southeast Corner – Snack Machine	180
PA Gre-03230-20	1st Floor – South Hallway – Floor	180
PA Gre-03230-21	BLANK Sample	BDL

µg/ft² – micrograms per square foot BDL – Below Detection Limits

3.4.3. CLOSED FIRING RANGE WIPE SAMPLING

3.4.3.1. Additional wipe samples were collected in the former indoor firing range. This area is utilized for mobilization equipment storage. The laboratory analysis results are listed in Table 5.

TABLE 5
FORMER FIRING RANGE LEAD WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Gre-03230-22	Southwest Corner – Floor	350
PA Gre-03230-23	Southeast Corner – Floor	170
PA Gre-03230-24	Light Fixture (removed from former range)	4100
PA Gre-03230-25	Outside Former Range – Floor	180
PA Gre-03230-26	BLANK Sample	BDL

µg/ft² – micrograms per square foot BDL – Below Detection Limits

3.4.4. WIPE SAMPLING RESULTS

3.4.4.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 µg/ft². This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. (See memorandum in Attachment F, Recommendations for Surface Lead Dust in Armories.) Samples collected in the entryway, basement floor, assembly hall, along with two of four samples in the former indoor firing range area exceeded the 200 µg/ft² criteria. Suspect that the majority of contamination is from former firing range activities. Lead dust has migrated throughout the facility and has collected over the years. Since the facility was constructed in 1971, lead based paint and vehicle exhaust from vehicles using leaded gasoline driven into the facility prior to 1978, may have also contributed to lead dust levels.

3.4.5. AIR SAMPLING

3.4.5.1. Air Sampling for inorganic lead was performed during this survey. Table 6 lists the results of these samples, and is reported in milligrams per cubic meter (mg/m^3) of air.

TABLE 6
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
Area – Basement – Former Range Area	PA Gre-03230-08	Lead	<0.004 mg/m^3	0.05 mg/m^3	YES
Area – 1st Floor	PA Gre-03230-09	Lead	<0.004 mg/m^3	0.05 mg/m^3	YES

mg/m³ – milligrams per cubic meter < – less than (below detection limits)

3.4.3.2. Air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this building.

3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION DAMAGE

3.5.1.1. No water intrusion problems were reported or observed within the building.

3.5.2. PROGRAMS

3.5.2.1. There are no designated confined space areas within this facility. A need has not been established for a HAZCOM program, the need for personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.3. HOUSEKEEPING

3.5.3.1. The facility is impressively clean, orderly and is being kept in very good condition.

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

E – Recommendations for Surface Lead in Armories

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
Greensburg, PA	PENNSYLVANIA ARNG ARMORY	Greensburg Armory

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR (Initials)
18 Aug 2003	JSS

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	NA	Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
724-832-5318	DET 1 2ND MP CO CDB 1-110TH MECH INF	3	9

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
7	135			

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	CONROLS 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			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	½ FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	¼ 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	/		

AEHA Form 271-R (Test), 1 Jan 92 (HSHB-MI-I)

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	3	C

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

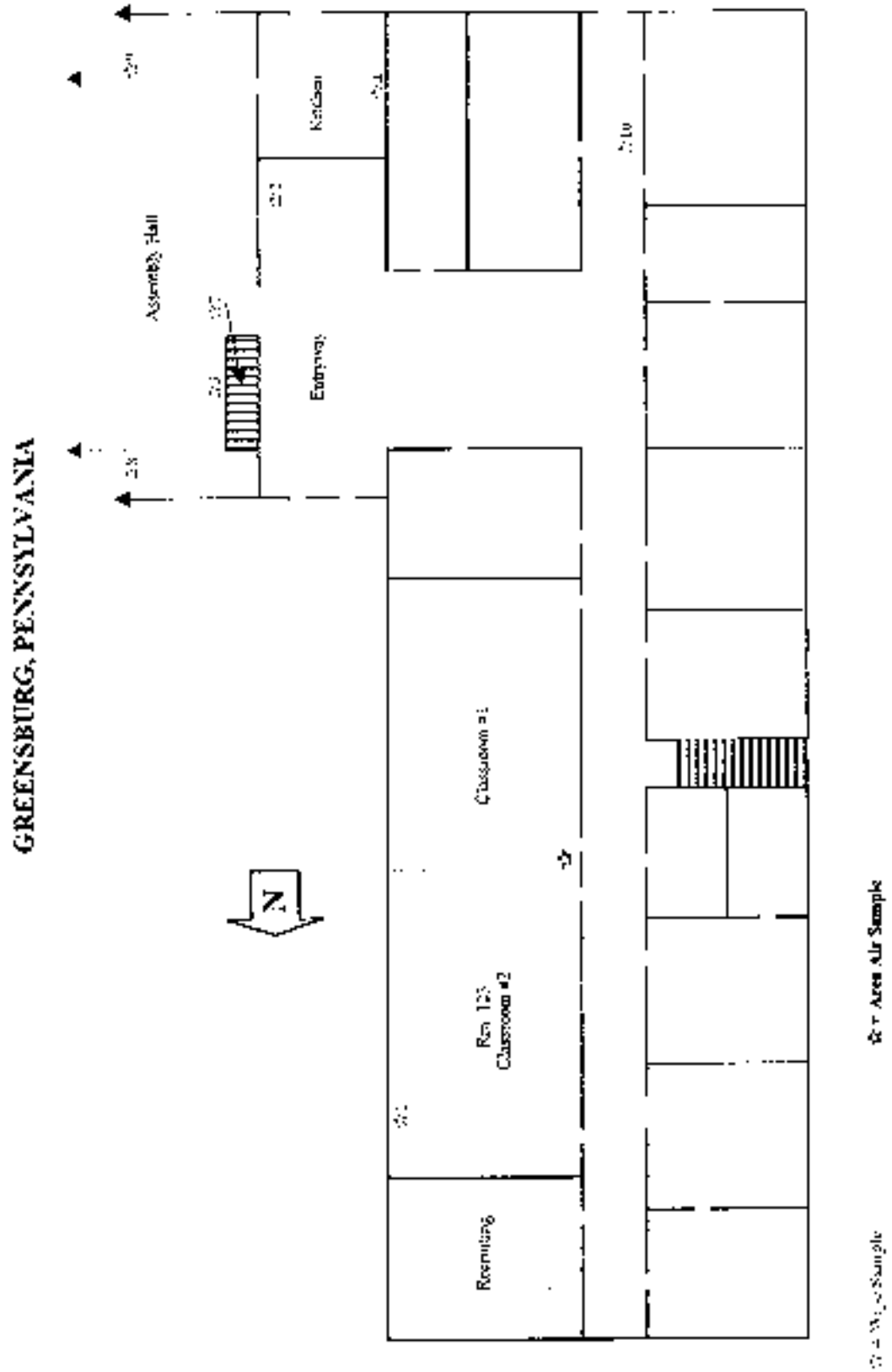
SECTION 6. COMMENTS

☐ No comments ☐ See attached sheet

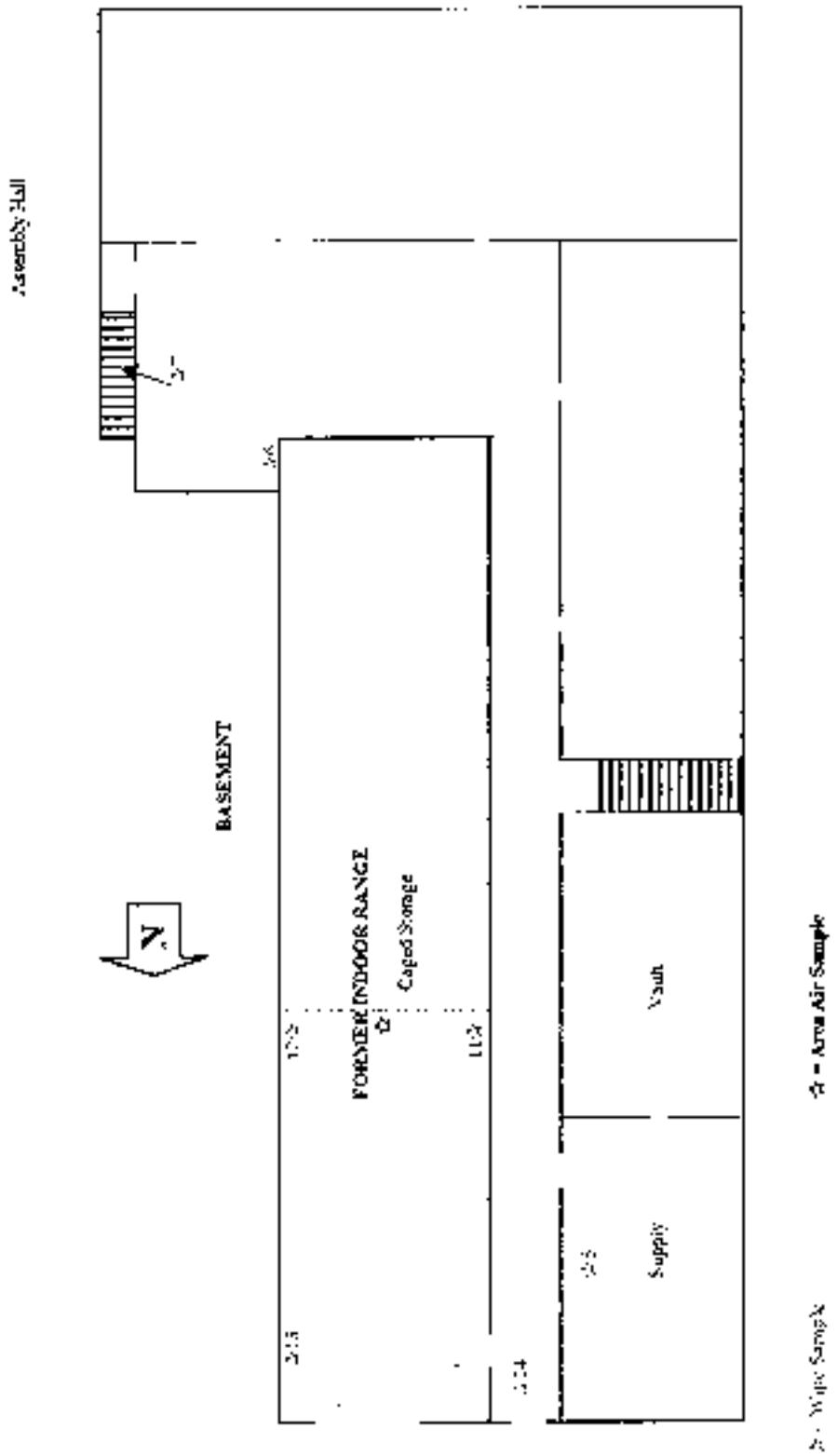
PRIVACY ACT STATEMENT

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

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



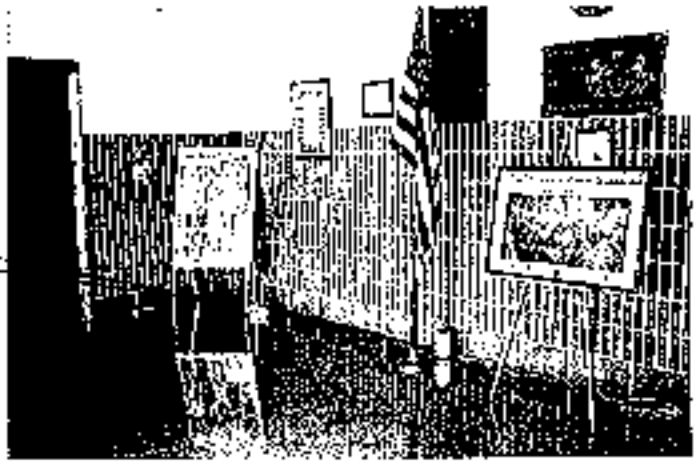
GREENSBURG, PENNSYLVANIA



DET 1 28[TH] MP CO
CO B 1/110[TH] MECH INF
GREENSBURG, PENNSYLVANIA
WIPE SAMPLING POINTS

(1) PA Gre-03230-10
Room 123 -- Classroom #2

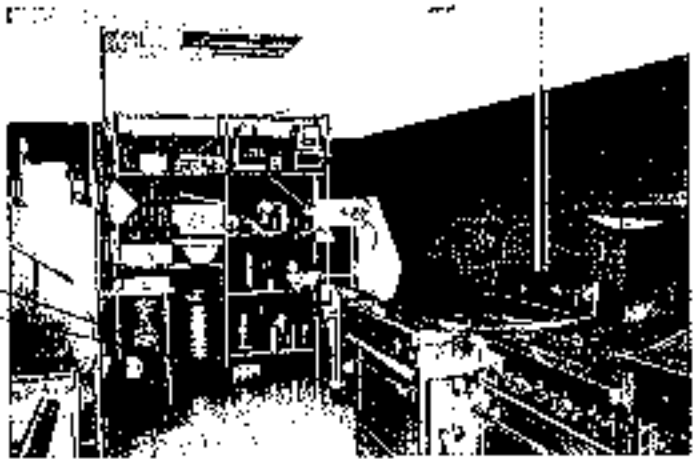
(2) PA Gre-03230-11
Entryway



(3) PA Gre-03230-12
Assembly Hall – Serving Cart

Attachment B

(4) PA Gre-03230-13
Kitchen – Floor

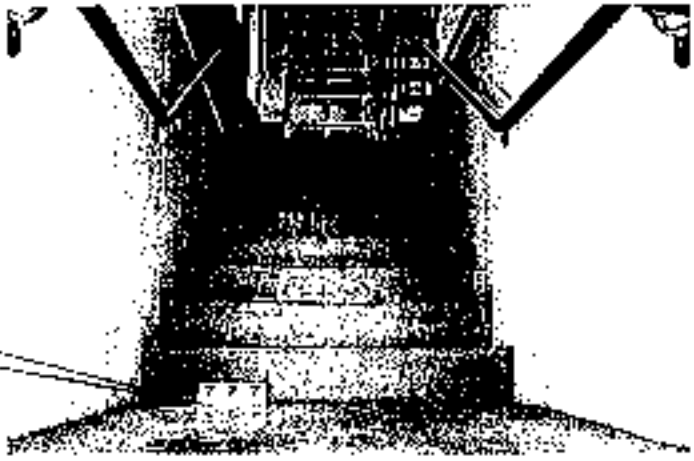


(5) PA Gre-03230-14
Basement – Supply Area

ADDITIONAL WIPE SAMPLES

(6) PA Gre-03230-16
Basement – South Hall

(7) PA Gre-03230-17
Stairs – Basement to Assembly Hall



(8) PA Gre-03230-18
Assembly Hall – NE End

(9) PA Gre-03230-19
Assembly Hall – SE Corner

Attachment B

(10) PA Gre-03230-20
1st Floor – South Hallway

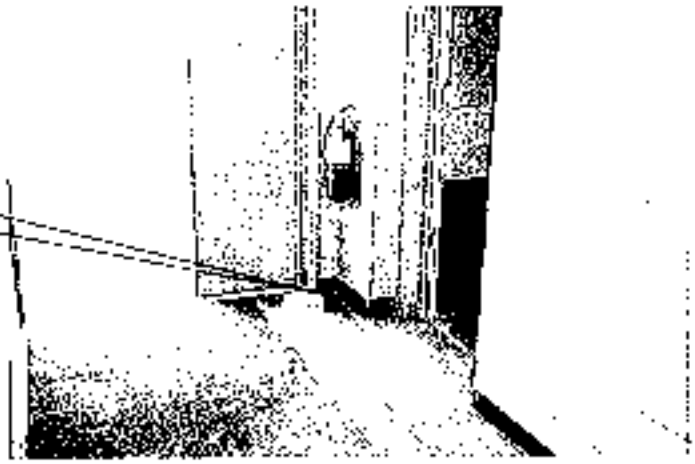
FORMER INDOOR FIRING RANGE

(11) PA Gre-03230-22
Former Range
SW Corner of Open Area

(12) PA Gre-03230-23
Former Range
SE Corner of Open Area

(13) PA Gre-03230-24
Former Range
NE Corner – Removed Light Fixture

(14) PA Gre-03230-25
Outside Former Range



Attachment B

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client:	National Guard Bureau	**Job Name:**	Pennsylvania Armories-Washington-Greensburg	**Chain Of Custody:**	117190
Address:	301-IH Old Bay Lane, Attn: NGB-AVN-SL State Military Reservation	**Job Location:**	Not Provided	**Date Analyzed:**	09/09/2003
	Havre de Grace, Maryland 21078	**Job Number:**	Not Provided	**Person Submitting:**	[redacted]
		P.O. Number:	Not Provided	**Report Date:**	12-Sep-03

Attention: [redacted]

Page 1 of 2

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
0366460	PA-Was-03230-01	Flame	Wipe	****	0.111	108.00	ug/ft²		200	ug/ft²	
0366461	PA-Was-03230-02	Flame	Wipe	****	0.111	108.00	ug/ft²	<	110	ug/ft²	
0366462	PA-Was-03230-03	Flame	Wipe	****	0.111	108.00	ug/ft²		620	ug/ft²	
0366463	PA-Was-03230-04	Flame	Wipe	****	0.111	108.00	ug/ft²	<	110	ug/ft²	
0366464	PA-Was-03230-05	Flame	Wipe	****	0.111	108.00	ug/ft²	<	110	ug/ft²	
0366465	PA-Was-03230-06	Flame	Wipe	****	0.111	108.00	ug/ft²		380	ug/ft²	
0366466	PA-Was-03230-07	Flame	Wipe	****	0.111	108.00	ug/ft²	<	110	ug/ft²	
0366467	PA-Gre-03230-10	Flame	Wipe	****	0.111	108.00	ug/ft²	<	110	ug/ft²	
0366468	PA-Gre-03230-11	Flame	Wipe	****	0.111	108.00	ug/ft²	<	110	ug/ft²	
0366469	PA-Gre-03230-12	Flame	Wipe	****	0.111	108.00	ug/ft²	<	110	ug/ft²	
0366470	PA-Gre-03230-13	Flame	Wipe	****	0.111	108.00	ug/ft²	<	110	ug/ft²	
0366471	PA-Gre-03230-14	Flame	Wipe	****	0.111	108.00	ug/ft²		130	ug/ft²	
0366472	PA-Gre-03230-15	Flame	Wipe	****	0.111	108.00	ug/ft²	<	110	ug/ft²	
0366473	PA-Gre-03230-22	Flame	Wipe	****	0.111	108.00	ug/ft²		350	ug/ft²	
0366474	PA-Gre-03230-23	Flame	Wipe	****	0.111	108.00	ug/ft²		170	ug/ft²	
0366475	PA-Gre-03230-24	Flame	Wipe	****	0.111	108.00	ug/ft²		4100	ug/ft²	
0366476	PA-Gre-03230-25	Flame	Wipe	****	0.111	108.00	ug/ft²		180	ug/ft²	
0366477	PA-Gre-03230-26	Flame	Wipe	****	0.111	108.00	ug/ft²	<	110	ug/ft²	

Results
Lead

Client #	DCL #	Total Area (ft^2)	µg/Wipe	µg/ft^2
PA Man-03143-13	03-30483	0.11	30.	270.
PA Man-03143-14	03-30484	0.11	ND	<91.
PA Mea-03149-10	03-30485	0.11	21.	190.
PA Mea-03149-11	03-30486	0.11	ND	<91.
PA Mea-03149-12	03-30487	0.11	12.	110.
PA Mea-03149-13	03-30488	0.11	31.	280.
PA Mea-03149-14	03-30489	0.11	30.	270.
PA Mea-03149-15	03-30490	0.11	ND	<91.
PA Oil-03150-09	03-30491	0.11	50.	450.
PA Oil-03150-10	03-30492	0.11	44.	400.
PA Oil-03150-11	03-30493	0.11	31.	280.
PA Oil-03150-12	03-30494	0.11	120.	1100.
PA Oil-03150-13	03-30495	0.11	19.	170.
PA Oil-03150-14	03-30496	0.11	ND	<91.
PA Gre-03230-16	03-30497	0.11	ND	<91.
PA Gre-03230-17	03-30498	0.11	31.	280.
PA Gre-03230-18	03-30499	0.11	ND	<91.
PA Gre-03230-19	03-30500	0.11	ND	<91.
PA Gre-03230-20	03-30501	0.11	ND	<91.
PA Gre-03230-21	03-30502	0.11	ND	<91.
	Prep Blank		ND	
% Recovery	LCS 5		87.	
% Recovery	LCS 6		88.	
RPL			10.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m³
PAGre-03230-08	03-25922	275.8	ND	<0.004
PAGre-03230-09	03-25923	280.4	ND	<0.004
PAPhi-03233-01	03-25924	595.9	ND	<0.002
PAPhi-03233-02	03-25925	580.1	ND	<0.002
PAPhi-03233-03	03-25926	568.5	ND	<0.002
	Prep Blank		ND	
% Recovery	LCS		102.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non-Responsive@md.ngb.army.mil

Attachment D

REFERENCE LIST INDEX

1. General Regulations and National Consensus Standards
2. Specific Regulations and Guidance
   a. Abrasive Blasting
   b. Asbestos
   c. Battery Charging Room
   d. Bird and Bat Manure
   e. Bloodborne Pathogens
   f. Chemical Agent Resistant Coating (CARC) Paint
   g. Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE)
   h. Confined Space Entry Program
   i. Design Review
   j. Ergonomics
   k. Flammable Storage Room
   l. Hazard Communication
   m. Hearing Conservation
   n. Indoor Air Quality
   o. Indoor Firing Ranges
   p. Lead
   q. Lighting
   r. Occupational Vision
   s. Paint Spray Booth
   t. Personal Protection
   u. Radiation Protection
   v. Respiratory Protection
   w. Sanitation
   x. Smoking
   y. Vehicle Exhaust
   z. Welding Operation

GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REFERENCE LIST

1. General Regulations and National Consensus Standards
   a. DODI 6055.1, DOD SOH Program, 19 August 1998.
   b. DODI 6055.5, DOD OEH. *[DRAFT]*
   c. DOD 6055.5-M, DOD Occupational Health Surveillance Manual, 13 May 1987.
   d. DODI 6050.5, DOD Hazard Communication, 29 Oct 90. Change 1, 6 May 1996.
   e. AR 40-5, Preventive Medicine, 15 October 1990. [05/2002 Being Updated]
   f. DA PAM 40-5, Preventive Medicine. *[DRAFT]*
   g. AR 385-10, The Army Safety Program, 29 February 2000.
   h. NGR 385-10, ARNG SOH Program, 7 October 1988, Change 1, 29 December 1989.
   i. Title 29, Part 1910, Occupational Safety and Health Standards. [Current Date]
   j. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 2002.
   k. ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th edition, 2001.
   l. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.
   m. TG 141, USACHPPM Industrial Hygiene Sampling Guide, November 1997.
   n. National Safety Council, Fundamentals of Industrial Hygiene, 5th Edition, 2002.
   o. NIOSH, Pocket Guide to Chemical Hazards, 2001.
   p. NFC, A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. [Current date]
   q. ASHRAE Standards. [Current Dates]
   r. ANSI Standards. [Current Dates]

2. Specific Regulations/Guidance
   a. **ABRASIVE BLASTING**
      (1) ANSI Z9.4 1997, Abrasive Blasting Operations - Ventilation and Safe Practices.
      (2) 29 CFR 1910.94 Ventilation
      (3) 42 CFR 84

   b. **ASBESTOS**
      (1) AR 40-5, Preventive Medicine, 15 October 1990. *[05/2002 Being Updated]*
      (2) AR 200-1, Environmental Protection and Enhancement, Chapter 8, 21 February 1997.
      (3) TB MED 513, Guidelines for the Evaluation and Control of Asbestos Exposure, 15 December 1986. *[05/2000 Under Revision as DA PAM 40-513]*
      (4) TG 157, USAEHA, The Installation Asbestos Management Program Assessment Checklists, July 1994.
      (5) 29 CFR 1910.1001
      (6) 29 CFR 1926.58 (prior to 1994 CFR)
      (7) 29 CFR 1926.1101

(8) MEMORANDUM SGPS-PSP, OTSG, subject: AMEDD Role Supporting Asbestos Abatement/Asbestos Management Programs, 19 Jan 89.

(9) EPA, Guidance for Controlling Asbestos-Containing Materials in Buildings, June 1985.

(10) DD Form 2493-1 (Asbestos Exposure, Part I--Initial Medical Questionnaire)

(11) DD Form 2493-2 (Asbestos Exposure, Part II--Periodic Medical Questionnaire)

(12) EPA NESHAPS Asbestos Regulation (40 CFR 61, Subpart M).

c. BATTERY CHARGING ROOM

(1) TG 022, USAEHA, page 81, Industrial Hygiene Evaluation Guide, October 1975. *[Out of Print]*

(2) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

d. BIRD AND BAT MANURE

(1) TG 142, USAEHA, Managing Health Hazards Associated with Bird and Bat Excrement, Dec 1992.

e. BLOODBORNE PATHOGENS

(1) 29 CFR 1910.1030

(2) TG 190, USAEHA, Guide to Managing Occupational Exposure to Bloodborne Pathogens, Jan 94.

f. CHEMICAL AGENT RESISTANT COATING (CARC) PAINT

(1) TG 144, USAEHA, Guidelines for Controlling Health Hazards in Painting Operations, 24 August 1987.

(2) DA LTR, USAEHA, HSHB-MI-WR, subject: Respiratory Protection When Spraying CARC, 19 November 1992.

(3) TM 43-0139, Painting Instructions for Army Material, 27 July 19881 Aug 86.

(4) MEMORANDUM SGPS-PSP, OTSG, subject AMEDD, Occupational Health Requirements in Support of Painting in the Army, 22 February 1985.

(5) AR 750-1, Army Materiel Maintenance Policy and Retail Maintenance Operations (Prohibits welding on CARC paint) 1 July 1996.

g. CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR, EXPLOSIVE (CBRNE)

(1) DODI 2000.gg, DOD Installation CBRNE Emergency Response Guidelines.

(2) DHHS, NIOSH Pub No. 2002 139, Guidance for Protecting Building Environments from Airborne Chemical, Biological, or Radiological Attacks, May 2002.

(3) TG 275, USACHPPM, Personal Protective Equipment Guide for Medical Treatment Facility Personnel Handling Casualties from Weapons of Mass Destruction and Terrorism Events. *[Draft]*

h. **CONFINED SPACE**

(1) 29 CFR 1910.146 (Confined Space Entry)

(2) 29 CFR 1910.147 (Lockout/Tagout)

(3) ANSI Z117.1-Safety Requirements for Confined Spaces, 1995.

(4) SOP for ARNG Confined Space Entry Program, 25 April 1991.

(5) Letter, US Dept of Labor (DOL) addressed to Vanessa Char, 22 Apr 1994.

(6) OSHA Instruction STD 1-7.3, US DOL, subject: 29 CFR 1910.147, the Control of Hazardous Energy (Lockout/Tagout)--Inspection Procedures and Interpretive Guidance, 11 Sep 90.

(7) DHHS, NIOSH Pub No. 87113, A Guide to Safety in Confined Spaces, July 1987.

(8) Confined Space Entry Program for Helicopters, 2003.

i. **DESIGN REVIEW**

(1) DG 415-1, Design Guide for Armories, current.

(2) DG 415-2, Design Guide for Logistics Facilities, current.

(3) DG 415-3, Design Guide for Training Site Facilities, current.

(4) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

(5) TI-300, 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

(6) UFGS 15940A, Overhead Vehicle Tailpipe (and welding Fumo) Exhaust Removal Systems, December 2001.

(7) ASHRAE, Standard 62-2002, Ventilation for Acceptable Indoor Air Quality.

(8) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

j. **ERGONOMICS**

(1) DA PAM 40-21, Medical Services, Ergonomics Program, 15 May 2000.

(2) ANSI Z-365, Management of Work Related Musculoskeletal Disorders, 2000.

(3) 29 CFR 1910. *[PROPOSED STANDARD]*

k. **FLAMMABLE STORAGE ROOM**

(1) 29 CFR 1910.106

(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

l. **HAZARD COMMUNICATION**

(1) 29 CFR 1910.1200

(2) NGR 385-10, Chapter 6

m. **HEARING CONSERVATION**

(1) DA PAM 40-501, Medical Services, Hearing Conservation Program, 10 December 1998.

(2) TG 181, USAEHA, Noise Dosimetry and Risk Assessment, May 1999.

(3) TG 175, USAEHA, Readiness thru Hearing Conservation: Guide for Unit Commanders and Supervisors, June 1999.

(4) 29 CFR 1910.95

n. **INDOOR AIR QUALITY (IAQ)**

(1) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

(2) USACERL Technical Report P-91/42, IAQ Management for Operations and Maintenance Personnel, September 1991.

(3) EPA 400/1-91/003 or DHHS, NIOSH, Publication No. 91-114, Building IAQ, A Guide for Building Owners and Facility Managers, December 1991.

(4) ASHRAE, Standard 62-2002, Ventilation for Acceptable IAQ.

(5) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

(6) NIOSH, IAQ Selected References, Sep 1989.

(7) OSHA Instruction CPL 2-2.20B CH-1, Directorate of Technical Support, 13 Nov 90.

(8) DA PAM 25-52, Mail Facility Security and Handling Suspicious Mail, 6 November 2001.

(9) ASTM, D 5952-96, 10 May 1996.

o. **INDOOR FIRING RANGES**

(1) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(2) NGR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges, 30 March 1990. *[11/02 Under Revision]*

(3) CEHND 1110-1-18, USACE Design Manual for Indoor Firing Range, June 1990.

(4) HQDA LTR, Office of the Adjutant General, DACS-SF, subject: Inspection and Evaluation of US Army Indoor Firing Ranges, 26 March 1993.

(5) Departments of the Army and Air Force, NGB-ADE-OM, subject: All State Log Number (I920323) Indoor Range Clean-up at State Owned Armories, 28 July 1992.

(6) NIOSH, Technical Information, December 1975, subject: Lead Exposure and Design Considerations for Indoor Firing Ranges.

(7) All-States Ltr P01-0075, 5 December 2001.

(8) Information Paper, Alternative Ammunition, 15 March 1996.

(9) Information Paper, Bullet Traps, 26 April 1996.

(10) Information Paper, ARNG IFR Action Plan, 28 January 2002.

p. **LEAD**

(1) 29 CFR 1910.1025

(2) 29 CFR 1926.62

(3) 24 CFR 35.61 (HUD, Percentage of Lead in Paint)

(4) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(5) OSHA Instruction CPL 2-2.58, Office of Health Compliance Assistance, 13 December 1993.

(6) Federal Register, 18 April 1990, Vol. 55, No. 75, HUD, Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing, as amended, September 1990, Office of Public and Indian Housing, Department of Housing and Urban Development, 451 Seventh Street, SW, Washington, DC 20410.

(7) NIOSH, Request for Assistance in Preventing Lead Poisoning in Construction Workers, April 1992.

(8) EPA, Strategy for Reducing Lead Exposures, 21 Feb 91.

q. **LIGHTING**

(1) RP-1-1993, Office Lighting, ANSI/IESNA.

(2) RP-7-2001, Industrial Lighting, IES.

r. **OCCUPATIONAL VISION**

(1) DA PAM 40-506, Medical Services, The Army Vision Conservation and Readiness Program, 20 July 2001.

(2) ANSI Z87.1, Practice for Occupational and Educational Eye and Face Protection, 1989, Change A, REAF 1998.

(3) ANSI Z358.1 for Emergency Eyewash and Shower Equipment, 1998.

(4) OTSG Memorandum SGPS-PSP, subject: Acanthameoba Keratitis and Eyewash Stations, 8 May 89.

(4) 29 CFR 1910.133

s. **PAINT SPRAY BOOTH**

(1) NFPA No. 33, Standard for Spray Application Using Flammable and Combustible Materials, 1995.

(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

(3) 29 CFR 1910.94

(4) 29 CFR 1910.107

(5) ANSI Z9.3-1995 for Exhaust Systems - Spray Finishing Operations - Safety Code for Design, Construction, and Ventilation.

(6) ANSI Z9.2-2001, Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems.

t. **PERSONAL PROTECTIVE EQUIPMENT**

(1) Quick Selection Guide to Chemical Protective Clothing, 2nd edition, Forsberg, K and Mansdorf, S., 1993.

(2) Chemical Protective Clothing, Vol 1 and 2, Johnson, J. and Anderson, K., American Industrial Hygiene Association, 1990.

(3) Guidelines for the Selection of Chemical Protective Clothing, 3rd Edition, ACGIH, Inc., Feb 1987.

u. **RADIATION PROTECTION PROGRAM**

(1) NOR 385-11, Safety, Ionizing and Nonionizing Radiation Protection, 18 February 1999.

(2) AR 11-9, Army Radiation Safety Program, 28 May 1999.

(3) 29 CFR 1910.96

(4) 29 CFR 1910.97

v. **RESPIRATORY PROTECTION**

(1) AR 11-34, The Army Respiratory Protection Program, 15 February 1990. *[11/02 Being Updated]*

(2) 29 CFR 1910.134

(3) 42 CFR 84

(4) TB MED 502, Respiratory Protection Program, February 1992. *[11/02 Being Updated as DA PAM 40-502]*

(5) ANSI/CGA G-7.1-1997, Commodity Specification for Air.

(6) ANSI Z88.2-1992, Standard for Respiratory Protection.

w. **SANITATION**

(1) ANSI Z4.1-1986, Change REAF 1995, Sanitation in Places of Employment-Minimum Requirements.

(2) 29 CFR 1910.141

x. **SMOKING**

(1) AR 600-63, Army Health Promotion, 28 April 1996.

(2) DODI 1010.15, Smoke-Free DOD Facilities, 2 January 2001.

(3) DODDI010.10, Health Promotion, 11 March 1986.

y. **VEHICLE EXHAUST**

(1) ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th Edition, 2001.

(2) TI-300f 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

z. **WELDING OPERATION**

(1) 29 CFR 1910.252

(2) 29 CFR 1910.253

(3) 29 CFR 1910.254

(4) ANSI/AWS Z49.1-1999, Safety in Welding and Cutting and Allied Processes.

(5) TM 5-805-7, Welding Design, Procedures and Inspection, 20 May 85.

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 $\mu g/ft^2$) and windowsills (250 $\mu g/ft^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of 200 $\mu g/ft^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 $\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

Attachment E

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 $\mu g/ft^2$ on floors and 250 $\mu g/ft^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

Industrial Hygiene Report

Survey Performed by: Hofman Safety & Industrial Hygiene Consulting, Inc.
2 Pennwood Road
Lebanon, PA 17042
Phone: 717-274-1611

Facility: PA RC Greensburg

Date of Survey: 25 Aug 2011
Location: Greensburg, PA
Address: Box 232, Donohue RD #12
Greensburg, PA 15601

Draft Report Submitted: 23 Jan 2012
Comments Received: 30 Jan 2012
Final Report Submitted: 5 MAR 2012

POC: SGT Non-Responsive
POC Phone: 724-832-5318

Report submitted to:
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Industrial Hygiene Report of Findings
Pennsylvania Army National Guard
Readiness Center, Greensburg, PA
Facility: PA RC Greensburg
August 25, 2011

Executive Summary

An industrial hygiene evaluation was conducted at the Pennsylvania Army National Guard PA Readiness Center located in Greensburg Pennsylvania on August 25, 2011. The facility was generally in good condition with four areas of concern identified. There was no ventilation in the locker rooms. There is no eyewash available for the state employee who uses a corrosive floor stripper. The Material Safety Data Sheet Binder needed to be updated and the facility could not provide a document showing that employees received hazard communication training. There was no Personal Protective Equipment (PPE) Program hazard assessment available for review.

Operation Description

Up to eight (8) employees plus a state maintenance employee are located at Greensburg Recruitment Center and Armory. There are two (2) Detachment (Det) 1, 28th Military Police (MP) Company; Three (3) Recruitment Sustainment Det 10, two (2) recruiters, and one (1) Yellow Ribbon Coordinator. These occupations include tasks involved in the recruitment of personnel, and logistics and developing and managing training operations for Pennsylvania Army National Guard. There is no work performed on vehicles and there is no firing range.

The facility consists of 11 offices, 2 classrooms, a kitchen, 5 supply rooms/areas, a drill floor, boiler room, three locker rooms, a vault and a maintenance bay used for grounds equipment. Flammable and combustible liquid storage is located in a flammable cabinet on the drill floor and in a shed located outside the building. The floor diagram can be found in Appendix B. Photographs can be found in Appendix C. During the day of the evaluation, employees worked in their offices. There was no training scheduled for the classrooms. Potential hazards include: noise when on drills, there is limited exposure to operational hazards at this facility.

Chemical and Physical Agents

This was a routine workday and hazardous chemicals are not used in durations or concentrations of concern. Quick Check surface indicators for cadmium, chromate, lead, and nickel were used to identify the presence of those contaminants as a residue from troop activities but not generated at the facility except for the possibility of lead from lead based paint. Quick Check Samples were collected in Room 122 on a window sill, in the Locker Room on top of lockers, in the Drill Floor on top of a cage, and in the kitchen on top of a towel dispenser (see Table A). Quick Check swabs did not show a color change.

One hundred (100) square centimeter wipe samples were collected using Ghost-Wipe sample media and analyzed for lead by AMA Analytical Services, Inc., an American Industrial Hygiene Association Accredited laboratory. Wipe sample PAGRN-082511-01 was collected from a window sill in room 122, sample PAGRN-082511-02 was collected on top of a locker in the MP locker room 105, sample PAGRN-082511-03 was collected on top of a locker in the RSD 10 Male Locker Room in the basement, and sample PAGRN-082511-04 was collected in the kitchen on top

of the range. Lead was detected in the wipe sample collected on top of the locker in the MP Locker room but was below the Screening Level (see Table B). The lead may be a result of placing equipment on the locker after going to a firing range. Periodic cleaning of the lockers is suggested. A bulk sample (paint chip) was collected from a drain pipe located in the corner of RSD 10 Male Locker Room. There was a low % of lead (0.04%) found in the paint chip (see Table C). This is below the Housing and Urban Development (HUD) Lead Standard (Ref. 29).

A copy of the chemical list for the flammable cabinet can be found in Appendix D. Chemicals were labeled and stored in designated areas in the flammable storage cabinet located on the Drill Floor. A grounds shed also contained some petroleum products used by a state employee. A list of chemicals from the storage shed and the basement housekeeping supply area was not available for inspection. The PA State worker manages these chemicals.

Table A – Quick Check Surface Sampling Results

Location	Chromate	Nickel	Lead	Cadmium
Room 122 Window Sill	ND	ND	ND	ND
MP Locker Room on Top of Lockers Room 105	ND	ND	ND	ND
Drill Floor on Top of a Cage	ND	ND	ND	ND
Kitchen on Top of Towel Dispenser	ND	ND	ND	ND
Color Change Detection Limit (µg)	3µg	1µg	2µg	1µg
USACHPPM Screening Level	12 µg/100cm^2	4400 µg/100cm^2	22 µg/100cm^2	2.9 µg/100cm^2

Sample Media: Quick Check Tubes – If target Metal is present, the swab turns to an indicator color.
µg/100 cm^2 = micrograms per 100 square centimeters ND = none detected

Table B – Wipe Sampling Results

Sample No.	Location	Lead µg/100 cm^2
PAGRN-082511-01	MP Locker Room 105 on Top of Locker	20
PAGRN-082511-02	RSD 10 Male Locker Room on Top of Locker	<0.12
PAGRN-082511-03	Kitchen on Top of Range	<0.12
PAGRN-082511-04	Room 122 on Window Sill	<0.12
PAGRN-082511-BL	Blank Detection Limit <0.12 µg/sample	ND
	USACHPPM Screening Level	22

Sample Media: Ghost Wipes < = less than or equal to the number shown
µg/100 cm^2 = micrograms per 100 square centimeters ND = none detected
Shaded area exceeds USACHPPM Screening Level
Limit of Detection 2.0 µg/sample for lead

Table C – Bulk Sample Results

Sample No.	Description / Location	Lead %
PAGRN-082511-05	Paint chip from drain pipe located in the corner of RSD 10 Male Locker Room	0.04%
	HUD Bulk Lead Standard	0.5

< = less than or equal to the number shown
ND = none detected
HUD = Housing and Urban Development (Ref. 29)

Ventilation
There were no maintenance exhaust ventilation systems in the "maintenance bays" which are used by the groundskeeper for storage of ground equipment and supplies. There was no air moving equipment to check with a velometer.

The building does not have a forced air ventilation system for heating, ventilation, and air conditioning. Heating is from hot water circulated throughout the building. The two classrooms have an air conditioning unit under the windows and three offices have window air conditioners. The locker rooms do not have exhaust ventilation or fresh air makeup. There are small exhaust fans in the latrines. Locker Rooms have a recommended ventilation rate of 0.5 cubic feet per minute per square foot of floor area as found in American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 62.1-2010, Ventilation for Acceptable Indoor Air Quality. (Ref. 6) **(RAC 4 – Health (Ventilation))**.

The kitchen is not used for cooking and ventilation exhaust hoods have not been installed. There is a small range hood located high over the range and reportedly is not used. Food is not cooked at this facility.

Noise
There are no high noise activities during routine activities at this facility. When staff go off site to a firing range or for maneuvers they reportedly wear hearing protection and are in the PA ARNG Hearing conservation program.

Lighting
A lighting survey of the facility was conducted and found to be sufficient for the work performed in most areas (Ref. 33). Two offices were below the standard which can be improved with task lighting if needed by the user. The lighting survey was conducted with all lights on, it was daylight and some offices had additional lighting from the sun. Light meter reading observed in the Drill Floor was with the bay doors closed. In the drill floor the measurements were generally 45 to 50 foot-candles (fc) (see Table E). The reference for this is the American National Standards Institute, Inc. / Illuminating Engineering Society of North America, (ANSI/IESNA) RP-1-2004, Office Lighting, 2004.

Table E - Lighting Survey Results (Ref. 8)

Location of Measurement	Foot Candles (FC)	Standard in FC
Class 122 RSD Office	45	30
Class 124	30	30
Copy Room 117	37	30
Recruit Office 119	43	30
Office 120	56	30
Class 123	35	30
SGT Non- 109	56	30
Recruit Office 118	32	30
Office 111	23	30
Office 114	16	30
Maintenance Bay Used By Groundskeeper	31	15 to 75*
Maintenance Bay Front Used by Groundskeeper	60	15 to 75*
Drill Floor	45-50	30
Kitchen	145	10
Woman's Restroom	74	7
Woman's Locker 115	42	7
Latrine Basement	32-59	7
Men's Shower	2-10	7
Men's Room	53	7
Locker Room 28th	30-60	7
A Locker R&P 10	50	7
Storage 112	15	15
Storage 113	38	15
A Det 10 Supply Room	23	15
Supply A	46	15
Boiler Room	45-50	30

(1) Area measurements taken approximately 4 ½ feet from floor level; measurements taken at desks were approximately 30 inches from floor level;
(2) Shaded areas are below the lighting standard.
* Maintenance Bays are 75 foot candles (FC). For Bays being used for storage, the requirement is: 30 FC – Active Small Items; 15 FC – Active Bulky Items; 5 FC - Inactive.

Personal Protective Equipment & Other Controls

Several types of personnel protective equipment (PPE) were available for worker use. Each worker is required to wear steel-toe shoes. Each worker had PPE elements as part of their supplies. These generally consisted of safety glasses, goggles, ear muffs and or ear plugs, and leather or other work glove. The PA State worker also had a similar supply of PPE for mowing the grounds

There are no eyewash stations or drench showers. The PA State worker had gallon containers of a corrosive floor stripper that would require the use of an eyewash if splashed in the eye. American National Standards Institute, Inc./International Safety Equipment Association (ANSI/ISEA) Z358.1-2009, 7.4.2, American National Standard for Emergency Eyewash and

Shower Equipment states not only that emergency eyewash and shower stations be in an accessible location, but also that they be no more than 10 seconds travel distance for the injured person to reach, and that it be accessible via an unobstructed pathway. The facility should install an eyewash or eliminate the use of the corrosive floor stripper. (Ref. 7) **(RAC 4– Health (Eyewash)).**

Ergonomics
Employees were aware of their work surroundings and how to adjust their chairs to reduce stress. Workers were observed working safely.

Written Programs
1. Confined Spaces (29 CFR 1910.146) – There are no confined spaces on site so there is no need for a written Confined Space Program
2. Hearing Conservation (29 CFR 1910.95 and DA PAM 40-501) - There is no site-specific written Hearing Conservation Program. There is a general State Program and workers participate in the program. There were no noise hazards at this location. Annual audiograms are conducted and the records are stored in the state's occupational health office (not independently verified). Hearing protection is available.
3. Respiratory Protection (29 CFR 1910.134) - There is no need for a respiratory protection program at this facility since there is limited use of hazardous chemicals and no expectation that there would be a high enough exposure to require a respirator.
4. HAZCOM (29 CFR 1910.1200) - There is a PA State Written Hazard Communication Program available at the facility. However, the facility personnel were not familiar with the program. Personnel were aware of material safety data sheets and where chemicals are stored. The PA state maintenance person is the only person who routinely handles chemicals as part of their work. A chemical list was on the Drill Floor near the water fountain. The Material Safety Data Sheet (MSDS) book had a number of MSDSs for chemicals that were not used at the facility. The MSDS book should be updated. A full chemical vs. MSDS audit was not conducted during this evaluation. The Chemical List is included in Appendix D. Training records on elements of a hazard communication program were not available. (Ref. 20) **(RAC 5– Health (Hazard Communication))**
5. PPE (29 CFR 1910.132) - A written Personal Protective Equipment Program is not in the safety manual and a hazard assessment was not available for review. Employees stated that they use their best judgment when deciding when / if to use PPE. PPE is not needed, except on rare occasion at the facility for the state site maintenance person. PPE is used by site workers when on drill activities – off site. (Ref. 21) **(RAC 5 – Health (PPE))**
6. Other: There are no Brake Maintenance, Battery Charging, or Surface Lead Contamination programs required at this facility.

General comment on Pennsylvania's written programs: This Recruitment Center and armory had at least two very large binders of safety programs and procedures. These "programs" were all standard military (army) issue, Department of Defense issue, or Pennsylvania State Issue. These documents form the basis for a good reference library of information that could be consulted if issues arise and the facility personnel can locate the needed information in a timely manner. The site did not have a facility-specific safety program.

Indoor Air Quality

The indoor air quality was acceptable with carbon dioxide (CO_2) close to the outside CO_2 level despite the lack of outside supply air into the offices and locker rooms. CO_2 concentrations were slightly higher in administrative areas, however below the recommended maximum level of 1106 parts of chemical per million parts of air (ppm) (700 ppm greater than the outdoor background level) based on outdoor air levels of 406 ppm (Ref. 6).

The temperature was 72° F and the relative humidity (80%) was high on the relative humidity comfort range for the day. The sky was cloudy. Measurements taken on the day of the survey are shown below:

Table F – Indoor Air Quality Survey Results

Inside (Woman's Room):	**Inside (Men's Room):**	**Inside (Class 123):**
Temp = 75° F	Temp = 75° F	Temp = 78° F
RH = 65%	RH = 62%	RH = 57%
CO_2 = 580 ppm	CO_2 = 550 ppm	CO_2 = 487 ppm
CO = 0 ppm	CO = 0 ppm	CO = 0 ppm
Inside (Class 122 RSD Office):	**Inside (Class 124):**	**Inside (Copy Room 117):**
Temp = 71° F	Temp = 72° F	Temp = 73° F
RH = 52%	RH = 60%	RH = 56%
CO_2 = 606 ppm	CO_2 = 470 ppm	CO_2 = 500 ppm
CO = 0 ppm	CO = 0 ppm	CO = 0 ppm
Inside (Recruit Office 118):	**Inside (Recruit Office 119):**	**Inside (Office 120):**
Temp = 77° F	Temp = 76° F	Temp = 76° F
RH = 62%	RH = 52%	RH = 52%
CO_2 = 455 ppm	CO_2 = 528 ppm	CO_2 = 510 ppm
CO = 0 ppm	CO = 0 ppm	CO = 0 ppm
Inside (SGT Chearney 109):	**Inside (Office 111):**	**Inside (Storage 112):**
Temp = 77° F	Temp = 73° F	Temp = 72° F
RH = 65%	RH = 47%	RH = 49%
CO_2 = 505 ppm	CO_2 = 499 ppm	CO_2 = 490 ppm
CO = 0 ppm	CO = 0 ppm	CO = 0 ppm
Inside (Storage 113)	**Inside (Woman's Locker 115)**	**Inside (Office 114)**
Temp = 73° F	Temp = 75° F	Temp = 78° F
RH = 51%	RH = 56%	RH = 51%
CO_2 = 530 ppm	CO_2 = 570 ppm	CO_2 = 541 ppm
CO = 0 ppm	CO = 0 ppm	CO = 0 ppm

Table F – Indoor Air Quality Survey Results -Continued		
Inside (Det 10 Supply Room):	**Inside (Supply A):**	**Inside (Maintenance Bay):**
Temp = 74° F	Temp = 74° F	Temp = 73° F
RH = 60%	RH = 69%	RH = 68%
CO_2 = 439 ppm	CO_2 = 620 ppm	CO_2 = 428 ppm
CO = 0 ppm	CO = 0 ppm	CO = 0 ppm
Inside (Maintenance Bay Front):	**Inside (Locker Room 28th):**	**Inside (A Locker R&P 10):**
Temp = 73° F	Temp = 75° F	Temp = 75° F
RH = 68%	RH = 70%	RH = 70%
CO_2 = 432 ppm	CO_2 = 588 ppm	CO_2 = 560 ppm
CO = 0 ppm	CO = 0 ppm	CO = 0 ppm
Inside (Latrine Basement):	**Inside (Boiler Room):**	**Inside (Drill Floor):**
Temp = 77° F	Temp = 77° F	Temp = 75° F
RH = 61%	RH = 64%	RH = 73%
CO_2 = 523 ppm	CO_2 = 483 ppm	CO_2 = 425 ppm
CO = 0 ppm	CO = 0 ppm	CO = 0 ppm
Inside (Kitchen):	**Outside:**	
Temp = 75° F	Temp = 72° F	
RH = 74%	RH = 80%	
CO_2 = 423 ppm	CO_2 = 406ppm	
CO = 0 ppm	CO = 0 ppm	

Other Issues
Forklifts – A propane-fueled forklift is used in the facility for short intervals (5-10 minutes) on an as needed basis. Garage doors are open when a forklift is operating in the shop.

Housekeeping – Housekeeping was in good condition in the work areas.

Building Issues – The exterior of the building is block construction in good condition. The interior of the building is well maintained. There was some paint that peeled off of a drain pipe in the basement RSD 10 Male Locker Room. Lab sample results of the paint for lead were 0.04% lead which is below the action level for abatement by the Department of Housing and Urban Development (HUD). There were no current active mold issues identified. There is no forced air ventilation bringing in fresh air when the building is occupied. The office air quality was acceptable during this inspection. Rooms without air conditioning get warm in the summer. The two classrooms have large wall HVAC units that will allow some fresh air into the

classrooms when they are occupied. The locker rooms do not have fresh supply or exhaust contrary to design guides.

The building diagram is not accurate and not to scale (Appendix B.) There are two large storage buildings located outside the main building plus a shed.

Conclusion

PA RC Greensburg is a multi-function facility that houses Recruiting, Military Police and instructors. The Industrial Hygiene Survey identified several areas of concern including the lack of outside make-up air into the facility except in the two classrooms. There was no exhaust ventilation system in the locker rooms. Employees were part of the PA ARNG State hearing conservation program in the event they go on maneuvers or to a firing range where high noise activities may require hearing protection be worn. Hearing protection should continue to be worn when performing tasks where noise will exceed 85 dBA. Lighting in the facility generally met current guidelines. There is a State written Hazard Communication Program to describe the chemical inventory system and use of MSDSs and label requirements. Employees were not familiar with the program but did know about MSDSs, their location, and how to handle safely chemicals. A Chemical list for the flammable storage cabinet met requirements, but the file of active MSDSs needs to be updated. An eyewash station was not available for the state employee who uses a corrosive floor stripper. There is a recommendation to install an eyewash or eliminate the corrosive floor stripper. Several site-specific written programs were not required due to the lack of a hazard including Confined Space and Respiratory Protection. Workers were part of a Pennsylvania Hearing Conservation Program though there was no noise levels expected to exceed the action level under normal activities. When troops are on maneuvers, this may change. Annual audiograms and training are reportedly conducted through the state safety office. The PPE hazard evaluation had not been performed; however, it does not appear that PPE would be needed often at this facility.

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland




Industrial Hygiene Survey
for PAARNG – Greensburg Readiness Center
232 Donohue Road
Greensburg, Pennsylvania 15601

AECOM
January 2013
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Prepared for:
National Guard Bureau
Army National Guard
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January 2013
Document No.: 60276421.1/Greensburg Readiness Center

AECOM

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Executive Summary

On November 7, 2012, AECOM conducted an Industrial Hygiene (IH) survey of the Greensburg Readiness Center facility located at 232 Donohue Road in Greensburg, Pennsylvania Non-Responsive , SGT was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Greensburg Readiness Center operations.

The industrial hygiene survey was generally conducted in accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings", dated January 2012.

The Greensburg Readiness Center is currently staffed by eight personnel. Some of the personnel were not present at the time of the survey due to active duty assignments or other off-site responsibilities. The facility is configured as an administrative area and a Drill/Assembly Hall.

Personnel at the facility were undertaking normal daily activities, which are primarily administrative in nature, at the time of the survey.

The activities undertaken during the Industrial Hygiene survey included facility descriptions, lead wipe/air sampling, evaluation of housekeeping, illumination studies, ventilation system evaluation, and a review of the physical building condition.

The Greensburg Readiness Center is housed in a one-story masonry building, and consists of approximately 70% administrative space and 30% Assembly Hall.

Lighting levels measured throughout the facility were generally inadequate as per ANSI/IESNA RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

Wipe samples collected for lead-containing dust throughout the facility did not indicate lead levels above the ARNG action level.

No peeling lead-based paint was observed at the Greensburg Readiness Center during this survey.

No visible damaged suspect asbestos-containing material (ACM) was observed.

No visible water damaged or visible signs of mold growth were observed.

There is no Heating, Ventilation & Air Conditioning (HVAC) system at the Greensburg Readiness Center.

1.0 Facility Description and Operations

The Greensburg Readiness Center, constructed in 1971, is a one-story administrative facility with a lower level (basement) masonry structure. The building consists of two main sections. The larger one-story section, consists primarily of offices, training/classroom, locker/shower rooms, storage and administrative areas, and is finished with sheetrock walls, lay-in ceiling tiles and floor tile. The two-story Assembly/Drill Hall area, located in the rear of the building, is finished with painted block walls and a concrete floor. According to site personnel there is a firing range at the facility which is currently used as a supply/storage area.

The primary activity at the Greensburg Readiness Center is routine administrative duties and occasional use by units for support and training of soldiers. The Assembly Hall is not currently, but may in the future be, rented out for limited civic activities such as group meetings, trade shows and to other related local groups and organizations. The Greensburg Readiness Center is currently staffed by eight personnel. No vehicle maintenance activities are undertaken at the facility.

2.0 Sampling in Readiness Centers

2.1.1 Wipe Sampling

Wipe sampling for lead was conducted in the Assembly Hall and administrative areas following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost wipes. Samples were collected in areas that are not frequently cleaned and showed signs of dust whenever possible.

The following table presents the results of the lead wipe sampling conducted at the facility.

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
W – 001	Assembly Hall - table	<110 ug/ft^2
W – 002	Kitchen – top of refrigerator	<110 ug/ft^2
W – 003	Recruiter Office - desk top	<110 ug/ft^2
W – 004	Recruiter Office - file cabinet	<110 ug/ft^2
W – 005	Administrative Corridor - floor	<110 ug/ft^2
W – 006	Former Firing Range - cabinet	<110 ug/ft^2
W – 007	Former Firing Range - floor	<110 ug/ft^2
W – 008	Adjoining Corridor - floor	<110 ug/ft^2

ug/ft^2 = Micrograms per square foot.

Wipe samples collected in association with the administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U.S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 micrograms per square foot (ug/ft^2) for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

The wipe samples collected throughout the facility did not detect levels of lead in excess of the ARNG action level of 200 ug/ft^2. Former indoor firing ranges shall be converted in accordance with NG PAM 240-15. Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

Per Non-Responsive of NGB-IH, the requirement for Lead air sampling has been removed from the Statement of Work. It was reported that historically, air samples collected at administrative facilities are typically below the limit of detection.

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls appeared to be generally in good condition. Concrete flooring was generally tiled or unpainted. AECOM did not observe damaged or peeling paint during this evaluation.

3.1.2 Suspect Asbestos Containing Materials

AECOM did not observe damaged, friable suspect asbestos containing materials (ACM) in readily accessible areas of the Greensburg Readiness Center during this survey. Thermal system piping is typically covered in typical fiberglass insulation with associated fittings and appeared in good condition.

Other typical miscellaneous building materials observed but not sampled include floor tiles and associated mastic, cove base and associated mastic, ceiling tiles, and window glazing compound and caulks.

3.1.3 Water Damage/Mold

AECOM did not observe evidence of water intrusion during this survey.

3.1.4 Housekeeping

The Greensburg Readiness Center was observed to be generally clean and orderly during this assessment. AECOM did not observe dust accumulation on readily accessible horizontal surfaces within areas commonly used in the facility.

3.1.5 Indoor Air Quality/ Ergonomics

The administration section of the building contains general office space. The administration section is generally utilized by all of the Greensburg Readiness Center staff members including a recruiter. No Indoor Air Quality concerns were noted by the Greensburg Readiness Center personnel.

Greensburg Readiness Center personnel did not report any ergonomics issues or concerns. Office furniture and accessories designed to promote ergonomically correct behaviors were observed.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (^{o} Fahrenheit), and relative humidity (as percentage) are presented in the following table.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (^{o}F)	Relative Humidity (%)
Outside	0.2	339	70.2	34.6
Foyer	0.5	362	65.8	33.5
Room 109 Orderly Office	0.5	303	66.4	39.2
Room 111 NCO Office	0.8	408	68.7	32.5
Administrative Corridor	1.2	421	69.3	31.2
Room 115 Locker Room	0.7	367	71.5	32.7
Room 124 Classroom	0.7	320	70.9	27.4
Room 117 Copy Room	1.9	350	71.5	26.7
Room 122 RSD-11 Office	0.6	417	73.0	28.3

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (^{o}F)	Relative Humidity (%)
Room 120 CO Office	0.6	305	73.1	29.2
Storage/Former Fire Range	1.2	223	66.1	21.5
Supply Room	0.0	286	69.0	43.8
Men's Locker Room	0.5	296	68.1	54.2
Supply Room	0.6	263	68.7	39.5
Boiler Room	0.6	370	71.4	32.1
Assembly Hall	0.6	392	62.5	22.8
Kitchen	1.3	292	59.8	29.4

Table 3-1 Guidelines: 2.9
Carbon Monoxide: Offic1.3e/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard. OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.
Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.
Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 5.10.1).
Temperature: Winter (clothing insulation = 1.0 clo) Relative humidity 30-60% - Temp - 68 – 75°F
Summer Temp - 73 – 79°F. (Derived from ASHRAE Standard 55-2010)

4.0 Ventilation and HVAC System

4.1.1 Ventilation Systems and Potential for Contamination of Clean Air Sources

There is no Field Maintenance Shop (FMS) located at the Greensburg Readiness Center. As such, no potential for contamination of clean air sources was observed at the facility.

There is no Heating, Ventilation & Air Conditioning (HVAC) system at the Greensburg Readiness Center.

4.1.2 HVAC Maintenance

There is no HVAC system at the Greensburg Readiness Center. The building consists of a natural gas boiler that feeds radiant heaters throughout the building.

5.0 Lighting

Lighting levels in all areas were measured utilizing a Cal-Light 400 light meter that displays lighting levels in foot-candles. Lighting levels were generally inadequate.

Table 5-1: Light Survey

Location	Results – (Foot candles)	Met Standard (Y/N)	Standard*
Foyer	8.7	N	10
Room 109 Orderly Office	14.4	N	50
Room 111 NCO Office	28.7	N	50
Administrative Corridor	23.4	Y	5
Room 115 Locker Room	37.3	Y	7
Room 124 Classroom	31.9	Y	30
Room 117 Copy Room	22.5	Y	10
Room 122 RSD-11 Office	49.1	N	50
Room 120 CO Office	27.3	N	50
Storage/Former Firing Range	49.5	Y	10
Supply Room	35.8	Y	30
Men's Locker Room	58.2	Y	7
Supply Room	19.5	Y	10
Boiler Room	11.6	N	30
Assembly Hall	15.1	Y	10
Kitchen	27.5	N	50
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI/IESNA RP-7-01)			

6.0 Evaluation of Attached Garage

There is no attached garage associated with the Greensburg Readiness Center.

7.0 Conclusions and Limitations

AECOM has conducted this survey in accordance with applicable OSHA methods and standard industrial hygiene practice. The following conclusions were based on the observations and assessments of activities that occurred during the on-site evaluation:

Housekeeping is performed regularly at the Greensburg Readiness Center.

AECOM did not observe any damaged, suspect asbestos-containing materials at the Greensburg Readiness Center.

AECOM did not observe peeling paint during at the Greensburg Readiness Center.

AECOM did not observe evidence of water intrusion at the Greensburg Readiness Center.

Lighting levels were in GENERAL compliance with ANSI/IESNA guideline levels.

Wipe samples collected in association with the administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft^2 for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

AECOM provided these services consistent with the level and skill ordinarily exercised by members of the profession currently providing similar services under similar circumstances at the time the services were provided. This statement is in lieu of other statements either expressed or implied. This report is intended for the sole use of National Guard Bureau – Army National Guard. The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, and use or re-use of this document, the findings, conclusions, or recommendations is at the risk of said user.

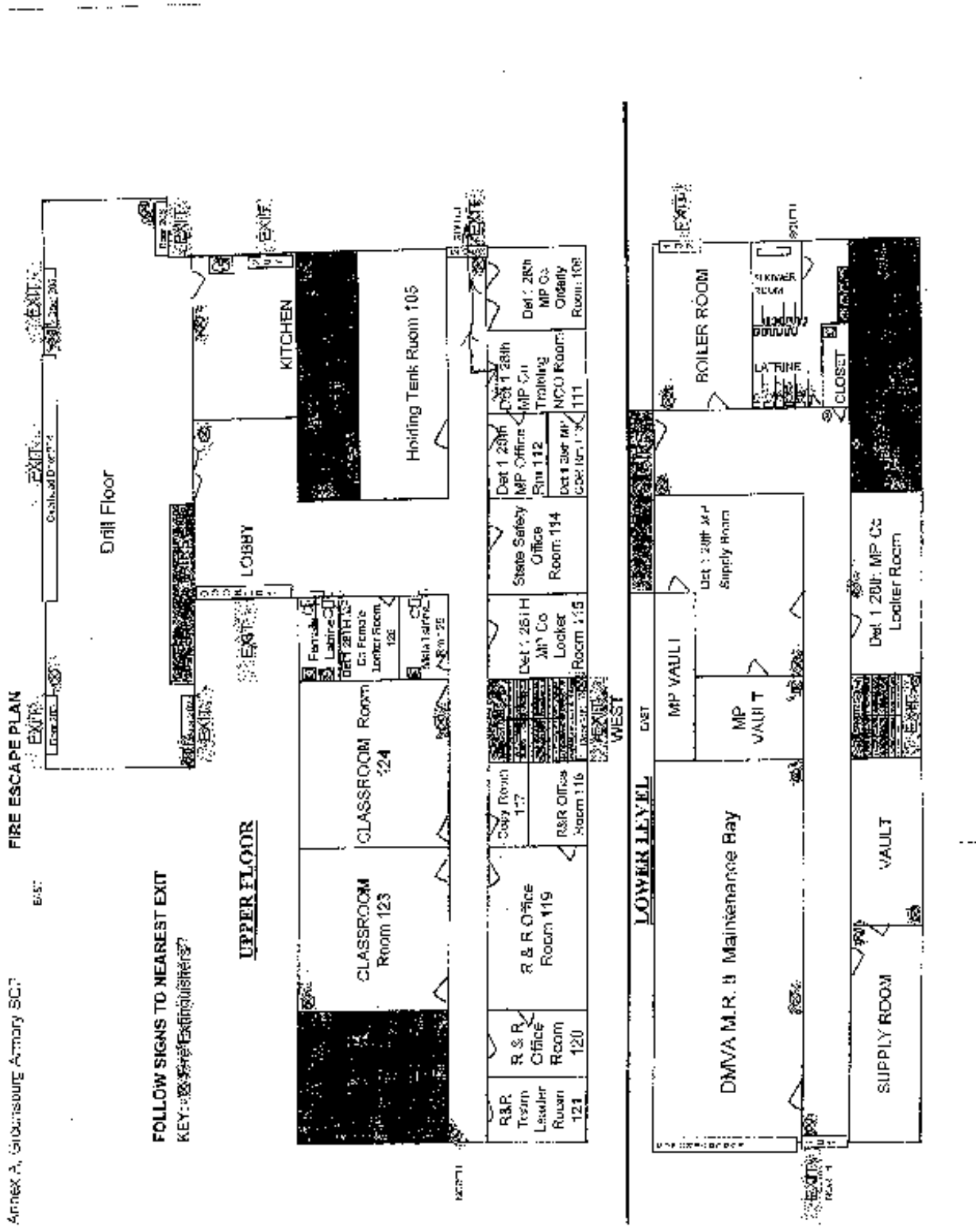
As with all such surveys, the results of the sampling represent conditions found on the date of the survey and may not represent conditions found at other times. Additionally, this survey was limited with respect to the specific parameters indicated above and should not be construed to be a comprehensive evaluation or a definitive representation of conditions within the facility. The information presented in this report is intended to be used as a guide to evaluate the need for further investigation or the need for modifications to the processes or procedures surveyed.

The Client recognizes and agrees that all testing and remediation methods have reliability limitations, no method nor number of sampling locations can guarantee that a condition will be discovered within the performance of the services as authorized by the Client. Additionally, the passage of time may result in a change in the environmental characteristics at this site. This report does not warrant against future operations or conditions that could affect the recommendations made. The results, findings, conclusions, and recommendations expressed in this report are based only on conditions that were observed during AECOM's inspection of the site.

Appendix A

Greensburg Readiness Center Facility Layout

AECOM



Appendix B

Greensburg Readiness Center Photographs

AECOM

Photograph 1

View of Building Exterior

Photograph 2

View of Foyer

AECOM

Photograph 3

View of Administrative Corridor

Photograph 4

View of Assembly Hall

AECOM

Photograph 5

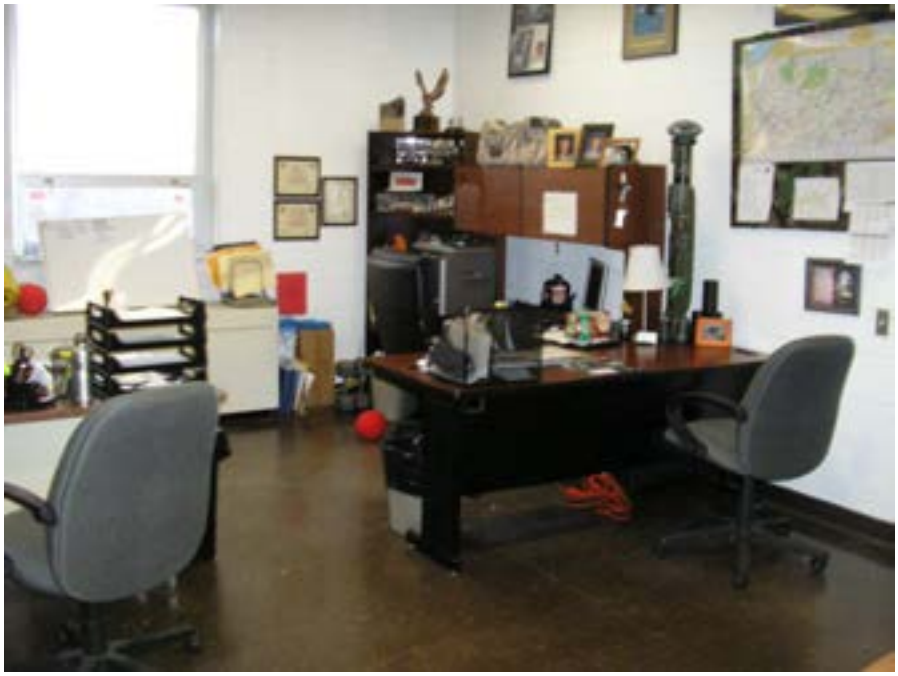
View of Caged Storage Area

Photograph 6

View of Typical Office

AECOM

Photograph 7



View of Recruiter Office

Photograph 8

View of Kitchen

Photograph 9

View of Classroom

Photograph 10

View of Men's Locker room

AECOM

Photograph 11

View of Flammable Storage Cabinets in Service bay

Photograph 12

View of Heating/Lighting System in Assembly Hall

AECOM

Photograph 13

Storage Area located in Former Bullet Trap Area of Firing Range

Photograph 14

View of Service Bay located in Former Firing range

Photograph 15

View of Radiant Heat System in Corridor

Photograph 16

View of Boiler Room

Appendix C

Analytical Results

AECOM

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	Grove City, PA	Chain Of Custody:	51662		
Address:	301-81 Old Bay Lane, Attn: ARNG-CIG-P, State Military Reservation	Job Location:	Not Provided	Date Submitted:	11/30/2012		
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM		
		P.O. Number:	W91ZX6-09-A-0003	Date Analyzed:	12/8/2012	Report Date:	12/8/2012

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	Total ug	Final Result	Comments
1301B610	W-001	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
1301B611	W-002	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
1301B612	W-003	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
1301B613	W-004	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
1301B614	W-005	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
1301B615	W-006	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
1301B616	W-007	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
1301B617	W-008	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	

An AIHA (#100478) and NY ELAP (#10920) Accredited Laboratory

4475 Forbes Blvd. · Lanham, MD. 20706 · (301) 459-2640 · Toll Free (800) 346-0961 · Fax (301) 459-2643

AECOM

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	Grove City, PA	Chain Of Custody:	51463		
Address:	301-81 Old Bay Lane, Attn: ARNG-CIG-P, Stite Military Reservation	Job Location:	Not Provided	Date Submitted:	11/30/2012		
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM		
		P.O. Number:	W912K6-03-A-0003	Date Analyzed:	12/6/2012	Report Date:	12/8/2012

Attention: Non-Responsive

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	Total ug	Final Result	Comments

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B

See QC Summary for analytical results of quality control samples associated with these samples.

N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)

%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)

Note: All samples were received in good condition unless otherwise noted.

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results.

Final results for air and wipe samples are based on client supplied information nor verified by this laboratory.

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

Analyst: Non-Responsive

Technical Manager: Non-Responsive

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(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This Number For Inquires) 514642

Mailing/Billing Information:
1. Client Name: National Guard Bureau
2. Address 1: 301-IH Old Bay Lane
3. Address 2: Attn: NGB-AVN-SL State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:
(1) (Job Name) Grove City, PA
(2) (Job Location)
3. Job #: Non-Responsive [redacted] W912QR-09-A-0005
4. Contact Person [redacted] @ phone #
5. Submitted by: AECOM (Signature)

Reporting Info (Results provided as soon as technically feasible). If no TAT/Reporting Info is provided, AMA will assign defaults of 5-Day and email/fax to contacts on file.

AFTER HOURS (must be pre-scheduled)	NORMAL BUSINESS HOURS	REPORT TO:
☐ Immediate Date Due: ☐ 24 Hours Time Due: Comment:	☐ Immediate ☐ Next Day ☐ 3 Day ☐ 3 Day ☒ 5 Day + Date Due: 12/11/12 ☐ Result to Arrive By Noon	☒ Include COC/File ... Report ☒ Email Non-Responsive [redacted] ...aecom.com ☐ Fax ... ☐ Verbal ...

(Asbestos Analysis)

*PCM Air – Please Indicate Filter Type:
- ☐ NIOSH 7400 ______ (QTY)
- ☐ Fiberglass ______ (QTY)

TEM Air* – Please Indicate Filter Type:
- ☐ AHERA ______ (QTY)
- ☐ NIOSH 7402 ______ (QTY)
- ☐ Other (specify ______) ______ (QTY)

PLM Bulk
- ☐ EPA 600 – Visual Estimate ______ (QTY)
- ☐ EPA Point Count ______ (QTY)
- ☐ NY State Friable 198.1 ______ (QTY)
- ☐ Grav. Reduction ELAP 198.6 ______ (QTY)
- ☐ Other (specify ______) ______ (QTY)

MISC
- ☐ Vermiculite
- ☐ Asbestos Soil PLM __(Qual) PLM __(Quan) TEM __(Qual) TEM __(Quan)

*It is recommended that blank samples be submitted with all air samples

TEM Bulk
- ☐ ELAP 198.4/Chatfield ______ (QTY)
- ☐ NY State PLM/TEM ______ (QTY)
- ☐ Residual Ash ______ (QTY)

TEM Dust*
- ☐ Qual. (presence/absence) Vacuum/Dust ______ (QTY)
- ☐ Quan. (s/area) Vacuum D5755-95 ______ (QTY)
- ☐ Quan. (s/area) Dust D6480-99 ______ (QTY)

TEM Water
- ☐ Qual. (pres/abs) ______ (QTY)
- ☐ ELAP 198.2/EPA 100.2 ______ (QTY)
- ☐ EPA 100.1 ______ (QTY)

☒ All samples received in good condition unless otherwise noted. (TEM Water samples ____ °C)

If field data sheets are submitted, there is no need to complete bottom section.

(Metals Analysis)
- ☐ Pb Paint Chip ______ (QTY)
- ☒ *Pb Dust Wipe (wipe type: 16 sq in) 8 (QTY)
- ☐ *Pb Air ______ (QTY)
- ☐ Pb Soil/Solid ______ (QTY)
- ☐ Pb TCLP ______ (QTY)
- ☐ Drinking Water ☐ Pb ___ (QTY) ☐ Cu ___ (QTY) ☐ As ___ (QTY)
- ☐ Waste Water ☐ Pb ___ (QTY) ☐ Cu ___ (QTY) ☐ As ___ (QTY)
- ☐ Pb Furnace (Media ______) ______ (QTY)

(Fungal Analysis)
Collection Apparatus for Spore Trap/Air Samples: ______
Collection Media ______
- ☐ *Spore-Trap ___ (QTY)
- ☐ *Surface Swab ___ (QTY)
- ☐ *Surface Tape ___ (QTY)
- ☐ Other (Specify ___) ___ (QTY)
- ☐ Surface Vacuum Dust ___ (QTY)
- ☐ Culturable ID Genus (Media ___) ___ (QTY)
- ☐ Culturable ID Species (Media ___) ___ (QTY)

SAMPLE INFORMATION / ANALYSIS / MATRIX

CLIENT ID #	SAMPLE LOCATION/ID	DATE/TIME	VOL/L/V Wipe Area	TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST			TAPE	SWAB	CLIENT CONTACT (LABORATORY STAFF ONLY)
W-001	D Hall table	11/8	16 sq in				X									Date/Time: Contact: By:
W-002	Kitchen counter															
W-003	office desk															
SEE ATTACHED FIELD DATA SHEETS																
W-004	office cabinet															Date/Time: Contact: By:
W-005	Foyer floor															
W-006	FR shelf															
W-007	FR floor															
W-008	D. Hall floor	↓	↓				↓									Date/Time: Contact: By:

LABORATORY STAFF ONLY: (CUSTODY)
1. Date/Time RCVD: 11 / 30 / 12 1000 Via: FEDEX By: Non-Responsive [redacted]
2. Date/Time Analyzed: ___ / ___ / ___ @ ___ By (Print): ______ Sign: ______
3. Results Reported To: ______ Via: ______ Date: ___ / ___ / ___ Time: ______ Initials: ______
4. Comment: 794 7694 5331

Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. http://www.osha.gov/comp-links.html

2. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998. http://www.dtic.mil/whs/directives/corres/pdf/605501p.pdf

3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF

4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://armypubs.army.mil/epubs/pdf/R40_5.PDF

5. AR 385-10, The Army Safety Program, 23 August 2007; Rapid Action Revision (RAR) issue date: 4 October 2011. http://armypubs.army.mil/epubs/pdf/R385_10.PDF

6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://armypubs.army.mil/epubs/pdf/P40_501.pdf

7. DA PAM 40-11, Preventive Medicine, 22 July 2005, RAR issue date: 19 October 2009. http://armypubs.army.mil/epubs/pdf/p40_11.pdf

8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://armypubs.army.mil/epubs/pdf/P40_503.PDF

9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf

10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current Ed.

11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.

12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.

13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.

14. ANSI/ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality.

15. RP-1-2004, Office Lighting, ANSI/IESNA.

16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.

17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.

18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.

19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf

Industrial Hygiene Survey

BTRY D 229th FA
GROVE CITY, PENNSYLVANIA

May 29, 2003

OPTECH

OPERATIONAL TECHNOLOGIES
CORPORATION

BTRY D 229th FA
GROVE CITY, PENNSYLVANIA
INDUSTRIAL HYGIENE SURVEY

1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Armory in Grove City, Pennsylvania on May 29, 2003. The NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. Non-R [redacted] from OpTech, completed this survey. Non-R [redacted] a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2 The following sections will provide details on how the IH Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D.

RECOMMENDATIONS

1. ILLUMINATION

1.1. Illumination levels were slightly below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

2. LEAD WIPE SAMPLES

2.1. All wipe sampling results for inorganic lead were well below the 200 $\mu g/ft^2$ criterion. Low levels of lead were detected in a few areas. Recommend that these areas be wet-wiped/mopped or cleaned using a high efficiency particulate air (HEPA) vacuum during routine housekeeping duties to further reduce lead dust levels.

2.0. EXECUTIVE SUMMARY

2.1. No indoor air quality problems were noted.

2.2 Illumination levels were slightly below recommended minimum standards in most areas of the facility.

2.3. Wipe samples for inorganic lead were collected throughout the facility. All sample results were below the 200 $\mu g/ft^2$ criterion. Lower levels of lead were detected in a few areas.

2.4. Air sampling for inorganic lead was accomplished. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	BTRY D 229TH FA		
ADDRESS	160 George Jr. Road		
	Grove City, PA 16127-9317		
CONTACT	SSG Non-Responsive		
PHONE	724- 748-4880		
DATE BUILT	1968	FACILITY SIZE	12,100sq.ft.
INDOOR FIRING RANGE	Inactive		1-floor
ASSISTED			
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	5		
TRADITIONAL (MIL)	100		
CHILD ACTIVITIES	None		
ADULT ACTIVITIES			

3.1.1. The exterior is brick and appears to be in good condition. The interior is painted block and is in good condition as well. The building is heated by a gas steam furnace.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity (RH) in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 Indoor Air Quality Standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ASHRAE 62-2001, Section 6.1.3, states that concentrations up to 700 ppm CO_2 above outdoor concentrations will achieve an acceptable level of indoor air quality.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ASHRAE 55-1992 recommends that temperature ranges be 73 to 79 degrees Fahrenheit (°F) during the summer and 68 to 74°F during the winter. Relative humidity levels be maintained between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE 1
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO2 (ppm)	Temp. (°F)	RH (%)
1321	Outdoors – Background	0.0	510	76.1	56.8
1335	Kitchen (occupied)	0.0	568	74.3	56.8
1342	Female Latrine	0.0	560	74.4	56.9
1347	Lobby	0.0	538	74.5	57.0
1352	Hallway	0.0	530	74.3	56.9
1358	Classroom	0.0	515	72.1	56.8
1408	Boiler Room	0.0	520	73.0	56.9
1411	Supply Room	0.0	530	73.4	57.0
1417	Former Range Area	0.0	526	74.1	56.6
1424	Break Room	0.0	518	74.6	56.2
1430	Supply Area	0.0	540	74.0	56.4
1434	Kitchen	0.0	540	74.0	56.6

3.25. No indoor air quality problems were noted.

3.3. ILLUMINATION

3.3.1. Illumination levels were measured in most areas of the facility. Sunlight was excluded, as much as possible for this survey, by closing doors and blocking windows. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 – 463). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
Lobby	46 – 64	55	15	YES
Recruiter	46 – 60	65	70	NO
Classroom	60 – 78	65	70	NO
Boiler room	46 – 78	52	70	NO
Drill floor	40 – 60	49	75	NO
Maintenance area	50 – 62	55	70	NO
Orderly room	60 – 78	67	70	NO

3.3.2. Levels were slightly below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3.4. WIPE SAMPLES

3.4.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples were taken at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot ($\mu g/ft^2$) and are listed in Table 3. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (ug/ft²)
PA Gro-03149-24	Kitchen Heater	BDL
PA Gro-03149-25	Assembly Hall	36
PA Gro-03149-26	Orderly Room – Speaker	BDL
PA Gro-03149-27	Hallway – Trophy Case	BDL
PA Gro-03149-28	Classroom	BDL
PA Gro-03149-29	BLANK Sample	BDL

ug/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.2. Additional wipe samples were collected during this survey. These samples were taken to further analyze the extent of contamination should the first five samples indicate a possible hazard. Since the first set of samples did not exceed the 200 $\mu g/ft^2$ criterion (see Section 3.4.4 below), these additional samples were not analyzed.

3.4.3. CLOSED FIRING RANGE WIPE SAMPLING

3.4.3.1. Additional wipe samples were take in the former indoor firing range. This area is presently being utilized for storage. The laboratory analysis results are listed below in Table 4.

TABLE 4
FORMER FIRING RANGE WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (ug/ft²)
PA Gro-03149-36	Former Range – Bookshelf	23
PA Gro-03149-37	Former Range - Metal Shelf	BDL
PA Gro-03149-38	Former Range - Floor	BDL
PA Gro-03149-39	Former Range – Sand Pit – Backstop	23
PA Gro-03149-40	Former Range – Maintenance Area	45
PA Gro-03149-41	BLANK Sample	BDL

ug/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.4. WIPE SAMPLING RESULTS

3.4.4.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 $\mu g/ft^2$. This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. (See memorandum in Attachment E, Recommendations for Surface Lead Dust in Armories.) All sample results were well below the 200 $\mu g/ft^2$ criteria. Lower levels of lead were detected in a few areas.

3.4.5. AIR SAMPLING

3.4.5.1. Air Sampling for inorganic lead was performed during this survey. Table 5 lists the results of these samples, and is reported in milligrams per cubic meter (mg/m^3) of air.

TABLE 5
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
Non-R [redacted]	PA Gro- 03149-22	Lead	<0.004 mg/m^3	0.05 mg/m^3	YES
Area – Assembly Hall	PA Gro-03149-23	Lead	<0.004 mg/m^3	0.05 mg/m^3	YES

mg/m^3 = milligrams per cubic meter < = less than (below detection limits)

3.4.4.2. Air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this building.

3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION DAMAGE

3.5.1.1. There was no water intrusion problems observed or reported.

3.5.2. LEAD PAINT

3.5.2.1. No peeling paint was observed and no samples were collected for lead-based paint.

3.5.3. ASBESTOS

3.5.3.1. No known asbestos was known to exist in the facility and no suspected asbestos sources were observed during the survey.

3.5.4. PROGRAMS

3.5.4.1. There are no designated confined space areas within this facility. There are no exhaust ventilation systems to control a hazard. No chemicals besides normal cleaning materials are present. Therefore, a need has not been established for a HAZCOM program, the need for personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.5. HOUSEKEEPING

3.5.5. The facility was clean and orderly. The heating vents were also very clean with little dust build up.

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

E – Recommendations for Surface Lead in Armories

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
Grove City, PA	PENNSYLVANIA ARNG ARMORY	Grove City Armory

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR (Initials)
29 May 2003	JSS

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	NA	556 Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
724-748-4880	BTRY D 229th FA	4	9

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
3	100			

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	CONROLS 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			
NBC AGENTS		FULL FACE AIR PURIFYING			
OIL		½ FACE AIR PURIFYING			
SOLVENTS		POWERED AIR PURIFYING			
SURGICAL GLOVES		½ 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/MTS	
FULL FACE SHIELD		EARPLUGS		COLD WEATHR 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			

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	0	C

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

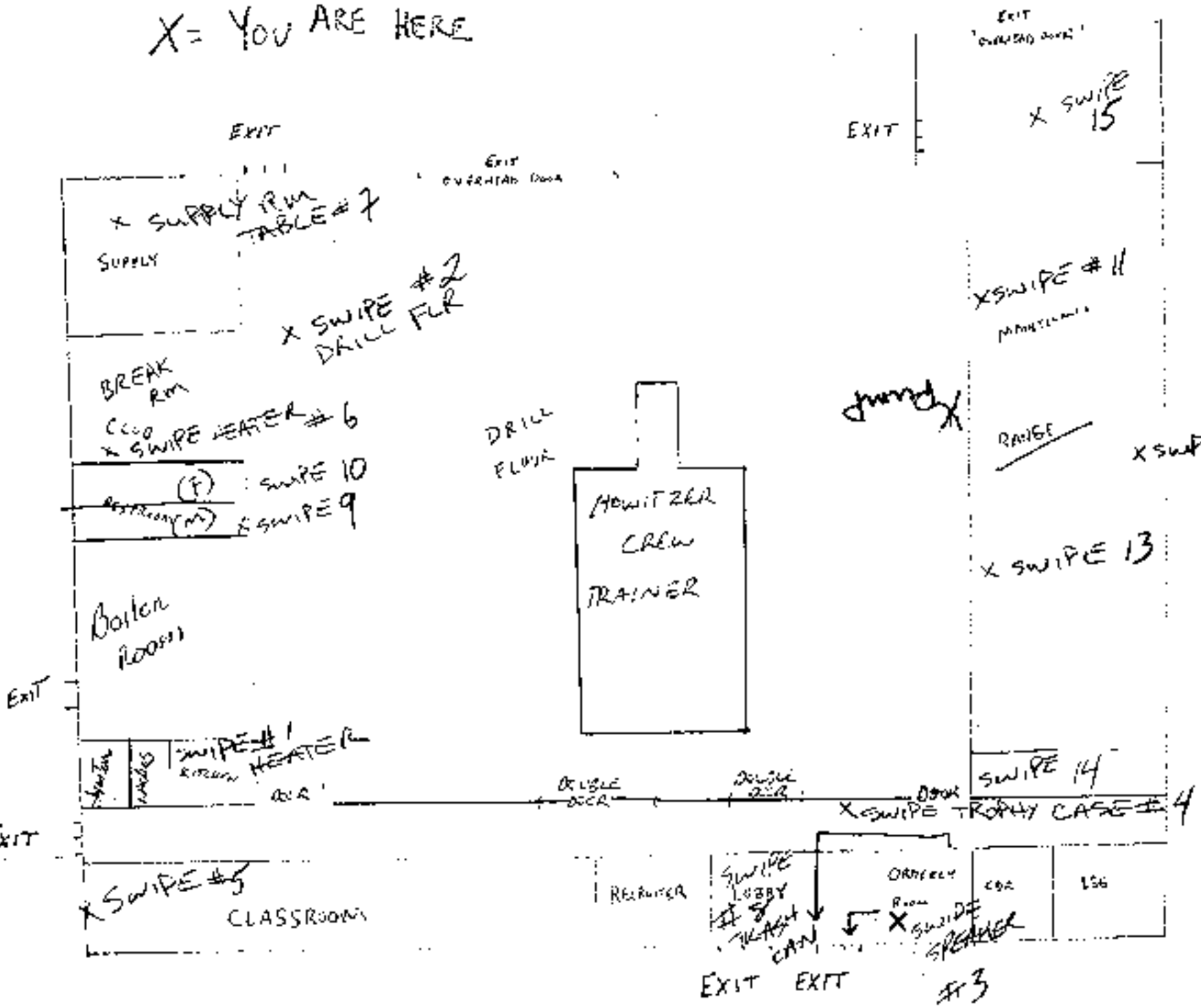
SECTION 6. COMMENTS

☐ No comments ☐ See attached sheet

PRIVACY ACT STATEMENT

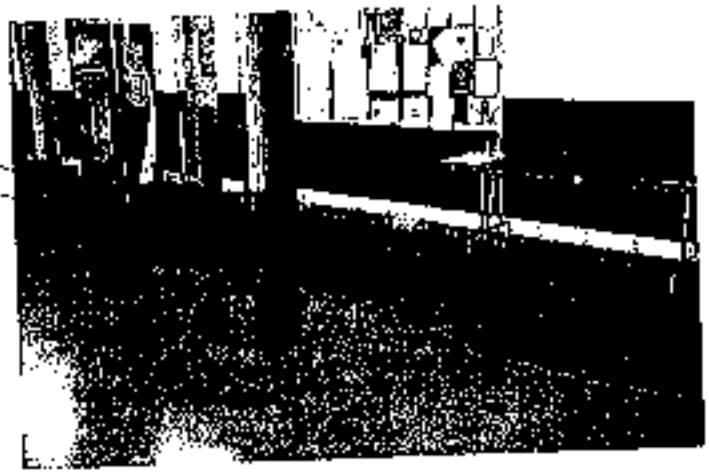
Title 5 US Code, Section 301; Executive Order 9397 authorized the use of your Social Security Number as an identification number. The purpose of this information is to identify and monitor data relating each DA civilian and military employee exposed to a hazardous workplace or operation. The use of this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

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



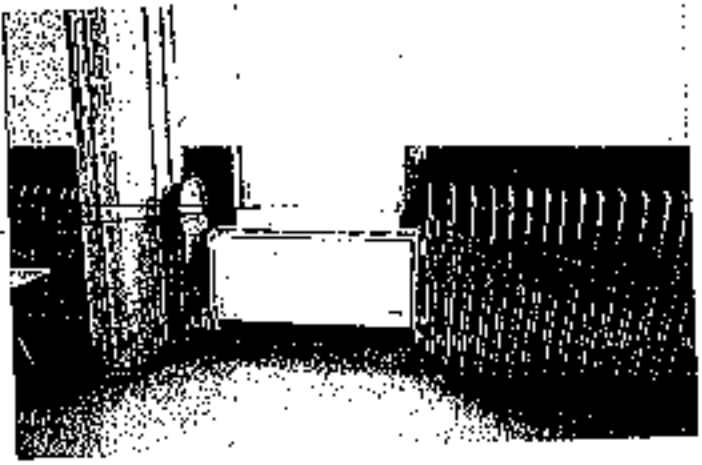
BTRY D 229TH FA
GROVE CITY, PENNSYLVANIA
WIPE SAMPLING POINTS

(2) PA Gro-03149-25
Assembly Hall



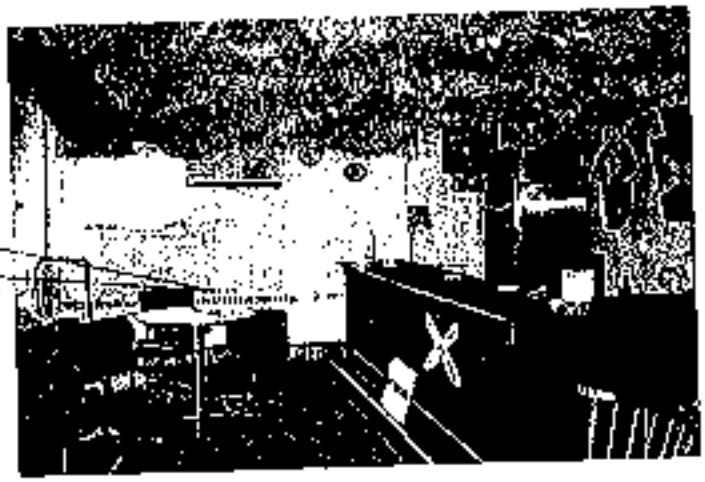
(4) PA Gro-03149-27
Hallway

(5) PA Gro-03149-28
Classroom



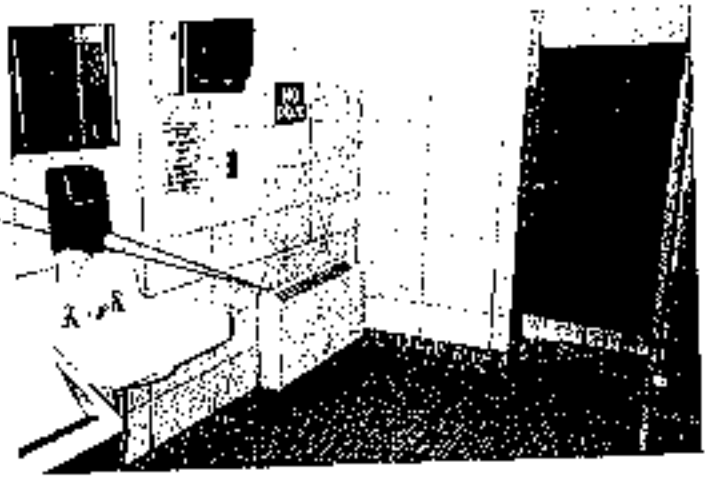
Attachment B

Additional Samples



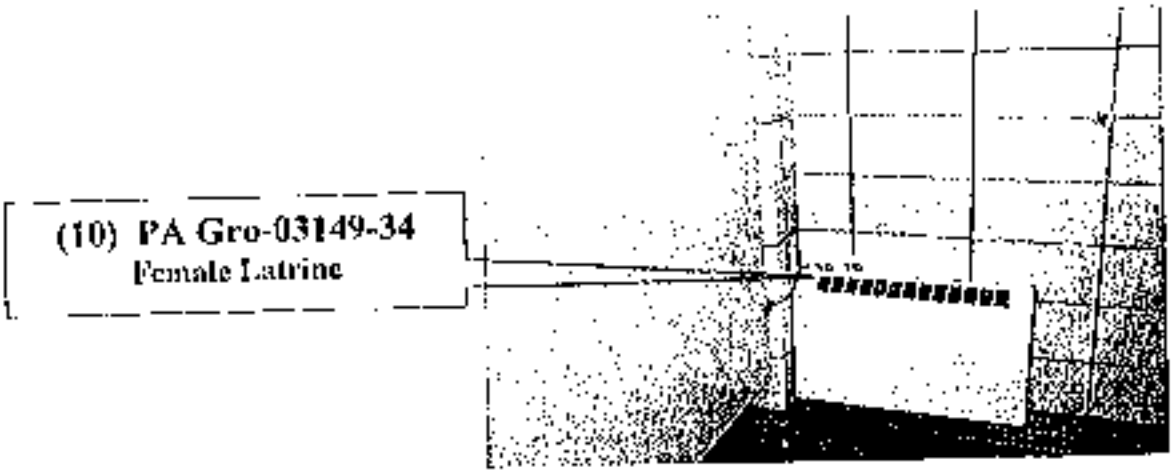
(6) PA Gro-03149-30
Break Room

(7) PA Gro-03149-31
Supply Area

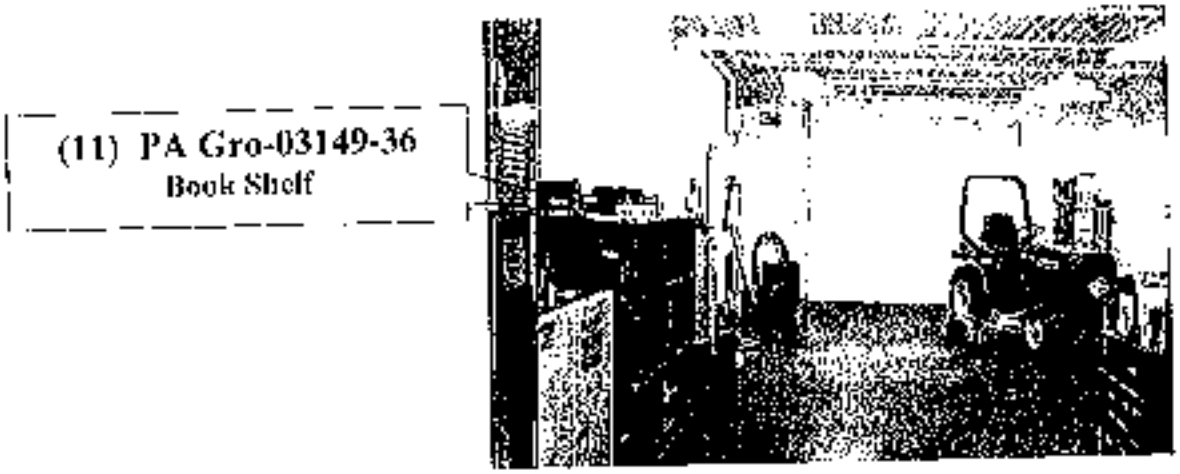


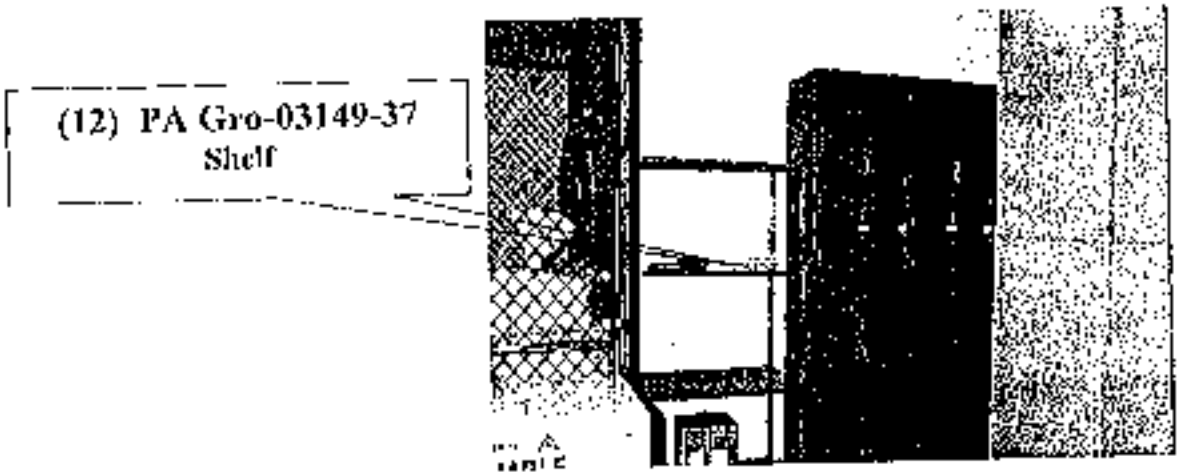
(9) PA Gro-03149-33
Male Latrine

Attachment B



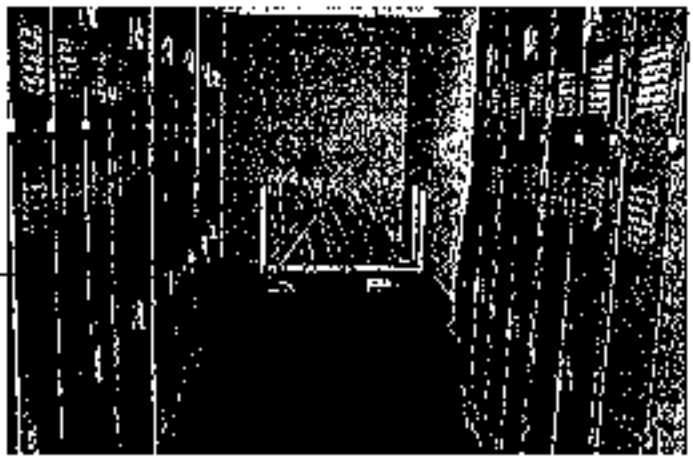
Former Indoor Firing Range Samples



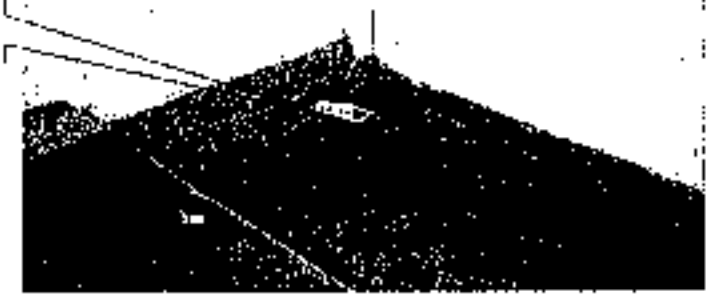


Attachment B

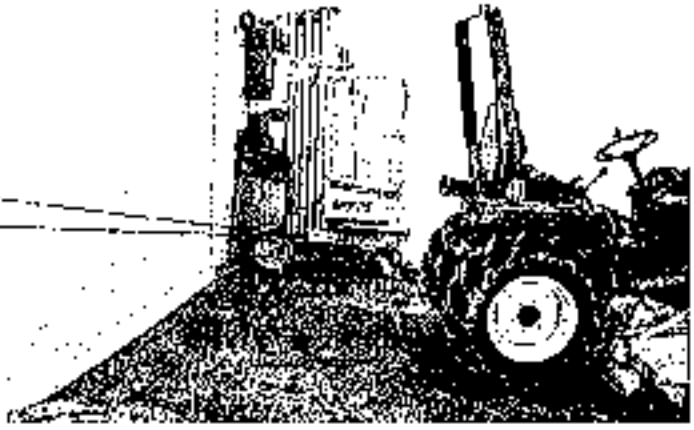
(13) PA Gro-03149-38
Range Floor



(14) PA Gro-03149-39
Backstop Floor



(15) PA Gro-03149-40
Behind Former Firing Line



RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
AIHA Certificate of Accreditation #490 LAP ID 101533

TABLE I ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	RES 03717-1
Client:	Operational Technologies, Corp.
Client Project Number / P.O.:	06 01
Client Project Description:	Armories/Pennsylvania
Date Samples Received:	June 5, 2003
Analyses Type:	USEPA SW846 3050B / AA(7420)
Turnaround:	3-5 Day
Date Samples Analyzed:	June 11, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA Mea-03149-04	EM 778503	0.11	BDL	23	BDL
PA Mea-03149-05	EM 778504	0.11	22.1	23	201
PA Mea-03149-06	EM 778505	0.11	9.0	23	82
PA Mea-03149-07	EM 778506	0.11	6.5	23	59
PA Mea-03149-08	EM 778507	0.11	BDL	23	BDL
PA Mea-03149-09	EM 778508	0.11	BDL	23	BDL
PA Mea-03149-16	EM 778509	0.11	33.2	23	302
PA Mea-03149-17	EM 778510	0.11	21.8	23	198
PA Mea-03149-18	EM 778511	0.11	35.5	23	323
PA Mea-03149-19	EM 778512	0.11	255.0	23	2318
PA Mea-03149-20	EM 778513	0.11	4.5	23	41
PA Mea-03149-21	EM 778514	0.11	BDL	23	BDL
PA Gro-03149-25	EM 778515	0.11	4.0	23	36
PA Gro-03149-26	EM 778516	0.11	BDL	23	BDL
PA Gro-03149-24	EM 778517	0.11	BDL	23	BDL
PA Gro-03149-27	EM 778518	0.11	BDL	23	BDL
PA Gro-03149-28	EM 778519	0.11	BDL	23	BDL
PA Gro-03149-29	EM 778520	0.11	BDL	23	BDL
PA Gro-03149-36	EM 778521	0.11	2.5	23	23
PA Gro-03149-37	EM 778522	0.11	BDL	23	BDL
PA Gro-03149-38	EM 778523	0.11	BDL	23	BDL
PA Gro-03149-39	EM 778524	0.11	2.5	23	23
PA Gro-03149-40	EM 778525	0.11	5.0	23	45
PA Gro-03149-41	EM 778526	0.11	BDL	23	BDL
PA Oil-03150-03	EM 778527	0.11	3.3	23	30
PA Oil-03150-04	EM 778528	0.11	67.0	23	609
PA Oil-03150-05	EM 778529	0.11	BDL	23	BDL
PA Oil-03150-06	EM 778530	0.11	36.0	23	327
PA Oil-03150-07	EM 778531	0.11	3.3	23	30
PA Oil-03150-08	EM 778532	0.11	BDL	23	BDL

*Calculations Based On A 1 sq.ft. Sample Area Unless Otherwise Noted

BDL = Below Detection Limit

Page 2 of 2

Date Ca

Results
Lead

Client #	DCL #	Total Area (ft^2)	µg/Wipe	µg/ft^2
PA Man-03143-13	03-30483	0.11	30.	270.
PA Man-03143-14	03-30484	0.11	ND	<91.
PA Mea-03149-10	03-30485	0.11	21.	190.
PA Mea-03149-11	03-30486	0.11	ND	<91.
PA Mea-03149-12	03-30487	0.11	12.	110.
PA Mea-03149-13	03-30488	0.11	31.	280.
PA Mea-03149-14	03-30489	0.11	30.	270.
PA Mea-03149-15	03-30490	0.11	ND	<91.
PA Oil-03150-09	03-30491	0.11	50.	450.
PA Oil-03150-10	03-30492	0.11	44.	400.
PA Oil-03150-11	03-30493	0.11	31.	280.
PA Oil-03150-12	03-30494	0.11	120.	1100.
PA Oil-03150-13	03-30495	0.11	19.	170.
PA Oil-03150-14	03-30496	0.11	ND	<91.
PA Gre-03230-16	03-30497	0.11	ND	<91.
PA Gre-03230-17	03-30498	0.11	31.	280.
PA Gre-03230-18	03-30499	0.11	ND	<91.
PA Gre-03230-19	03-30500	0.11	ND	<91.
PA Gre-03230-20	03-30501	0.11	ND	<91.
PA Gre-03230-21	03-30502	0.11	ND	<91.
	Prep Blank		ND	
% Recovery	LCS 5		87.	
% Recovery	LCS 6		88.	
RPL			10.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non-Responsive @md.ngb.army.mil

Attachment D

REFERENCE LIST INDEX

1. General Regulations and National Consensus Standards
2. Specific Regulations and Guidance
   a. Abrasive Blasting
   b. Asbestos
   c. Battery Charging Room
   d. Bird and Bat Manure
   e. Bloodborne Pathogens
   f. Chemical Agent Resistant Coating (CARC) Paint
   g. Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE)
   h. Confined Space Entry Program
   i. Design Review
   j. Ergonomics
   k. Flammable Storage Room
   l. Hazard Communication
   m. Hearing Conservation
   n. Indoor Air Quality
   o. Indoor Firing Ranges
   p. Lead
   q. Lighting
   r. Occupational Vision
   s. Paint Spray Booth
   t. Personal Protection
   u. Radiation Protection
   v. Respiratory Protection
   w. Sanitation
   x. Smoking
   y. Vehicle Exhaust
   z. Welding Operation

GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REFERENCE LIST

1. General Regulations and National Consensus Standards
   a. DODI 6055.1, DOD SOH Program, 19 August 1998.
   b. DODI 6055.5, DOD OEH. *[DRAFT]*
   c. DOD 6055.5-M, DOD Occupational Health Surveillance Manual, 13 May 1987.
   d. DODI 6050.5, DOD Hazard Communication, 29 Oct 90. Change 1, 6 May 1996.
   e. AR 40-5, Preventive Medicine, 15 October 1990. [05/2002 Being Updated]
   f. DA PAM 40-5, Preventive Medicine. *[DRAFT]*
   g. AR 385-10, The Army Safety Program, 29 February 2000.
   h. NGR 385-10, ARNG SOH Program, 7 October 1988, Change 1, 29 December 1989.
   i. Title 29, Part 1910, Occupational Safety and Health Standards. [Current Date]
   j. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 2002.
   k. ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th edition, 2001.
   l. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.
   m. TG 141, USACHPPM Industrial Hygiene Sampling Guide, November 1997.
   n. National Safety Council, Fundamentals of Industrial Hygiene, 5th Edition, 2002.
   o. NIOSH, Pocket Guide to Chemical Hazards, 2001.
   p. NFC, A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. [Current date]
   q. ASHRAE Standards. [Current Dates]
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z. **WELDING OPERATION**

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(4) ANSI/AWS Z49.1-1999, Safety in Welding and Cutting and Allied Processes.

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Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 $\mu g/ft^2$) and windowsills (250 $\mu g/ft^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of 200 $\mu g/ft^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 $\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 $\mu g/ft^2$ on floors and 250 $\mu g/ft^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland




Industrial Hygiene Survey
for PAARNG – Grove City Readiness Center
160 George Jr. Road
Grove City, Pennsylvania 16127

AECOM
January 2013
Document No.: 60276421.1/Grove City Readiness Center

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January 2013
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AECOM

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Executive Summary

On November 8, 2012, AECOM conducted an Industrial Hygiene (IH) survey of the Grove City Readiness Center facility located at 160 George Jr. Road in Grove City, Pennsylvania. Non-[redacted], SFC was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Grove City Readiness Center operations.

The industrial hygiene survey was generally conducted in accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings", dated January 2012.

The Grove City Readiness Center is currently staffed by three personnel. Some of the personnel were not present at the time of the survey due to active duty assignments or other off-site responsibilities. The facility is configured as an administrative area and a Drill/Assembly Hall.

Personnel at the facility were undertaking normal daily activities, which are primarily administrative in nature, at the time of the survey.

The activities undertaken during the Industrial Hygiene survey included facility descriptions, lead wipe/air sampling, evaluation of housekeeping, illumination studies, ventilation system evaluation, and a review of the physical building condition.

The Grove City Readiness Center is housed in a one-story masonry building, and consists of approximately 60% administrative space and 40% Assembly Hall.

Lighting levels measured throughout the facility were generally inadequate as per ANSI/IESNA RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

Wipe samples collected for lead-containing dust throughout the facility did not indicate lead levels above the ARNG action level.

No peeling lead-based paint was observed at the Grove City Readiness Center during this survey.

No visible damaged friable suspect asbestos-containing material (ACM) was observed.

No visible water damaged or visible signs of mold growth were observed.

The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of air handling units that provide fresh air from outside the building exterior to administrative areas.

1.0 Facility Description and Operations

The Grove City Readiness Center, constructed in 1968, is a one-story administrative facility slab on-grade masonry structure. The building consists of two main sections. The larger one-story section, located around the perimeter of the building, consists primarily of offices, training/classroom, locker/shower rooms, storage and administrative areas, and is finished with sheetrock walls, lay-in ceiling tiles and floor tile. The two-story Assembly/Drill Hall area, located in the center of the building, is finished with painted block walls and a concrete floor. According to site personnel there is a firing range at the facility which is currently used as a storage area.

The primary activity at the Grove City Readiness Center is routine administrative duties and occasional use by units for support and training of soldiers. The Assembly Hall is occasionally rented out for limited civic activities such as group meetings, trade shows and to other related local groups and organizations. The Grove City Readiness Center is currently staffed by three personnel. No vehicle maintenance activities are undertaken at the facility.

2.0 Sampling in Readiness Centers

2.1.1 Wipe Sampling

Wipe sampling for lead was conducted in the Assembly Hall and administrative areas following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost wipes. Samples were collected in areas that are not frequently cleaned and showed signs of dust whenever possible.

The following table presents the results of the lead wipe sampling conducted at the facility.

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
W – 001	Assembly Hall - table	<110 ug/ft^2
W – 002	Kitchen - counter	<110 ug/ft^2
W – 003	CO Office - desk top	<110 ug/ft^2
W – 004	Recruiter Office - file cabinet	<110 ug/ft^2
W – 005	Foyer - floor	<110 ug/ft^2
W – 006	Storage (Former Firing Range – shelf)	<110 ug/ft^2
W – 007	Storage (Former Firing Range – floor)	<110 ug/ft^2
W – 008	Assembly Hall – floor	<110 ug/ft^2

ug/ft^2 = Micrograms per square foot.

Wipe samples collected in association with the administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U.S. Department of housing and Urban Development's (HUD) acceptable decontamination level of 200 micrograms per square foot (ug/ft^2) for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

The wipe samples collected throughout the facility did not detect levels of lead in excess of the ARNG action level of 200 ug/ft^2. Former indoor firing ranges shall be converted in accordance with NG PAM 240-15. Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

Per Non-Responsive of NGB-IH, the requirement for Lead air sampling has been removed from the Statement of Work. It was reported that historically, air samples collected at administrative facilities are typically below the limit of detection.

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls appeared to be generally in good condition. Concrete flooring was generally tiled or unpainted. AECOM did not observe damaged or peeling paint during this evaluation.

3.1.2 Suspect Asbestos Containing Materials

AECOM did not observe damaged, friable suspect asbestos containing materials (ACM) in readily accessible areas of the Grove City Readiness Center during this survey. Thermal system piping is typically covered in typical fiberglass insulation with associated fittings and appeared in good condition.

Other typical miscellaneous building materials observed throughout the building but not sampled include floor tiles and associated mastic, cove base and associated mastic, ceiling tiles, and window glazing compound and caulks.

3.1.3 Water Damage/Mold

AECOM did not observe evidence of water intrusion during this survey.

3.1.4 Housekeeping

The Grove City Readiness Center was observed to be generally clean and orderly during this assessment. AECOM did not observe dust accumulation on readily accessible horizontal surfaces within areas commonly used in the facility.

3.1.5 Indoor Air Quality/ Ergonomics

The administration section of the building contains general office space. The administration section is generally utilized by all of the Grove City Readiness Center staff members including a recruiter. No Indoor Air Quality concerns were noted by the Grove City Readiness Center personnel.

Grove City Readiness Center personnel did not report any ergonomics issues or concerns. Office furniture and accessories designed to promote ergonomically correct behaviors were observed.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (^{o} Fahrenheit), and relative humidity (as percentage) are presented in the following table.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (^{o}F)	Relative Humidity (%)
Outside	0.0	238	70.2	24.8
Foyer	0.0	440	69.8	26.2
Administrative Corridor	0.0	516	70.3	26.7
Physical Fitness Room	0.1	581	70.9	25.3
Service Bay	0.1	479	68.8	25.1
Assembly Hall	0.1	413	69.7	24.8
Kitchen	0.0	422	70.1	24.9
Boiler Room	0.0	487	70.4	25.6

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (^{o}F)	Relative Humidity (%)
Men's Rest Room	0.2	506	69.6	25.7
Break Room	0.1	570	69.7	26.3
Shower/Locker Room	0.1	433	69.8	24.6
Classroom	0.2	464	69.1	25.0
Female Rest Room	0.2	450	70.2	24.2
State Maintenance Office	0.2	427	70.7	24.3
Storage Room	0.0	519	71.0	23.9
Orderly Room	0.0	508	71.3	24.4
Recruiter Office	0.1	521	71.4	25.7

Table 3-1 Guidelines:
Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard. OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.
Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.
Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 5.10.1).
Temperature: Winter (clothing insulation = 1.0 clo) Relative humidity 30-60% - Temp - 68 – 75°F
Summer Temp - 73 – 79°F. (Derived from ASHRAE Standard 55-2010)

4.0 Ventilation and HVAC System

4.1.1 Ventilation Systems and Potential for Contamination of Clean Air Sources

There is no Field Maintenance Shop (FMS) located at the Grove City Readiness Center. As such, no potential for contamination of clean air sources was observed at the facility.

The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of air handling units that provide fresh air from outside the building exterior to administrative areas.

4.1.2 HVAC Maintenance

The HVAC system is reported to be on a yearly maintenance/service agreement. Further, building personnel informed AECOM that the HVAC filters are changed at least twice a year. Natural gas boilers feed radiant heaters throughout the building including offices, corridors, storage areas, and the assembly hall as well as provide heat for the facilities domestic water.

5.0 Lighting

Lighting levels in all areas were measured utilizing a Cal-Light 400 light meter that displays lighting levels in foot-candles. Lighting levels were generally inadequate.

Table 5-1: Light Survey

Location	Results – (Foot candles)	Met Standard (Y/N)	Standard*
Foyer	10.9	Y	10
Administrative Corridor	12.4	Y	5
Physical Fitness Room	33.3	Y	30
Service Bay/Storage	25.4	Y	10
Assembly Hall	33.6	Y	10
Kitchen	24.7	N	50
Boiler Room	9.3	N	30
Men's Rest Room	77.1	Y	5
Break Room	38.9	N	10
Shower/Locker Room	3.2	N	7
Classroom	25.8	N	30
Female Rest Room	16.4	Y	5
State Maintenance Office	21.4	N	50
Storage Room	12.9	Y	10
Orderly Room	32.3	N	50
Recruiter Office	28.1	N	50
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI/IESNA RP-7-01)			

6.0 Evaluation of Attached Garage

There is no attached garage associated with the Grove City Readiness Center.

7.0 Conclusions and Limitations

AECOM has conducted this survey in accordance with applicable OSHA methods and standard industrial hygiene practice. The following conclusions were based on the observations and assessments of activities that occurred during the on-site evaluation:

Housekeeping is performed regularly at the Grove City Readiness Center.

AECOM did not observe any damaged, suspect asbestos-containing materials at the Grove City Readiness Center.

AECOM did not observe peeling paint at the Grove City Readiness Center.

AECOM did not observe evidence of water intrusion at the Grove City Readiness Center.

Lighting levels measured throughout the facility were generally inadequate as per ANSI/IESNA RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

Wipe samples collected in association with the administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U.S. Department of housing and Urban Development's (HUD) acceptable decontamination level of 200 micrograms per square foot (ug/ft^2) for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

AECOM provided these services consistent with the level and skill ordinarily exercised by members of the profession currently providing similar services under similar circumstances at the time the services were provided. This statement is in lieu of other statements either expressed or implied. This report is intended for the sole use of National Guard Bureau – Army National Guard. The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, and use or re-use of this document, the findings, conclusions, or recommendations is at the risk of said user.

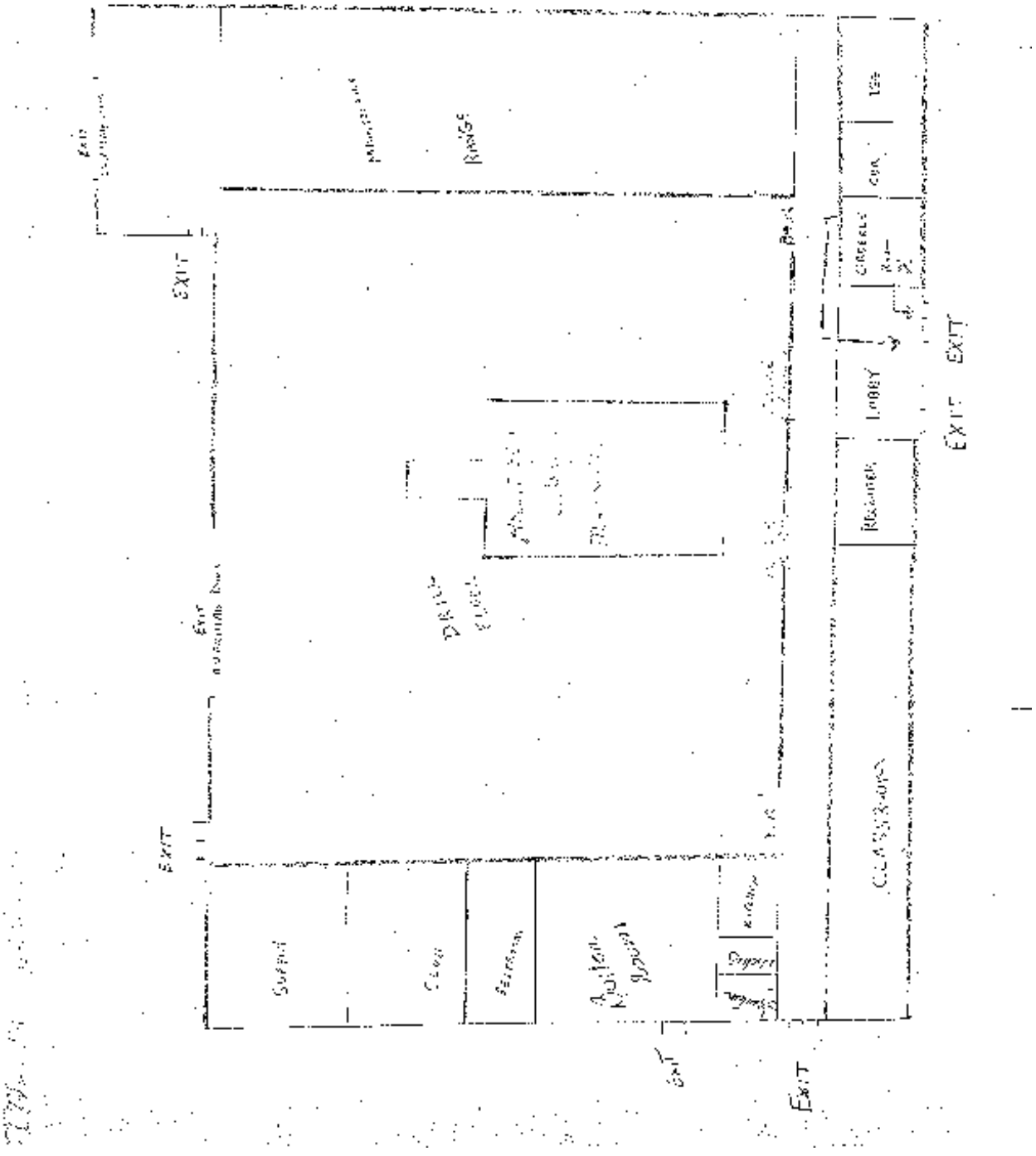
As with all such surveys, the results of the sampling represent conditions found on the date of the survey and may not represent conditions found at other times. Additionally, this survey was limited with respect to the specific parameters indicated above and should not be construed to be a comprehensive evaluation or a definitive representation of conditions within the facility. The information presented in this report is intended to be used as a guide to evaluate the need for further investigation or the need for modifications to the processes or procedures surveyed.

The Client recognizes and agrees that all testing and remediation methods have reliability limitations, no method nor number of sampling locations can guarantee that a condition will be discovered within the performance of the services as authorized by the Client. Additionally, the passage of time may result in a change in the environmental characteristics at this site. This report does not warrant against future operations or conditions that could affect the recommendations made. The results, findings, conclusions, and recommendations expressed in this report are based only on conditions that were observed during AECOM's inspection of the site.

Appendix A

Grove City Readiness Center Facility Layout

AECOM



Appendix B

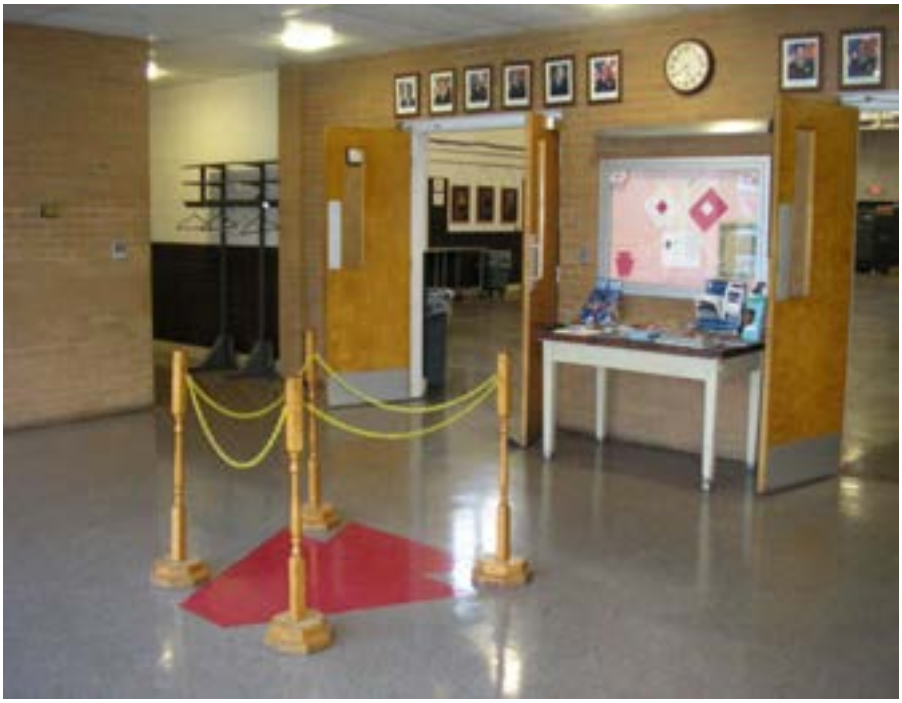
Grove City Readiness Center Photographs

AECOM

Photograph 1

View of Building Exterior

Photograph 2



View of Foyer

AECOM

Photograph 3

View of Administrative Corridor

Photograph 4

View of Assembly Hall

AECOM

Photograph 5

View of Break Room

Photograph 6

View of Classroom

Photograph 7

View of Physical Fitness Room in Former Firing Range

Photograph 8

View of Flammable Storage Cabinets

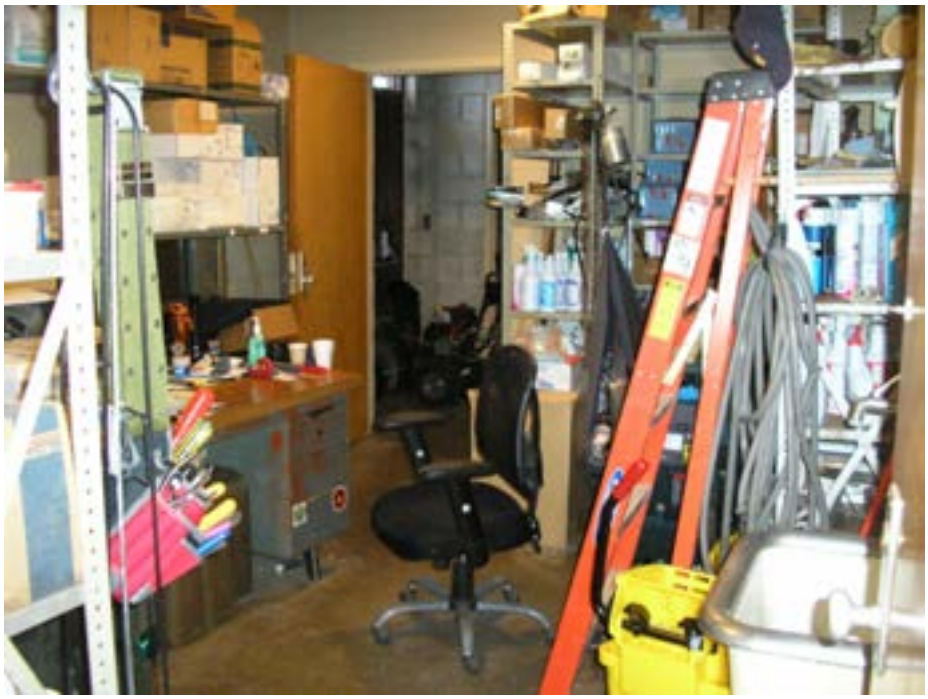
Photograph 9

View of Kitchen

Photograph 10

View of Service Bay

Photograph 11



View of State Maintenance Office

Photograph 12

View of Heating/Lighting System in Assembly Hall

Photograph 13

View of Boiler Room

Appendix C

Analytical Results

AECOM

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	Grove City, PA	Chain Of Custody:	51642		
Address:	381-81 Old Bay Lane, Attn: ADNG-CIG-F, State Military Reservation	Job Location:	Not Provided	Date Submitted:	11/30/2012		
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM		
		P.O. Number:	W91268-09-A-0003	Date Analyzed:	12/6/2012	Report Date:	12/8/2012

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	Total ug	Final Result	Comments
I3018610	W-001	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
I3018611	W-002	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
I3018612	W-003	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
I3018613	W-004	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
I3018614	W-005	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
I3018615	W-006	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
I3018616	W-007	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
I3018617	W-008	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	

An AIHA (#100478) and NY ELAP (#10920) Accredited Laboratory

4475 Forbes Blvd. · Lanham, MD. 20706 · (301) 459-2640 · Toll Free (800) 346-0961 · Fax (301) 459-2643

AECOM

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	Grove City, PA	Chain Of Custody:	51462		
Address:	301-81 Old Bay Lane, Attn: ARNG-CIC-P, State Military Reservation	Job Location:	Not Provided	Date Submitted:	11/30/2012		
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM		
		P.O. Number:	W912K6-09-A-0003	Date Analyzed:	12/6/2012	Report Date:	12/8/2012

Attention: Non-Responsive

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	Total ug	Final Result	Comments

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B

See QC Summary for analytical results of quality control samples associated with these samples.

N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)

%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)

Note: All samples were received in good condition unless otherwise noted.

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results

Final results for air and wipe samples are based on client supplied information nor verified by this laboratory.

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

Analyst: Non-Responsive

Technical Manager: Non-Responsive

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4475 Forbes Blvd. · Lanham, MD, 20706 · (301) 459-2640 · Toll Free (800) 346-8963 · Fax (301) 459-2643

AECOM

AMA Analytical Services, Inc.
Focused on Results www.amalab.com
AIHA (#100470) NVLAP (#101143-0) NY ELAP (#11920)
4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This Number For Inquires) 514642

Mailing/Billing Information:

1. Client Name: National Guard Bureau
2. Address 1: 301-H Old Bay Lane
3. Address 2: Attn: NGB-AVN-SL, State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:

(1) (Site Name) Grove City, PA
(2) (Site Location)
3. Job #: P.O. #: W912K8-09-A-0001
4. Contact Person [redacted] @ phone #
5. Submitted by: AECOM (Signature)

Reporting Info (Results provided as soon as technically feasible). If no TAT/Reporting Info is provided, AMA will assign defaults of 5-Day and email/fax to contacts on file.

AFTER HOURS	NORMAL BUSINESS HOURS	REPORT TO:
☐ Immediate Date Due: ____ ☐ 24 Hours Time Due: ____ Comment: ____	☐ Immediate ☐ Next Day ☐ 2 Day ☐ 3 Day ☒ 5 Day Date Due: 12/11/12 ☐ Result to Arrive By Noon	☒ Include COC w/ Data Report ☒ Email [redacted] aecom.com ☐ Fax ☐ Verbal

Volatile Analyses

*PCM Air – Please Indicate Filter Type: ☐ NIOSH 7400 ____ (QTY) ☐ Fiberglass ____ (QTY)

TEM Air* – Please Indicate Filter Type: ☐ AHERA ____ (QTY) ☐ NIOSH 7402 ____ (QTY) ☐ Other (specify) ____ (QTY)

PLM Bulk: ☐ EPA 600 – Visual Estimate ____ (QTY) ☐ EPA Point Count ____ (QTY) ☐ NY State Friable 198.1 ____ (QTY) ☐ Grav. Reduction ELAP 198.6 ____ (QTY) ☐ Other (specify) ____ (QTY)

MISC: ☐ Vermiculite

TEM Bulk: ☐ ELAP 198.4/Chatfield ____ (QTY) ☐ NY State PLM/TEM ____ (QTY) ☐ Residual Ash ____ (QTY)

TEM Dust*: ☐ Qual. (presence) Vacuum/Dust ____ (QTY) ☐ Quan. (s/area) Vacuum D5755-95 ____ (QTY) ☐ Quan. (s/area) Dust D6480-99 ____ (QTY)

TEM Water: ☐ Qual. (presence) ____ (QTY) ☐ ELAP 198.2/EPA 100.2 ____ (QTY) ☐ EPA 100.1 ____ (QTY)

☒ All samples received in good condition unless otherwise noted. (TEM Water samples ____ °C)

Metals Analysis: ☐ Pb Paint Chip ____ (QTY) ☒ Pb Dust Wipe (wipe type: Ghost wipe) 8 (QTY) ☐ Pb Air ____ (QTY) ☐ Pb Soil/Solid ____ (QTY) ☐ Pb TCLP ____ (QTY) ☐ Drinking Water ☐ Pb ____ (QTY) ☐ Cu ____ (QTY) ☐ As ____ (QTY) ☐ Waste Water ☐ Pb ____ (QTY) ☐ Cu ____ (QTY) ☐ As ____ (QTY) ☐ Pb Furnace (Media ____) ____ (QTY)

Fungal Analysis: Collection Apparatus for Spore Trap/Air Samples: ____ Collection Media: ____ ☐ *Spore Trap ____ (QTY) ☐ Surface Vacuum Dust ____ (QTY) ☐ *Surface Swab ____ (QTY) ☐ Culturable ID Genus (Media ____) ____ (QTY) ☐ *Surface Tape ____ (QTY) ☐ Culturable ID Species (Media ____) ____ (QTY) ☐ Other (Specify ____) ____ (QTY)

☐ Asbestos Soil PLM ____ (Qual) PLM ____ (Quan) PLM/TEM ____ (Qual) PLM/TEM ____ (Quan)

CLIENT ID #	SAMPLE LOCATION/ID	DATE/TIME	VOL/L/Wipe Area	ANALYSIS / MATRIX	CLIENT CONTACT (LABORATORY STAFF ONLY)
W-001	D Hall table	11/8	1ft sqm	X	Date/Time: Contact: By:
W-002	Kitchen counter				
W-003	office desk				
	SEE ATTACHED FIELD DATA SHEETS				
W-004	office cabinet				Date/Time: Contact: By:
W-005	Foyer floor				
W-006	FR shelf				
W-007	FR floor				
W-008	D Hall floor	↓	↓	↓	Date/Time: Contact: By:

LABORATORY STAFF ONLY: (CUSTODY)
1. Date/Time RCVD: 11/30/12 1000 Via: FEDEX By: [redacted]
2. Date/Time Analyzed: ____ By (Print): ____ Sign: ____
3. Results Reported To: ____ Via: ____ Date: ____ Time: ____ Initials: ____
4. Comment: 794 7694 5331

Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. http://www.osha.gov/comp-links.html

2. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998. http://www.dtic.mil/whs/directives/corres/pdf/605501p.pdf

3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF

4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://armypubs.army.mil/epubs/pdf/R40_5.PDF

5. AR 385-10, The Army Safety Program, 23 August 2007; Rapid Action Revision (RAR) issue date: 4 October 2011. http://armypubs.army.mil/epubs/pdf/R385_10.PDF

6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://armypubs.army.mil/epubs/pdf/P40_501.pdf

7. DA PAM 40-11, Preventive Medicine, 22 July 2005, RAR issue date: 19 October 2009. http://armypubs.army.mil/epubs/pdf/p40_11.pdf

8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://armypubs.army.mil/epubs/pdf/P40_503.PDF

9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf

10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current Ed.

11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.

12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.

13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.

14. ANSI/ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality.

15. RP-1-2004, Office Lighting, ANSI/IESNA.

16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.

17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.

18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.

19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf

Industrial Hygiene Survey

DET 1 BTRY B 1/213th ADA

HAMBURG, PENNSYLVANIA

June 23, 2003

OPTECH

OPERATIONAL TECHNOLOGIES
CORPORATION

RECOMMENDATIONS

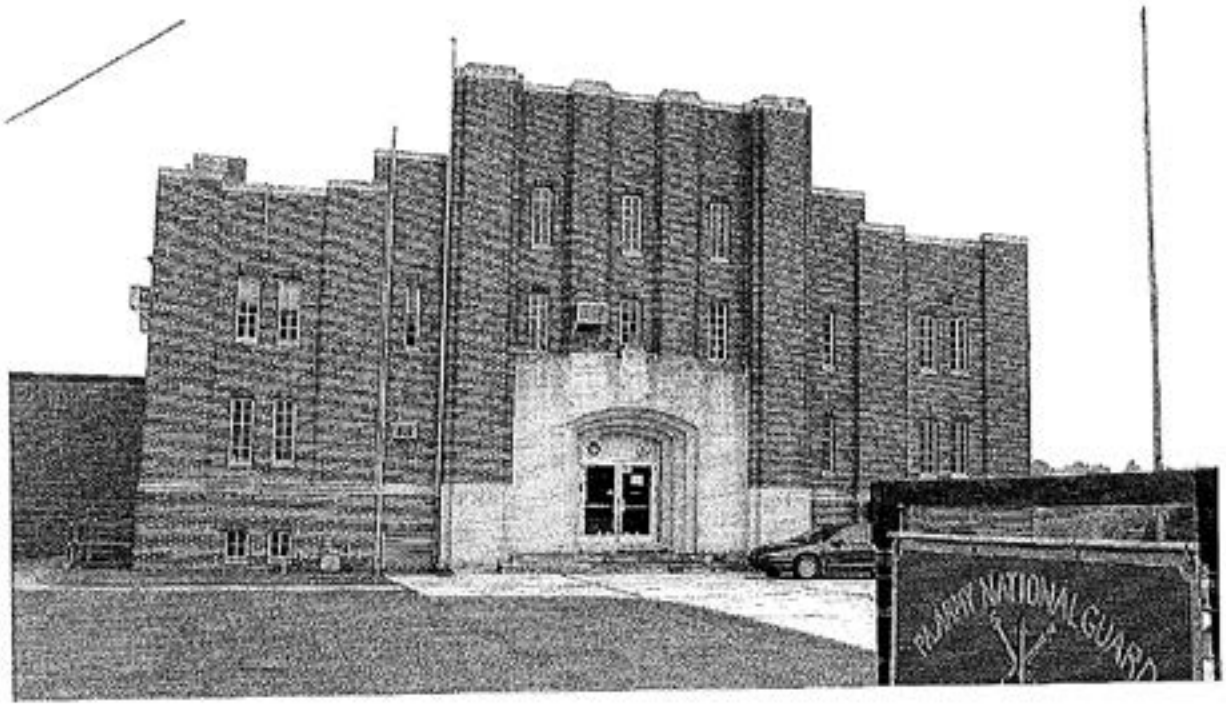
1. ILLUMINATION

1.1. Illumination levels were below recommended minimum standards in some areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

2. LEAD WIPE SAMPLES

2.1. Wipe samples for inorganic lead collected in the weight room, kitchen storage room, male latrine and the windowsill in the former range exceeded the 200 $\mu g/ft^2$ criteria. Lower levels of lead were detected in other areas. Suspect that lead contamination is from former firing range activities as well as lead paint. Recommend effected areas be wet-wiped/mopped and/or cleaned with a high efficiency particulate air (HEPA) vacuum. This same method of cleaning should be repeated during routine housekeeping duties, to further reduce lead dust levels.

DET 1 BTRY B 1/213th ADA
HAMBURG, PENNSYLVANIA
INDUSTRIAL HYGIENE SURVEY



1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Armory in Hamburg, Pennsylvania on June 23, 2003. The NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. Non-Resp Non-R from OpTech, completed this survey. Non-Responsive a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the IH Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D.

2.0. EXECUTIVE SUMMARY

2.1. No indoor air quality problems were noted.

2.2. Illumination levels were below recommended minimum standards in some areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting would improve some areas.

2.3. Wipe samples for inorganic lead were collected throughout the facility. Samples collected in the weight room, kitchen storage room, male latrine and the windowsill in the former range exceeded the 200 $\mu g/ft^2$ criteria. Lower levels of lead were detected in other areas. Suspect that lead contamination is from former firing range activities as well as lead paint.

2.4. Air sampling for inorganic lead was accomplished. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	DET 1 BTRY B 1/213th ADA		
ADDRESS	321 North 5th Street		
	Hamburg, PA		
CONTACT	SFC [redacted] Non-Response		
PHONE	610-562-7520		
DATE BUILT	1937	FACILITY SIZE	15,153 sq. ft.
INDOOR FIRING RANGE	CLOSED		2-floors plus basement
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	2		
TRADITIONAL (MIL)	70		
CHILD ACTIVITIES	None		
ADULT ACTIVITIES			

3.1.1. The exterior of the building is brick and appears to be in good condition. The interior of the facility has been well maintained. The facility is heated with a natural gas steam furnace and is cooled by window air conditioners.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity (RH) in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 Indoor Air Quality Standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ASHRAE 62-2001, Section 6.1.3, states that concentrations up to 700 ppm CO_2, above outdoor concentrations will achieve an acceptable level of indoor air quality.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ASHRAE 55-1992 recommends that temperature ranges be 73 to 79 degrees Fahrenheit (°F) during the summer and 68 to 74°F during the winter. Relative humidity levels be maintained between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE 1
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO2 (ppm)	Temp. (°F)	RH (%)
1350	Outdoors – Background	0.0	470	74.2	54.2
1408	Former Range Area	0.0	525	75.8	58.4
1411	Assembly Hall	0.0	518	74.8	59.1
1414	1SGT's Office	0.0	511	73.2	58.4
1418	NCO Club	0.0	508	73.4	58.6
1421	Mate Latrine	0.0	503	74.6	58.6
1426	Locker Room	0.0	504	74.1	57.1
1430	Classroom	0.0	508	73.6	56.2
1432	Boiler Room	0.0	517	73.8	54.4
1436	Kitchen	0.0	514	74.8	56.1
1439	Former Range Area	0.0	505	73.2	54.2
1444	Dining Hall	0.0	502	71.9	54.3
1450	Supply Room	0.0	511	72.3	58.1

3.2.5. No indoor air quality problems were noted.

3.3. ILLUMINATION

3.3.1. Illumination levels were measured in most areas of the facility. Sunlight was excluded, as much as possible for this survey, by closing doors and blocking windows. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 – 463). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
Classroom	38 - 50	44	70	NO
Locker Room	38 – 46	41	40	YES
Female Latrine	30 - 40	35	40	NO
NCO Club	36 – 48	42	30	YES
1SG[illegible]'s Office	46 - 56	50	70	NO
Garage	40 – 50	44	75	NO
Supply Room	40 – 48	43	40	YES
Former Range (storage)	32 - 44	38	40	NO
Kitchen	28 - 50	41	75	YES
Boiler Room	36 - 42	39	15	YES

3.3.2. Levels were below recommended minimum standards in some areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3.4. WIPE SAMPLES

3.4.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples were taken at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot ($\mu g/ft^2$) and are listed in Table 3. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Ham-03174-24	Kitchen – Window Sill	123
PA Ham-03174-25	Weight Room – Top of Locker	279
PA Ham-03174-26	Boiler Room – Pipe	182
PA Ham-03174-27	Basement Kitchen Supply Room	395
PA Ham-03174-28	Break Room – AC Unit	98
PA Ham-03174-29	BLANK Sample	BDL

µg/ft² – micrograms per square foot BDL – Below Detection Levels

3.4.2. Additional wipe samples were collected during this survey. These samples were collected to further analyze the extent of contamination should the first five samples indicate a possible hazard. Since the samples collected in weight room and kitchen supply room exceeded the 200 $\mu g/ft^2$ criterion (see Section 3.4.4), these additional samples were analyzed. The results are presented in Table 4.

TABLE 4
ADDITIONAL WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Ham-03174-30	Male Latrine – Window Sill	500
PA Ham-03174-31	Assembly Hall	BDL
PA Ham-03174-32	Classroom Window Sill	BDL
PA Ham-03174-33	2nd Floor – 2nd Office on Left	120
PA Ham-03174-34	Corner Office Cabinet	BDL
PA Ham-03174-35	BLANK Sample	BDL

µg/ft² = micrograms per square feet BDL = Below Detection Limits (10 µg/ft²)

3.4.3. CLOSED FIRING RANGE WIPE SAMPLING

3.4.3.1. Additional wipe samples were collected in the former indoor firing range. This area was cleaned in January 2003. This area is presently being utilized for storage. The laboratory analysis results are listed in Table 5.

TABLE 5
FORMER FIRING RANGE WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Ham-03174-36	Bookshelf	75
PA Ham-03174-37	Top Shelf	114
PA Ham-03174-38	Floor	25
PA Ham-03174-39	Window Sill	1,864
PA Ham-03174-40	Backstop Floor	73
PA Ham-03174-41	BLANK Sample	BDL

µg/ft² = micrograms per square feet BDL = Below Detection Limits

3.4.4. WIPE SAMPLING RESULTS

3.4.4.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 $\mu g/ft^2$. This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. (See memorandum in Attachment E, Recommendations for Surface Lead Dust in Armories.) Samples collected in the weight room, kitchen storage room, male latrine and the windowsill in the former range exceeded the 200

µg/ft² criteria. Lower levels of lead were detected in other areas of the facility. Suspect that lead contamination is from former firing range activities as well as lead paint.

3.4.5. AIR SAMPLING

3.4.5.1. Air Sampling for inorganic lead was performed during this survey. Table 6 lists the results of these samples, and is reported in milligrams per cubic meter (mg/m³) of air.

TABLE 6
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
Non-R 1	PA Ham-03174-22	Lead	<0.003 mg/m³	0.05 mg/m³	YES
Area – Kitchen	PA Ham-03174-23	Lead	<0.003 mg/m³	0.05 mg/m³	YES

mg/m³ = milligrams per cubic meter < = less than (below detection limits)

3.4.5.2. Air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m³ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this building.

3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION DAMAGE

3.5.1.1. There was no visible water intrusion damage noted in the facility.

3.5.2. LEAD PAINT

3.5.2.1. No peeling paint was observed and no samples were collected.

3.5.3. ASBESTOS

3.5.3.1. There was no suspected asbestos containing material reported of observed in the building.

3.5.4. PROGRAMS

3.5.4.1. There are no designated confined space areas within this facility. There are no exhaust ventilation systems to control a hazard. No chemicals besides normal cleaning materials are present. Therefore, a need has not been established for a HAZCOM program, the need for

personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.5. HOUSEKEEPING

3.5.5.1. The facility has been kept impressively clean and orderly.

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

E – Recommendations for Surface Lead in Armories

F – Field Notes
- Equipment Listing

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
Hamburg, PA	PENNSYLVANIA ARNG ARMORY	Hamburg Armory

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR (Initials)
23 June 2003	JSS

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	NA	SFC Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
610-362-7520	DET 1 BTRY B 1/213TH ADA	3	9

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
2	70			

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	CONROLS 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			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	½ FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	¼ 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 WEATHR 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	/		

AEHA Form 271-R (Test), 1 Jan 92 (HSHB-MI-I)

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	3	C

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

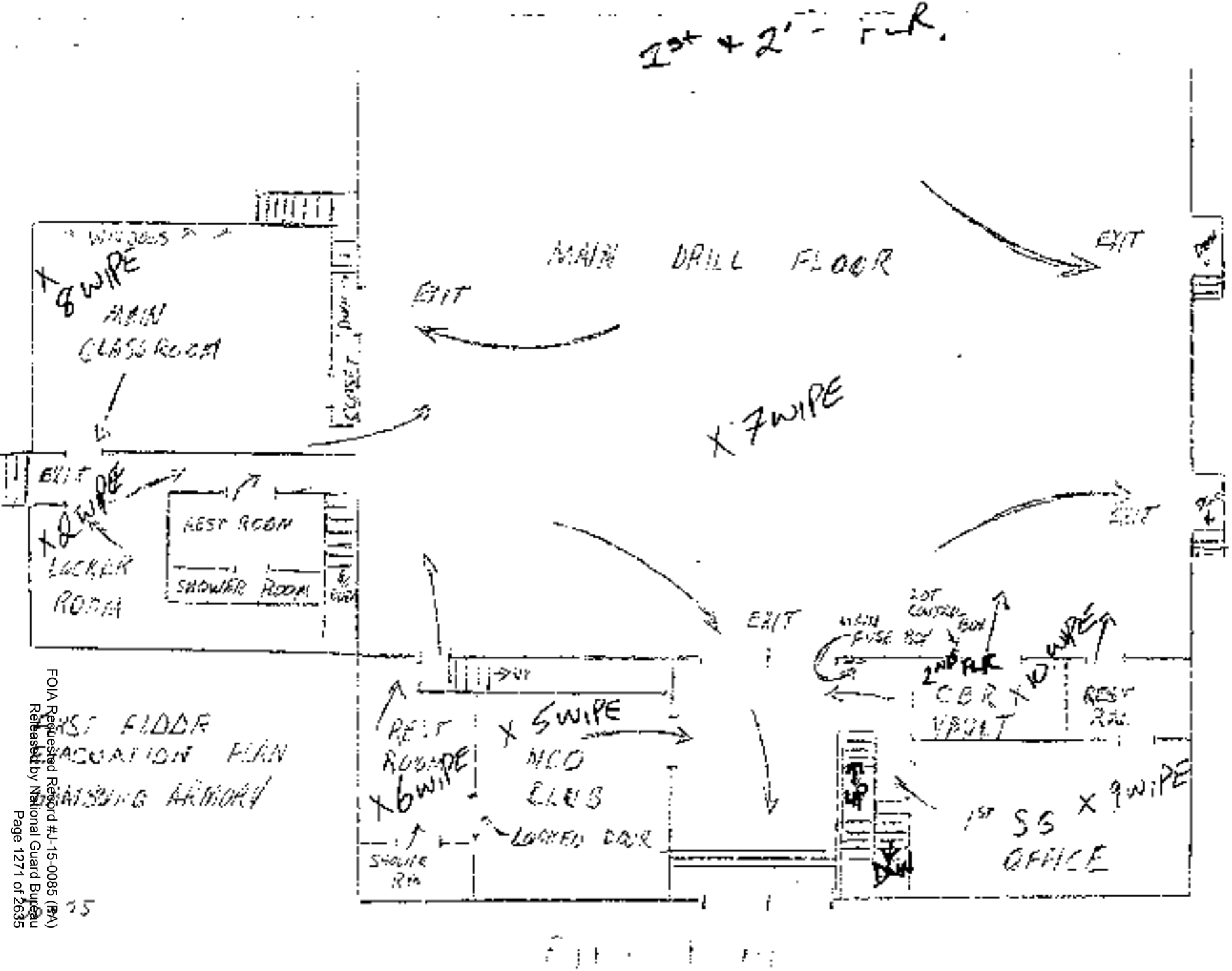
SECTION 6. COMMENTS

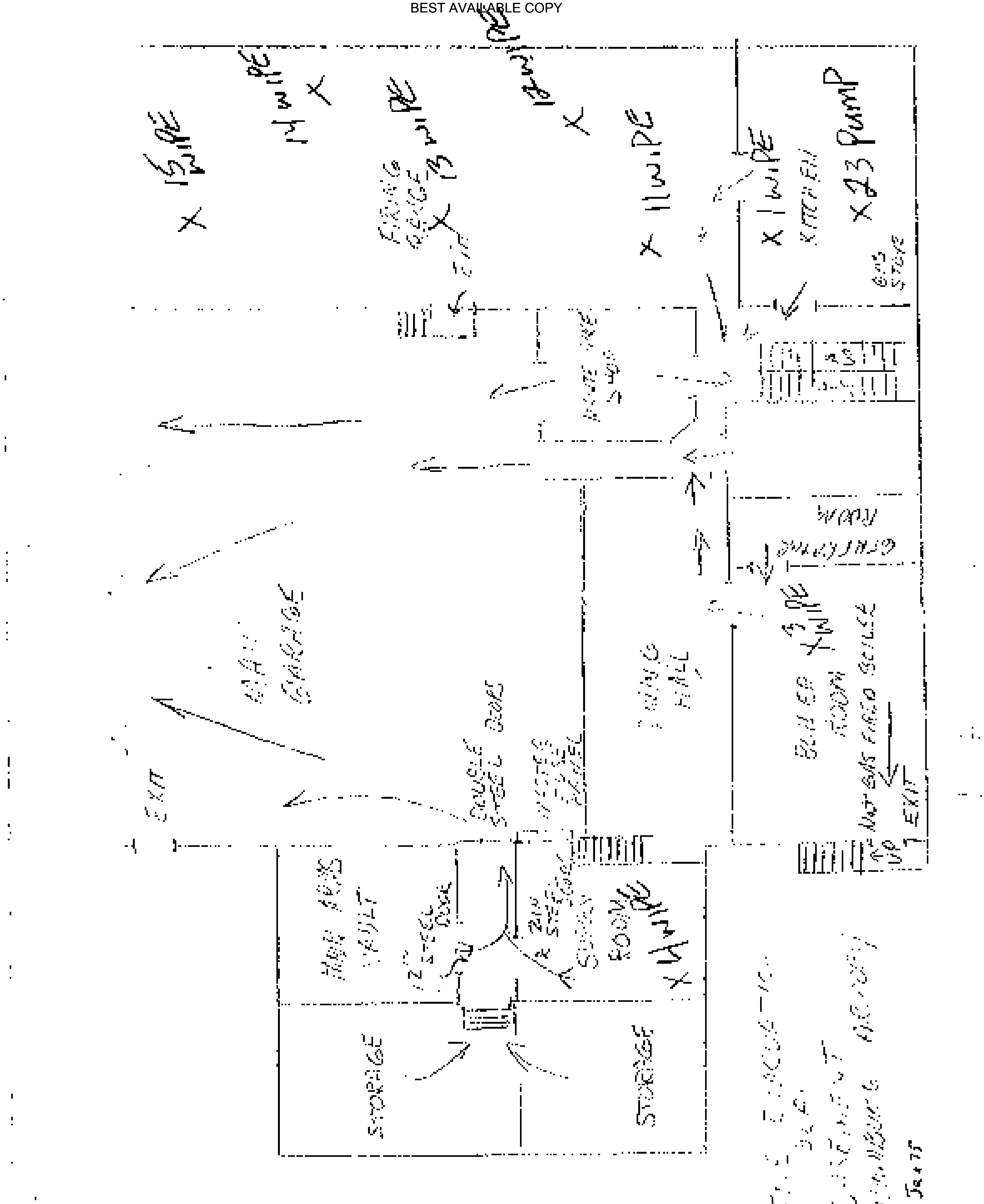
☐ No comments ☐ See attached sheet

PRIVACY ACT STATEMENT

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

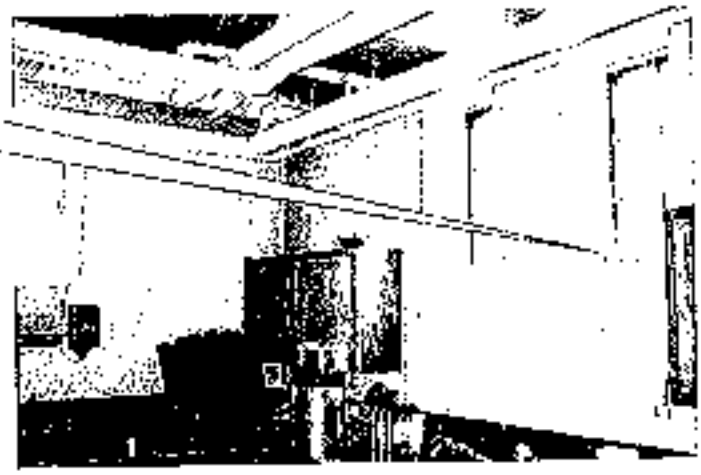
Disclosure of your Social Security Number is not mandatory; however, nondisclosures may result in untimely provision of proper medical monitoring.





DET 1 BTRY B 1/213TH ADA
HAMBURG, PENNSYLVANIA

(1) PA Ham-03174-24
Kitchen



(2) PA Ham-03174-25
Fitness Center

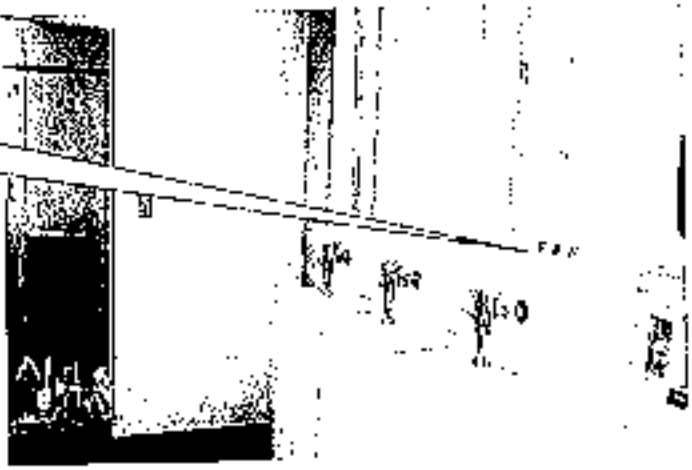
(3) PA Ham-03174-26
Boiler Room

Attachment B

(4) PA Ham-03174-27
Supply Room

ADDITIONAL SAMPLES

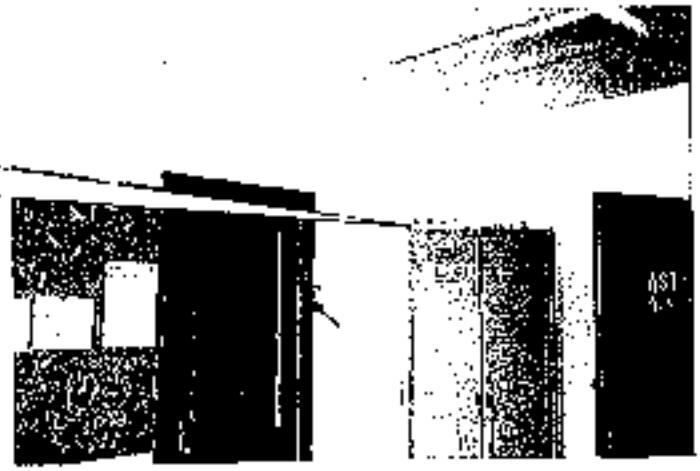
(6) PA Ham-03174-30
Male Latrine



(7) PA Ham-03174-31
Assembly Hall

Attachment B

(8) PA Ham-03174-32
Classroom



(9) PA Ham-03174-33
1st SGT's Office

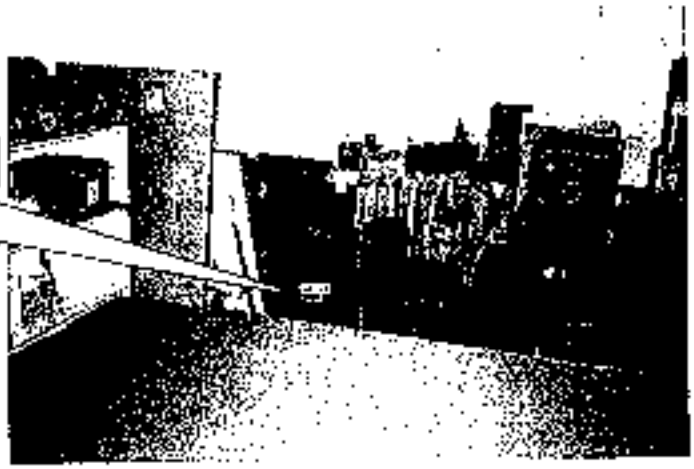
FORMER INDOOR FIRING RANGE

(12) PA Ham-03174-37
Former Range
Stored Equipment

Attachment B

(14) PA Ham-03174-39
Former Range
Window Sill

(15) PA Ham-03174-40
Former Range
Backstop Floor



Attachment B

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
AIHA Certificate of Accreditation #480 LAP ID 101533

TABLE ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number: RES 95335-1
Client: Operational Technologies, Corp.
Client Project Number / P.O.: 06 03
Client Project Description: Armories/ Pennsylvania
Date Samples Received: July 11, 2003
Analysis Type: USEPA SW846 3050B / AA(7420)
Turnaround: 3-5 Day
Date Samples Analyzed: July 15, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA HAM-03174-36	EM 794550	0.11	8.3	23	75
PA HAM-03174-37	EM 794551	0.11	12.5	23	114
PA HAM-03174-38	EM 794552	0.11	2.7	23	25
PA HAM-03174-39	EM 794553	0.11	205.0	23	1864
PA HAM-03174-40	EM 794554	0.11	8.0	23	73
PA HAM-03174-41	EM 794555	0.11	BDL	23	BDL
PA REA-03175-03	EM 794556	0.11	15.0	23	136
PA REA-03175-04	EM 794557	0.11	BDL	23	BDL
PA REA-03175-05	EM 794558	0.11	2.8	23	25
PA REA-03175-06	EM 794680	0.11	BDL	23	BDL
PA REA-03175-07	EM 794681	0.11	BDL	23	BDL
PA REA-03175-08	EM 794682	0.11	BDL	23	BDL
PA ANN-03175-18	EM 794683	0.11	BDL	23	BDL
PA ANN-03175-19	EM 794684	0.11	BDL	23	BDL
PA ANN-03175-20	EM 794685	0.11	BDL	23	BDL
PA ANN-03175-21	EM 794686	0.11	12.0	23	109
PA ANN-03175-22	EM 794687	0.11	2.7	23	25
PA ANN-03175-23	EM 794688	0.11	BDL	23	BDL
PA ANN-03175-33	EM 794689	0.11	7.6	23	69
PA ANN-03175-34	EM 794690	0.11	3.3	23	30
PA ANN-03175-35	EM 794691	0.11	12.2	23	111
PA ANN-03175-36	EM 794692	0.11	BDL	23	BDL
PA ANN-03175-37	EM 794693	0.11	7.2	23	65
PA ANN-03175-38	EM 794694	0.11	BDL	23	BDL

*Calculations Based On A 1 sq.ft. Sample Area Unless Otherwise Noted

BDL = Below Detection Limit

Data Qa

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client:	National Guard Bureau	**Job Name:**	Pennsylvania Armories-Hamburg	**Chain Of Custody:**	117535
Address:	301-EH Old Bay Lane, Attn: NGB-AVN-SI, State Military Reservation	**Job Location:**	Not Provided	**Date Analyzed:**	09/22/2003
	Havre de Grace, Maryland 21078	**Job Number:**	Not Provided	**Person Submitting:**	[redacted]
		P.O. Number:	Not Provided	**Report Date:**	22-Sep-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
0367572	PA-Ham-03174-30	Flame	Wipe	****	0.111	108.01	ug/ft²	500	ug/ft²	
0367573	PA-Ham-03174-31	Flame	Wipe	****	0.111	108.01	ug/ft²	< 110	ug/ft²	
0367574	PA-Ham-03174-32	Flame	Wipe	****	0.111	108.01	ug/ft²	< 110	ug/ft²	
0367575	PA-Ham-03174-33	Flame	Wipe	****	0.111	108.01	ug/ft²	120	ug/ft²	
0367576	PA-Ham-03174-34	Flame	Wipe	****	0.111	108.01	ug/ft²	< 110	ug/ft²	
0367577	PA-Ham-03174-35	Flame	Wipe	****	0.111	108.01	ug/ft²	< 110	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.

Analyst: [redacted] Technical Manager: [redacted]

An AIHA (#8863), NVLAP (# 101143), & New York ELAP (#10920) Accredited Laboratory

4475 Forbes Blvd. • Lanham, MD 20706 • (301) 459-2640 • Toll Free (800) 346-0961 • Fax (301) 459-2643

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m^3
PA Ber-03171-01	03-20704	338.4	ND	<0.003
PA Ber-03171-02	03-20705	327.0	ND	<0.003
PA Wes-03171-16	03-20706	423.5	ND	<0.002
PA Wes-03171-17	03-20707	414.8	ND	<0.002
PA Kut-03174-01	03-20708	467.4	ND	<0.002
PA Kut-03174-02	03-20709	463.1	ND	<0.002
PA Ham-03174-22	03-20710	333.0	ND	<0.003
PA Ham-03174-23	03-20711	323.8	ND	<0.003
PA Rea-03175-01	03-20712	158.6	ND	<0.006
PA Rea-03175-02	03-20713	162.1	ND	<0.006
PA Ann-03175-16	03-20714	159.6	ND	<0.006
PA Ann-03175-17	03-20715	147.5	ND	<0.007
PA Ann-03175-31	03-20716	147.5	ND	<0.007
PA Ann-03175-32	03-20717	142.7	ND	<0.007
PA Pot-03176-01	03-20718	281.9	ND	<0.004
PA Pot-03176-02	03-20719	266.8	ND	<0.004
PA Sel-03177-01	03-20720	382.4	ND	<0.003
PA Sel-03177-02	03-20721	377.2	ND	<0.003
PA Pho-03177-16	03-20722	354.4	ND	<0.003
PA Pho-03177-17	03-20723	348.6	ND	<0.003
	Prep Blank		ND	
% Recovery	LCS 5		97.	
% Recovery	LCS 6		98.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non-[redacted]@md.ngb.army.mil

Attachment D

REFERENCE LIST INDEX

1. General Regulations and National Consensus Standards
2. Specific Regulations and Guidance
   a. Abrasive Blasting
   b. Asbestos
   c. Battery Charging Room
   d. Bird and Bat Manure
   e. Bloodborne Pathogens
   f. Chemical Agent Resistant Coating (CARC) Paint
   g. Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE)
   h. Confined Space Entry Program
   i. Design Review
   j. Ergonomics
   k. Flammable Storage Room
   l. Hazard Communication
   m. Hearing Conservation
   n. Indoor Air Quality
   o. Indoor Firing Ranges
   p. Lead
   q. Lighting
   r. Occupational Vision
   s. Paint Spray Booth
   t. Personal Protection
   u. Radiation Protection
   v. Respiratory Protection
   w. Sanitation
   x. Smoking
   y. Vehicle Exhaust
   z. Welding Operation

GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REFERENCE LIST

1. General Regulations and National Consensus Standards
   a. DODI 6055.1, DOD SOH Program, 19 August 1998.
   b. DODI 6055.5, DOD OEH. *[DRAFT]*
   c. DOD 6055.5-M, DOD Occupational Health Surveillance Manual, 13 May 1987.
   d. DODI 6050.5, DOD Hazard Communication, 29 Oct 90. Change 1, 6 May 1996.
   e. AR 40-5, Preventive Medicine, 15 October 1990. [05/2002 Being Updated]
   f. DA PAM 40-5, Preventive Medicine. *[DRAFT]*
   g. AR 385-10, The Army Safety Program, 29 February 2000.
   h. NGR 385-10, ARNG SOH Program, 7 October 1988, Change 1, 29 December 1989.
   i. Title 29, Part 1910, Occupational Safety and Health Standards. [Current Date]
   j. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 2002.
   k. ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th edition, 2001.
   l. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.
   m. TG 141, USACHPPM Industrial Hygiene Sampling Guide, November 1997.
   n. National Safety Council, Fundamentals of Industrial Hygiene, 5th Edition, 2002.
   o. NIOSH, Pocket Guide to Chemical Hazards, 2001.
   p. NFC, A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. [Current date]
   q. ASHRAE Standards. [Current Dates]
   r. ANSI Standards. [Current Dates]

2. Specific Regulations/Guidance
   a. **ABRASIVE BLASTING**
      (1) ANSI Z9.4 1997, Abrasive Blasting Operations - Ventilation and Safe Practices.
      (2) 29 CFR 1910.94 Ventilation
      (3) 42 CFR 84

   b. **ASBESTOS**
      (1) AR 40-5, Preventive Medicine, 15 October 1990. *[05/2002 Being Updated]*
      (2) AR 200-1, Environmental Protection and Enhancement, Chapter 8, 21 February 1997.
      (3) TB MED 513, Guidelines for the Evaluation and Control of Asbestos Exposure, 15 December 1986. *[05/2000 Under Revision as DA PAM 40-513]*
      (4) TG 157, USAEHA, The Installation Asbestos Management Program Assessment Checklists, July 1994.
      (5) 29 CFR 1910.1001
      (6) 29 CFR 1926.58 (prior to 1994 CFR)
      (7) 29 CFR 1926.1101

(8) MEMORANDUM SGPS-PSP, OTSG, subject: AMEDD Role Supporting Asbestos Abatement/Asbestos Management Programs, 19 Jan 89.

(9) EPA, Guidance for Controlling Asbestos-Containing Materials in Buildings, June 1985.

(10) DD Form 2493-1 (Asbestos Exposure, Part I--Initial Medical Questionnaire)

(11) DD Form 2493-2 (Asbestos Exposure, Part II--Periodic Medical Questionnaire)

(12) EPA NESHAPS Asbestos Regulation (40 CFR 61, Subpart M).

c. **BATTERY CHARGING ROOM**

(1) TG 022, USAEHA, page 81, Industrial Hygiene Evaluation Guide, October 1975. *[Out of Print]*

(2) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

d. **BIRD AND BAT MANURE**

(1) TG 142, USAEHA, Managing Health Hazards Associated with Bird and Bat Excrement, Dec 1992.

e. **BLOODBORNE PATHOGENS**

(1) 29 CFR 1910.1030

(2) TG 190, USAEHA, Guide to Managing Occupational Exposure to Bloodborne Pathogens, Jan 94.

f. **CHEMICAL AGENT RESISTANT COATING (CARC) PAINT**

(1) TG 144, USAEHA, Guidelines for Controlling Health Hazards in Painting Operations, 24 August 1987.

(2) DA LTR, USAEHA, HSHB-MI-WR, subject: Respiratory Protection When Spraying CARC, 19 November 1992.

(3) TM 43-0139, Painting Instructions for Army Material, 27 July 1988I Aug 86.

(4) MEMORANDUM SGPS-PSP, OTSG, subject AMEDD, Occupational Health Requirements in Support of Painting in the Army, 22 February 1985.

(5) AR 750-1, Army Materiel Maintenance Policy and Retail Maintenance Operations (Prohibits welding on CARC paint) 1 July 1996.

g. **CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR, EXPLOSIVE (CBRNE)**

(1) DODI 2000.gg, DOD Installation CBRNE Emergency Response Guidelines.

(2) DHHS, NIOSH Pub No. 2002 139, Guidance for Protecting Building Environments from Airborne Chemical, Biological, or Radiological Attacks, May 2002.

(3) TG 275, USACHPPM, Personal Protective Equipment Guide for Medical Treatment Facility Personnel Handling Casualties from Weapons of Mass Destruction and Terrorism Events. *[Draft]*

h. **CONFINED SPACE**

(1) 29 CFR 1910.146 (Confined Space Entry)
(2) 29 CFR 1910.147 (Lockout/Tagout)
(3) ANSI Z117.1-Safety Requirements for Confined Spaces, 1995.
(4) SOP for ARNG Confined Space Entry Program, 25 April 1991.
(5) Letter, US Dept of Labor (DOL) addressed to Vanessa Char, 22 Apr 1994.
(6) OSHA Instruction STD 1-7.3, US DOL, subject: 29 CFR 1910.147, the Control of Hazardous Energy (Lockout/Tagout)--Inspection Procedures and Interpretive Guidance, 11 Sep 90.
(7) DHHS, NIOSH Pub No. 87113, A Guide to Safety in Confined Spaces, July 1987.
(8) Confined Space Entry Program for Helicopters, 2003.

i. **DESIGN REVIEW**

(1) DG 415-1, Design Guide for Armories, current.
(2) DG 415-2, Design Guide for Logistics Facilities, current.
(3) DG 415-3, Design Guide for Training Site Facilities, current.
(4) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.
(5) TI-300, 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.
(6) UFGS 15940A, Overhead Vehicle Tailpipe (and welding Fume) Exhaust Removal Systems, December 2001.
(7) ASHRAE, Standard 62-2002, Ventilation for Acceptable Indoor Air Quality.
(8) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

j. **ERGONOMICS**

(1) DA PAM 40-21, Medical Services, Ergonomics Program, 15 May 2000.
(2) ANSI Z-365, Management of Work Related Musculoskeletal Disorders, 2000.
(3) 29 CFR 1910. *[PROPOSED STANDARD]*

k. **FLAMMABLE STORAGE ROOM**

(1) 29 CFR 1910.106
(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

l. **HAZARD COMMUNICATION**

(1) 29 CFR 1910.1200
(2) NGR 385-10, Chapter 6

m. **HEARING CONSERVATION**

(1) DA PAM 40-501, Medical Services, Hearing Conservation Program, 10 December 1998.

(2) TG 181, USAEHA, Noise Dosimetry and Risk Assessment, May 1999.

(3) TG 175, USAEHA, Readiness thru Hearing Conservation: Guide for Unit Commanders and Supervisors, June 1999.

(4) 29 CFR 1910.95

n. **INDOOR AIR QUALITY (IAQ)**

(1) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

(2) USACERL Technical Report P-91/42, IAQ Management for Operations and Maintenance Personnel, September 1991.

(3) EPA 400/1-91/003 or DHHS, NIOSH, Publication No. 91-114, Building IAQ, A Guide for Building Owners and Facility Managers, December 1991.

(4) ASHRAE, Standard 62-2002, Ventilation for Acceptable IAQ.

(5) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

(6) NIOSH, IAQ Selected References, Sep 1989.

(7) OSHA Instruction CPL 2-2.20B CH-1, Directorate of Technical Support, 13 Nov 90.

(8) DA PAM 25-52, Mail Facility Security and Handling Suspicious Mail, 6 November 2001.

(9) ASTM, D 5952-96, 10 May 1996.

o. **INDOOR FIRING RANGES**

(1) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(2) NGR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges, 30 March 1990. *[11/02 Under Revision]*

(3) CEHND 1110-1-18, USACE Design Manual for Indoor Firing Range, June 1990.

(4) HQDA LTR, Office of the Adjutant General, DACS-SF, subject: Inspection and Evaluation of US Army Indoor Firing Ranges, 26 March 1993.

(5) Departments of the Army and Air Force, NGB-ADE-OM, subject: All State Log Number (I920323) Indoor Range Clean-up at State Owned Armories, 28 July 1992.

(6) NIOSH, Technical Information, December 1975, subject: Lead Exposure and Design Considerations for Indoor Firing Ranges.

(7) All-States Ltr P01-0075, 5 December 2001.

(8) Information Paper, Alternative Ammunition, 15 March 1996.

(9) Information Paper, Bullet Traps, 26 April 1996.

(10) Information Paper, ARNG IFR Action Plan, 28 January 2002.

p. **LEAD**

(1) 29 CFR 1910.1025

(2) 29 CFR 1926.62

(3) 24 CFR 35.61 (HUD, Percentage of Lead in Paint)

(4) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(5) OSHA Instruction CPL 2-2.58, Office of Health Compliance Assistance, 13 December 1993.

(6) Federal Register, 18 April 1990, Vol. 55, No. 75, HUD, Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing, as amended, September 1990, Office of Public and Indian Housing, Department of Housing and Urban Development, 451 Seventh Street, SW, Washington, DC 20410.

(7) NIOSH, Request for Assistance in Preventing Lead Poisoning in Construction Workers, April 1992.

(8) EPA, Strategy for Reducing Lead Exposures, 21 Feb 91.

q. **LIGHTING**

(1) RP-1-1993, Office Lighting, ANSI/IESNA.

(2) RP-7-2001, Industrial Lighting, IES.

r. **OCCUPATIONAL VISION**

(1) DA PAM 40-506, Medical Services, The Army Vision Conservation and Readiness Program, 20 July 2001.

(2) ANSI Z87.1, Practice for Occupational and Educational Eye and Face Protection, 1989, Change A, REAF 1998.

(3) ANSI Z358.1 for Emergency Eyewash and Shower Equipment, 1998.

(4) OTSG Memorandum SGPS-PSP, subject: Acanthameoba Keratitis and Eyewash Stations, 8 May 89.

(4) 29 CFR 1910.133

s. **PAINT SPRAY BOOTH**

(1) NFPA No. 33, Standard for Spray Application Using Flammable and Combustible Materials, 1995.

(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

(3) 29 CFR 1910.94

(4) 29 CFR 1910.107

(5) ANSI Z9.3-1995 for Exhaust Systems - Spray Finishing Operations - Safety Code for Design, Construction, and Ventilation.

(6) ANSI Z9.2-2001, Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems.

t. **PERSONAL PROTECTIVE EQUIPMENT**

(1) Quick Selection Guide to Chemical Protective Clothing, 2nd edition, Forsberg, K and Mansdorf, S., 1993.

(2) Chemical Protective Clothing, Vol 1 and 2, Johnson, J. and Anderson, K., American Industrial Hygiene Association, 1990.

(3) Guidelines for the Selection of Chemical Protective Clothing, 3rd Edition, ACGIH, Inc., Feb 1987.

u. **RADIATION PROTECTION PROGRAM**

(1) NGR 385-11, Safety, Ionizing and Nonionizing Radiation Protection, 18 February 1999.

(2) AR 11-9, Army Radiation Safety Program, 28 May 1999.

(3) 29 CFR 1910.96

(4) 29 CFR 1910.97

v. **RESPIRATORY PROTECTION**

(1) AR 11-34, The Army Respiratory Protection Program, 15 February 1990. *[11/02 Being Updated]*

(2) 29 CFR 1910.134

(3) 42 CFR 84

(4) TB MED 502, Respiratory Protection Program, February 1992. *[11/02 Being Updated as DA PAM 40-502]*

(5) ANSI/CGA G-7.1-1997, Commodity Specification for Air.

(6) ANSI Z88.2-1992, Standard for Respiratory Protection.

w. **SANITATION**

(1) ANSI Z4.1-1986, Change REAF 1995, Sanitation in Places of Employment-Minimum Requirements.

(2) 29 CFR 1910.141

x. **SMOKING**

(1) AR 600-63, Army Health Promotion, 28 April 1996.

(2) DODI 1010.15, Smoke-Free DOD Facilities, 2 January 2001.

(3) DODD1010.10, Health Promotion, 11 March 1986.

y. **VEHICLE EXHAUST**

(1) ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th Edition, 2001.

(2) TI-300f 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

z. **WELDING OPERATION**

(1) 29 CFR 1910.252

(2) 29 CFR 1910.253

(3) 29 CFR 1910.254

(4) ANSI/AWS Z49.1-1999, Safety in Welding and Cutting and Allied Processes.

(5) TM 5-805-7, Welding Design, Procedures and Inspection, 20 May 85.

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 $\mu g/ft^2$) and windowsills (250 $\mu g/ft^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of 200 $\mu g/ft^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 $\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 $\mu g/ft^2$ on floors and 250 $\mu g/ft^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

PA 624

INDUSTRIAL HYGIENE SURVEY
PENNSYLVANIA

		SURVEY DATE	6-23-03
FACILITY	DET 1 BTRY B 1/213TH ADA		
ADDRESS	321 North 5th Street		
	Hamburg, PA		
CONTACT	SFC [redacted]		
PHONE	610-562-7520		
DATE BUILT	1937	FACILITY SIZE	15153 SqFt
RANGE	Inactive		
ASSISTED			

STAFF - 2 RENTAL - NO
DRILL - 70

PAINT CONDITION:		
INDOORS	BLOCK	Sample?
OUTDOORS	BRICK	Sample?

ASBESTOS		
Area/condition	NO	
Area/condition	NO	

WATER DAMAGE		
Area/condition	NO	
Area/condition	NO	

HOUSEKEEPING: GOOD

TIME	AREA	CO	CO_2	TEMP	RH
1350	OUTSIDE	0.0	470	74.2°F	54.2%
1408	RANGE AREA	0.0	525	75.8°F	58.4%
1411	DRILL FLR	0.0	518	74.8°F	59.1%
1414	FSG OFF	0.0	511	73.2°F	58.4%
1418	NCO CLUB	0.0	508	73.4°F	58.6%
1421	M) LATRINE	0.0	503	74.6°F	58.6%
1426	LOCKER RM	0.0	504	74.1°F	57.1%
1430	CLASS RM	0.0	508	73.6°F	56.2%
1433	BOILER RM	0.0	517	73.8°F	54.4%
1436	KITCHEN	0.0	514	74.8°F	56.1%
1439	RANGE	0.0	605	73.2°F	54.2%
1444	DINNING HALL	0.0	502	71.9°F	54.3%
1450	SUPPLY RM	0.0	511	72.3°F	58.1%
				°F	%
				°F	%
				°F	%
				°F	%

INDUSTRIAL HYGIENE SURVEY
PENNSYLVANIA

WIPE SAMPLES		ARMORY	Picture #	
PA Ham-03	174 24	~~HVAC supply side of filter~~ KITCHEN WINDOWSILL	1	123
PA Ham-03	" " 25	~~HVAC on fan side of filter~~ WEIGHT RM TOP LOCKER	2	279
PA Ham-03	" " 26	~~Assembly Hall~~ BOILER RM PIPE	3	182
PA Ham-03	" " 27	~~Kitchen~~ SUPPLY (KIT) BASE	4	395
PA Ham-03	" " 28	~~Supply air grille in occupied office~~ BREAK RM AC	5	78
PA Ham-03	" " 29	BLANK	—	1302
PA Ham-03	" " 30	M) LATRINE WINDOWSILL	6	5010
PA Ham-03	" " 31	DRILL FLR	7	304
PA Ham-03	" " 32	CLASSRM WINDOWSILL	8	301
PA Ham-03	" " 33	OFF. 2 LEFT UPSTAIRS	9	12.0
PA Ham-03	" " 34	CORNER OFF CABINET	10	302
PA Ham-03	" " 35	BLANK	—	1302
PA Ham-03				
PA Ham-03				
PA Ham-03				
PA Ham-03				
PA Ham-03				
PA Ham-03		BLANK		

AIR SAMPLING

Sample #	Pump #	Person/Area	Precal lpm	Postcal lpm	Time On	Time Off	Run Time	Volume (Liters)
PA Ham-03 11/22	549609	PENSON	3.159	3.112	1401	1548	107	333.0
PA Ham-03 " " 23	549627	KITCHEN	3.136	3.113	1403	1547	104	323.0
PA Ham-03								

INDUSTRIAL HYGIENE SURVEY
PENNSYLVANIA

CONVERTED INDOOR FIRING RANGE WIPE SAMPLES				
PA Ham-03	36	~~Inside any remaining ventilation ductwork~~ BOOKSHELF	11	75
PA Ham-03	37	~~Exhaust ventilation system~~ TOP SHELF	12	114
PA Ham-03	38	~~Bullet trap~~ TRAP	13	25
PA Ham-03	39	~~Light fixtures~~ WINDOW SILL	14	1866
PA Ham-03	40	Overhead Heaters BACKSTOP	15	73
PA Ham-03	41	~~Stored items~~ BLANK		BDL
PA Ham-03		Floor		
PA Ham-03		Outside the range		
PA Ham-03		Blank		
HVAC SYSTEM: evaluate maintenance schedule and quality of maintenance for HVAC syst.				

PROGRAMS		
CONFINED SPACES?	Y – N	
HEARING CONSERVATION?	Y – N	
RESPIRATORY PROTECTION?	Y – N	
HAZCOM?	Y – N	
PPE?	Y – N	
TRAINING?	Y – N	

VENTILATION:

CLEANED IN JANUARY — V

NOISE:

CLASS RM
40, 44, 46, 38, 50 - 43.6 Pc Avg.

LOCKER RM
38, 42, 40, 46, 40 41.2

WJ LATRINE
30, 32, 40, 40, 32 34.8

NCO CLUB
36, 38, 44 48, 46 42.4

156 OFF.
46, 48, 50, 56, 50 50.0

GARAGE
50, 46, 40 42, 44 44.4

SUPPLY RM
42, 44, 48, 42 40 43.2

RANGE
32, 36, 40, 40, 44 38.4

KITCHEN
50, 40, 28, 42, 44 40.8

BOILER RM
40, 38, 36, 38, 40, 42 39.0

PENNSYLVANIA ARMORY
INDUSTRIAL HYGIENE SURVEY
EQUIPMENT LISTING

Air Sampling Pumps
SKC Airchcck Samplers 224-44XR
S/N: 647609, 647610, 647626, 647627, 647654, 648324, 648349, 648393

Air Pump Calibrator
DryCal Base m: DC-1B Rev 2.06F S/N B 1827
DryCal Med Cell: m: DC-MC-1 Rev E S/N 1745

Indoor Air Quality
TSI Q-Trak m: 8550 S/N 11050
Metrosonics Carbon Monoxide Logger m: pm7700 S/N 1129
Metrosonics CO Sensor m: gs 7701 S/N 5073

Noise
Quest Sound Level Meter m: 2800 S/N HS4090023
Quest Octave Filter Set m: OB-300 S/N HV4070020
Quest Acoustic Calibrator m: QC-10 S/N QE4090140
Metrosonics db-3080 Noise Dosimeters S/N 4667, 4685
Microphones

ATTACHMENT E

INDUSTRIAL HYGIENE SURVEY

BTRY A(-) 1ST BN 108TH FA

HANOVER, PA

March 17, 2003

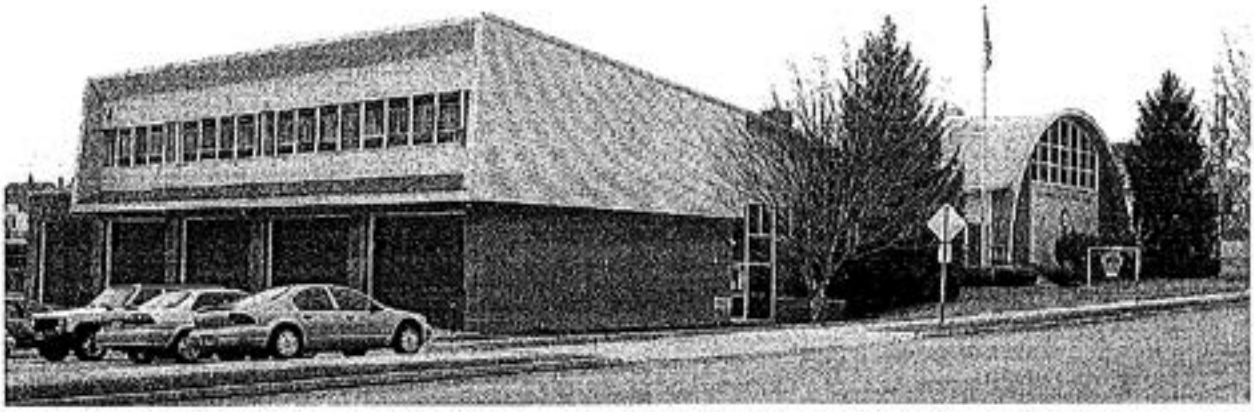
And

August 19, 2003

OPTECH

OPERATIONAL TECHNOLOGIES CORPORATION

BTRY A(-) 1ST BN 108TH FA
HANOVER, PENNSYLVANIA
INDUSTRIAL HYGIENE SURVEY



1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at Armory in Hanover, Pennsylvania on March 17, 2003 with a return visit on August 19, 2003. NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. [redacted] from OpTech, completed this survey. [redacted] a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the IH Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D. A copy of the field notes and a list of industrial hygiene equipment utilized during this survey are presented in Attachment E.

RECOMMENDATIONS

1. ILLUMINATION

1.1. Illumination levels were below recommended minimum standards in a many areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

2. WIPE SAMPLES

2.1. Wipe sampling results for inorganic lead were below the 200 micrograms per square foot criteria except on stored equipment and a heating unit in the former indoor firing range. It was apparent that stored items in and immediately outside the range had not been properly cleaned. Recommend that the stored items in the former range be wet-wiped/mopped or cleaned using a high efficiency particulate air (HEPA) vacuum, then cleaned in this manner during routine housecleaning duties.

3. ASBESTOS

3.1. The upstairs nine-inch tiles were recently removed. Asbestos is present in steam line elbows and joints in the facility. Recommend that the State Maintenance personnel continue to inspect these areas and report any deterioration.

2.0. EXECUTIVE SUMMARY

2.1. No indoor air quality problems were noted in the facility.

2.2. Illumination levels were below recommended levels in most areas.

2.3. Wipe samples for inorganic lead were collected. Three samples in the former range exceeded the 200 $\mu g/ft^2$ criteria. Elevated samples were on stored equipment and a heating unit. It is apparent that the range may have been adequately cleaned, however, stored equipment did not receive a thorough decontamination.

2.4. Air sampling for inorganic lead was taken. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	BTRY A(-) 1ST BN 108TH FA		
ADDRESS			
	51 West Clearview Road		
	Hanover, PA 17331-1612		
CONTACT	SFC Non-Responsive		
PHONE	717-632-9131		
DATE BUILT	1938-42	FACILITY SIZE	13,039 sq.ft.
INDOOR FIRING RANGE	Inactive / CLOSED		2 floors plus Basement
ASSISTED	SSG Non-Responsive & Non-Responsive – State Maint.		
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	5		
TRADITIONAL (MIL)	94		
CHILD ACTIVITIES	None		
ADULT ACTIVITIES	None		

3.1.1. The exterior is brick and appears in good condition. The interior has been kept in very good condition. A steam fuel oil furnace provides heat. The former indoor firing range was being cleaned during the February, 2003 visit. The range cleaning had been completed prior to the August visit. A small ventilation duct had been sealed and the area received a coat of paint to seal walls, floors and ceiling.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 Indoor Air Quality Standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ASHRAE 62-2001, Section 6.1.3, states that concentrations up to 700 ppm CO_2, above outdoor concentrations would achieve an acceptable level of indoor air quality. However, USAF Armstrong Laboratories and other independent studies have concluded that health complaints begin at levels greater than 600 ppm, with significantly greater complaints above 800 ppm.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ASHRAE 55-1992 recommends that temperature ranges should be between 73 to 77 degrees Fahrenheit (°F) during the summer and 68 to 75°F during the winter. Relative humidity levels should remain between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE 1
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO2 (ppm)	Temp. (°F)	RH (%)
1205	Outdoors – Background	0.0	418	66.2	55.9
	2nd Floor				
1225	Classroom (occupied)	0.0	591	73.9	40.7
1235	NCO Room (Break Room)	0.0	577	75.4	37.6
1240	Office A	0.0	563	74.8	37.9
1244	1st SGT's Office	0.0	536	74.9	37.4
1248	Recruiter (occupied)	0.0	560	74.5	38.9
	1st Floor				
1300	Drill Floor	0.0	481	72.5	45.0
1305	Kitchen	0.0	589	72.7	46.6
1310	Enlisted Latrine	0.0	489	73.5	47.2

TIME	AREA	CO (ppm)	CO2 (ppm)	Temp. (°F)	RH (%)
1315	Enlisted Locker Room	0.0	461	74.7	37.0
1317	Officers Latrine	0.0	482	75.6	40.8
	Basement				
1324	Former Firing Range	0.0	448	73.7	44.5
1330	Boiler Room	0.0	450	77.9	48.2
1335	State Maintenance Area (Utility Room)	0.0	444	72.8	37.5
1340	Former Firing Range	0.0	445	73.4	43.9
1345	Garage	0.0	479	74.4	42.2

3.2.5. No indoor air quality problems were noted. Carbon monoxide and carbon dioxide levels were within recommended ranges.

3.3. ILLUMINATION

3.3.1. Illumination levels were taken in most areas of the facility. Outdoor sunlight was excluded, as much as possible for this survey, by closing doors and blocking sunlight. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 - 463). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
2nd Floor				
Orderly Room	52 - 66	58	70	NO
Desks	64 – 78	65	70	NO
South Classroom	56 - 80	68	75	NO
NCO Room (Break Room)	42 – 66	53	30	YES
Storage	34 – 72	48	30	YES
Office A	36 – 64	55	70	NO
Desks	66 – 68	67	70	NO
1st SGT's Office	42 - 74	61	70	NO
Desk	62	62	70	NO
Commander's Office	52 - 82	63	70	NO
Desk	70	70	70	YES
Corridor	12 - 66	27	7.5	YES
Recruiter's Office	60 – 62	56	70	NO
Desks	48 – 58	53	70	NO

Location	Luminance Range (fc)	Average	Standard	Standard Met
1st Floor				
Drill Floor	44 – 80	64	75	NO
Kitchen	46 – 70	59	75	NO
Enlisted Latrine	10 – 26	17	40	NO
Showers	26 – 38	32	20	YES
Enlisted Locker Room	12 – 60	21	40	NO
Officer Latrine	12 – 32	21	40	NO
Shower	12	12	20	NO
Basement				
Boiler Room	14 - 18	17	15	YES
State Maintenance Room (utility Rm.)	44 – 48	46	15	YES
Desk	44	44	70	NO
Former Firing Range (future storage)	10 – 92	44	30	YES

3.3.2. Levels were below recommended minimum standards in many areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting may improve some areas.

3.4. WIPE SAMPLES

3.4.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples were collected at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot ($\mu g/ft^2$) and are listed in Table 3. The initial five samples had suspected laboratory error, which was confirmed by repeat sampling and analysis. Table 3 lists the results from the second visit. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
LEAD WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (ug/ft²)
PA Han-03231-22	Garage / Storage	BDL
PA Han-03231-23	State Maintenance Area	BDL
PA Han-03231-24	Drill Floor – Southwest Area - Floor	BDL
PA Han-03231-25	Kitchen – Floor	BDL
PA Han-03231-26	Orderly Room	BDL
PA Han-03231-27	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.2. CLOSED FORMER INDOOR FIRING RANGE

3.4.2.1. The indoor firing range had been cleaned therefore, additional wipe samples were collected on the second visit. This area is presently being utilized for storage. The laboratory analysis results are listed below in Table 4.

TABLE 4
WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Han-03231-28	Backstop Area – Floor	BDL
PA Han-03231-29	Light Fixture – ¼ of the way Down Range	BDL
PA Han-03231-30	Stored Crate – ½ Way Down Range	3,000
PA Han-03231-31	Heater – Former Firing Line Area	390
PA Han-03231-32	Shelf – Behind Former Firing Line	520
PA Han-03231-33	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.3. WIPE SAMPLING RESULTS

3.4.2.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 µg/ft^2. This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. (See memorandum in Attachment F, Recommendations for Surface Lead Dust in Armories.) Three samples in the former range exceeded the 200 µg/ft^2 criteria. Elevated samples were on stored equipment and a heating unit. It is apparent that the range may have been adequately cleaned, however, stored equipment did not receive a thorough decontamination.

3.4.4. AIR SAMPLING

3.4.4.1. Air Sampling for inorganic lead was performed during this survey. Table 5 lists the results of these samples, and is reported in milligrams per cubic meter (mg/m^3) of air.

TABLE 5.
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
Area – 2nd Floor	PA Han-03076-18	Lead	<0.003 mg/m^3	0.05 mg/m^3	YES
Area – Basement	PA Han-03076-19	Lead	<0.003 mg/m^3	0.05 mg/m^3	YES

Non-[redacted]	PA Han-03076-20	Lead	<0.003 mg/m³	0.05 mg/m³	**YES**

mg/m³ = milligrams per cubic meter < = less than (below detection limits)

3.4.4.2. Air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this building.

3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION DAMAGE

3.5.1.1. No water intrusion problems were reported or observed within the building.

3.5.2. ASBESTOS

3.5.2.1. Most of the asbestos has been removed from the facility. A new boiler was installed and all asbestos was removed from the steam pipes within the boiler room. The State Maintenance worker pointed out asbestos elbows and joints on steam lines. All were in good condition. The week previous to the first visit, asbestos nine-inch floor tiles were removed from the second floor hallway and east offices. The tiles in the remainder of the second floor areas had been removed prior to the second visit. The assembly hall has blown insulation on the walls and ceiling. State Maintenance personnel stated that this insulation does not contain asbestos.

3.5.3. PROGRAMS

3.5.3.1. There are no designated confined space areas within this facility. A need has not been established for a HAZCOM program, the need for personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.4. HOUSEKEEPING

3.5.4.1. The facility is impressively clean, orderly and in good condition. The personnel have taken great pride with this facility.

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
Hanover, PA	PENNSYLVANIA ARNG ARMORY	Hanover Armory

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR (initials)
	JSS

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	NA	SFC Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
717-632-9131	BTRY A(-) 1ST 108TH FA BN	3	9

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
5	94			

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	CONROLS 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			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	½ FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	½ 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 WEATHR 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	/		

AEHA Form 271-R (Test), 1 Jan 92 (HSHB-MI-I)

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	3	C
12001-29-5	Asbestos	3	C

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

SECTION 6. COMMENTS

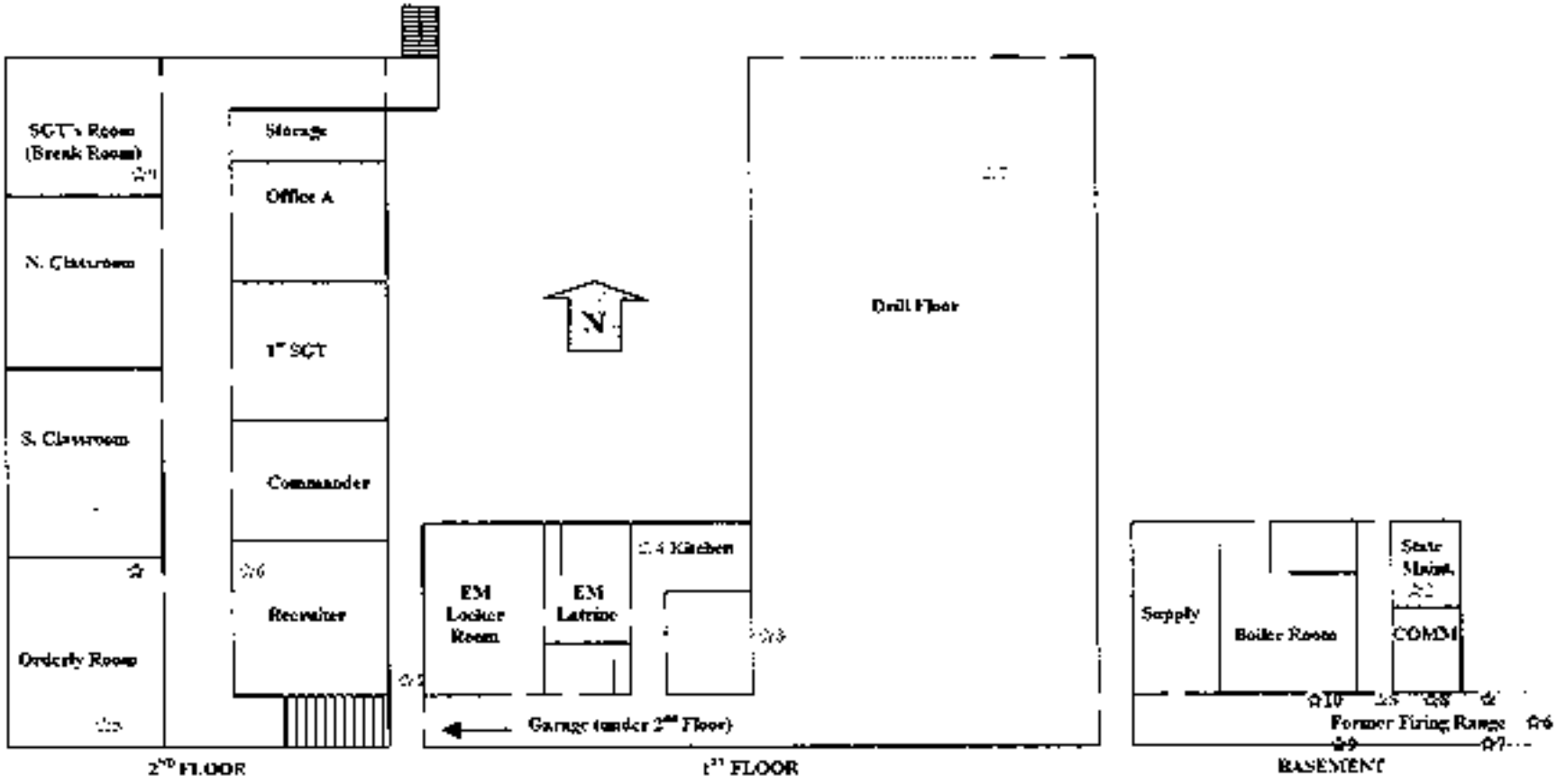
☐ No comments ☐ See attached sheet

PRIVACY ACT STATEMENT

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

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

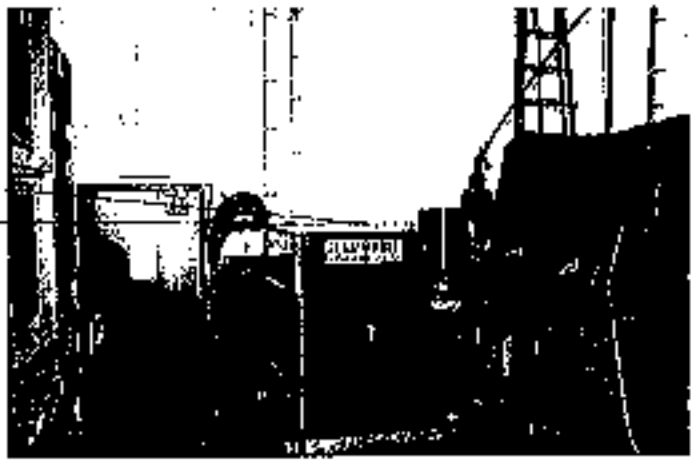
HANOVER, PENNSYLVANIA



☆ = Wipe Sample ☆ Former Firing Range Wipe Sample ☆ = Area Air Sampling

BTRY A(-) 1ST BN 108TH FA
HANOVER, PENNSYLVANIA
WIPE SAMPLING POINTS

(1) PA Han-03231-22
Garage - Top of Flammable Cabinet

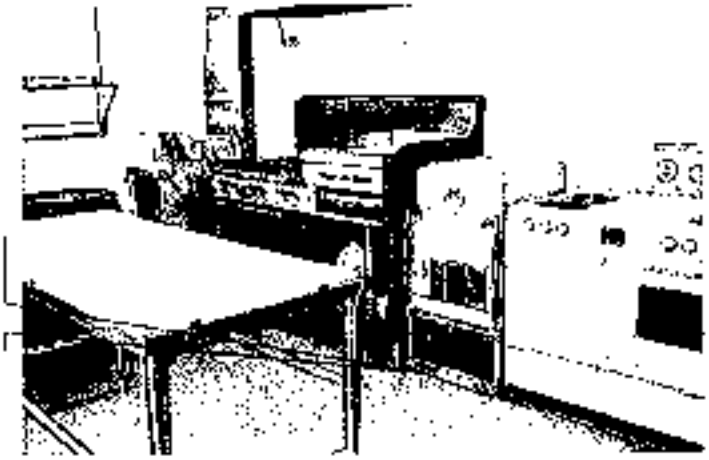


(2) PA Han-03231-23
State Maintenance – Utility Area

(3) PA Han-03231-24
Drill Floor – Southwest Area

Attachment B

(4) PA Han-03231-25
Kitchen

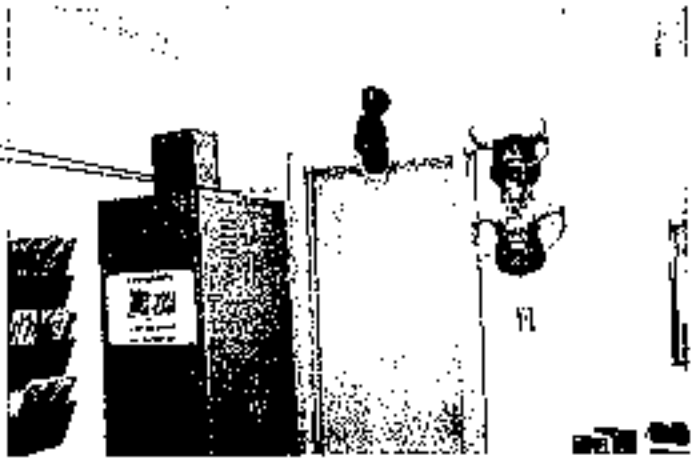


(5) PA Han-03231-26
Orderly Room

Attachment B

ADDITIONAL SAMPLING

(6) PA Han-03076-27
Recruiting Office



(7) PA Han-03076-28
Drill Floor – Northeast End

(8) PA Han-03076-29
Basement Hallway

Former Firing
Range

Attachment B

(9) PA Han-03076-30
Break Room

FORMER FIRING RANGE
WIPE SAMPLES

(6) PA Han-03231-28
Former Range
Backstop Floor

(7) PA Han-03231-29
Former Range
Lighting Fixture

Attachment B

(8) PA Han-03231-30
Former Range
Stored Crate

(9) PA Han-03231-31
Former Range
Heater – Firing Line Area

(10) PA Han-03231-32
Former Range
Shelf Behind Firing Line
(No Picture)

Attachment B

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
AIHA Certificate of Accreditation #480 LAP ID 101533

TABLE I. ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	RES 92065-1
Client:	Operational Technologies, Corp.
Client Project Number / P O :	04 02
Client Project Description:	Armorites/Pennsylvania
Date Samples Received:	April 11, 2003
Analysis Type:	USEPA SW846 3050B / AA (7420)
Turnaround:	3-5 Day
Date Samples Analyzed:	April 16, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA Col-03076-04	EM 761722	0.11	BDL	23	BDL
PA Col-03076-05	EM 761723	0.11	BDL	23	BDL
PA Col-03076-06	EM 761724	0.11	BDL	23	BDL
PA Col-03076-07	EM 761725	0.11	BDL	23	BDL
PA Col-03076-08	EM 761726	0.11	BDL	23	BDL
PA Col-03076-09	EM 761727	0.11	BDL	23	BDL
PA Col-03076-10	EM 761728	0.11	BDL	23	BDL
PA Col-03076-11	EM 761729	0.11	BDL	23	BDL
PA Col-03076-12	EM 761730	0.11	BDL	23	BDL
PA Col-03076-13	EM 761731	0.11	BDL	23	BDL
PA Col-03076-14	EM 761732	0.11	BDL	23	BDL
PA Col-03076-15	EM 761733	0.11	BDL	23	BDL
PA Col-03076-16	EM 761734	0.11	BDL	23	BDL
PA Han-03076-21	EM 761735	0.11	BDL	23	BDL
PA Han-03076-22	EM 761736	0.11	BDL	23	BDL
PA Han-03076-23	EM 761737	0.11	BDL	23	BDL
PA Han-03076-24	EM 761738	0.11	BDL	23	BDL
PA Han-03076-25	EM 761739	0.11	BDL	23	BDL
PA Han-03076-26	EM 761740	0.11	BDL	23	BDL
PA Han-03076-27	EM 761741		Sample Missing		
PA Han-03076-28	EM 761742		Sample Missing		
PA Han-03076-29	EM 761743		Sample Missing		
PA Han-03076-30	EM 761744		Sample Missing		
PA Han-03076-31	EM 761745		Sample Missing		
PA Get-03077-03	EM 761746	0.11	BDL	23	BDL
PA Get-03077-04	EM 761747	0.11	BDL	23	BDL
PA Get-03077-05	EM 761748	0.11	BDL	23	BDL
PA Get-03077-06	EM 761749	0.11	BDL	23	BDL
PA Get-03077-07	EM 761750	0.11	BDL	23	BDL
PA Get-03077-08	EM 761751	0.11	BDL	23	BDL

BDL = Below Detection Limit

Data Qa _____

RESERVOIRS ENVIRONMENTAL SERVICES, INC.

2059 Bryant St., Denver CO 80211

RESI Job #: RES 92065

Due Date: 4-16/4-18

Due Time: 10:15

Phone: (303) 964-1868 Fax: (303) 477-4275 WATS: 1-866-RESI ENV (737-4368)

PAGER: ONCALL Pager number available at Lab. Alternate Pagers: PLM/TEM 608-2187 PCM/Metals 608-2090 (AFTER HOURS USE ONLY)

SAMPLES SUBMITTED BY:	INVOICE TO: (IF DIFFERENT)
Company: Operational Technologies, Corp.	Army National Guard 91-N
Address: 1370 N. Fairfield Road, Suite A	301-H Old Bay Ln, Havre de Grace, MD 21078
Beavercreek, Ohio 45432	
Contact: Non-Responsiv	Phone: 410-942-0273 x18 Fax: 410-942-0254 Pager:
Contact:	Phone: cell 937-831-3333 Fax: Pager: 800-951-4367
Project Number and/or P.O. #: 04-02	
Project Description/Location: Armories / Pennsylvania	

After Hours/Weekend CHARGE: Amount $_____ Authorized by: _____

Additional fees apply for after hours and holidays for all analysis types. Samples will be analyzed during normal laboratory hours unless otherwise arranged and specified on the chain of custody. Turnaround is subject to laboratory volume. You will be notified if delays are expected.

ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm

PCM/PLM	___ 2 Hour RUSH	___ 24 hour	___ 3-5 weekdays
TEM	___ 6 Hour RUSH	___ 24 hour	___ 3-5 weekdays

Prior Notice REQUIRED for TEM 6 Hour RUSH

METALS LABORATORY HOURS: Weekdays: 8am - 5pm

AA	___ SPECIAL RUSH	___ 24 Hour	X 3-5 Day
RCRA 8	SPECIAL RUSH	5 Day	___ 10 Day
TCLP	___ SPECIAL RUSH	___ 5 Day	___ 10 Day

Prior Notice REQUIRED for SPECIAL RUSH AA, RCRA or TCLP

RCRA and TCLP SPECIAL RUSH is 3 Day Turnaround

ANALYTICAL METHOD

AIR
- ☐ PCM 7400A, 7400B, OSHA
- ☐ TEM AHERA, Level II, 7402, ISO, Pres/Abs ISO-Indirect Preps Chatfield
- ☐ AA / ICP _____ Metal ____ RCRA 8
- ☐ Dust Total, Respirable

BULK
- ☐ PLM Short report, Long report, Point Count
- ☐ TEM 4h, Quant, Semi-quant
- ☐ # 97 AA / ICP X PB Paint, Soil, Dust, Wipe, TCLP (ASTM E 1792 approved wipes only)

WATER
- ☐ TEM Drinking, Waste Water
- ☐ AA Water _____ Metal ____ RCRA 8 Drinking, Waste Water

OTHER
- ☐ Specify Wipes - Lead

Special Instructions: Contract # 04-02 Email results to kenneth.forsythe@md.ngb.army.mil

	Client Sample Number	Volume	EM #
1.	PA Col-03076-04		76122
2.	PA Col-03076-05		23
3.	PA Col-03076-06		24
4.	PA Col-03076-07		25
5.			26
6.			27
7.	PA Col-03076-10		28
8.	PA Col-03076-11		29
9.	PA Col-03076-12		30
10.	PA Col-03076-13		31
11.	PA Col-03076-14		32
	PA Col-03076-15		33
13.	PA Col-03076-16		34
14.	PA Han-03076-21		35
15.	PA Han-03076-22		36

Number of samples received: 97 103 (Use as many additional sheets as needed)

NOTE: If the package has sustained substantial damage or the custody seal is broken, stop and contact project manager and shipper. RESI will analyze incoming samples based upon information received with those samples. RESI is not responsible for errors or omissions in calculations resulting from the inaccuracy of original data. Turnaround times are based upon times of receipt by Laboratory. Call Laboratory for number of samples guaranteed in short turnaround.

Relinquished By: John B. Larson Date/Time: April 8, 2003 / 1600

Laboratory Received By: Non-Responsive Date/Time: 4/9/03 10:15

Carrier: Condition of package/custody seal upon receipt:

RESULTS: Contact: Page Non-Responsive

SPLITS: Authorization By/Time: Received By:

Analytical Method/Turnaround: Time: Date:

rev 5/2/01 Results Due: Results Out:

Reservoirs Environmental, Inc.

2059 Bryant St. Denver, CO 80211
(303) 964-1986 Fax (303) 477-4275 Toll Free (866) RESI-ENV

January 0, 1900

Project Description:
RES 92066-1
04 02
Armories/Pennsylvania

Non-Responsive

Operational Technologies, Corp.
1370 N. Fairfield Road, Suite A
Beavercreek OH 45432

Dear Customer,

Reservoirs Environmental, Inc. is an environmental analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the American Industrial Hygiene Association, Lab ID 101533 - Accreditation Certificate #480. The laboratory is currently proficient in both PAT & ELPAT programs respectively.

Reservoirs has analyzed the following sample(s) using Atomic Absorption (AA) / Atomic Emission Spectroscopy - Inductively Coupled Plasma (AES-ICP) per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in Table I. Results have been faxed to your office.

RES 92066-1 is the job number assigned to this study. This report is considered highly confidential and property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those authorized by the client. Samples will be disposed of after sixty days unless longer storage is requested. If you should have any questions about this report, please feel free to call me at 303-964-1986.

Sincerely,

Non-Responsive

President

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m³
PA Ann-03065-18	03-17790	186.7	ND	<0.005
PA Ann-03065-26	03-17791	206.4	ND	<0.005
PA Ann-03065-27	03-17792	215.1	ND	<0.005
PA Ann-03066-27	03-17793	158.6	ND	<0.006
PA Ann-03066-28	03-17794	168.4	ND	<0.006
PA Yor-03073-19	03-17795	448.9	ND	<0.002
PA Yor-03073-20	03-17796	436.7	ND	<0.002
PA Yor-03073-21	03-17797	460.6	ND	<0.002
PA Col-03076-01	03-17798	309.1	ND	<0.003
PA Col-03076-02	03-17799	306.5	ND	<0.003
PA Col-03076-03	03-17800	319.4	ND	<0.003
PA Han-03076-18	03-17801	370.6	ND	<0.003
PA Han-03076-19	03-17802	375.2	ND	<0.003
PA Han-03076-20	03-17803	390.9	ND	<0.003
PA Get-03077-01	03-17804	265.1	ND	<0.004
PA Get-03077-02	03-17805	284.6	ND	<0.004
PA Way-03078-01	03-17806	331.4	ND	<0.003
PA Way-03078-02	03-17807	355.8	ND	<0.003
PA Cha-03078-15	03-17808	406.1	ND	<0.002
PA Cha-03078-16	03-17809	411.3	ND	<0.002
	Prep Blank 2		ND	
% Recovery	LCS 3		110.	
% Recovery	LCS 4		108.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client:	National Guard Bureau	Job Name:	Pennsylvania Armories-Hanover	Chain Of Custody:	117194
Address:	301-4H Old Bay Lane, Attn: NGB-AVN-SI, State Military Reservation	Job Location:	Not Provided	Date Analyzed:	09/11/2003
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	[redacted]
		P.O. Number:	Not Provided	Report Date:	12-Sep-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
0366506	PAHan-03231-22	Flame	Wipe	****	0.111	108.00	ug/ft²	<	110	ug/ft²	
0366507	PAHan-03231-23	Flame	Wipe	****	0.111	108.00	ug/ft²	<	110	ug/ft²	
0366508	PAHan-03231-24	Flame	Wipe	****	0.111	108.00	ug/ft²	<	110	ug/ft²	
0366509	PAHan-03231-25	Flame	Wipe	****	0.111	108.00	ug/ft²	<	110	ug/ft²	
0366510	PAHan-03231-26	Flame	Wipe	****	0.111	108.00	ug/ft²	<	110	ug/ft²	
0366511	PAHan-03231-27	Flame	Wipe	****	0.111	108.00	ug/ft²	<	110	ug/ft²	
0366512	PAHan-03231-28	Flame	Wipe	****	0.111	108.00	ug/ft²	<	110	ug/ft²	
0366513	PAHan-03231-29	Flame	Wipe	****	0.111	108.00	ug/ft²	<	110	ug/ft²	
0366514	PAHan-03231-30	Flame	Wipe	****	0.111	108.00	ug/ft²		3000	ug/ft²	
0366515	PAHan-03231-31	Flame	Wipe	****	0.111	108.00	ug/ft²		390	ug/ft²	
0366516	PAHan-03231-32	Flame	Wipe	****	0.111	108.00	ug/ft²		520	ug/ft²	
0366517	PAHan-03231-33	Flame	Wipe	****	0.111	108.00	ug/ft²	<	110	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.

Analyst: [redacted]

Technical Manager: [redacted]

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non-Responsive @md.ngb.army.mil

Attachment D

REFERENCE LIST INDEX

1. General Regulations and National Consensus Standards
2. Specific Regulations and Guidance
   a. Abrasive Blasting
   b. Asbestos
   c. Battery Charging Room
   d. Bird and Bat Manure
   e. Bloodborne Pathogens
   f. Chemical Agent Resistant Coating (CARC) Paint
   g. Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE)
   h. Confined Space Entry Program
   i. Design Review
   j. Ergonomics
   k. Flammable Storage Room
   l. Hazard Communication
   m. Hearing Conservation
   n. Indoor Air Quality
   o. Indoor Firing Ranges
   p. Lead
   q. Lighting
   r. Occupational Vision
   s. Paint Spray Booth
   t. Personal Protection
   u. Radiation Protection
   v. Respiratory Protection
   w. Sanitation
   x. Smoking
   y. Vehicle Exhaust
   z. Welding Operation

GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REFERENCE LIST

1. General Regulations and National Consensus Standards
   a. DODI 6055.1, DOD SOH Program, 19 August 1998.
   b. DODI 6055.5, DOD OEH. *[DRAFT]*
   c. DOD 6055.5-M, DOD Occupational Health Surveillance Manual, 13 May 1987.
   d. DODI 6050.5, DOD Hazard Communication, 29 Oct 90. Change 1, 6 May 1996.
   e. AR 40-5, Preventive Medicine, 15 October 1990. [05/2002 Being Updated]
   f. DA PAM 40-5, Preventive Medicine. *[DRAFT]*
   g. AR 385-10, The Army Safety Program, 29 February 2000.
   h. NGR 385-10, ARNG SOH Program, 7 October 1988, Change 1, 29 December 1989.
   i. Title 29, Part 1910, Occupational Safety and Health Standards. [Current Date]
   j. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 2002.
   k. ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th edition, 2001.
   l. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.
   m. TG 141, USACHPPM Industrial Hygiene Sampling Guide, November 1997.
   n. National Safety Council, Fundamentals of Industrial Hygiene, 5th Edition, 2002.
   o. NIOSH, Pocket Guide to Chemical Hazards, 2001.
   p. NFC, A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. [Current date]
   q. ASHRAE Standards. [Current Dates]
   r. ANSI Standards. [Current Dates]

2. Specific Regulations/Guidance
   a. **ABRASIVE BLASTING**
      (1) ANSI Z9.4 1997, Abrasive Blasting Operations - Ventilation and Safe Practices.
      (2) 29 CFR 1910.94 Ventilation
      (3) 42 CFR 84

   b. **ASBESTOS**
      (1) AR 40-5, Preventive Medicine, 15 October 1990. *[05/2002 Being Updated]*
      (2) AR 200-1, Environmental Protection and Enhancement, Chapter 8, 21 February 1997.
      (3) TB MED 513, Guidelines for the Evaluation and Control of Asbestos Exposure, 15 December 1986. *[05/2000 Under Revision as DA PAM 40-513]*
      (4) TG 157, USAEHA, The Installation Asbestos Management Program Assessment Checklists, July 1994.
      (5) 29 CFR 1910.1001
      (6) 29 CFR 1926.58 (prior to 1994 CFR)
      (7) 29 CFR 1926.1101

(8) MEMORANDUM SGPS-PSP, OTSG, subject: AMEDD Role Supporting Asbestos Abatement/Asbestos Management Programs, 19 Jan 89.

(9) EPA, Guidance for Controlling Asbestos-Containing Materials in Buildings, June 1985.

(10) DD Form 2493-1 (Asbestos Exposure, Part I--Initial Medical Questionnaire)

(11) DD Form 2493-2 (Asbestos Exposure, Part II--Periodic Medical Questionnaire)

(12) EPA NESHAPS Asbestos Regulation (40 CFR 61, Subpart M).

c. **BATTERY CHARGING ROOM**

(1) TG 022, USAEHA, page 81, Industrial Hygiene Evaluation Guide, October 1975. *[Out of Print]*

(2) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

d. **BIRD AND BAT MANURE**

(1) TG 142, USAEHA, Managing Health Hazards Associated with Bird and Bat Excrement, Dec 1992.

e. **BLOODBORNE PATHOGENS**

(1) 29 CFR 1910.1030

(2) TG 190, USAEHA, Guide to Managing Occupational Exposure to Bloodborne Pathogens, Jan 94.

f. **CHEMICAL AGENT RESISTANT COATING (CARC) PAINT**

(1) TG 144, USAEHA, Guidelines for Controlling Health Hazards in Painting Operations, 24 August 1987.

(2) DA LTR, USAEHA, HSHB-MI-WR, subject: Respiratory Protection When Spraying CARC, 19 November 1992.

(3) TM 43-0139, Painting Instructions for Army Material, 27 July 1988[1 Aug 86.

(4) MEMORANDUM SGPS-PSP, OTSG, subject AMEDD, Occupational Health Requirements in Support of Painting in the Army, 22 February 1985.

(5) AR 750-1, Army Materiel Maintenance Policy and Retail Maintenance Operations (Prohibits welding on CARC paint) 1 July 1996.

g. **CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR, EXPLOSIVE (CBRNE)**

(1) DODI 2000.gg, DOD Installation CBRNE Emergency Response Guidelines.

(2) DHHS, NIOSH Pub No. 2002 139, Guidance for Protecting Building Environments from Airborne Chemical, Biological, or Radiological Attacks, May 2002.

(3) TG 275, USACHPPM, Personal Protective Equipment Guide for Medical Treatment Facility Personnel Handling Casualties from Weapons of Mass Destruction and Terrorism Events. *[Draft]*

h. **CONFINED SPACE**

(1) 29 CFR 1910.146 (Confined Space Entry)

(2) 29 CFR 1910.147 (Lockout/Tagout)

(3) ANSI Z117.1-Safety Requirements for Confined Spaces, 1995.

(4) SOP for ARNG Confined Space Entry Program, 25 April 1991.

(5) Letter, US Dept of Labor (DOL) addressed to Vanessa Char, 22 Apr 1994.

(6) OSHA Instruction STD 1-7.3, US DOL, subject: 29 CFR 1910.147, the Control of Hazardous Energy (Lockout/Tagout)--Inspection Procedures and Interpretive Guidance, 11 Sep 90.

(7) DHHS, NIOSH Pub No. 87113, A Guide to Safety in Confined Spaces, July 1987.

(8) Confined Space Entry Program for Helicopters, 2003.

i. **DESIGN REVIEW**

(1) DG 415-1, Design Guide for Armories, current.

(2) DG 415-2, Design Guide for Logistics Facilities, current.

(3) DG 415-3, Design Guide for Training Site Facilities, current.

(4) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

(5) TI-300, 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

(6) UFGS 15940A, Overhead Vehicle Tailpipe (and welding Fume) Exhaust Removal Systems, December 2001.

(7) ASHRAE, Standard 62-2002, Ventilation for Acceptable Indoor Air Quality.

(8) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

j. **ERGONOMICS**

(1) DA PAM 40-21, Medical Services, Ergonomics Program, 15 May 2000.

(2) ANSI Z-365, Management of Work Related Musculoskeletal Disorders, 2000.

(3) 29 CFR 1910. *[PROPOSED STANDARD]*

k. **FLAMMABLE STORAGE ROOM**

(1) 29 CFR 1910.106

(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

l. **HAZARD COMMUNICATION**

(1) 29 CFR 1910.1200

(2) NGR 385-10, Chapter 6

m. **HEARING CONSERVATION**

(1) DA PAM 40-501, Medical Services, Hearing Conservation Program, 10 December 1998.

(2) TG 181, USAEHA, Noise Dosimetry and Risk Assessment, May 1999.

(3) TG 175, USAEHA, Readiness thru Hearing Conservation: Guide for Unit Commanders and Supervisors, June 1999.

(4) 29 CFR 1910.95

n. **INDOOR AIR QUALITY (IAQ)**

(1) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

(2) USACERL Technical Report P-91/42, IAQ Management for Operations and Maintenance Personnel, September 1991.

(3) EPA 400/1-91/003 or DHHS, NIOSH, Publication No. 91-114, Building IAQ, A Guide for Building Owners and Facility Managers, December 1991.

(4) ASHRAE, Standard 62-2002, Ventilation for Acceptable IAQ.

(5) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

(6) NIOSH, IAQ Selected References, Sep 1989.

(7) OSHA Instruction CPL 2-2.20B CH-1, Directorate of Technical Support, 13 Nov 90.

(8) DA PAM 25-52, Mail Facility Security and Handling Suspicious Mail, 6 November 2001.

(9) ASTM, D 5952-96, 10 May 1996.

o. **INDOOR FIRING RANGES**

(1) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(2) NGR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges, 30 March 1990. *[11/02 Under Revision]*

(3) CEHND 1110-1-18, USACE Design Manual for Indoor Firing Range, June 1990.

(4) HQDA LTR, Office of the Adjutant General, DACS-SF, subject: Inspection and Evaluation of US Army Indoor Firing Ranges, 26 March 1993.

(5) Departments of the Army and Air Force, NGB-ADE-OM, subject: All State Log Number (I920323) Indoor Range Clean-up at State Owned Armories, 28 July 1992.

(6) NIOSH, Technical Information, December 1975, subject: Lead Exposure and Design Considerations for Indoor Firing Ranges.

(7) All-States Ltr P01-0075, 5 December 2001.

(8) Information Paper, Alternative Ammunition, 15 March 1996.

(9) Information Paper, Bullet Traps, 26 April 1996.

(10) Information Paper, ARNG IFR Action Plan, 28 January 2002.

p. **LEAD**

(1) 29 CFR 1910.1025

(2) 29 CFR 1926.62

(3) 24 CFR 35.61 (HUD, Percentage of Lead in Paint)

(4) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(5) OSHA Instruction CPL 2-2.58, Office of Health Compliance Assistance, 13 December 1993.

(6) Federal Register, 18 April 1990, Vol. 55, No. 75, HUD, Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing, as amended, September 1990, Office of Public and Indian Housing, Department of Housing and Urban Development, 451 Seventh Street, SW, Washington, DC 20410.

(7) NIOSH, Request for Assistance in Preventing Lead Poisoning in Construction Workers, April 1992.

(8) EPA, Strategy for Reducing Lead Exposures, 21 Feb 91.

q. **LIGHTING**

(1) RP-1-1993, Office Lighting, ANSI/IESNA.

(2) RP-7-2001, Industrial Lighting, IES.

r. **OCCUPATIONAL VISION**

(1) DA PAM 40-506, Medical Services, The Army Vision Conservation and Readiness Program, 20 July 2001.

(2) ANSI Z87.1, Practice for Occupational and Educational Eye and Face Protection, 1989, Change A, REAF 1998.

(3) ANSI Z358.1 for Emergency Eyewash and Shower Equipment, 1998.

(4) OTSG Memorandum SGPS-PSP, subject: Acanthamoeba Keratitis and Eyewash Stations, 8 May 89.

(4) 29 CFR 1910.133

s. **PAINT SPRAY BOOTH**

(1) NFPA No. 33, Standard for Spray Application Using Flammable and Combustible Materials, 1995.

(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

(3) 29 CFR 1910.94

(4) 29 CFR 1910.107

(5) ANSI Z9.3-1995 for Exhaust Systems - Spray Finishing Operations - Safety Code for Design, Construction, and Ventilation.

(6) ANSI Z9.2-2001, Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems.

t. **PERSONAL PROTECTIVE EQUIPMENT**

(1) Quick Selection Guide to Chemical Protective Clothing, 2nd edition, Forsberg, K and Mansdorf, S., 1993.

(2) Chemical Protective Clothing, Vol 1 and 2, Johnson, J. and Anderson, K., American Industrial Hygiene Association, 1990.

(3) Guidelines for the Selection of Chemical Protective Clothing, 3rd Edition, ACGIH, Inc., Feb 1987.

u. **RADIATION PROTECTION PROGRAM**

(1) NGR 385-11, Safety, Ionizing and Nonionizing Radiation Protection, 18 February 1999.

(2) AR 11-9, Army Radiation Safety Program, 28 May 1999.

(3) 29 CFR 1910.96

(4) 29 CFR 1910.97

v. **RESPIRATORY PROTECTION**

(1) AR 11-34, The Army Respiratory Protection Program, 15 February 1990. *[11/02 Being Updated]*

(2) 29 CFR 1910.134

(3) 42 CFR 84

(4) TB MED 502, Respiratory Protection Program, February 1992. *[11/02 Being Updated as DA PAM 40-502]*

(5) ANSI/CGA G-7.1-1997, Commodity Specification for Air.

(6) ANSI Z88.2-1992, Standard for Respiratory Protection.

w. **SANITATION**

(1) ANSI Z4.1-1986, Change REAF 1995, Sanitation in Places of Employment-Minimum Requirements.

(2) 29 CFR 1910.141

x. **SMOKING**

(1) AR 600-63, Army Health Promotion, 28 April 1996.

(2) DODI 1010.15, Smoke-Free DOD Facilities, 2 January 2001.

(3) DODD1010.10, Health Promotion, 11 March 1986.

y. **VEHICLE EXHAUST**

(1) ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th Edition, 2001.

(2) TI-300f 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

z. **WELDING OPERATION**

(1) 29 CFR 1910.252

(2) 29 CFR 1910.253

(3) 29 CFR 1910.254

(4) ANSI/AWS Z49.1-1999, Safety in Welding and Cutting and Allied Processes.

(5) TM 5-805-7, Welding Design, Procedures and Inspection, 20 May 85.

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(b)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 $\mu g/ft^2$) and windowsills (250 $\mu g/ft^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of 200 $\mu g/ft^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 $\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 $\mu g/ft^2$ on floors and 250 $\mu g/ft^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

Industrial Hygiene Survey

Prepared for:

National Guard Armory
51 West Clearview Road
Hanover, PA 17331

28 June 2011

Prepared by:

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Reviewed by:

[redacted]
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Table of Contents

Executive Summary

Environmental and Occupational Risk Management, Inc. (EORM®) was contracted by the National Guard Bureau Industrial Hygiene Region North Office (NGB IH Office) to perform a baseline industrial hygiene (IH) survey of selected Readiness Centers and administrative buildings located in Pennsylvania. This report summarizes the results of the Hanover Armory located at 51 West Clearview Road, which occurred on June 28, 2011.

The building was completed in 2010 and is currently occupied by 4-5 Non-Commissioned Officers (NCOs) during the week. The building currently houses Battery A of the 1st Battalion of the 108th Field Artillery.

During the IH survey, EORM conducted a light level survey and an indoor air quality (IAQ) survey.

The results of the light level survey and the IAQ indicate acceptable conditions on the date of the survey.

Written programs were not available during the survey. Personnel did not have paper copies and could not find any electronic copies. These programs should be available to all personnel and should be reviewed on a periodic basis.

Introduction

Environmental and Occupational Risk Management, Inc. (EORM) was contracted by National Guard Bureau Industrial Hygiene Region North Office (NGB IH Office) to perform an industrial hygiene (IH) survey of selected National Guard Armories located in Pennsylvania. This report summarizes the results of the armory located at 51 West Clearview Road, Hanover, PA. The IH survey was performed on June 28, 2011 by Mr [redacted], Certified Industrial Hygienist (CIH), Certified Safety Professional (CSP), Consultant. Ms [redacted], CIH, Senior Consultant, reviewed this report and provided project support. The scope of work completed during this survey included the following:

- Inspect the physical condition of the facility and personnel concerns.
- Evaluate the heating, ventilating, and air conditioning system.
- Conduct an indoor air quality (IAQ) assessment of the facility.
- Conduct a lighting survey in all areas of the facility.
- Evaluate the attached garage, if present.
- Collect photographs of the interior and exterior conditions of the armory.
- Perform a review of written health and safety programs.
- Prepare a detailed report of findings and sampling results, including recommendations for improvement in any areas of concern and conclusion

EORM's survey activities were aided by the generous assistance of Sergeant Beckner who provided information on the armory.

Industrial Hygiene Survey Details

Facility Inspection and Employee Concerns

The Hanover Armory was remodeled and expanded in 2010.

Overall the building appears to be clean and excellent condition. With the recent construction of the building, no visible signs of water infiltration were evident. The facility layout is modern and provides a good working environment.

Ventilation System Evaluation

Roof-top forced air units provide general heating, ventilating, and air-conditioning (HVAC) for the Hanover Armory using natural gas heating and compressor driven air-conditioning.

Indoor Air Quality Survey

An indoor air quality (IAQ) survey was conducted of non-classified and un-locked spaces of the armory. The survey was conducted using a TSI Q-Track 8554 Meter. The meter measures temperature, relative humidity, carbon monoxide and carbon dioxide levels. The unit was calibrated in Sept 2010. During the survey it was noted that the system shuts down during non-working hours. This requires staff to contact facilities to ensure the system remains on during weekends when drills are being conducted.

Temperature (F) and Relative Humidity (%)

The ASHRAE recommended ambient temperature and relative humidity ranges for an occupied environment is less than (<) 65 percent relative humidity and 68 F to 75 F.

Carbon Dioxide (CO_2)

OSHA permissible Exposure Limit (PEL) for CO_2 is 5000 parts per million (ppm) established for industrial settings and is based upon an 8 hr Time Weighted Average (TWA). ASHRAE recommends that carbon dioxide levels are less than 700 ppm above the measured outdoor levels.

Carbon Monoxide (CO)

ACGIH Time Weighted Average (TWA) for CO is 25 ppm. The OSHA Permissible Exposure Limit (PEL) for CO is 50ppm, ASHRAE comfort guidelines recommend levels of CO be maintained below 9.0ppm.Carbon monoxide was not observed inside this facility.

Table 1: IAQ Survey Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temperature (F^o)	Relative Humidity (%)
Outdoor Air	0.0	412	76.3	71.1
Foyer	0.0	463	74.2	51.1
104	0.0	490	71.1	52.7
106	0.0	470	72.5	78.4
111	0.0	607	72.9	56.1
111B	0.0	499	72.5	55.1
111D	0.0	616	72.6	56.0
116	0.0	590	73.5	**67.9**
234	0.0	799*	**76.2**	62.6
225	0.0	492	**75.5**	**68.4**
224	0.0	512	74.8	**72.2**
223/222	0.0	521	74.6	**71.8**

* Fan was off in the room.

Bolded items are above ASHRAE guidelines.

Lighting Survey

The lighting at the Hanover Armory consists of fluorescent lights. A lighting survey was conducted using a Cooke Corporation Cal-Light 400L, serial number 1C040084L. The Cal-Light was calibrated by the manufacturer in September 2010.

The lighting measurements were compared to the Recommended Practice for Lighting Industrial Facilities RP-7-01 and for Office Building RP-1-04. Both RP-7 and RP-1 are approved by the American National Standards Institute (ANSI) and the Illuminating Engineering Society of North America (IESNA). The minimum footcandles for office work areas under RP-1 is 30 footcandles (fc) and under RP-7 for industrial lighting it is 50 fc. Table 2 below, summarizes the results of the lighting survey.

Table 2: Lighting Survey Results

Location	Measurement (fc)	Applicable Standard RP-1/RP-7	Applicable Standard Value (fc) [1]	Meets Applicable RP Standard Values? (Yes/No)
Foyer	26.6	RP-1	30	No
104	60.3	RP-1	30	Yes
106 (Maintenance)	Door open to outside	RP-7	50	Unknown
111	40.2	RP-1	30	Yes
111B	49.0	RP-1	30	Yes
111D	47.0	RP-1	30	Yes
116	22.8	RP-1	30	No

Location	Measurement (fc)	Applicable Standard RP-1/RP-7	Applicable Standard Value (fc) [1]	Meets Applicable RP Standard Values? (Yes/No)
234	61.0	RP-1	30	Yes
225	31.0	RP-1	30	Yes
224	12.9	RP-1	30	No
223/222	11.3	RP-1	30	No

fc = footcandles

[1] The recommended illuminance values were obtained from the ANSI/IESNA RP-1-04 (Office Lighting) and RP-7-01 (Industrial Lighting)

According to RP-1-04 there is insufficient lighting in the Foyer and Rooms 116, 224, and 223/222. The lighting in the remaining first and second floor offices, and classrooms were found to be acceptable.

Program Evaluations

EORM personnel reviewed program documentation relating to health and safety programs that were available. In many instances, the NCOs present were not able to find the documentation for review or the programs were non-applicable based upon the work being conducted at the readiness center.

The results of the evaluations indicate that the Material Safety Data Sheets (MSDS) were kept in a binder near each storage area of chemicals. In addition, the emergency evacuation maps were prominently displayed to show major evacuation routes out of the building.

Written Program reviews were not conducted for the following due to either unavailable or not applicable: Hazard Communication, Personal Protective Equipment, Hazardous Energy Control, Hearing Conservation, Respiratory Protection (N/A), Confined Space Entry (N/A).

Conclusions and Recommendations

Based on the observations and results of the industrial hygiene survey, EORM has concluded the following:

- Documentation of Material Safety Data Sheets (MSDS) were accurate and up to date.
- The Emergency Evacuation maps were properly labeled and in place with sufficient numbers to provide detailed egress routes from all locations in the building.
- The following written programs should be available for employees during working hours: Hazard Communication, Emergency Response, Hazardous Energy Control, Personal Protective Equipment, and Hearing Conservation. Their content and effectiveness should be reviewed on a periodic basis, i.e. annually.
- The indoor air quality (IAQ) survey indicates that there is sufficient fresh air in the building for the number of personnel in the building on the day of the survey. The temperature and humidity levels are acceptable under ASHRAE 62.2-2010.
- The lighting survey indicated insufficient lighting in the Foyer and Rooms 116, 224, and 223/222.

The results of this survey should be communicated to the participants as well as other people who perform similar job duties that did not participate.

Appendix 1 – Photographs

The pallets were removed after this photograph was taken by PA NG personnel

Appendix 2 – References

RP-1-2004, Office Lighting, ANSI/IESNA

RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.

UFC 3-410-01FA, Unified Facilities Criteria (UFC) for Heating, Ventilating, and Air Conditioning, Department of Defense, 15 May 2003.

ASHRAE 62.2-2010, Ventilation for Acceptable Indoor Air Quality, American Society of Heating Refrigerating and Air-Conditioning Engineers, 2010.

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland




Industrial Hygiene Survey
for PAARNG – Hanover Readiness Center
51 West Clearview Road
Hanover, Pennsylvania 17331

AECOM
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National Guard Bureau
Army National Guard
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AECOM

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Executive Summary

On November 13, 2012, AECOM Technical Services Northeast, Inc. (AECOM) conducted an Industrial Hygiene (IH) survey of the Hanover Readiness Center facility located at 51 West Clearview Road in Hanover, Pennsylvania. Non-R[redacted] was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Hanover Readiness Center operations.

The industrial hygiene survey was generally conducted in accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings", dated January 2012.

The Hanover Readiness Center is currently staffed by four personnel. The facility is configured as an administrative area and a drill/assembly hall.

Personnel at the facility were undertaking normal daily activities, which are administrative in nature, at the time of the survey.

The activities undertaken during the industrial hygiene survey included facility descriptions, lead wipe sampling, evaluation of housekeeping, illumination studies, ventilation system evaluation, and a review of the physical building condition.

Housekeeping is performed regularly at the Hanover Readiness Center.

Lighting levels measured throughout the facility were adequate as per American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

Wipe samples collected in association with the drill hall and most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U.S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 micrograms per square foot (ug/ft^2) for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas. However, wipe samples collected from the bullet trap area of the former firing range indicated levels of lead in excess of 200 ug/ft^2.

No damaged suspect asbestos containing materials were observed during the survey.

No peeling lead-based paint was observed during the survey.

Water stained ceiling tile was observed in the first floor corridor. Water intrusion is a mold growth risk factor.

The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of air handlers that provide fresh air from the building exterior in some administrative areas. A boiler system provides radiant heat in the original sections of the facility.

1.0 Facility Description and Operations

The Hanover Readiness Center, was constructed in approximately the mid 1970's, in 2010 the facility underwent extensive renovations including an addition. The facility is a split level administrative facility slab on-grade masonry structure. The building consists primarily of offices, training/classroom, locker/shower rooms, storage and administrative areas, and is finished with block walls, sheetrock walls, lay-in ceiling tiles and floor tile. The Assembly Hall area, located on the east side of the building, is finished with painted block walls and a concrete floor. According to site personnel, there is a former firing range. It has been converted to a storage area.

The primary activity at the Hanover Readiness Center is routine administrative duties. The Hanover Readiness Center is currently staffed by approximately 4 personnel. No vehicle maintenance activities are undertaken at the facility.

2.0 Sampling in Readiness Centers

2.1.1 Wipe Sampling

Wipe sampling for lead was conducted following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost Wipes. AECOM did not observe dust accumulation on readily accessible horizontal surfaces within areas commonly used in the facility.

The following table presents the results of the lead wipe sampling conducted at the facility.

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
HA-01	Drill hall north – floor	<110 ug/ft^2
HA-02	Drill hall south – floor	<110 ug/ft^2
HA-03	Drill hall – top of electrical panel	130 ug/ft^2
HA-04	Kitchen – top of refrigerator	<110 ug/ft^2
HA-05	Office 111 – supply grille	<110 ug/ft^2
HA-06	Office 111C – desk	<110 ug/ft^2
HA-07	Maintenance storage – top of shelf	<110 ug/ft^2
HA-08	Corridor – floor	<110 ug/ft^2
HA-09	Supply room – supply grille	<110 ug/ft^2
HA-10	**Storage (Former firing range – old bullet trap area)**	**360 ug/ft^2**
HA-11	Storage (Former firing range – light fixture)	<110 ug/ft^2
HA-12	Storage (Former firing range – stored items)	<110 ug/ft^2
HA-13	Storage (Former firing range – floor)	<110 ug/ft^2
HA-14	Outside of storage (former firing range – floor)	<110 ug/ft^2

ug/ft^2 = Micrograms per square foot.

Wipe samples collected in association with the drill hall, administrative areas, and most of the former firing range indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft^2 for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas. However, wipe samples collected from the old bullet trap area of the former firing range indicated lead levels in excess of 200 ug/ft^2. Indoor firing ranges shall be converted in accordance with NG-PAM 420-15. Analytical results are presented in Appendix C.

2.1.2 Air Sampling

Per Non-Responsive of NGB-IH, the requirement for Lead air sampling has been removed from the Statement of work. It was reported that historically, air samples collected at administrative facilities are typically below the limit of detection.

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls is in good condition. AECOM did not observe damaged or peeling paint during this evaluation.

3.1.2 Suspect Asbestos Containing Materials

AECOM did not observe damaged, friable suspect asbestos-containing materials (ACM) in readily accessible areas of the Hanover Readiness Center during this survey.

Typical miscellaneous building materials observed throughout the building but not sampled include drywall, floor tiles and associated mastic, cove base and associated mastic, ceiling tiles, carpet mastic, and window caulks.

3.1.3 Water Damage/Mold

AECOM observed water stained ceiling tile in the first floor corridor. Water intrusion is a mold growth risk factor.

3.1.4 Housekeeping

The Hanover Readiness Center was observed to be generally clean and orderly during this assessment. AECOM did not observe dust accumulation on readily accessible horizontal surfaces within areas commonly used in the facility.

3.1.5 Indoor Air Quality/ Ergonomics

The administration section contains general office space. The administration section is generally utilized by all of the Hanover Readiness Center staff members. No Indoor Air Quality concerns were noted by the Hanover Readiness Center personnel.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (^{o} Fahrenheit), and relative humidity (as percentage) are presented in the following table. All readings were within acceptable guidelines with the exception of temperature in the break room and admin NCO office. Reportedly, site personnel have been keeping temperature in the facility low to save energy.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (^{o}F)	Relative Humidity (%)
Outside - baseline	1.3	364	44.0	60.2
111C Admin NCO	0.8	544	65.1	49.5
Break room	0.9	622	67.2	48.6
Fitness	1.3	563	68.9	41.4
Classroom	0.8	720	69.7	41.5
Drill Hall	0.9	448	65.8	34.4

Table 3-1 Guidelines:
Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard.
OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.
Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.
Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 5.10.1).
Temperature: Winter (clothing insulation = 1.0 clo) Relative humidity 30-60% - Temp - 68 – 75°F
Summer Temp - 73 – 79°F. (Derived from ASHRAE Standard 55-2010)

Hanover Readiness Center personnel did not report any ergonomics issues or concerns. Office furniture and accessories designed to promote ergonomically correct behaviors were observed.

4.0 Ventilation and HVAC System

4.1.1 Ventilation Systems and Potential for Contamination of Clean Air Sources

No potential for contamination of clean air sources was observed at the Hanover Readiness Center. There is a garage attached to the north end of the facility, but it is reportedly not used for maintenance activities. The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of air handling units that provide fresh air from outside the building exterior to administrative areas.

AECOM did not observe any obvious indications of maintenance issues with the general ventilation system from readily accessible areas. Percentage of outside air supplied by the HVAC system was calculated using CO_2 levels, and was determined to be approximately 74.59%, using the ASHRAE formula $\%OA=((C_{RA}-C_{SA})/(C_{RA}-C_{OA}))X100$, where C_{RA}=486 ppm CO_2, C_{SA}=395 ppm CO_2, and C_{OA}=364 ppm CO_2. Based on the carbon dioxide levels observed inside the building during this assessment, there appears to be a sufficient quantity of outside air being delivered via the HVAC system in order to satisfy the occupant load.

4.1.2 HVAC Maintenance

The HVAC system is reported to be on a quarterly maintenance/service agreement. Natural gas boilers feed radiant heaters throughout the remainder of the building including storage areas, the assembly hall as well as provide heat for the facilities domestic water.

5.0 Lighting

Lighting levels in all areas were measured utilizing an Extech model 401-025 light meter that displays lighting levels in foot-candles. Lighting levels were adequate in all areas.

Table 5-1: Light Survey

Location		Results (Foot candles)	Met Standard (Y/N)	Standard*
1st Floor	Maintenance storage 128	53.1	Y	30
	Corridor 126	48.4	Y	5
	Mechanical room 122	33.1	Y	30
	Room 123 Storage	36.9	Y	30
	Electric room 125	36.8	Y	30
	Vault 121	56.5	Y	10
	Server room 125	32.6	Y	30
	Supply room 120	78.9	Y	30
	Elevator mechanical room 109	30.9	Y	30
	Orderly room 111A	78.0	Y	50
	Office 111B	52.6	Y	50
	Office	56.6	Y	50
	Office	56.0	Y	50
	Foyer 101	23.7	Y	10
	Break room 104	68.2	Y	10
	Fitness room 107	41.8	Y	30
	Latrine/shower 114	29.0	Y	5
	Maintenance bay 106	78.9	Y	50
	Locker room 105	11-22	Y	7
	Latrine	27.9	Y	5
2nd Floor	Assembly hall	59-78.2	Y	30
	Kitchen 226	117.3	Y	50
	Dishwashing 226	89.1	Y	30
	Latrine 230	52.7	Y	5
	Latrine	82.1	Y	5
	Storage 232	55.9	Y	30
	Storage 229	57.4	Y	30
	Kitchen storage 218	44.3	Y	30
	Storage 217	57.0	Y	30
	Office 220	65.9	Y	50
	Computer lab 225	68.1	Y	30
	Classroom 224	73.6	Y	50
	Classroom 222/223	72.0	Y	30
	Office 219	73.9	Y	50
	Storage/HVAC 235	36.3	Y	30
	Latrine 209	16.3	Y	5
	Conference room 205	77.6	Y	30
	Corridor	61.2	Y	5
	Operations center conference room 201	72.7	Y	30
	Office 202	70.9	Y	50
	Office 203	67.1	Y	50
	Office 204	65.3	Y	50
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI/IESNA RP-7-01)				

6.0 Evaluation of Attached Garage

There is a maintenance bay located at the north end of the Readiness Center. The maintenance bay is reportedly used only for storage and training. Vehicle maintenance activities are not performed at the facility. Reference values below are those associated with Field Maintenance Shops for comparison, although vehicle maintenance activities are not generally performed at Readiness Centers.

The maintenance bay is equipped with a local exhaust ventilation system designed to capture and control engine emissions (see Appendix A). The local exhaust ventilation system for emissions in the maintenance bay consists of exhaust fans located in the overhead space of the maintenance bay. The exhaust fans connect via rigid ductwork to flexible duct branches distributed throughout the bay. The flexible duct branches (approximately eight inches in diameter) are connected to tapered circular plain-opening capture hoods that can be placed over engine exhaust pipes. The capture hoods are supported by a ceiling-mounted drum system that provides for operator flexibility in maneuvering and placement.

A direct visual observation of the apparent effectiveness of the local ventilation systems was not accomplished, as no vehicles were operated in the bay during the survey. The local ventilation system for capturing and removing engine emissions was reported by site personnel to not be used. AECOM activated the system and measured the face velocities of each accessible duct with a VelociCalc Plus air velocity meter.

The following table presents the evaluation results compared to typical required exhaust flow rates for vehicles routinely serviced by field maintenance shops:

Table 6-1: Local Ventilation System Measured Air Flow Rates:

Local Ventilation System Measured Air Flow Rates		
Location	**Air Flow – cubic feet per minute (cfm)**	**Reference Value***
Exhaust #1	1460 cfm	1370 cfm
Exhaust #2	1575 cfm	1370 cfm

The Reference Value (1370 cubic feet per minute, or cfm) for the vehicle emission exhaust system was determined using theoretical values in the ACGIH calculation (below), based on an engine displacement of 6.2L, exhaust temperature of 267^{o}F, and 3,800 engine rpm. These values were based on using the highest flow rate required for tactical vehicles routinely serviced by ARNG maintenance facilities.

- Reference calculation – $Q_e=(1.2)(D_{eng}xN)[(460F+T_{eng})/530F]$

  Where Q_e=Exhaust Flow; T_{eng}=Engine Tailpipe Temperature (^{o}F); D_{eng}=Engine displacement (ft^3); and N=Engine rpm; 1.2 represents a 20% safety factor.

7.0 Conclusions and Limitations

AECOM has conducted this survey in accordance with applicable OSHA methods and standard industrial hygiene practice. The following conclusions were based on the observations and assessments of activities that occurred during the on-site evaluation:

Housekeeping is performed regularly at the Hanover Readiness Center.

Lighting levels measured throughout the facility were adequate as per American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

Wipe samples collected in association with the drill hall and most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U.S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 ug/ft^2 for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas. However, wipe samples collected from the bullet trap area of the former firing range indicated levels of lead in excess of 200 ug/ft^2.

No damaged suspect asbestos containing materials were observed during the survey.

No peeling lead-based paint was observed during the survey.

Water stained ceiling tile was observed in the first floor corridor. Water intrusion is a mold growth risk factor.

The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of air handlers that provide fresh air from the building exterior in some administrative areas. A boiler system provides radiant heat in the original sections of the facility.

AECOM provided these services consistent with the level and skill ordinarily exercised by members of the profession currently providing similar services under similar circumstances at the time the services were provided. This statement is in lieu of other statements either expressed or implied. This report is intended for the sole use of National Guard Bureau – Army National Guard. The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, and use or re-use of this document, the findings, conclusions, or recommendations is at the risk of said user.

As with all such surveys, the results of the sampling represent conditions found on the date of the survey and may not represent conditions found at other times. Additionally, this survey was limited with respect to the specific parameters indicated above and should not be construed to be a comprehensive evaluation or a definitive representation of conditions within the facility. The information presented in this report is intended to be used as a guide to evaluate the need for further investigation or the need for modifications to the processes or procedures surveyed.

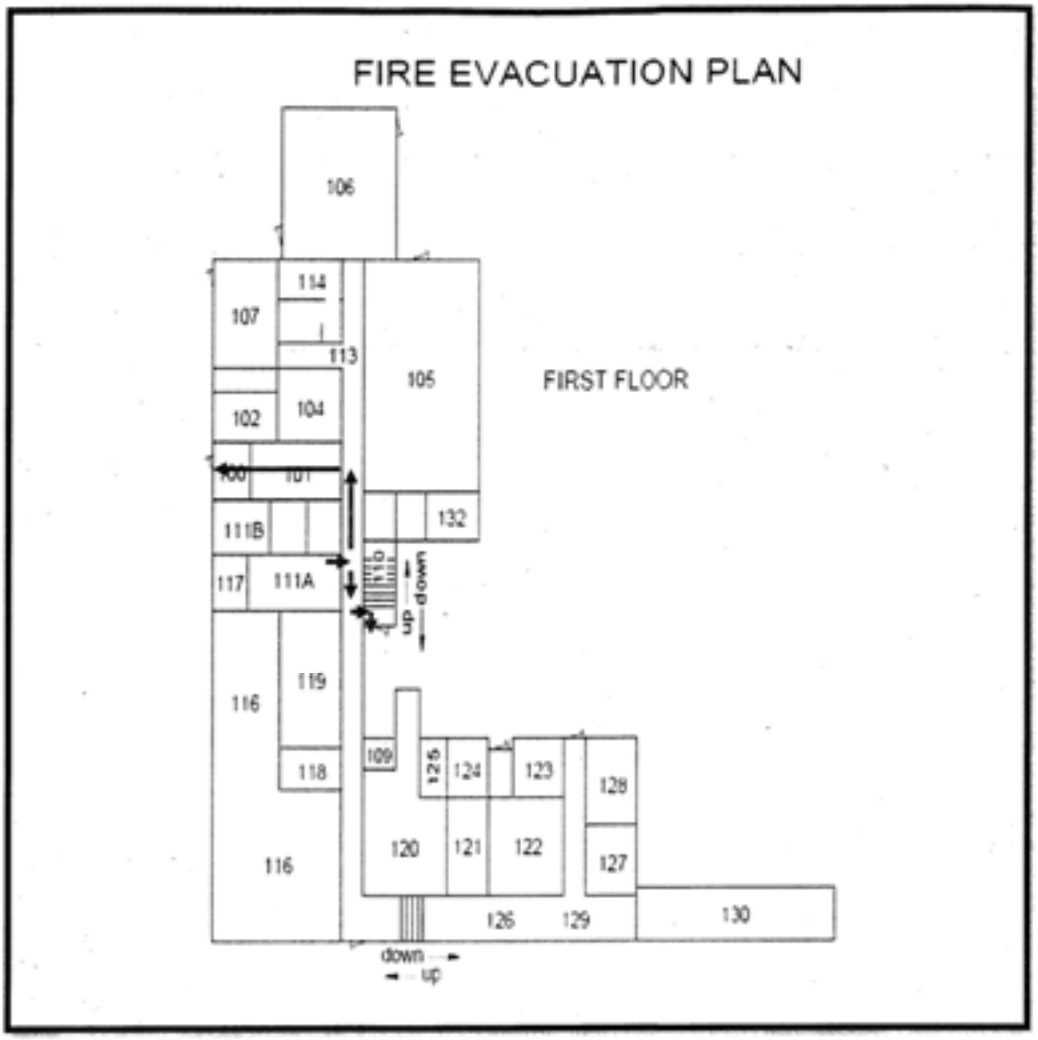
The Client recognizes and agrees that all testing and remediation methods have reliability limitations, no method nor number of sampling locations can guarantee that a condition will be discovered within the performance of the services as authorized by the Client. Additionally, the passage of time may result in a change in the environmental characteristics at this site. This report does not warrant against future operations

or conditions that could affect the recommendations made. The results, findings, conclusions, and recommendations expressed in this report are based only on conditions that were observed during AECOM's inspection of the site.

Appendix A

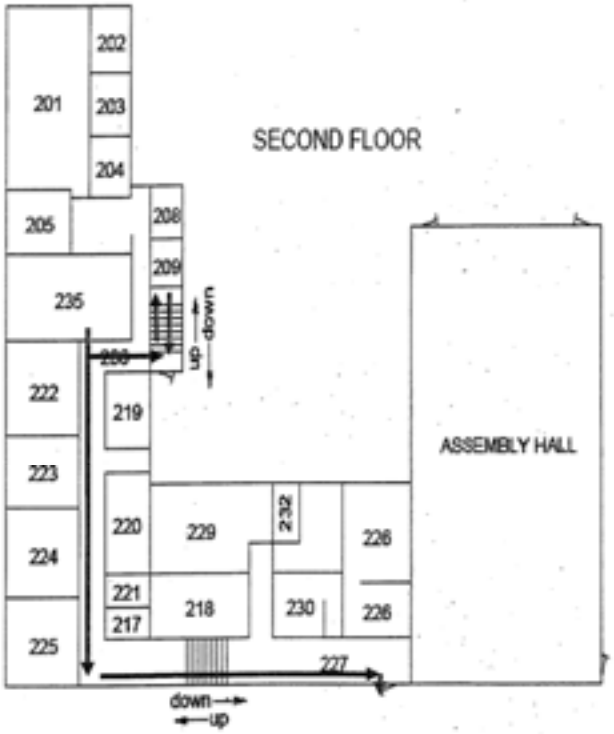
Hanover Readiness Center Facility Layout

AECOM



AECOM

FIRE EVACUATION PLAN



Appendix B

Hanover Readiness Center Photographs

AECOM

Photograph 1
 View of building exterior
Photograph 2
 View of assembly hall

AECOM

Photograph 3

View of typical office

Photograph 4

View of boiler room

AECOM

Photograph 5
 View of former firing range

Photograph 6
 View of kitchen

AECOM

Photograph 7
 View of typical HVAC supply grille

Photograph 8
 View of garage and LEV

AECOM

Photograph 9

View of water damaged ceiling tile in corridor

Appendix C

Analytical Results

AECOM

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	PA-Group 4c RC's	Chain Of Custody:	514638		
Address:	301-81 Old Bay Lane, Attn: ARNG-CRO-P, State Military Reservation	Job Location:	Hanover RC	Date Submitted:	10/30/2012		
	Havre de Grace, Maryland 21078	Job Number:	60276421.1	Person Submitting:	AECOM		
		P.O. Number:	0591266-09-A-0010	Date Analyzed:	12/8/2012	Report Date:	12/8/2012
Attention:	Non-						

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	Total ug	Final Result	Comments
13018574	HA-01	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13018575	HA-02	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13018576	HA-03	Flame	Wipe	****	0.111	110 ug/ft²	15	130 ug/ft²	
13018577	HA-04	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13018578	HA-05	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13018579	HA-06	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13018580	HA-07	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13018581	HA-08	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13018582	HA-09	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13018583	HA-10	Flame	Wipe	****	0.111	110 ug/ft²	40	360 ug/ft²	
13018584	HA-11	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13018585	HA-12	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13018586	HA-13	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13018587	HA-14	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	

An AIHA (#100478) and NY ELAP (#10920) Accredited Laboratory

4475 Forbes Blvd. · Lanham, MD, 20706 · (301) 459-2640 · Toll Free (800) 346-0961 · Fax (301) 459-2643

AECOM

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	PA-Group 1e RC's	Chain Of Custody:	514638
Address:	316-BI Old Bay Lane, Attn: ARNG-C3G-P, State Military Reservation	Job Location:	Hanover PC	Date Submitted:	11/30/2012
	Havre de Grace, Maryland 21078	Job Number:	60276421.3	Person Submitting:	AECOM
		P.O. Number:	WWDSS-09-A-6003	Date Analyzed:	12/8/2012 Report Date: 12/8/2012

Attention: [redacted]

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (SF)	Reporting Limit	Total ug	Final Result	Comments

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B

N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)

%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)

Note: All samples were received in good condition unless otherwise noted.

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results

Final results for air and wipe samples are based on client supplied information nor verified by this laboratory.

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

See QC Summary for analytical results of quality control samples associated with these samples.

Analyst: [redacted] Non-Responsive

Technical Manager: [redacted] Non-Responsive

An AIHA (#100478) and NY ELAP (#10926) Accredited Laboratory

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AECOM

AMA Analytical Services, Inc.
Focused on Results www.amalab.com
AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)
4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This Number For Inquiries) 514638

Mailing/Billing Information:

1. Client Name: National Guard Bureau
2. Address 1: 301-IH Old Bay Lane
3. Address 2: Attn: NGB-AVN-SI, State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:

1. PA - Group 4e RC's
2. HANOVER RC
3. Job #: 60276121.1 PO #: W912QR-08-A-0009
4. Contact Person: [redacted]
5. Submitted by: AECOM [redacted]

Reporting Info (Results provided as soon as technically feasible). If no TAT/Reporting Info is provided, AMA will assign defaults of 5-Day and email/fax to contacts on file.

2/17/12

PCM Air - Please Indicate Filter Type: NIOSH 7400 (QTY); Fiberglass (QTY)
TEM Air* - Please Indicate Filter Type: AHERA (QTY); NIOSH 7402 (QTY); Other (specify) (QTY)
PLM Bulk: EPA 600 - Visual Estimate (QTY); EPA Point Count (QTY); NY State Friable 198.1 (QTY); Grav. Reduction ELAP 198.6 (QTY); Other (specify) (QTY)
MISC: Vermiculite; Asbestos Soil PLM (Qual) PLM (Quant) PLM/TEM (Qual) PLM/TEM (Quant)

TEM Bulk: ELAP 198.4/Chatfield (QTY); NY State PLM/TEM (QTY); Bulk/Ash (QTY)
TEM Dust*: Qual. (presence/absence) Vacuum/Dust (QTY); Quan. (s/area) Vacuum D5755-95 (QTY); Quan. (s/area) Wipe D6480-99 (QTY)
TEM Water: Qual. (potable) (QTY); ELAP 198.2/EPA 100.2 (QTY); EPA 100.1 (QTY)

☒ All samples received in good condition unless otherwise noted. (TEM Water samples: ___ °C)

Pb Paint Chip (QTY); ☒ *Pb Dust Wipe (wipe type: ghost) 14 (QTY); *Pb Air (QTY); Pb Soil/Solid (QTY); Pb TCLP (QTY); Drinking Water; Waste Water; Pb Furnace (Media) (QTY)
Collection Apparatus for Spore Trap/Air Samples; Collection Media; *Spore Trap (QTY); *Surface Swab (QTY); *Surface Tape (QTY); Other (Specify) (QTY); Surface Vacuum Dust (QTY); Culturable ID (QTY)

*It is recommended that bulk samples be submitted with all air and surface samples. If field data sheets are submitted, there is no need to complete bottom section.

CLIENT ID #	SAMPLE LOCATION ID	DATE/TIME	VOL/AREA	ANALYSIS	MATRIX	CLIENT CONTACT (LABORATORY STAFF ONLY)
						Date/Time: Contact: By:
	SEE ATTACHED FIELD DATA SHEETS					
						Date/Time: Contact: By:
						Date/Time: Contact: By:

2/3 12 FEDEX [redacted]

7981 7804 5931

AECOM

Surface Sampling Field Data Sheet

Date Collected: 11/13/12
Job Number: 60276121.1
Contact Person: Non-Responsive

Job Name: PA - Group 4e RC's
Job Location: Hanover RC
Address: 51 West Clearview RD
HANOVER, PA

Company: AECOM
Phone Number: 315 457 0520
Collected By: Non-Respo
COC Number: —

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in^2/ft^2)	Collection Media
HA-01	Drill Hall - North	Floor	16 in^2	Ghost Wipe
HA-02	" - South	Floor	"	"
HA-03	"	Top of Elec. Box	"	"
HA-04	Kitchen	Top of Refrigerator	"	"
HA-05	OFFICE 111	Supply Grille	"	"
HA-06	OFFICE 110	Desk	"	"
HA-07	MAINT. STORAGE	on Shelf	"	"
HA-08	Corridor	Floor	"	"
HA-09	~~Corridor~~ Supply	Supply Grille	"	"
HA-10	FORMER RANGE	Old Bullet Trap Area	"	"
HA-11	"	Light Fixture	"	"
HA-12	"	Stored Items	"	"
HA-13	"	Floor	"	"
HA-14	Outside Former Range	Floor	↓	↓

Please Return Samples To:
AMA Analytical Services, Inc., 4475 Forbes Blvd., Lanham, MD 20706, (800) 346-6961 (202) 459-2640 Fax, www.amalab.com, info@amalab.com

Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. http://www.osha.gov/comp-links.html

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3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF

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11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.

12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.

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15. RP-1-2004, Office Lighting, ANSI/IESNA.

16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.

17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.

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Industrial Hygiene Survey

BTRY A 1ST BN 107TH FA
HERMITAGE, PENNSYLVANIA

June 3, 2003

OPTECH

OPERATIONAL TECHNOLOGIES
CORPORATION

BTRY A 1ST BN 107TH FA
HERMITAGE, PENNSYLVANIA
INDUSTRIAL HYGIENE SURVEY

1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Armory in Hermitage, Pennsylvania on June 3, 2003. The NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. Non-Respo Non-Responsive from OpTech, completed this survey. Non-Responsive a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the IH Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D.

RECOMMENDATIONS

1. ILLUMINATION

1.1. Levels were slightly below recommended minimum standards in all but one area of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

2. LEAD WIPE SAMPLES

2.1. Wipe sampling results for inorganic lead exceeded the 200 $\mu g/ft^2$ criteria in the locker room plus three of five samples in the former indoor firing range. Lower levels of lead were detected in other areas. Recommend that these areas be wet-wiped/mopped or cleaned with a high efficiency particulate air (HEPA) vacuum. Recommend these areas be cleaned in the same manner during routine housecleaning duties.

2.0. EXECUTIVE SUMMARY

2.1. No indoor air quality problems were noted.

2.2. Illumination levels were below recommended minimum standards in most areas of the facility.

2.3. Wipe samples for inorganic lead were collected. A sample collected in the locker room plus three of five samples in the former indoor firing range exceeded the 200 $\mu g/ft^2$ criteria.

2.4. Air sampling for inorganic lead was performed. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	**BTRY A 1ST BN 107th FA**		
ADDRESS	**740 North Hermitage Road**		
	Hermitage, PA 16146		
CONTACT	**SFC** Non-Responsive		
PHONE	**724-983-5141**		
DATE BUILT	**1964**	**FACILITY SIZE**	**19,159 sq. ft.**
INDOOR FIRING RANGE	**Inactive**		**1-floor plus basement**
ASSISTED			
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	**3**		
TRADITIONAL (MIL)	**93**		
CHILD ACTIVITIES	**Used as a voting precinct, and cheerleading practice.**		
ADULT ACTIVITIES			

3.2. The exterior is brick and appears to be in good condition. The interior has been kept in excellent condition. The facility is heated by a natural gas steam furnace and cooled by window air conditioners. The indoor firing range was recently cleaned and is being used for storage.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity (RH) in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 Indoor Air Quality Standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ASHRAE 62-2001, Section 6.1.3, states that concentrations up to 700 ppm CO_2 above outdoor concentrations will achieve an acceptable level of indoor air quality.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ASHRAE 55-1992 recommends that temperature ranges be 73 to 79 degrees Fahrenheit (°F) during the summer and 68 to 74°F during the winter. Relative humidity levels be maintained between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE 1
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO2 (ppm)	Temp. (°F)	RH (%)
1025	Outdoors -- Background	0.0	461	84.3	56.2
1040	Mess Hall	0.0	543	74.3	53.5
1043	Kitchen	0.0	546	75.8	52.1
1046	Admin. Office	0.0	550	76.4	53.0
1050	Recruiting Office	0.0	525	74.5	54.1
1055	1SGT's Office	0.0	530	73.0	53.2
1057	NCO Office	0.0	544	72.1	54.2
1100	Locker Room	0.0	541	75.0	51.0
1104	Assembly Hall	0.0	547	72.0	52.1
1108	Male Latrine	0.0	541	74.0	53.6
1112	Classroom (occupied)	0.0	561	77.2	53.7

3.2.5. Carbon monoxide and carbon dioxide readings were within recommended standards. Indoor temperatures and relative humidity levels were within recommended comfort guidelines.

3.3. ILLUMINATION

3.3.1. Illumination levels were measured in most areas of the facility. Sunlight was excluded, as much as possible for this survey, by closing doors and blocking windows. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 – 463). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
Classroom	42 – 60	54	70	NO
Mess Hall	44 – 52	47	70	NO
Kitchen	42 – 60	51	75	NO
Assembly Hall	40 – 50	44	75	NO
Admin Office	40 – 60	49	70	NO
1 SGT's Office	42 – 52	47	70	NO
Locker Room	28 – 46	37	40	NO
NCO Room	38 – 52	43	70	NO
Male Latrine	36 – 50	42	40	YES

3.3.2. Levels were below recommended minimum standards in all but one area of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3.4. WIPE SAMPLES

3.4.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples were taken at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot ($\mu g/ft^2$) and are listed in Table 3. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Her-03154-03	Classroom – Window Sill	BDL
PA Her-03154-04	Mess Hall – Entertainment Center	61
PA Her-03154-05	Kitchen – Top of Heater	56
PA Her-03154-06	Assembly Hall	BDL
PA Her-03154-07	Admin Office – Window Sill	27
PA Her-03154-08	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.2. Additional wipe samples were collected during this survey. These samples were taken to further analyze the extent of contamination should the first five samples indicate a possible hazard. Although the first samples presented in Table 3 did not exceed the 200 µg/ft² criterion (see Section 3.4.4 below); these additional samples were analyzed. The results are presented below in Table 4.

TABLE 4
ADDITIONAL WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Her-03154-09	Hallway – Top of Heater	BDL
PA Her-03154-10	1st SGT's Office	BDL
PA Her-03154-11	Male Latrine – Floor	170
PA Her-03154-12	Locker Room – Window Sill	240
PA Her-03154-13	NCO Room Floor	190
PA Her-03154-14	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits (18 µg/ft²)

3.4.3. CLOSED FIRING RANGE WIPE SAMPLING

3.4.3.1. Additional wipe samples were collected in the former indoors firing range. This area is presently being utilized for storage. The laboratory analysis results are listed below in Table 5.

TABLE 5
FORMER FIRING RANGE WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Her-03154-15	Former Range – F loor	27
PA Her-03154-16	Former Range – Locker	**259**
PA Her-03154-17	Former Range Ceiling Framing	**213**
PA Her-03154-18	Former Range – F loor	95
PA Her-03154-19	Former Range – Backstop	**282**
PA Her-03154-20	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.4. WIPE SAMPLING RESULTS

3.4.4.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 µg/ft^2. This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. (See memorandum in Attachment E, Recommendations for Surface Lead Dust in Armories.) Samples taken in the locker room and indoor firing range exceeded the 200 µg/ft^2 criteria. Lower levels of lead were detected in other areas of the facility. Lead contamination in the former firing range is due to former range activities. Suspect that lead dust in other areas is due to migration from the firing range and possibly from lead paint.

3.4.5. AIR SAMPLING

3.4.5.1. Air Sampling for inorganic lead was performed during this survey. Table 6 lists the results of these samples, and is reported in milligrams per cubic meter (mg/m³) of air.

TABLE 6
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
Non-Responsive	PA Lan-03072-01	Lead	<0.003 mg/m³	0.05 mg/m³	YES
Area – Kitchen	PA Lan-03072-04	Lead	<0.003 mg/m³	0.05 mg/m³	YES

mg/m³ = milligrams per cubic meter < = less than (below detection limits)

3.4.5.2. Air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this building.

3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION DAMAGE

3.5.1.1. There were no visible water stains or damage to report.

3.5.2. ASBESTOS

3.5.2.1. No asbestos containing material was observed in the facility.

3.5.3. PROGRAMS

3.5.3.1. There are no designated confined space areas within this facility. There are no exhaust ventilation systems to control a hazard. No chemicals besides normal cleaning materials are present. Therefore, a need has not been established for a HAZCOM program, the need for personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.4. HOUSEKEEPING

3.5.4.1. The facility is kept impressively clean and orderly.

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

E – Recommendations for Surface Lead in Armories

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
Hermitage, PA	PENNSYLVANIA ARNG ARMORY	Hermitage Armory

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR (Initials)
	JSS

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	NA	SFC Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
724-983-5141	BTRY A 1ST BN 107 FA	3	9

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
3	93			

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	CONROLS 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			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	½ FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	¼ 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 WEATHR BOOTS/HATS	/
FULL FACE SHIELD	/	EARPLUGS	/	COLD WEATHR 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	/		

AEHA Form 271-R (Test), 1 Jan 92 (HSHB-MI-I)

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	3	C

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

SECTION 6. COMMENTS

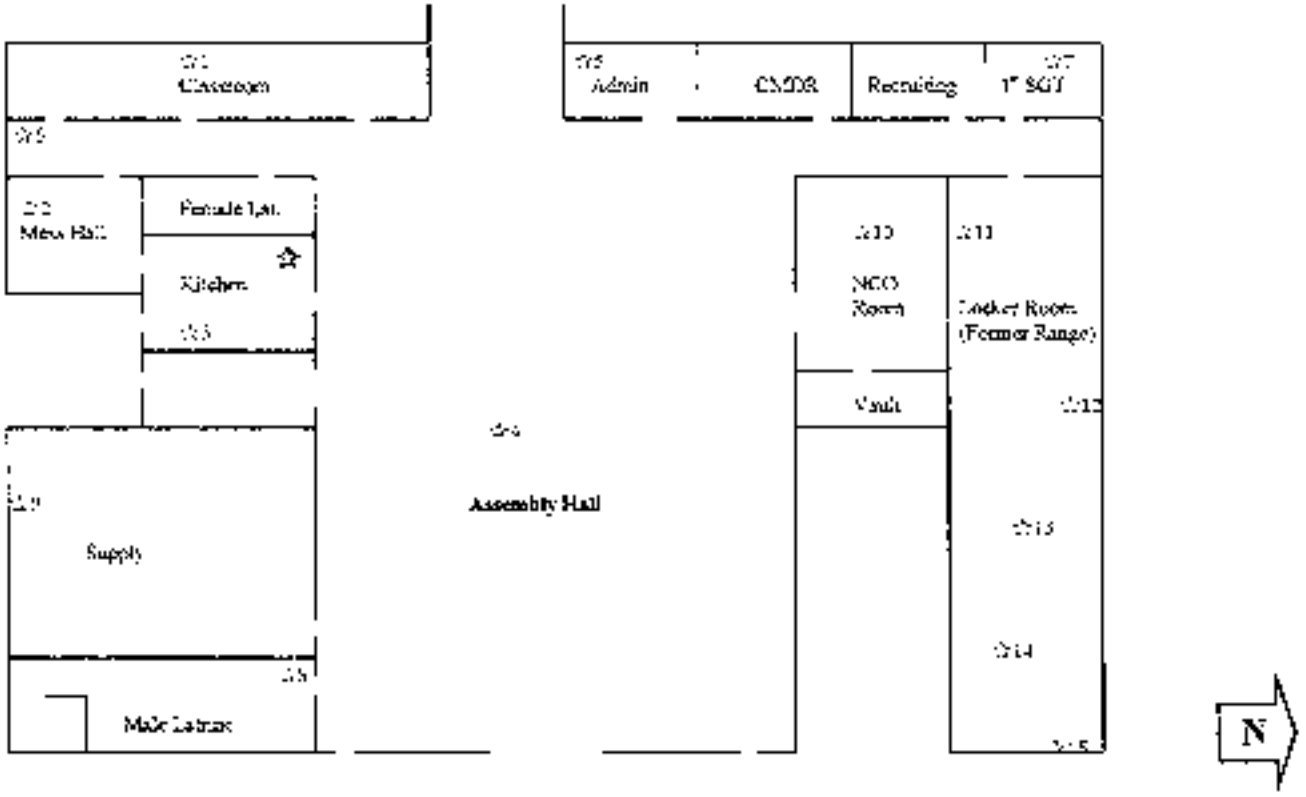
☐ No comments ☐ See attached sheet

PRIVACY ACT STATEMENT

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

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

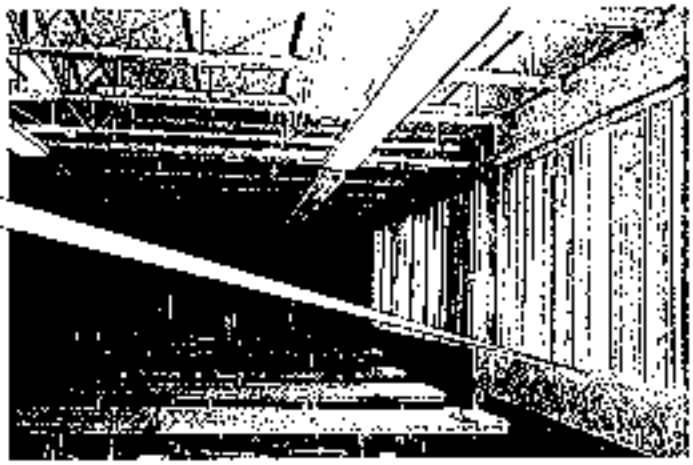
HERMITAGE, PENNSYLVANIA



☆ = Wipe Sample ☆ = Area Air Sample

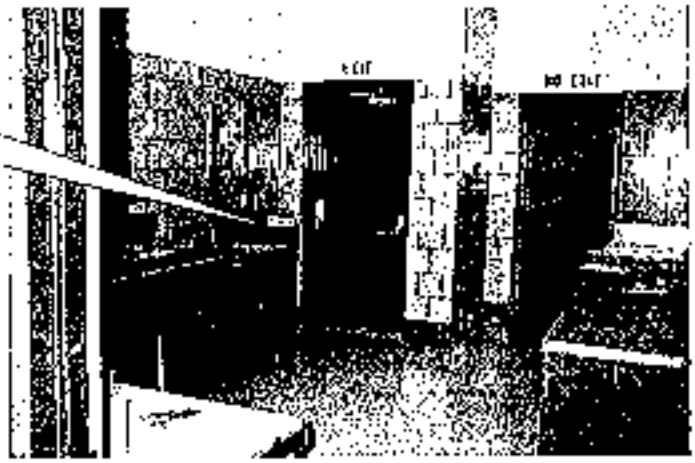
BTRY A 1ST BN 107TH FA
HERMITAGE, PENNSYLVANIA

(1) PA Her-03154-03
Classroom



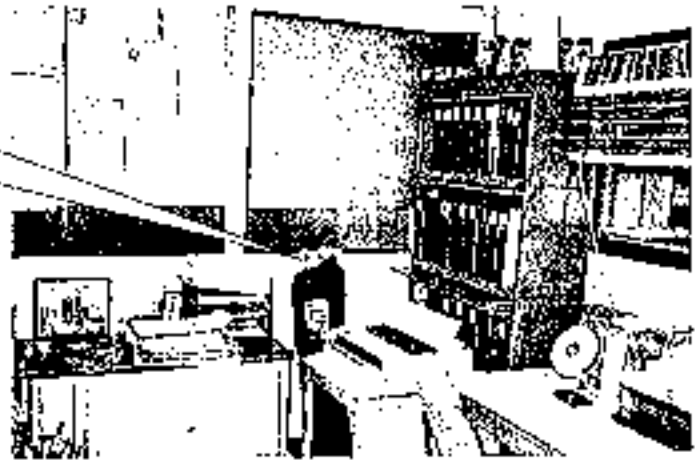
(2) PA Her-03154-04
Dining Room

(3) PA Her-03154-05
Kitchen



(4) PA Her-03154-06
Assembly Hall

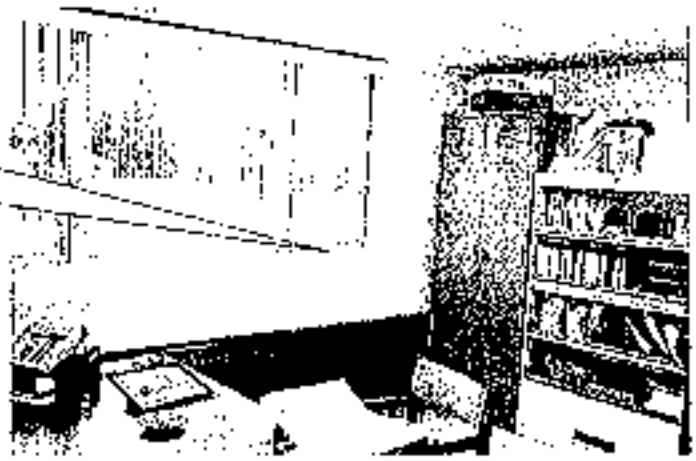
(5) PA Her-03154-07
Admin Office



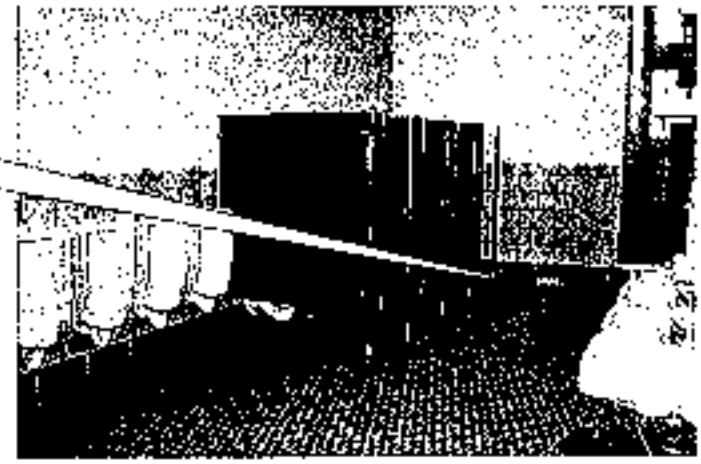
ADDITIONAL SAMPLES

(6) PA Her-03154-09
Hallway

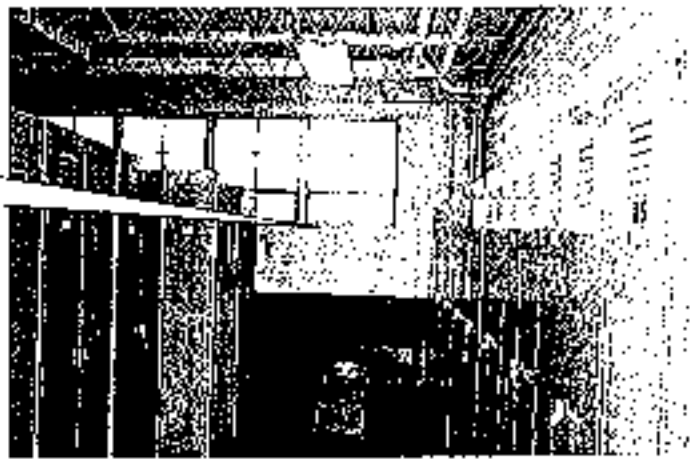
(7) PA Her-03154-10
ISGT's Office



(8) PA Her-03154-11
Male Latrine

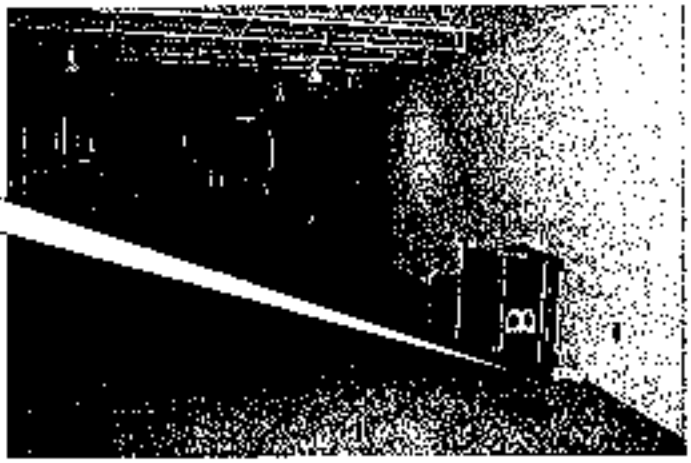


(9) PA Her-03154-12
Locker Room

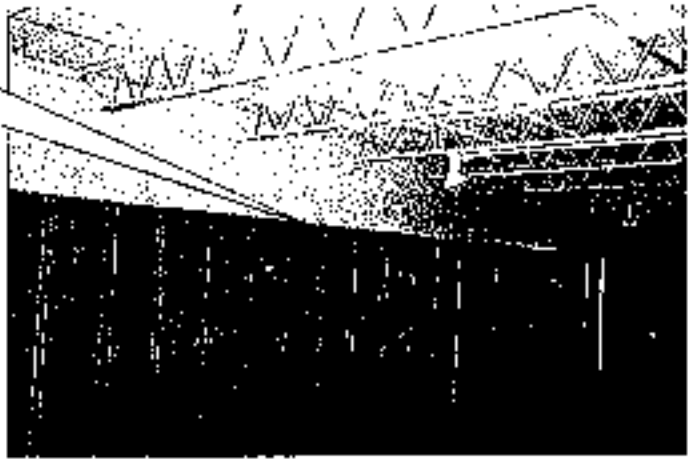


FORMER INDOOR FIRING RANGE SAMPLES

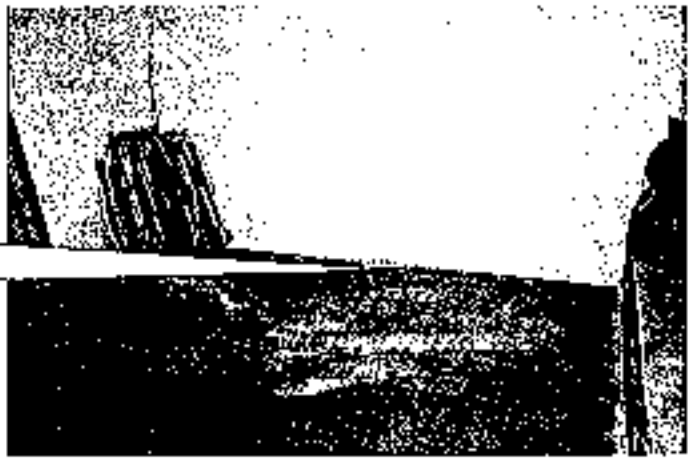
(11) PA Her-03154-15
Former Range
Firing Line Floor



(12) PA Her-03154-16
Former Range
Lockers



(15) PA Her-03154-19
Former Range
Backstop Floor



RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
AIHA Certificate of Accreditation #480 LAB ID 101533

TABLE I. ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	RES 946O4-J
Client:	Operational Technologies, Corp.
Client Project Number / P.O.:	06 03
Client Project Description:	Armuries/Pennsylvania
Date Samples Received:	June 24, 2003
Analysis Type:	USEPA SW846 3050B / AA(7420)
Turnaround:	3-5 Day
Date Samples Analyzed:	July 1, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA Ber-03154-03	EM 787873	0.11	BDL	23	BDL
PA Ber-03154-04	EM 787874	0.11	6.7	23	61
PA Ber-03154-05	EM 787875	0.11	6.2	23	56
PA Ber-03154-06	EM 787876	0.11	BDL	23	BDL
PA Ber-03154-07	EM 787877	0.11	3.0	23	27
PA Ber-03154-08	EM 787878	0.11	BDL	23	BDL
PA Ber-03154-15	EM 787879	0.11	3.0	23	27
PA Ber-03154-16	EM 787880	0.11	28.5	23	259
PA Ber-03154-17	EM 787881	0.11	23.4	23	213
PA Ber-03154-18	EM 787882	0.11	10.4	23	95
PA Ber-03154-19	EM 787883	0.11	31.0	23	282
PA Ber-03154-20	EM 787884	0.11	BDL	23	BDL
PA New-03154-24	EM 787885	0.11	BDL	23	BDL
PA New-03154-25	EM 787886	0.11	BDL	23	BDL
PA New-03154-26	EM 787887	0.11	3.5	23	32
PA New-03154-27	EM 787888	0.11	5.0	23	45
PA New-03154-28	EM 787889	0.11	BDL	23	BDL
PA New-03154-29	EM 787890	0.11	BDL	23	BDL
PA New-03154-36	EM 787891	0.11	26.2	23	238
PA New-03154-37	EM 787892	0.11	90.1	23	819
PA New-03154-38	EM 787893	0.11	11.1	23	101
PA New-03154-39	EM 787894	0.11	2.6	23	24
PA New-03154-40	EM 787895	0.11	7.0	23	64
PA New-03154-41	EM 787896	0.11	BDL	23	BDL
PA Cor-03155-03	EM 787897	0.11	430.0	23	3909
PA Cor-03155-04	EM 787898	0.11	970.0	23	8818
PA Cor-03155-05	EM 787899	0.11	1900.0	23	17273
PA Cor-03155-06	EM 787900	0.11	10.5	23	95
PA Cor-03155-07	EM 787901	0.11	5.6	23	51
PA Cor-03155-08	EM 787902	0.11	BDL	23	BDL

BDL - Below Detection Limit

Date Qa

AMA Analytical Services, Inc.
A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client:	National Guard Bureau	Job Name:	Pennsylvania Armories-Hermitage	Chain Of Custody:	117542
Address:	301-IH Old Bay Lane, Attn: NGB-AVN-SI, State Military Reservation	Job Location:	Not Provided	Date Analyzed:	9/22/2003
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	[redacted]
		P.O. Number:	Not Provided	Report Date:	22-Sep-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
0367494	PA-Her-03154-09	Flame	Wipe	****	0.111	108.01	ug/ft²	<	110	ug/ft²	
0367495	PA-Her-03154-10	Flame	Wipe	****	0.111	108.01	ug/ft²	<	110	ug/ft²	
0367496	PA-Her-03154-11	Flame	Wipe	****	0.111	108.01	ug/ft²		170	ug/ft²	
0367497	PA-Her-03154-12	Flame	Wipe	****	0.111	108.01	ug/ft²		240	ug/ft²	
0367498	PA-Her-03154-13	Flame	Wipe	****	0.111	108.01	ug/ft²		190	ug/ft²	
0367499	PA-Her-03154-14	Flame	Wipe	****	0.111	108.01	ug/ft²	<	110	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.

Analyst: [redacted] Technical Manager: [redacted]

An AIHA (#8863), NVLAP (# 101143), & New York ELAP (#10920) Accredited Laboratory
4475 Forbes Blvd. • Lanham, MD 20706 • (301) 459-2640 • Toll Free (800) 346-0961 • Fax (301) 459-2643

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m³
PA Her-03154-01	03-20664	370.5	ND	<0.003
PA Her-03154-02	03-20665	382.4	ND	<0.003
PA New-03154-22	03-20666	465.6	ND	<0.002
PA New-03154-23	03-20667	450.1	ND	<0.002
PA Cor 03155-01	03-20668	305.5	ND	<0.003
PA Cor 03155-02	03-20669	292.0	ND	<0.003
PA Bea-03156-01	03-20670	312.3	ND	<0.003
PA Bea-03156-02	03-20671	294.7	ND	<0.003
PA Pit-03156-22	03-20672	263.9	ND	<0.004
PA Pit-03156-23	03-20673	247.1	ND	<0.004
PA Pit-03157-01	03-20674	384.5	ND	<0.003
PA Pit-03157-02	03-20675	380.9	ND	<0.003
PA Pit-03157-22	03-20676	421.3	ND	<0.002
PA Pit-03157-23	03-20677	404.6	ND	<0.002
PA Wil-03161-01	03-20678	445.6	ND	<0.002
PA Wil-03161-02	03-20679	437.2	ND	<0.002
PA New-03161-22	03-20680	148.1	ND	<0.007
PA New-03161-23	03-20681	139.1	ND	<0.007
PA Car-03161-37	03-20682	248.3	ND	<0.004
PA Car-03161-38	03-20683	240.0	ND	<0.004
	Prep Blank		ND	
% Recovery	LCS 1		97.	
% Recovery	LCS 2		99.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive
Analyst

Non-Responsive
Reviewer

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non-Responsive @md.ngb.army.mil

Attachment D

REFERENCE LIST INDEX

1. General Regulations and National Consensus Standards
2. Specific Regulations and Guidance
   a. Abrasive Blasting
   b. Asbestos
   c. Battery Charging Room
   d. Bird and Bat Manure
   e. Bloodborne Pathogens
   f. Chemical Agent Resistant Coating (CARC) Paint
   g. Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE)
   h. Confined Space Entry Program
   i. Design Review
   j. Ergonomics
   k. Flammable Storage Room
   l. Hazard Communication
   m. Hearing Conservation
   n. Indoor Air Quality
   o. Indoor Firing Ranges
   p. Lead
   q. Lighting
   r. Occupational Vision
   s. Paint Spray Booth
   t. Personal Protection
   u. Radiation Protection
   v. Respiratory Protection
   w. Sanitation
   x. Smoking
   y. Vehicle Exhaust
   z. Welding Operation

GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REFERENCE LIST

1. General Regulations and National Consensus Standards

a. DODI 6055.1, DOD SOH Program, 19 August 1998.

b. DODI 6055.5, DOD OEH. *[DRAFT]*

c. DOD 6055.5-M, DOD Occupational Health Surveillance Manual, 13 May 1987.

d. DODI 6050.5, DOD Hazard Communication, 29 Oct 90. Change 1, 6 May 1996.

e. AR 40-5, Preventive Medicine, 15 October 1990. [05/2002 Being Updated]

f. DA PAM 40-5, Preventive Medicine. *[DRAFT]*

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

h. NGR 385-10, ARNG SOH Program, 7 October 1988, Change 1, 29 December 1989.

i. Title 29, Part 1910, Occupational Safety and Health Standards. [Current Date]

j. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 2002.

k. ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th edition, 2001.

l. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.

m. TG 141, USACHPPM Industrial Hygiene Sampling Guide, November 1997.

n. National Safety Council, Fundamentals of Industrial Hygiene, 5th Edition, 2002.

o. NIOSH, Pocket Guide to Chemical Hazards, 2001.

p. NFC, A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. [Current date]

q. ASHRAE Standards. [Current Dates]

r. ANSI Standards. [Current Dates]

2. Specific Regulations/Guidance

a. **ABRASIVE BLASTING**

(1) ANSI Z9.4 1997, Abrasive Blasting Operations - Ventilation and Safe Practices.

(2) 29 CFR 1910.94 Ventilation

(3) 42 CFR 84

b. **ASBESTOS**

(1) AR 40-5, Preventive Medicine, 15 October 1990. *[05/2002 Being Updated]*

(2) AR 200-1, Environmental Protection and Enhancement, Chapter 8, 21 February 1997.

(3) TB MED 513, Guidelines for the Evaluation and Control of Asbestos Exposure, 15 December 1986. *[05/2000 Under Revision as DA PAM 40-513]*

(4) TG 157, USAEHA, The Installation Asbestos Management Program Assessment Checklists, July 1994.

(5) 29 CFR 1910.1001

(6) 29 CFR 1926.58 (prior to 1994 CFR)

(7) 29 CFR 1926.1101

(8) MEMORANDUM SGPS-PSP, OTSG, subject: AMEDD Role Supporting Asbestos Abatement/Asbestos Management Programs, 19 Jan 89.

(9) EPA, Guidance for Controlling Asbestos-Containing Materials in Buildings, June 1985.

(10) DD Form 2493-1 (Asbestos Exposure, Part I--Initial Medical Questionnaire)

(11) DD Form 2493-2 (Asbestos Exposure, Part II--Periodic Medical Questionnaire)

(12) EPA NESHAPS Asbestos Regulation (40 CFR 61, Subpart M).

c. **BATTERY CHARGING ROOM**

(1) TG 022, USAEHA, page 81, Industrial Hygiene Evaluation Guide, October 1975. *[Out of Print]*

(2) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

d. **BIRD AND BAT MANURE**

(1) TG 142, USAEHA, Managing Health Hazards Associated with Bird and Bat Excrement, Dec 1992.

e. **BLOODBORNE PATHOGENS**

(1) 29 CFR 1910.1030

(2) TG 190, USAEHA, Guide to Managing Occupational Exposure to Bloodborne Pathogens, Jan 94.

f. **CHEMICAL AGENT RESISTANT COATING (CARC) PAINT**

(1) TG 144, USAEHA, Guidelines for Controlling Health Hazards in Painting Operations, 24 August 1987.

(2) DA LTR, USAEHA, HSHB-MI-WR, subject: Respiratory Protection When Spraying CARC, 19 November 1992.

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(4) MEMORANDUM SGPS-PSP, OTSG, subject AMEDD, Occupational Health Requirements in Support of Painting in the Army, 22 February 1985.

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(3) ANSI Z117.1-Safety Requirements for Confined Spaces, 1995.
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(6) OSHA Instruction STD 1-7.3, US DOL, subject: 29 CFR 1910.147, the Control of Hazardous Energy (Lockout/Tagout)--Inspection Procedures and Interpretive Guidance, 11 Sep 90.
(7) DHHS, NIOSH Pub No. 87113, A Guide to Safety in Confined Spaces, July 1987.
(8) Confined Space Entry Program for Helicopters, 2003.

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(2) DG 415-2, Design Guide for Logistics Facilities, current.
(3) DG 415-3, Design Guide for Training Site Facilities, current.
(4) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.
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(2) USACERL Technical Report P-91/42, IAQ Management for Operations and Maintenance Personnel, September 1991.

(3) EPA 400/1-91/003 or DHHS, NIOSH, Publication No. 91-114, Building IAQ, A Guide for Building Owners and Facility Managers, December 1991.

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(3) CEHND 1110-1-18, USACE Design Manual for Indoor Firing Range, June 1990.

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(6) NIOSH, Technical Information, December 1975, subject: Lead Exposure and Design Considerations for Indoor Firing Ranges.

(7) All-States Ltr P01-0075, 5 December 2001.

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(9) Information Paper, Bullet Traps, 26 April 1996.

(10) Information Paper, ARNG IFR Action Plan, 28 January 2002.

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(2) 29 CFR 1926.62

(3) 24 CFR 35.61 (HUD, Percentage of Lead in Paint)

(4) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

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(3) 29 CFR 1910.94

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(5) ANSI Z9.3-1995 for Exhaust Systems - Spray Finishing Operations - Safety Code for Design, Construction, and Ventilation.

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Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 $\mu g/ft^2$) and windowsills (250 $\mu g/ft^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of 200 $\mu g/ft^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 $\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 $\mu g/ft^2$ on floors and 250 $\mu g/ft^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland




Industrial Hygiene Survey
for PAARNG – Hermitage Readiness Center
740 North Hermitage Road
Hermitage, Pennsylvania 16146

AECOM
January 2013
Document No.: 60276421.1/Hermitage Readiness Center

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Non-Responsive

Non-Responsive
Project Manager

Non-Responsive
Northeast District Health & Safety Manager

AECOM
January 2013
Document No.: 60276421.1/Hermitage Readiness Center

AECOM

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Executive Summary

On November 8, 2012, AECOM conducted an Industrial Hygiene (IH) survey of the Hermitage Readiness Center facility located at 740 North Hermitage Road in Hermitage, Pennsylvania. [redacted], SFC was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Hermitage Readiness Center operations.

The industrial hygiene survey was generally conducted in accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings", dated January 2012.

The Hermitage Readiness Center is currently staffed by five personnel. Some of the personnel were not present at the time of the survey due to active duty assignments or other off-site responsibilities. The facility is configured as an administrative area and a Drill/Assembly Hall.

Personnel at the facility were undertaking normal daily activities, which are primarily administrative in nature, at the time of the survey.

The activities undertaken during the Industrial Hygiene survey included facility descriptions, lead wipe/air sampling, evaluation of housekeeping, illumination studies, ventilation system evaluation, and a review of the physical building condition.

The Hermitage Readiness Center is housed in a one-story masonry building, and consists of approximately 60% administrative space and 40% Assembly Hall.

Lighting levels measured throughout the facility were adequate as per ANSI/IESNA RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005, with the exception of the kitchen, state maintenance office, and the boiler room.

Wipe samples collected for lead-containing dust throughout the facility did not indicate lead levels above the ARNG action level.

No peeling lead-based paint was observed at the Hermitage Readiness Center during this survey.

No visible damaged suspect asbestos-containing material (ACM) was observed.

No visible water damaged or visible signs of mold growth were observed.

There is no Heating, Ventilation & Air Conditioning (HVAC) system at the Hermitage Readiness Center.

1.0 Facility Description and Operations

The Hermitage Readiness Center, constructed in 1959, is a one-story administrative facility slab on-grade masonry structure. The building consists of two main sections. The larger one-story section, consists primarily of offices, training/classroom, locker/shower rooms, storage and administrative areas, and is finished with sheetrock walls, lay-in ceiling tiles and floor tile. The two-story Assembly/Drill Hall area, located in the rear of the building, is finished with painted block walls and a concrete floor. According to site personnel there is a firing range at the facility which is currently used as a supply/storage area.

The primary activity at the Hermitage Readiness Center is routine administrative duties and occasional use by units for support and training of soldiers. The Assembly Hall is occasionally rented out for limited civic activities such as group meetings, trade shows and to other related local groups and organizations. The Hermitage Readiness Center is currently staffed by five personnel. No vehicle maintenance activities are undertaken at the facility.

2.0 Sampling in Readiness Centers

2.1.1 Wipe Sampling

Wipe sampling for lead was conducted in the Assembly Hall and administrative areas following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost wipes. Samples were collected in areas that are not frequently cleaned and showed signs of dust whenever possible.

The following table presents the results of the lead wipe sampling conducted at the facility.

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
W – 001	Assembly Hall - table	<110 ug/ft^2
W – 002	Kitchen – counter	<110 ug/ft^2
W – 003	Recruiter Office - desk top	<110 ug/ft^2
W – 004	Recruiter Office - file cabinet	<110 ug/ft^2
W – 005	Administrative Corridor - floor	<110 ug/ft^2
W – 006	Supply/Storage (Former Firing Range – shelf)	<110 ug/ft^2
W – 007	Supply/Storage (Former Firing Range – floor)	<110 ug/ft^2
W – 008	Assembly Hall - floor	<110 ug/ft^2

ug/ft^2 = Micrograms per square foot.

Wipe samples collected in association with the administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U.S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 micrograms per square foot (ug/ft^2) for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

The wipe samples collected throughout the facility did not detect levels of lead in excess of the ARNG action level of 200 ug/ft^2. Former indoor firing ranges shall be converted in accordance with NG PAM 420-15. Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

Per Non-Responsive of NGB-IH, the requirement for Lead air sampling has been removed from the Statement of Work. It was reported that historically, air samples collected at administrative facilities are typically below the limit of detection.

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls appeared to be generally in good condition. Concrete flooring was generally tiled or unpainted. AECOM did not observe damaged or peeling paint during this evaluation.

3.1.2 Suspect Asbestos Containing Materials

AECOM did not observe damaged, friable suspect asbestos containing materials (ACM) in readily accessible areas of the Hermitage Readiness Center during this survey. Thermal system piping is typically covered in typical fiberglass insulation with associated fittings and appeared in good condition.

Other typical miscellaneous building materials observed but not sampled include floor tiles and associated mastic, cove base and associated mastic, ceiling tiles, and window glazing compound and caulks.

3.1.3 Water Damage/Mold

AECOM did not observe evidence of water intrusion during this survey.

3.1.4 Housekeeping

The Hermitage Readiness Center was observed to be generally clean and orderly during this assessment. AECOM did not observe dust accumulation on readily accessible horizontal surfaces within areas commonly used in the facility.

3.1.5 Indoor Air Quality/ Ergonomics

The administration section of the building contains general office space. The administration section is generally utilized by all of the Hermitage Readiness Center staff members including a recruiter. No Indoor Air Quality concerns were noted by the Hermitage Readiness Center personnel.

Hermitage Readiness Center personnel did not report any ergonomics issues or concerns. Office furniture and accessories designed to promote ergonomically correct behaviors were observed.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (^{o} Fahrenheit), and relative humidity (as percentage) are presented in the following table.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (^{o}F)	Relative Humidity (%)
Outside	0.3	245	69.6	28.7
Foyer	2.1	408	69.6	33.4
Administrative Corridor	2.2	383	71.2	33.9
NCO Office	2.5	576	72.7	37.3
Recruiter Office	2.4	298	73.4	33.4
Locker Room	3.1	302	69.0	33.5
Classroom	1.9	286	73.8	28.7
Learning Training Room	1.9	486	75.7	28.9
Kitchen	1.9	342	78.1	23.7

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (^{o}F)	Relative Humidity (%)
State Maintenance Office	2.2	317	77.6	24.1
Cage Storage Area	1.8	378	79.1	23.4
Men's Rest Room	2.1	347	77.9	19.2
Assembly Hall	2.4	287	76.8	22.4
Boiler Room	2.1	293	56.1	38.3

Table 3-1 Guidelines: 2.9
Carbon Monoxide: Office1.3e/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard. OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.
Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.
Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 5.10.1).
Temperature: Winter (clothing insulation = 1.0 clo) Relative humidity 30-60% - Temp - 68 – 75°F
Summer Temp - 73 – 79°F. (Derived from ASHRAE Standard 55-2010)

4.0 Ventilation and HVAC System

4.1.1 Ventilation Systems and Potential for Contamination of Clean Air Sources

There is no Field Maintenance Shop (FMS) located at the Hermitage Readiness Center. As such, no potential for contamination of clean air sources was observed at the facility.

There is no Heating, Ventilation & Air Conditioning (HVAC) system at the Hermitage Readiness Center.

4.1.2 HVAC Maintenance

There is no HVAC system at the Hermitage Readiness Center. The building consists of a natural gas boiler that feeds radiant heaters throughout the building. The natural gas boilers also provide heat for the facilities domestic water.

5.0 Lighting

Lighting levels in all areas were measured utilizing a Cal-Light 400 light meter that displays lighting levels in foot-candles. Lighting levels were generally adequate.

Table 5-1: Light Survey

Location	Results – (Foot candles)	Met Standard (Y/N)	Standard*
Foyer	71.5	Y	10
Administrative Corridor	42.0	Y	5
NCO Office	56.9	Y	50
Recruiter Office	51.8	Y	50
Locker Room	14.9	Y	7
Classroom	43.6	Y	30
Learning Training Room	66.2	Y	30
Kitchen	44.8	N	50
State Maintenance Office	31.5	N	50
Cage Storage Area	29.6	Y	10
Men's Rest Room	25.1	Y	5
Assembly Hall	34.8	Y	10
Boiler Room	8.7	N	30
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI/IESNA RP-7-01)			

6.0 Evaluation of Attached Garage

There is no attached garage associated with the Hermitage Readiness Center.

7.0 Conclusions and Limitations

AECOM has conducted this survey in accordance with applicable OSHA methods and standard industrial hygiene practice. The following conclusions were based on the observations and assessments of activities that occurred during the on-site evaluation:

Housekeeping is performed regularly at the Hermitage Readiness Center.

AECOM did not observe any damaged, friable suspect asbestos-containing materials at the Hermitage Readiness Center.

AECOM did not observe peeling paint during at the Hermitage Readiness Center.

AECOM did not observe evidence of water intrusion at the Hermitage Readiness Center.

Lighting levels measured throughout the facility were adequate as per ANSI/IESNA RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005, with the exception of the kitchen, state maintenance office, and the boiler room.

Wipe samples collected in association with the administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft^2 for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

AECOM provided these services consistent with the level and skill ordinarily exercised by members of the profession currently providing similar services under similar circumstances at the time the services were provided. This statement is in lieu of other statements either expressed or implied. This report is intended for the sole use of National Guard Bureau – Army National Guard. The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, and use or re-use of this document, the findings, conclusions, or recommendations is at the risk of said user.

As with all such surveys, the results of the sampling represent conditions found on the date of the survey and may not represent conditions found at other times. Additionally, this survey was limited with respect to the specific parameters indicated above and should not be construed to be a comprehensive evaluation or a definitive representation of conditions within the facility. The information presented in this report is intended to be used as a guide to evaluate the need for further investigation or the need for modifications to the processes or procedures surveyed.

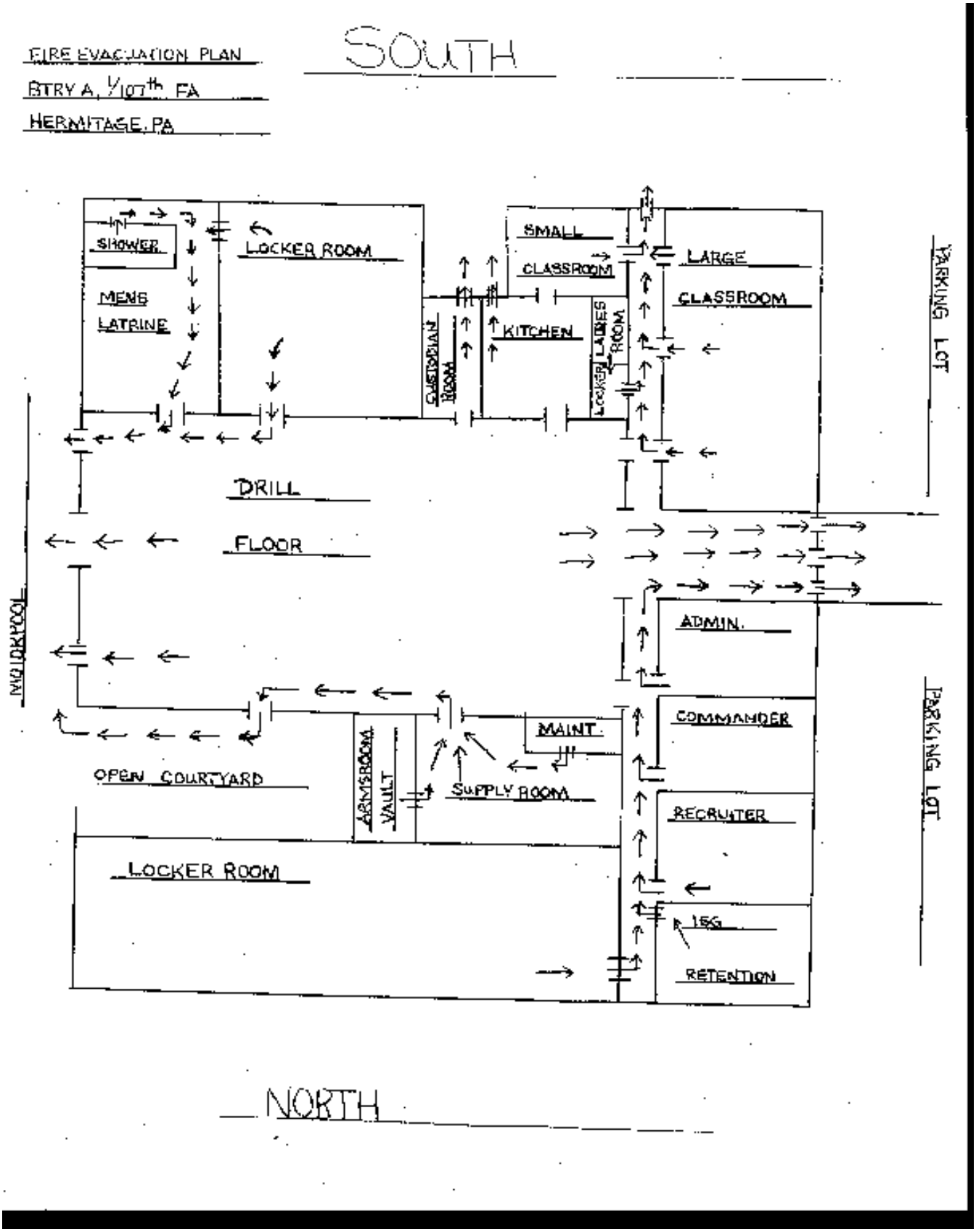
The Client recognizes and agrees that all testing and remediation methods have reliability limitations, no method nor number of sampling locations can guarantee that a condition will be discovered within the performance of the services as authorized by the Client. Additionally, the passage of time may result in a change in the environmental characteristics at this site. This report does not warrant against future operations or conditions that could affect the recommendations made. The results, findings, conclusions, and recommendations expressed in this report are based only on conditions that were observed during AECOM's inspection of the site.

Appendix A

Hermitage Readiness Center Facility Layout

AECOM

FIRE EVACUATION PLAN
BTRY A, 1/107th FA
HERMITAGE, PA



Appendix B

Hermitage Readiness Center Photographs

AECOM

Photograph 1

View of Building Exterior

Photograph 2

View of Foyer

AECOM

Photograph 3

View of Administrative Corridor

Photograph 4

View of Assembly Hall

Photograph 5

View of Kitchen

Photograph 6

View of Classroom

AECOM

Photograph 7

View of Caged Storage Area

Photograph 8

View of Flammable Storage Cabinets in Service Bay

Photograph 9

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Photograph 10

View of Former Firing Range Currently Used as Locker Room

Photograph 11

View of Suspect Asbestos Pipe Insulation and Radiant Heater in Office

Photograph 12

View of Heating System and Caged Storage in Assembly Hall

AECOM

Photograph 13

View of Boiler Room

Photograph 14

View of Mechanical Room

Appendix C

Analytical Results

AECOM

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	Hermitage, PA	Chain Of Custody:	50462		
Address:	301-81 Old Bay Lane, Attn: ARNG-CXS-P, State Military Reservation	Job Location:	Not Provided	Date Submitted:	11/30/2012		
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM		
		P.O. Number:	W912S6-09-A-0003	Date Analyzed:	12/6/2012	Report Date:	12/6/2012

Attention: Nan- [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	Total ug	Final Result	Comments
1308512	W-001	Flame	Wipe	****	0.111	180 ug/ft²	<12	<110 ug/ft²	
1308513	W-002	Flame	Wipe	****	0.111	180 ug/ft²	<12	<110 ug/ft²	
1308514	W-003	Flame	Wipe	****	0.111	180 ug/ft²	<12	<110 ug/ft²	
1308515	W-004	Flame	Wipe	****	0.111	180 ug/ft²	<12	<110 ug/ft²	
1308516	W-005	Flame	Wipe	****	0.111	180 ug/ft²	<12	<110 ug/ft²	
1308517	W-006	Flame	Wipe	****	0.111	180 ug/ft²	<12	<110 ug/ft²	
1308518	W-007	Flame	Wipe	****	0.111	180 ug/ft²	<12	<110 ug/ft²	
1308519	W-008	Flame	Wipe	****	0.111	180 ug/ft²	<12	<110 ug/ft²	

An AIHA (#100478) and NY ELAP (#10920) Accredited Laboratory

4475 Forbes Blvd. · Lanham, MD. 20706 · (301) 459-2640 · Toll Free (800) 346-0961 · Fax (301) 459-2643

AECOM

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	Hermitage, PA	Chain Of Custody:	514632
Address:	301-81 Old Bay Lane, Attn: ARNG-CIG-P, State Military Reservation	Job Location:	Not Provided	Date Submitted:	11/30/2012
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM
		P.O. Number:	W912G6-05-A-0030	Date Analyzed:	12/6/2012 Report Date: 12/6/2012

Attention: Non-Responsive

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	Total ug	Final Result	Comments

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B

N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)

%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)

Note: All samples were received in good condition unless otherwise noted.

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results

Final results for air and wipe samples are based on client supplied information nor verified by this laboratory.

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

See QC Summary for analytical results of quality control samples associated with these samples.

Analyst: Non-Responsive

Technical Manager: Non-Responsive

An AIHA (#100478) and NY ELAP (#10920) Accredited Laboratory

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AECOM

AMA Analytical Services, Inc.
Focused on Results www.amalab.com
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4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This Number For Inquires)

514632

Mailing/Billing Information:
1. Client Name: National Guard Bureau
2. Address 1: 205-IH Old Bay Lane
3. Address 2: Attn: NGB-AVN-SI, State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:
(1) (Site Name) Hermitage, PA
(2) (Site Location)
3. Job #: P.O. #: 1991203-09-A-0003
4. Contact Person: [redacted] @ phone #
5. Submitted by: AECOM (Signature)

Reporting Info (Results provided as soon as technically feasible). If no TAT/Reporting Info is provided, AMA will assign defaults of 5-Day and email/fax to contacts on file.

AFTER HOURS (must be pre-scheduled)	NORMAL BUSINESS HOURS			REPORT TO:
☐ Immediate Date Due: ___ ☐ 24 Hour Time Due: ___ Comments: ___	☐ Immediate ☐ Next Day ☐ 2 Day	☐ 3 Day ☒ 5 Day • (Date Due) 12/7/12	☐ Results Required By Noon	[redacted]

Asbestos Analysis
*PCM Air – Please Indicate Filter Type:
☐ NIOSH 7400 ___ (QTY)
☐ Fiberglass ___ (QTY)
TEM Air* – Please Indicate Filter Type:
☐ AHERA ___ (QTY)
☐ NIOSH 7402 ___ (QTY)
☐ Other (specify ___) ___ (QTY)
PLM Bulk
☐ EPA 600 – Visual Estimate ___ (QTY)
☐ EPA Point Count ___ (QTY)
☐ NY State Friable 198.1 ___ (QTY)
☐ Grav. Reduction ELAP 198.6 ___ (QTY)
☐ Other (specify ___) ___ (QTY)
MISC
☐ Vermiculite
☐ Asbestos Soil PLM ___ (Qual) TEM ___ (Quan) [illegible]

TEM Bulk
☐ ELAP 198.4/Chatfield ___ (QTY)
☐ NY State PLM/TEM ___ (QTY)
☐ Residual Ash ___ (QTY)
TEM Dust*
☐ Qual. (presence) Vacuum/Dust ___ (QTY)
☐ Quan. (s/area) Vacuum D5755-95 ___ (QTY)
☐ Quan. (s/area) Dust D6480-99 ___ (QTY)
TEM Water
☐ Qual. (presence) ___ (QTY)
☐ ELAP 198.2/EPA 100.2 ___ (QTY)
☐ EPA 100.1 ___ (QTY)

☐ All samples received in good condition unless otherwise noted. (TEM Water samples ___ °C)

Metals Analysis
☐ Pb Paint Chip ___ (QTY)
☒ Pb Dust Wipe (wipe type: Required 8) (QTY)
☐ Pb Air ___ (QTY)
☐ Pb Soil/Solid ___ (QTY)
☐ Pb TCLP ___ (QTY)
☐ Drinking Water ☐ Pb ___ (QTY) ☐ Cu ___ (QTY) ☐ As ___ (QTY)
☐ Waste Water ☐ Pb ___ (QTY) ☐ Cu ___ (QTY) ☐ As ___ (QTY)
☐ Pb Furnace (Media ___) ___ (QTY)

Fungal Analysis
Collection Apparatus for Spore Trap/Air Samples: ___
Collection Media: ___
☐ *Spore-Trap ___ (QTY) ☐ Surface Vacuum Dust ___ (QTY)
☐ *Surface Swab ___ (QTY) ☐ Culturable ID Genus (Media ___) ___ (QTY)
☐ *Surface Tape ___ (QTY) ☐ Culturable ID Species (Media ___) ___ (QTY)
☐ Other (Specify ___) ___ (QTY)

*It is recommended that each sample be submitted with [illegible]. If field data sheets are submitted, there is no need to complete the bottom section.

CLIENT ID #	SAMPLE LOCATION ID	DATE/TIME	VOL (L)/Wipe Area	ANALYSIS: PCM	TEM	PLM	LEAD	MOLD	MATRIX: AIR	BULK	DUST	WIPE	SOIL	TAPE	SWAB	CLIENT CONTACT (LABORATORY STAFF ONLY)
W-001	D. Hall Hall	11/8	1 sq ft				X									Date/Time: Contact: By:
W-002	Kitchen Counter															
W-003	office desk															
	SEE ATTACHED FIELD DATA SHEETS															
W-004	office cabinet															Date/Time: Contact: By:
W-005	Admin Hall floor															
W-006	FR shelf															
W-007	FR floor															
W-008	D. Hall floor	↓	↓				↓									Date/Time: Contact: By:

LABORATORY STAFF ONLY: (CUSTODY)
1. Date/Time RCVD: 11 / 30 / 12 @ 1000 via FEDEX By: [redacted]
2. Date/Time Analyzed: ___ / ___ / ___ @ ___ By (Print): ___ Sign: ___
3. Results Reported To: ___ Via ___ Date: ___ / ___ / ___ Time: ___ Initials: ___
4. Comments: 1941 7694 5331

Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. http://www.osha.gov/comp-links.html

2. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998. http://www.dtic.mil/whs/directives/corres/pdf/605501p.pdf

3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF

4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://armypubs.army.mil/epubs/pdf/R40_5.PDF

5. AR 385-10, The Army Safety Program, 23 August 2007; Rapid Action Revision (RAR) issue date: 4 October 2011. http://armypubs.army.mil/epubs/pdf/R385_10.PDF

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8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://armypubs.army.mil/epubs/pdf/P40_503.PDF

9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf

10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current Ed.

11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.

12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.

13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.

14. ANSI/ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality.

15. RP-1-2004, Office Lighting, ANSI/IESNA.

16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.

17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.

18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.

19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf

INDUSTRIAL HYGIENE SURVEY

HHB 28TH INV DIV ARTY
Hershey Armory
Hershey, PA

March 10, 2003

OPTECH

OPERATIONAL TECHNOLOGIES
CORPORATION

HHB 28TH INV DIV ARTY
HERSHEY, PENNSYLVANIA
INDUSTRIAL HYGIENE SURVEY

1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Hershey Armory in Hershey, Pennsylvania on March 10, 2003. The NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. Non-Responsive from OpTech, completed this survey. Non-Responsive a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the III Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D.

2.0. EXECUTIVE SUMMARY

2.1. No significant indoor air quality problems were noted. Illumination levels were below recommended minimum standards in most areas of the facility. Wipe samples for inorganic lead were taken. Four sample results exceeded recommended levels. The lead contamination has been generated from the inactive firing range. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 $\mu g/ft^2$. This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. Air sampling for inorganic lead was taken. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building. Paint is chipping on portions of the exterior of the building and on the drill floor. Samples were taken and analyzed for lead content. Both areas were below the EPA's criteria of 0.5 percent by weight, therefore both area are not considered lead contaminated. Zinc chromate primer is being used on equipment. Zinc chromate is a known human carcinogen.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	HHB 28TH INV DIV ARTY		
ADDRESS	1720 East Caracus Ave.		
	Hershey, PA 17033-1195		
CONTACT	SSG Non-Responsive		
PHONE	717-508-6240		
DATE BUILT	1975	FACILITY SIZE	17156 sq.ft.
INDOOR FIRING RANGE	INACTIVE		
ASSISTED	SSG Non-Responsive & Non-Responsive		
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	12		
TRADITIONAL (MIL)	187		
CHILD ACTIVITIES	None		
ADULT ACTIVITIES	None		

3.1.1. The exterior is brick on the lower portion with painted metal siding on the upper portion. The interior has been kept in very good condition. A hot water natural gas furnace provides heat. No asbestos is known to exist in the building.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 Indoor Air Quality Standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ASHRAE 62-2001, Section 6.1.3, states that concentrations up to 700 ppm CO_2, above outdoor concentrations would achieve an acceptable level of indoor air quality. However, USAF Armstrong Laboratories and other independent studies have concluded that health complaints begin at levels greater than 600 ppm, with significantly greater complaints above 800 ppm.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ASHRAE 55-1992 recommends that temperature ranges should be between 73 to 77 degrees Fahrenheit (°F) during the summer and 68 to 75°F during the winter. Relative humidity levels should remain between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE 1
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO2 (ppm)	Temp. (°F)	RH (%)
0850	Outdoors – Background	0.0	402	26.9	60.1
0910	Drill Floor East	0.0	498	66.8	16.2
0930	Break Area (Redleg Room)	0.0	505	69.4	15.9
0940	Conference Room	0.0	464	71.8	15.9
0945	S2 – S3 OPNS Office (occupied)	0.0	542	73.8	15.9
0953	Mail Room	0.0	502	74.9	14.3
0958	S1 Office (occupied)	0.0	537	74.8	14.8
1002	Male Latrine	0.0	483	75.3	14.1
1007	Outdoors – Background	0.0	398	28.2	55.6
1012	Kitchen	1.0	512	65.6	18.4
1016	State Maintenance Office	0.0	510	69.7	15.5

TIME	AREA	CO (ppm)	CO2 (ppm)	Temp. (°F)	RH (%)
1022	Boiler Room	0.0	772	70.9	9.8
1027	Drill Floor East	0.0	498	71.6	15.1
1031	Range (ventilation operating)	0.0	760	72.6	14.1
1040	Vehicle Maintenance Shop & Storage	0.0	504	72.6	15.6
1045	Supply (occupied)	0.0	586	72.5	17.3
1052	Orderly Room (occupied)	0.0	590	72.2	13.2
1057	Career Development Office (occupied)	0.0	546	74.6	12.5
1100	Career Development Outer Area	0.0	470	76.2	10.4
1105	COMMO Room	0.0	576	73.5	16.1
1200	Medic Treatment Room	0.0	545	70.6	18.1
1320	Air Handler Room (above front offices)	0.0	558	69.9	14.1

3.2.5. Elevated levels of carbon dioxide were measured in the inactive firing range. The ventilation and heating system were operating which utilizes a direct flame into the supply duct. Elevated CO_2 levels are typical with this type of heat. No other indoor air quality problems were noted.

3.3. ILLUMINATION

3.3.1. Illumination levels were taken in most areas of the facility. Outdoor sunlight was excluded, as much as possible for this survey, by closing doors and blocking sunlight. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 - 463). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
Redlegs Room (Break Area)	4 – 16	9	30	NO
Pool Table Supplemental	22 – 58	41	-	-
Entry	10 – 48	31	15	YES
Front Corridor	6 – 32	21	7.5	YES
Conference Room	32 – 70	54	30	YES
Conference Rm. Storage	36 - 68	48	30	YES
S2 S3 OPNS Office	32 – 68	51	70	NO
Desks	40 – 70	55	70	NO
Desk Supplemental	78 - 80	79	70	YES

Industrial Hygiene Survey
HHB 28TH INV DIV ARTY
Hershey Armory
Hershey, Pennsylvania

Location	Luminance Range (fc)	Average	Standard	Standard Met
Executive Officer's Office	62 – 80	66	70	NO
Desk	80	80	70	YES
TO – S3 Office	40 – 62	52	70	NO
Desk	48	48	70	NO
CSM Office	24 – 38	30	70	NO
Desk	28	28	70	NO
Chaplain's Office	60 – 80	72	70	YES
Desk	74	74	70	YES
Mail Room (front room)	40 – 68	51	75	NO
Mail Room (rear room)	50 – 72	65	75	NO
S1 Office	14 – 52	28	70	NO
Desks	26 – 26	26	70	NO
Desk Supplemental	30	30	70	NO
Male Latrine	22 – 46	34	40	NO
Showers	18 – 38	25	20	YES
Kitchen	36 – 62	55	75	NO
Cooking Hood Supplemental	86 – 100	94	75	YES
Kitchen Office Desks	30 – 32	31	70	NO
Kitchen Storage	36 – 42	39	30	YES
State Maintenance Office	52 – 78	66	70	NO
Desk	62	62	70	NO
Equipment Room	36 – 44	40	15	YES
Custodial Storage	18 – 20	19	30	NO
Boiler Room	12 – 48	27	15	YES
Flammable Cabinet Storage Room	42 – 68	56	30	YES
Assembly Hall	12 – 24	18	75	NO
Fitness Room	18 – 22	20	30	NO
Range – behind firing line	16 – 26	21	30	NO
Vehicle Maintenance Storage	4 – 16	10	30	NO
Desks	8 – 10	9	70	NO
Supply Office	16 – 30	25	70	NO
Desks	14 – 20	17	70	NO
Desk Supplemental	42 – 58	50	70	NO
Supply Storage	4 – 30	21	30	NO
Orderly Room	40 – 80	63	70	NO
Desks	34 – 62	45	70	NO
West Corridor	10 – 36	22	7.5	YES

Location	Luminance Range (fc)	Average	Standard	Standard Met
Career Development Outer Area	52 – 72	62	70	NO
Career Development Office	20 – 46	34	70	NO
Desks	18 – 36	30	70	NO
NBC Storage	28 – 28	28	30	NO
COMMO – Wire / Radio	18 – 22	19	75	NO
R8 - Medic Treatment Room	16 – 22	19	75	NO
Desk	16	16	70	NO
Room R1	18 – 22	20	70	NO
Room R2 AVN BDE PSE Room	6 – 12	9	70	NO
Room R3	4 – 8	6	70	NO
Rm. R4 Tactical Ops Center	38 – 50	43	70	NO
Rm. R5 Metro Sections	20 – 40	31	70	NO

3.3.2. Levels were well below recommended minimum standards in many areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting would improve some areas.

3.4. WIPE SAMPLES

3.4.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples were taken at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot ($\mu g/ft^2$) and are listed below in Table 3. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Her-03069-04	Conference Room – Supply Vent	153
PA Her-03069-05	Orderly Room – By TV	24
PA Her-03069-06	Assembly Hall – South-central – Top of Locker	458
PA Her-03069-07	Kitchen – Top of Center Refrigerator	123
PA Her-03069-08	S1 Office – Supply Air Grille	164
PA Her-03069-09	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.2. Additional wipe samples were taken during this survey. These samples were taken to further analyze the extent of contamination should the first five samples indicate a possible hazard. Since the sample taken in assembly hall exceeded the 200 $\mu g/ft^2$ criteria (see Section 3.4.3 below), these additional samples were analyzed. The results are presented below in Table 4.

TABLE 4
WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Her-03069-10	Assembly Hall S5 – Top of Snack Machine	50
PA Her-03069-11	Assembly Hall – NE – Coffee Pot Table	BDL
PA Her-03069-12	Assembly Hall – NW Corner – Top of Locker	**225**
PA Her-03069-13	Assembly Hall SW Area – Top of Locker	**1291**
PA Her-03069-14	Room R8 – Medic Treatment Room – Shelf	118
PA Her-03069-15	BLANK Sample	BDL
PA Her-03069-16	S2-S3 Operations Office	25
PA Her-03069-17	Executive Officer's Office – Window Sill	25
PA Her-03069-18	Career Retention Office	27
PA Her-03069-19	HVAC – Return Duct Prior to Filters	43
PA Her-03069-20	Supply Office – Cabinet	BDL
PA Her-03069-24	Heater Repair Area – Behind Former Firing Line	896
PA Her-03069-21	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.3. WIPE SAMPLING RESULTS

3.4.3.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 $\mu g/ft^2$. This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. Four samples exceeded the 200 $\mu g/ft^2$ criteria. It is apparent that the contamination has generated from the indoor firing range. The range has been inactive for several years and is scheduled for cleaning in the near future. Lower levels were detected in other areas of the building, including offices.

3.4.3.1.1. EPA standards (40 CFR 745.227(e)(8)(viii)) are not directly applicable because they are developed for floors (40 $\mu g/ft^2$), windowsills (250 $\mu g/ft^2$) and window troughs (400 $\mu g/ft^2$) in residential and childcare facilities. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards. In addition, the armories are not residential facilities and rarely have childcare activities associated with them.

3.4.3.1.2. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead. In workplaces where lead is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

3.4.3.1.3. OSHA used to cite a level of 200 $\mu g/ft^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

3.4.3.1.4. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, USACHPPM has determined that 200 $\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

3.4.3.1.5. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

3.4.4. AIR SAMPLING

3.4.4.1. Air Sampling for inorganic lead was performed during this survey. Table 5 lists the results of these samples, and is reported in milligrams per cubic meter (mg/m^3) of air.

TABLE 5
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
Ashley Ober – E-4	PA Her-03069-01	Lead	<0.001 mg/m^3	0.05 mg/m^3	YES
Non- [redacted]	PA Her-03069-02	Lead	<0.001 mg/m^3	0.05 mg/m^3	YES
Area – Assembly Hall	PA Her-03069-03	Lead	<0.001 mg/m^3	0.05 mg/m^3	YES

mg/m^3 = milligrams per cubic meter < = less than (below detection limits)

3.4.4.2. Air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this building.

3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION DAMAGE

3.5.1.1. One minor water leak was noted in the break room. The State maintenance worker has reported the leak and is scheduled for repair of the roof soon.

3.5.2. PAINT CHIPPING

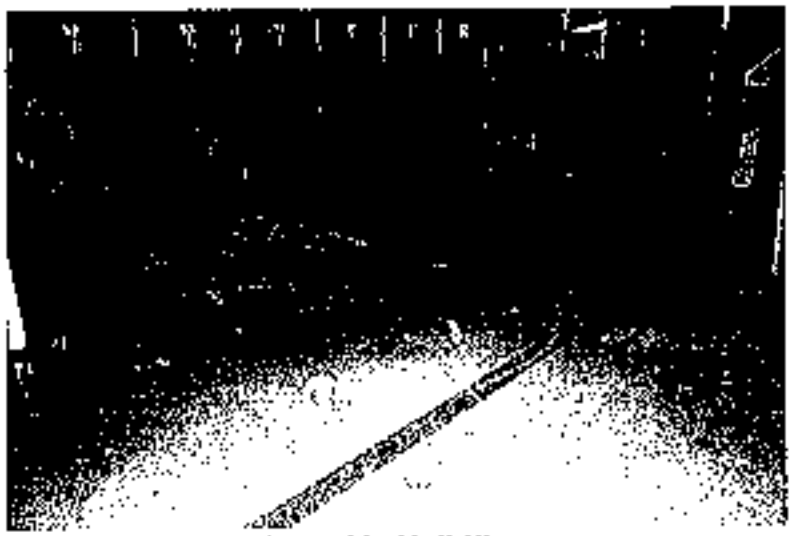
3.5.2.1. Paint is chipping on many areas of the exterior metal siding of the facility. Plans are being made to contract stripping and painting of the panels. Paint is wearing and chipping on the assembly hall floor. Paint chip samples were taken from both of these areas and analyzed for lead content. The results of the analysis are listed below in Table 4.

TABLE 4
LEAD PAINT SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (percentage)
PA Her-03069-22	Exterior Paint Chips	0.0047%
PA Her-03069-23	Assembly Hall Floor Paint Chips	0.0051%

3.5.2.2. The Environmental Protection Agency (EPA) considers paint with a lead content equal to or greater than 0.5% by weight as contaminated. Therefore, both areas are not considered lead-contaminated.

Exterior Peeling Paint



Assembly Hall Floor

3.5.3. INACTIVE FIRING RANGE

3.5.3.1. The firing range has been left unoccupied since it was closed about two years prior to this survey. Personnel stated that a lead abatement crew is scheduled to arrive within three weeks to thoroughly clean the range. A few lockers and some wallboard have been placed in the area between the entrance to the range and the firing line. This area is presently being utilized to refurbish mobile kitchen heaters, in which the are cleaned, repaired and painted.

Heater Repair in Range Area

Firing Range

3.5.4. CHEMICALS

3.5.4.1. Aerosol paints are used for various projects. The primer presently being used is zinc chromate, NSN 8010-00-297-0593. Zinc chromate is a confirmed human carcinogen.

3.5.4.2. Personnel are required to wear disposable respirators when painting.

3.5.4.3. Material Safety Data Sheets (MSDS) are available on hand and available to all personnel and visitors.

3.5.5. HOUSEKEEPING

3.5.5.1. The facility is impressively clean, orderly and in good condition. HVAC ductwork was very clean.

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
Hershey Armory	PENNSYLVANIA ARNG ARMORY	Hershey

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR (initials)
10 March 2003	JSS

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	NA	SSG Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
717-508-6240	HHB 28TH INF DIV ARTY	3	9

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
12	187			

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	CONROLS 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			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	½ FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	¼ 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 WEATHR 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	/		

AEHA Form 271-R (Test), 1 Jan 92 (HSHB-MI-I)

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	2	C
124-38-9	Carbon Dioxide	3	C

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

SECTION 6. COMMENTS

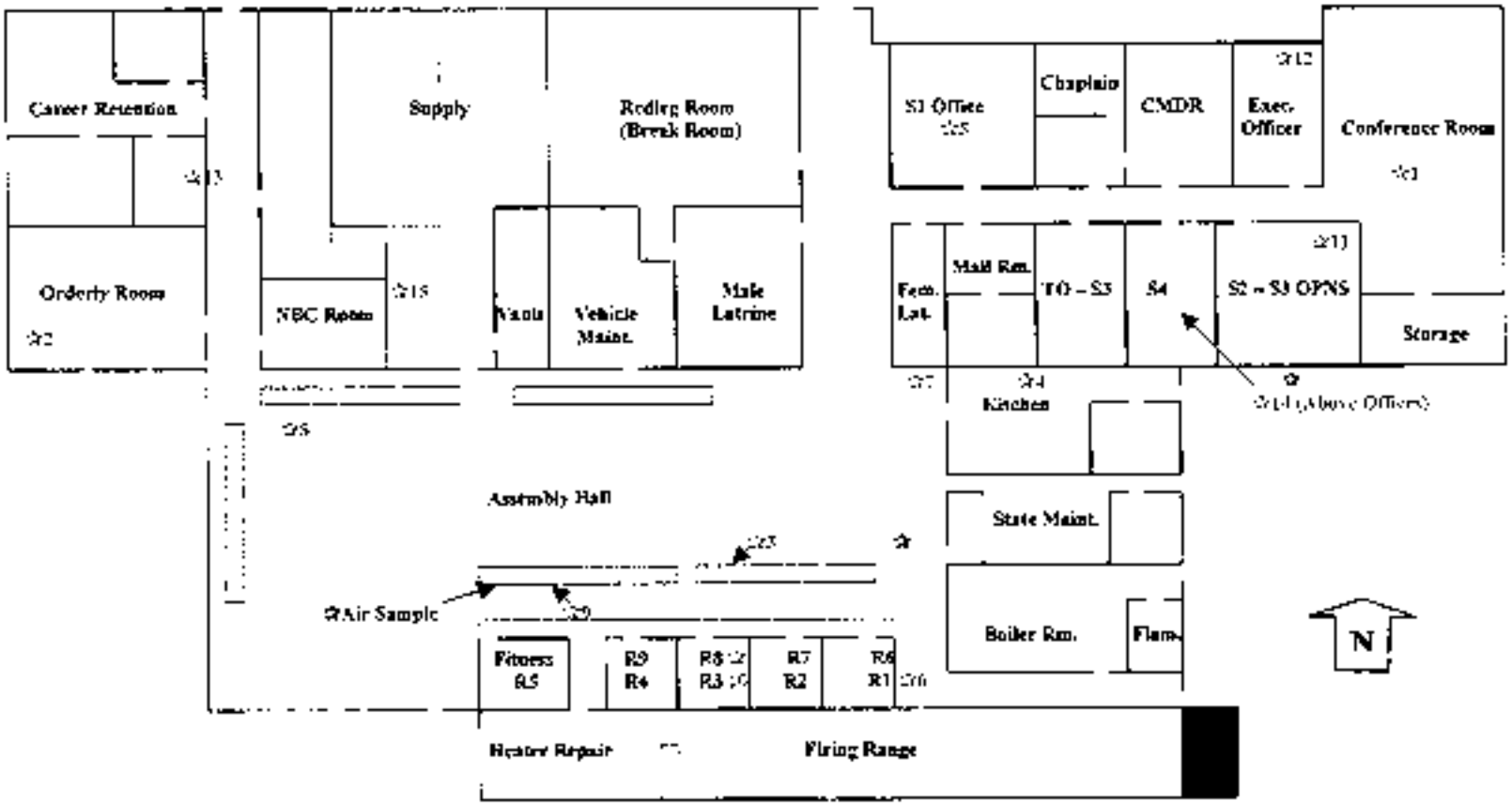
☐ No comments ☐ See attached sheet

PRIVACY ACT STATEMENT

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

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

HERSHEY, PENNSYLVANIA



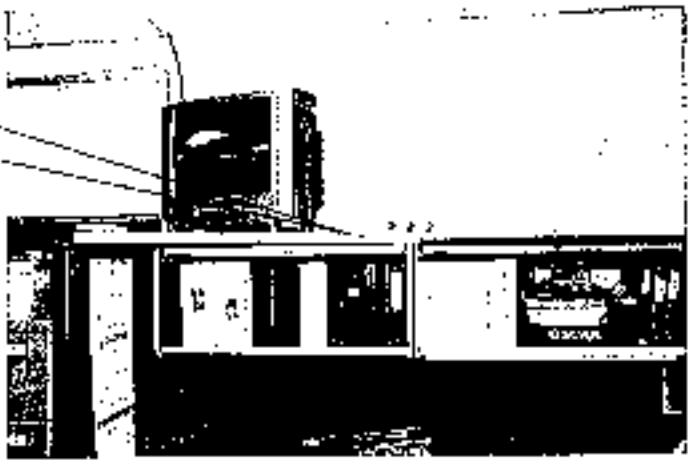
☆ = Wipe Sample ☆ = Bulk Samples (Lead paint chips) Backstop Green numbers = second floor rooms Lockers

Attachment B

HHB 28TH INV DIV ARTY
HERSHEY, PENNSYLVANIA
WIPE SAMPLING POINTS

(1) PA Her-03069-04
Conference Room
Supply Grille

(2) PA Her-03069-05
Orderly Room
Beside TV



(3) PA Her-03069-06
Assembly Hall
South-central Area

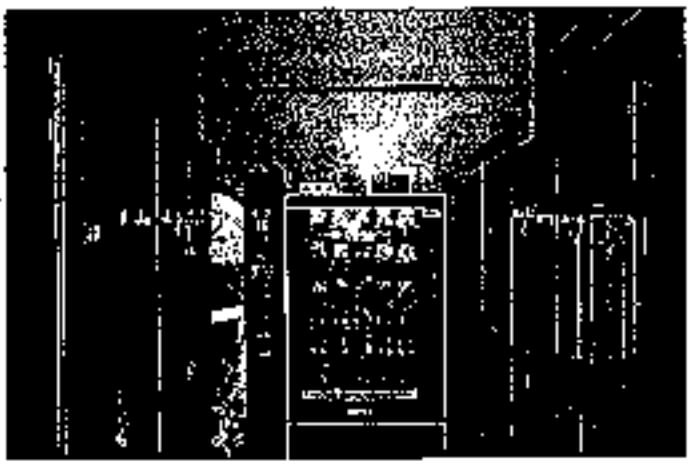
Attachment B

(4) PA Her-03069-07
Kitchen

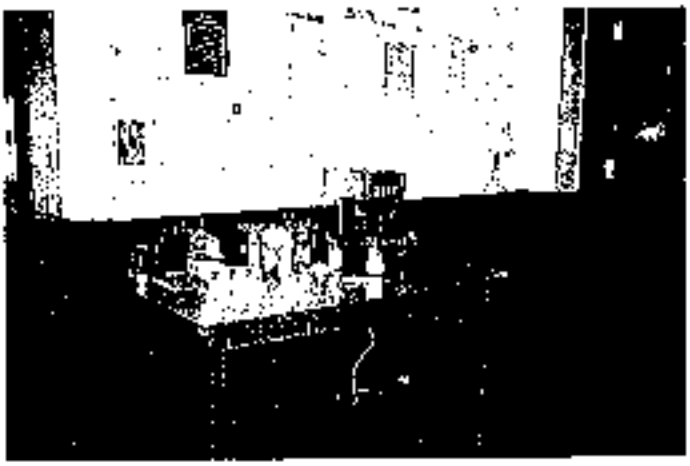
(5) PA Her-03069-08
S-1 Office
Supply Grille

ADDITIONAL SAMPLES

(6) PA Her-03069-10
Assembly Hall
Southeast Corner



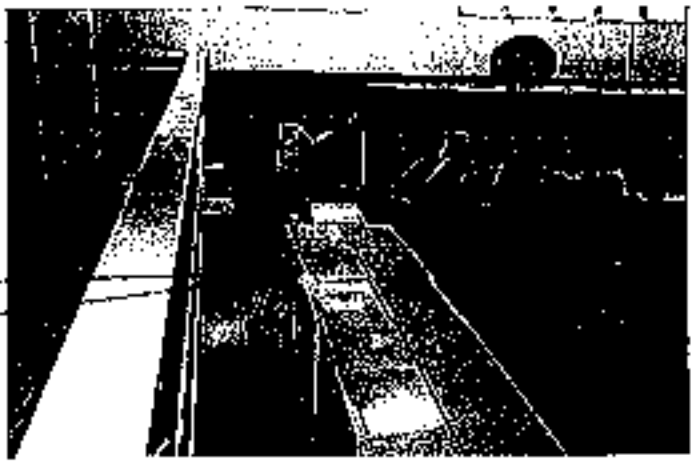
(7) PA Her-03069-11
Assembly Hall
NE Corner, By Kitchen



(8) PA Her-03069-12
Assembly Hall
Northwest Corner

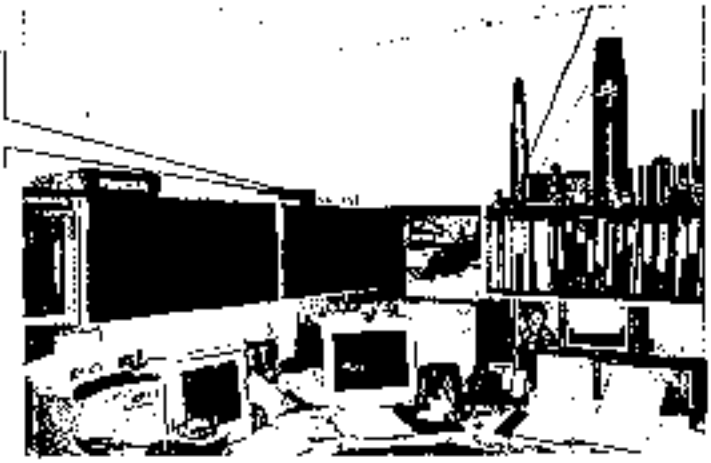
Attachment 13

(9) PA Her-03069-13
Assembly Hall
Southwest End



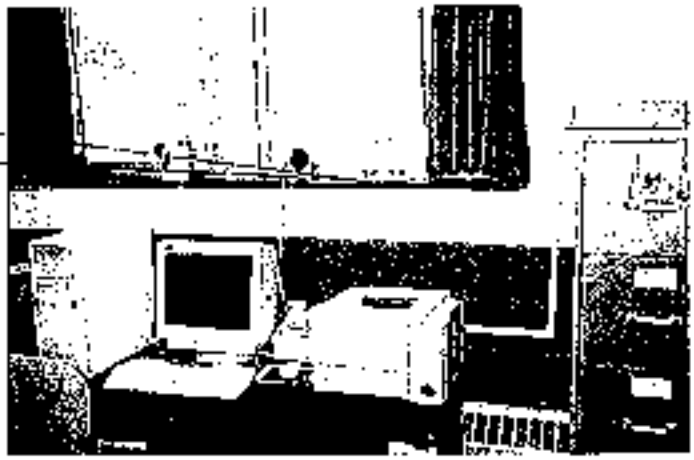
(10) PA Her-03069-14
Medic Treatment Room

(11) PA Her-03069-16
S2 – S3 OPNS Office



Attachment B

(12) PA Her-03069-17
Executive Officer's Office



(13) PA Her-03069-18
Career Retention Office

(14) PA Her-03069-19
HVAC – Return Duct
Prior to Filters
No Picture

(15) PA Her-03069-20
Supply Office

Attachment 8

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
AIHA Certificate of Accreditation #480 LAB ID 101533

TABLE I. ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number: RES 91661-I
Client: Operational Technologies, Corp.
Client Project Number / P.O.: 02 01
Client Project Description: Armories / Pennsylvania
Date Samples Received: March 24, 2003
Analysis Type: USEPA SW846 3050B / AA(7420)
Turnaround: 3-5 Day
Date Samples Analyzed: March 25, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA Her-030069-04	EM 758535	0.11	16.8	23	153
PA Her-030069-05	EM 758536	0.11	2.6	23	24
PA Her-030069-06	EM 758537	0.11	50.4	23	458
PA Her-030069-07	EM 758538	0.11	13.5	23	123
PA Her-030069-08	EM 758539	0.11	18.0	23	164
PA Her-030069-09	EM 758540	0.11	BDL	23	BDL
PA Pin-030070-03	EM 758541	0.11	11.9	23	108
PA Pin-030070-04	EM 758542	0.11	680.0	23	6182
PA Pin-030070-05	EM 758543	0.11	182.0	23	1655
PA Pin-030070-06	EM 758544	0.11	BDL	23	BDL
PA Pin-030070-07	EM 758545	0.11	BDL	23	BDL
PA Pin-030070-08	EM 758546	0.11	BDL	23	BDL
PA Wil-030070-17	EM 758547	0.11	48.1	23	437
PA Wil-030070-18	EM 758548	0.11	37.0	23	336
PA Wil-030070-19	EM 758549	0.11	28.9	23	263
PA Wil-030070-20	EM 758550	0.11	2.8	23	25
PA Wil-030070-21	EM 758551	0.11	2.6	23	24
PA Wil-030070-22	EM 758552	0.11	BDL	23	BDL
PA Ann-03071-03	EM 758553	0.11	8.5	23	77
PA Ann-03071-04	EM 758554	0.11	237.0	23	2155
PA Ann-03071-05	EM 758555	0.11	8.5	23	77
PA Ann-03071-06	EM 758556	0.11	9.8	23	89
PA Ann-03071-07	EM 758557	0.11	BDL	23	BDL
PA Ann-03071-08	EM 758558	0.11	BDL	23	BDL
PA Lan-03072-08	EM 758559	0.11	15.1	23	137
PA Lan-03072-09	EM 758560	0.11	185.0	23	1682
PA Lan-03072-10	EM 758561	0.11	405.0	23	3682
PA Lan-03072-11	EM 758562	0.11	23.4	23	213
PA Lan-03072-12	EM 758563	0.11	27.5	23	250
PA Lan-03072-13	EM 758564	0.11	BDL	23	BDL

BDL - Below Detection Limit

Date Qa

BEST AVAILABLE COPY

RESERVOIRS ENVIRONMENTAL SERVICES, INC.

2059 Bryant St., Denver CO 80211

RESI Job #: RES 91661
Due Date: 3-27/3-31
Due Time: 9:45

Phone: (303) 964-1986 Fax: (303) 477-4275 WATS: 1-866-RESI-ENV (737-4368)
PAGER: ONCALL Pager number available at Lab. Alternate Pagers: PLM/TEM 509-2187 PCM/Metals 509-2068 (AFTER HOURS USE ONLY)

SAMPLES SUBMITTED BY:		INVOICE TO: (IF DIFFERENT)	
Company: Operational Technologies Corp		Army National Guard II-LW	
Address: 1370 N. Fairfield Road, Suite A		301 A1 Cid Bay Ln. Havre de Grace, MD 21078	
Beavercreek, Ohio 45432			
Contact: [redacted]	Phone: 410-942-0273 x18	Fax: 410-942-0754	Pager:
Contact: [redacted]	Phone: cell 937-831-3333	Fax:	Pager: 800-551-4067
Project Number and/or P.O. #: 02-01			
Project Description/Location: Armories / Pennsylvania			

After Hours/Weekend CHARGE: Amount $ ________ Authorized by: ________

Additional fees apply for after hours and holidays for all analysis types. Samples will be analyzed during normal laboratory hours unless otherwise arranged and specified on the chain of custody. Turnaround is subject to laboratory volume. You will be notified if delays are expected.

ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm

PCM/PLM	__ 2 Hour RUSH	__ 24 hour	__ 3-5 workdays
TEM	__ 5 Hour RUSH	__ 24 hour	__ 3-5 workdays

Prior Notice REQUIRED for TEM 5 Hour RUSH

METALS LABORATORY HOURS: Weekdays: 8am - 5pm

AA	__ SPECIAL RUSH	__ 24 Hour	X 3-5 Day
RCRA 8	__ SPECIAL RUSH	__ 5 Day	__ 10 Day
TCLP	__ SPECIAL RUSH	__ 5 Day	__ 10 Day

Prior Notice REQUIRED for SPECIAL RUSH AA, RCRA or TCLP
RCRA and TCLP SPECIAL RUSH is 3 Day Turnaround

ANALYTICAL METHOD

AIR		PCM 7400A 7400B OSHA TEM AHERA Level II 7402 ISO Provide ISO Indirect Preps Chatfield
		AA-ICP ____ Metal ____ RCRA 8 Dust Total Respirable
BULK		PLM Point count, Longsport, Point Count TEM +/- Quant Qual
	# 40	AA/ICP __ X Pb Paint Soil Dust Wipe TCLP (ASTM E 1792 approved wipes only)
WATER		TEM Drinking Waste Water AA AAS ____ Metal ____ RCRA 8 Drinking Waste Water
OTHER		Specify Wipes - Lead

Special Instructions: Contract # 78-287 Email results to kenneth.forsythe@md.ngb.army.mil

	Client Sample Number	Volume	EM #
1	PA Her 030069-04		058535
2	PA Her 030069-05		36
3	PA Her 030069-06		37
4	PA Her 030069-07		38
5	PA Her 030069-08		39
6	PA Her 030069-09		40
7	PA Pin 030070-03		41
8	PA Pin 030070-04		42
9	PA Pin 030070-05		43
10	PA Pin 030070-06		44
11	PA Pin 030070-07		45
12	PA Pin 030070-08		46
13	PA Wa 030070-17		47
14	PA Wa 030070-18		48
15	PA Wa 030070-19		49

Number of samples received: 40 15 of (40) (Use as many additional sheets as needed.)

NOTE: If the package has sustained substantial damage or the custody seal is broken, stop and contact project manager and shipper. RESI will analyze incoming samples based upon information received with those samples. RESI is not responsible for errors or omissions in calculations resulting from the inaccuracy of original data. Turnaround times are based upon times of receipt by Laboratory. Call Laboratory for number of [redacted]

Relinquished By: [redacted] Date/Time: March 17, 2003 / 1400

Laboratory Use Only [redacted] Date/Time: 3/21/03 9:45am
Received By: [redacted] ...package/custody seal upon receipt. (MD)
Carrier: [redacted]
RESULTS: [redacted] Page Phone Fax Date Time Initials

SPLITS:	Authorization By/Time:		Lab Bench/Count Sheets Received By:
	Analytical Method/Turnaround:		Time: Date:
rev 5/2001	Results Due:	Results Out:	

BEST AVAILABLE COPY

RESERVOIRS ENVIRONMENTAL SERVICES, INC.

RESI Job #: 911661

SAMPLES SUBMITTED BY: [redacted]

Company: Army National Guard I-HN

Contact: [redacted]

Project Description and/or P.O. #: PENNSYLVANIA

Due Date: 3/22/13/31

Due Time: 9:45

SAMPLES: 16 - 40

No.	Client Sample Number	Volume	EM #
16	PA WF-03070-20		058550
17	PA WF-03070-21		51
18	PA WF-03070-22		52
19	PA Ann-03071-03		53
20	PA Ann-03071-04		54
21	PA Ann-03071-05		55
22	PA Ann-03071-06		56
23	PA Ann-03071-07		57
24	PA Ann-03071-08		58
25	PA Lan-03072-08		59
26	PA Lan-03072-09		60
27	PA Lan-03072-10		61
28	PA Lan-03072-11		62
29	PA Lan-03072-12		63
30	PA Lan-03072-13		64
16	PA Lan-03072-14		65
17	PA Lan-03072-15		66
18	PA Lan-03072-16		67
19	PA Lan-03072-17		68
20	PA Lan-03072-18		69
21	PA Lan-03072-19		70
22	PA Yor-03073-04		71
23	PA Yor-03073-05		72
24	PA Yor-03073-06		73
25	PA Yor-03073-07		74
26	PA Yor-03073-08		75
27	PA Yor-03073-09		76
28	PA Yor-03073-22		77
29	PA Yor-03073-23		78
30	PA Yor-03073-24		79
31	PA Yor-03073-25		80
32	PA Yor-03073-26		81
33	PA Yor-03073-27		82
34	PA Yor-03073-34		83
35	PA Yor-03073-35		84
36	PA Yor-03073-36		85
37	PA Yor-03073-37		86
38	PA Yor-03073-38		87
39	PA Yor-03073-39		88
40	PA Yor-03073-40		89
41			
42			
43			
44			
45			
46			
47			
48			
49			
50			

Reservoirs Environmental, Inc.

2059 Bryant St. Denver, CO 80211
(303) 964-1986 Fax (303) 477-4275 Toll Free (866) RESI-ENV

March 25, 2003

Project Description:
RES 91661-1
02 01
Armories / Pennsylvania

Non-Responsive
Operational Technologies, Corp.
1370 N. Fairfield Road, Suite A
Beavercreek OH 45432

Dear Customer,

Reservoirs Environmental, Inc. is an environmental analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the American Industrial Hygiene Association, Lab ID 101533 - Accreditation Certificate #480. The laboratory is currently proficient in both PAT & ELPAT programs respectively.

Reservoirs has analyzed the following sample(s) using Atomic Absorption (AA) / Atomic Emission Spectroscopy - Inductively Coupled Plasma (AES-ICP) per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in Table I. Results have been faxed to your office.

RES 91661-1 is the job number assigned to this study. This report is considered highly confidential and property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those authorized by the client. Samples will be disposed of after sixty days unless longer storage is requested. If you should have any questions about this report, please feel free to call me at 303-964-1986.

Sincerely,

Non-Responsive

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
AIHA Certificate of Accreditation #480 LAB ID 101533

TABLE I. ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	RES 92909-1
Client:	Operational Technologies, Corp.
Client Project Number / P.O.:	05 03
Client Project Description:	Armorlec/Pennsylvania
Date Samples Received:	May 15, 2003
Analysis Type:	USEPA SW846 3050B / AA(7420)
Turnaround:	3-5 Day
Date Samples Analyzed	May 19, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA Ann-03049-25	EM 768904	0.11	26.6	23	242
PA Ann-03049-26	EM 768905	0.11	BDL	23	BDL
PA Ann-03049-27	EM 768906	0.11	BDL	23	BDL
PA Ann-03049-28	EM 768907	0.11	BDL	23	BDL
PA Ann-03049-29	EM 768908	0.11	4.2	23	38
PA Ann-03049-30	EM 768909	0.11	BDL	23	BDL
PA Ann-03056-41	EM 768910	0.11	8.4	23	76
PA Ann-03056-42	EM 768911	0.11	4.8	23	44
PA Ann-03056-43	EM 768912	0.11	13.4	23	122
PA Ann-03056-44	EM 768913	0.11	BDL	24	BDL
PA Ann-03056-46	EM 768914	0.11	BDL	23	BDL
PA Ann-03064-25	EM 768915	0.11	BDL	23	BDL
PA Ann-03064-26	EM 768916	0.11	BDL	23	BDL
PA Ann-03064-27	EM 768917	0.11	BDL	23	BDL
PA Ann-03064-28	EM 768918	0.11	3.7	23	34
PA Ann-03064-29	EM 768919	0.11	4.2	23	38
PA Ann-03064-30	EM 768920	0.11	BDL	23	BDL
PA Ann-03065-09	EM 768921	0.11	140.0	23	1273
PA Ann-03065-10	EM 768922	0.11	8.0	23	73
PA Ann-03065-11	EM 768923	0.11	BDL	23	BDL
PA Ann-03065-12	EM 768924	0.11	8.1	23	74
PA Ann-03065-13	EM 768925	0.11	50.0	23	455
PA Ann-03065-14	EM 768926	0.11	BDL	23	BDL
PA Ann-03066-09	EM 768927	0.11	3.7	23	34
PA Ann-03066-10	EM 768928	0.11	14.6	23	133
PA Ann-03066-11	EM 768929	0.11	144.0	23	1309
PA Ann-03066-12	EM 768930	0.11	BDL	23	BDL
PA Ann-03066-13	EM 768931	0.11	31.8	23	289
PA Ann-03066-14	EM 768932	0.11	BDL	23	BDL
PA Ann-03069-10	EM 768933	0.11	5.5	23	50

BDL = Below Detection Limit

Date Qa

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
AIHA Certificate of Accreditation #480 LAB ID 101533

TABLE I. ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number: RES 92909-1
Client: Operational Technologies, Corp.
Client Project Number / P.O.: 0503
Client Project Description: Armories/Pennsylvania
Date Samples Received: May 15, 2003
Analysis Type: USEPA SW846 3050B / AA(7420)
Turnaround: 3-5 Day
Date Samples Analyzed: May 19, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA Her-03069-11	EM 768934	0.11	BDL	24	BDL
PA Her-03069-12	EM 768935	0.11	24.7	23	225
PA Her-03069-13	EM 768936	0.11	142.0	23	1291
PA Her-03069-14	EM 768937	0.11	13.0	23	118
PA Her-03069-15	EM 768938	0.11	BDL	23	BDL
PA Her-03069-16	EM 768939	0.11	2.8	23	25
PA Her-03069-17	EM 768940	0.11	2.8	23	25
PA Her-03069-18	EM 768941	0.11	3.0	23	27
PA Her-03069-19	EM 768942	0.11	4.7	23	43
PA Her-03069-20	EM 768943	0.11	BDL	23	BDL
PA Her-03069-21	EM 768944	0.11	BDL	23	BDL
PA Her-03069-24	EM 768945	0.11	98.6	23	896
PA Pin-03070-09	EM 768946	0.11	33.5	23	305
PA Pin-03070-10	EM 768947	0.11	7.4	23	67
PA Pin-03070-11	EM 768948	0.11	3.7	23	34
PA Pin-03070-12	EM 768949	0.11	15.7	23	143
PA Pin-03070-13	EM 768950	0.11	BDL	23	BDL
PA Pin-03070-14	EM 768951	0.11	BDL	23	BDL
PA Wil-03070-23	EM 768952	0.11	11.1	23	101
PA Wil-03070-24	EM 768953	0.11	3.5	23	32
PA Wil-03070-25	EM 768954	0.11	3.0	23	27
PA Wil-03070-26	EM 768955	0.11	2.5	23	23
PA Wil-03070-27	EM 768956	0.11	BDL	23	BDL
PA Wil-03070-28	EM 768957	0.11	BDL	23	BDL
PA Lan-03072-20	EM 768958	0.11	6.3	23	57
PA Lan-03072-21	EM 768959	0.11	6.9	23	63
PA Lan-03072-22	EM 768960	0.11	23.2	23	211
PA Lan-03072-23	EM 768961	0.11	BDL	23	BDL
PA Lan-03072-24	EM 768962	0.11	3.3	23	30
PA Lan-03072-25	EM 768963	0.11	BDL	23	BDL

BDL Below Detection Limit

Data Qa

RESERVOIRS ENVIRONMENTAL SERVICES, INC.

2059 Bryant St., Denver CO 80211

RESI Job #: RES 92909

Due Date: 5/20 - 5/22
Due Time: 9:30 AM

Phone: (303) 964-1986 Fax: (303) 477-4275 WATS: 1-866-RESI ENV (737-4368)
PAGER: ONCALL Pager number available at Lab. Alternate Pagers: PLM/TEM 609-2187 PCM/Metals 609-2085 (AFTER HOURS USE ONLY)

SAMPLES SUBMITTED BY:	INVOICE TO: (IF DIFFERENT)
Company: Operational Technologies, Corp	Army National Guard IH-R
Address: 1370 N. Fairfield Road, Suite A	301-H Old Bay Ln, Havre de Grace, MD 21078
Beavercreek, Ohio 45432	
Contact: [redacted] Phone: 410-942-0273 x18	Fax: 410-942-0254 Pager:
Contact: Phone: cell 937-831-3333	Fax: Pager: 800-801-4087
Project Number and/or P.O. #: 05-02	
Project Description/Location: Armories / Pennsylvania	

After Hours/Weekend CHARGE: Amount $______ Authorized by: ______

Additional fees apply for after hours and holidays for all analysis types. Samples will be analyzed during normal laboratory hours unless otherwise arranged and specified on the chain of custody. Turnaround is subject to laboratory volume. You will be notified if delays are expected.

ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm

PCM/PLM	__ 2 Hour RUSH	__ 24 hour	__ 3-5 weekdays
TEM	__ 6 Hour RUSH	__ 24 hour	__ 3-5 weekdays

Prior Notice REQUIRED for TEM 6 Hour RUSH

METALS LABORATORY HOURS: Weekdays: 8am - 6pm

AA	__ SPECIAL RUSH	__ 24 Hour	X 3-5 Day
RCRA 8	__ SPECIAL RUSH	__ 6 Day	__ 10 Day
TCLP	__ SPECIAL RUSH	__ 6 Day	__ 10 Day

Prior Notice REQUIRED for SPECIAL RUSH AA, RCRA or TCLP
RCRA and TCLP SPECIAL RUSH is 3 Day Turnaround

ANALYTICAL METHOD

AIR		PCM 7400A, 7400B, OSHA
		TEM AHERA, Level II, 7402, ISO,
		Prep/Abs ISO-Indirect Preps Chatfield
		AA / ICP ___ Metal ___ RCRA 8
		Dust Total, Respirable
BULK		PLM Short report, Long report, Point Count
		TEM +/-, Quant, Semi-quant
	# 58	AA / ICP __ X PB
		Paint, Soil, Dust, Wipe, TCLP
		(ASTM E 1792 approved wipes only.)
WATER		TEM Drinking, Waste Water
		AA Water ___ Metal ___ RCRA 8
		Drinking, Waste Water
OTHER		Specify ______

Special Instructions: Email results to ken.forsythe@md.ngb.army.mil

		Client Sample Number	Volume	EM #
1.	1	PA Arm-03049-25		768904
2.		PA Arm-03049-26		05
3.		PA Arm-03049-27		06
4.		PA Arm-03049-28		07
5.		PA Arm-03049-29		08
6.		PA Arm-03049-30		09
7.	2	PA Arm-03056-41		10
8.		PA Arm-03056-42		11
9.		PA Arm-03056-43		12
10.		PA Arm-03056-44		13
11.		PA Arm-03056-45		14
12.	3	PA Arm-03064-25		15
13.		PA Arm-03064-26		16
14.		PA Arm-03064-27		17
15.		PA Arm-03064-28		18

Number of samples received: 58 (Use as many additional sheets as needed.)

NOTE: If the package has sustained substantial damage or the custody seal is broken, stop and contact project manager and shipper. RESI will analyze incoming samples based upon information received with these samples. RESI is not responsible for errors or omissions in calculations resulting from the inaccuracy of original data. Turnaround times are based upon times of receipt by Laboratory. Call Laboratory for number of samples guaranteed in short turnaround.

Relinquished By: [redacted] 3969207209 Date/Time: May 18, 2003 / 1300

Laboratory Use Only
Received By: Date/Time: 5/15/03 9:30 AM
Carrier: condition of package/custody seal upon receipt:
RESULTS: Page Phone Fax Date Time Initials

SPLITS: Authorization By/Time: Analytical Method/Turnaround: Results Due: Results Out:
Lab Bench/Count Sheets Received By: Time: Date:

rev 5/2001

RESERVOIRS ENVIRONMENTAL SERVICES, INC.

RESI Job #: 92909

SAMPLES SUBMITTED BY: John Sarson

Due Date: 5/20 - 5/22
Due Time: 9:30 Am

Company: Army National Guard I-HN
Contact: Non-[redacted]
Project Description and/or P.O. #: PENNSYLVANIA

SAMPLES: 16 - ~~34~~ 50

No.	Client Sample Number	Volume	EM #
16	PA Ann-03064-29		76879
17	PA Ann-03064-30		80
18	4 PA Ann-03065-09		81
19	PA Ann-03065-10		82
20	PA Ann-03065-11		83
21	PA Ann-03065-12		84
22	PA Ann-03065-13		85
23	PA Ann-03065-14		86
24	5 PA Ann-03066-09		87
25	PA Ann-03066-10		88
26	PA Ann-03066-11		89
27	PA Ann-03066-12		90
28	PA Ann-03066-13		91
29	PA Ann-03066-14		92
30	6 PA Her-03069-10		93
16	PA Her-03069-11		94
17	PA Her-03069-12		95
18	PA Her-03069-13		96
19	PA Her-03069-14		97
20	PA Her-03069-15		98
21	7 PA Her-03069-16		99
22	PA Her-03069-17		100
23	PA Her-03069-18		101
24	PA Her-03069-19		102
25	PA Her-03069-20		103
26	PA Her-03069-21		104
27	PA Her-03069-24		105
28	8 PA Pin-03070-09		106
29	PA Pin-03070-10		107
30	PA Pin-03070-11		108
31	PA Pin-03070-12		109
32	PA Pin-03070-13		110
33	PA Pin-03070-14		111
34	9 PA Wil-03070-23		112
35	PA Wil-03070-24		113
36	PA Wil-03070-25		114
37	PA Wil-03070-26		115
38	PA Wil-03070-27		116
39	PA Wil-03070-28		117
40	10 PA Lan-03072-20		118
41	PA Lan-03072-21		119
42	PA Lan-03072-22		120
43	PA Lan-03072-23		121
44	PA Lan-03072-24		122
45	PA Lan-03072-25		123
46	11 PA Lan-03072-26		124
47	PA Lan-03072-27		125
48	PA Lan-03072-28		126
49	PA Lan-03072-29		127
50	PA Lan-03072-30		128

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m^3
PAAnn-03065-01	03-15282	359.9	ND	<0.003
PAAnn-03065-02	03-15283	384.0	ND	<0.003
PAAnn-03066-01	03-15284	338.0	ND	<0.003
PAAnn-03066-02	03-15285	355.7	ND	<0.003
PAAnn-03066-17	03-15286	217.4	ND	<0.005
PAAnn-03066-18	03-15287	231.9	ND	<0.004
PAHer-03069-01	03-15288	798.8	ND	<0.001
PAHer-03069-02	03-15289	777.7	ND	<0.001
PAHer-03069-03	03-15290	761.5	ND	<0.001
PAPin-03070-01	03-15291	298.0	ND	<0.003
PAPin-03070-02	03-15292	299.5	ND	<0.003
PAWil-03070-15	03-15293	441.5	ND	<0.002
PAWil-03070-16	03-15294	448.3	ND	<0.002
PAAnn-03071-01	03-15295	163.1	ND	<0.006
PAAnn-03071-02	03-15296	155.6	ND	<0.006
PALan-03072-01	03-15297	877.4	ND	<0.001
PALan-03072-04	03-15298	898.2	ND	<0.001
PALan-03072-05	03-15299	814.4	ND	<0.001
PAYor-03073-01	03-15300	565.5	ND	<0.002
PAYor-03073-02	03-15301	569.3	ND	<0.002
	Prep Blank		ND	
% Recovery	LCS 3		110.	
% Recovery	LCS 4		110.	
RPL			**1.**	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive
Analyst

Reviewer

Results
mg/Kg (ppm)

Client #	DCL #	Lead
PAHer-03069-22	03-07776	47.
PAHer-03069-23	03-07777	51.
PAWil-03070-29	03-07778	64.
PAWil-03070-30	03-07779	82.
PAAnn-03071-09	03-07780	25.
PALan-03072-34	03-07781	33000.
PALan-03072-35	03-07782	73.
PAYor-03073-16	03-07783	1000.
PAYor-03073-17	03-07784	1600.
PAYor-03073-18	03-07785	3400.
	Lab Blank	ND
% Recovery	LCS	91.
% Recovery	07782MS	92.
% Recovery	07782MSD	93.
Reporting Limit		22.

ND indicates not detected at or above the reporting limit.

Non-Responsive

Analyst

Non-Responsive

Reviewer

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non-Responsive @md.ngb.army.mil

Attachment D

REFERENCE LIST INDEX

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   d. Bird and Bat Manure
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GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REFERENCE LIST

1. General Regulations and National Consensus Standards
   a. DODI 6055.1, DOD SOH Program, 19 August 1998.
   b. DODI 6055.5, DOD OEH. *[DRAFT]*
   c. DOD 6055.5-M, DOD Occupational Health Surveillance Manual, 13 May 1987.
   d. DODI 6050.5, DOD Hazard Communication, 29 Oct 90. Change 1, 6 May 1996.
   e. AR 40-5, Preventive Medicine, 15 October 1990. [05/2002 Being Updated]
   f. DA PAM 40-5, Preventive Medicine. *[DRAFT]*
   g. AR 385-10, The Army Safety Program, 29 February 2000.
   h. NGR 385-10, ARNG SOH Program, 7 October 1988, Change 1, 29 December 1989.
   i. Title 29, Part 1910, Occupational Safety and Health Standards. [Current Date]
   j. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 2002.
   k. ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th edition, 2001.
   l. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.
   m. TG 141, USACHPPM Industrial Hygiene Sampling Guide, November 1997.
   n. National Safety Council, Fundamentals of Industrial Hygiene, 5th Edition, 2002.
   o. NIOSH, Pocket Guide to Chemical Hazards, 2001.
   p. NFC, A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. [Current date]
   q. ASHRAE Standards. [Current Dates]
   r. ANSI Standards. [Current Dates]

2. Specific Regulations/Guidance
   a. **ABRASIVE BLASTING**
      (1) ANSI Z9.4 1997, Abrasive Blasting Operations - Ventilation and Safe Practices.
      (2) 29 CFR 1910.94 Ventilation
      (3) 42 CFR 84

   b. **ASBESTOS**
      (1) AR 40-5, Preventive Medicine, 15 October 1990. *[05/2002 Being Updated]*
      (2) AR 200-1, Environmental Protection and Enhancement, Chapter 8, 21 February 1997.
      (3) TB MED 513, Guidelines for the Evaluation and Control of Asbestos Exposure, 15 December 1986. *[05/2000 Under Revision as DA PAM 40-513]*
      (4) TG 157, USAEHA, The Installation Asbestos Management Program Assessment Checklists, July 1994.
      (5) 29 CFR 1910.1001
      (6) 29 CFR 1926.58 (prior to 1994 CFR)
      (7) 29 CFR 1926.1101

(8) MEMORANDUM SGPS-PSP, OTSG, subject: AMEDD Role Supporting Asbestos Abatement/Asbestos Management Programs, 19 Jan 89.

(9) EPA, Guidance for Controlling Asbestos-Containing Materials in Buildings, June 1985.

(10) DD Form 2493-1 (Asbestos Exposure, Part I--Initial Medical Questionnaire)

(11) DD Form 2493-2 (Asbestos Exposure, Part II--Periodic Medical Questionnaire)

(12) EPA NESHAPS Asbestos Regulation (40 CFR 61, Subpart M).

c. **BATTERY CHARGING ROOM**

(1) TG 022, USAEHA, page 81, Industrial Hygiene Evaluation Guide, October 1975. *[Out of Print]*

(2) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

d. **BIRD AND BAT MANURE**

(1) TG 142, USAEHA, Managing Health Hazards Associated with Bird and Bat Excrement, Dec 1992.

e. **BLOODBORNE PATHOGENS**

(1) 29 CFR 1910.1030

(2) TG 190, USAEHA, Guide to Managing Occupational Exposure to Bloodborne Pathogens, Jan 94.

f. **CHEMICAL AGENT RESISTANT COATING (CARC) PAINT**

(1) TG 144, USAEHA, Guidelines for Controlling Health Hazards in Painting Operations, 24 August 1987.

(2) DA LTR, USAEHA, HSHB-MI-WR, subject: Respiratory Protection When Spraying CARC, 19 November 1992.

(3) TM 43-0139, Painting Instructions for Army Material, 27 July 19881 Aug 86.

(4) MEMORANDUM SGPS-PSP, OTSG, subject AMEDD, Occupational Health Requirements in Support of Painting in the Army, 22 February 1985.

(5) AR 750-1, Army Materiel Maintenance Policy and Retail Maintenance Operations (Prohibits welding on CARC paint) 1 July 1996.

g. **CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR, EXPLOSIVE (CBRNE)**

(1) DODI 2000.gg, DOD Installation CBRNE Emergency Response Guidelines.

(2) DHHS, NIOSH Pub No. 2002 139, Guidance for Protecting Building Environments from Airborne Chemical, Biological, or Radiological Attacks, May 2002.

(3) TG 275, USACHPPM, Personal Protective Equipment Guide for Medical Treatment Facility Personnel Handling Casualties from Weapons of Mass Destruction and Terrorism Events. *[Draft]*

h. **CONFINED SPACE**

(1) 29 CFR 1910.146 (Confined Space Entry)
(2) 29 CFR 1910.147 (Lockout/Tagout)
(3) ANSI Z117.1-Safety Requirements for Confined Spaces, 1995.
(4) SOP for ARNG Confined Space Entry Program, 25 April 1991.
(5) Letter, US Dept of Labor (DOL) addressed to Vanessa Char, 22 Apr 1994.
(6) OSHA Instruction STD 1-7.3, US DOL, subject: 29 CFR 1910.147, the Control of Hazardous Energy (Lockout/Tagout)--Inspection Procedures and Interpretive Guidance, 11 Sep 90.
(7) DHHS, NIOSH Pub No. 87113, A Guide to Safety in Confined Spaces, July 1987.
(8) Confined Space Entry Program for Helicopters, 2003.

i. **DESIGN REVIEW**

(1) DG 415-1, Design Guide for Armories, current.
(2) DG 415-2, Design Guide for Logistics Facilities, current.
(3) DG 415-3, Design Guide for Training Site Facilities, current.
(4) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.
(5) TI-300, 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.
(6) UFGS 15940A, Overhead Vehicle Tailpipe (and welding Fume) Exhaust Removal Systems, December 2001.
(7) ASHRAE, Standard 62-2002, Ventilation for Acceptable Indoor Air Quality.
(8) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

j. **ERGONOMICS**

(1) DA PAM 40-21, Medical Services, Ergonomics Program, 15 May 2000.
(2) ANSI Z-365, Management of Work Related Musculoskeletal Disorders, 2000.
(3) 29 CFR 1910. *[PROPOSED STANDARD]*

k. **FLAMMABLE STORAGE ROOM**

(1) 29 CFR 1910.106
(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

l. **HAZARD COMMUNICATION**

(1) 29 CFR 1910.1200
(2) NGR 385-10, Chapter 6

m. **HEARING CONSERVATION**

(1) DA PAM 40-501, Medical Services, Hearing Conservation Program, 10 December 1998.

(2) TG 181, USAEHA, Noise Dosimetry and Risk Assessment, May 1999.

(3) TG 175, USAEHA, Readiness thru Hearing Conservation: Guide for Unit Commanders and Supervisors, June 1999.

(4) 29 CFR 1910.95

n. **INDOOR AIR QUALITY (IAQ)**

(1) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

(2) USACERL Technical Report P-91/42, IAQ Management for Operations and Maintenance Personnel, September 1991.

(3) EPA 400/1-91/003 or DHHS, NIOSH, Publication No. 91-114, Building IAQ, A Guide for Building Owners and Facility Managers, December 1991.

(4) ASHRAE, Standard 62-2002, Ventilation for Acceptable IAQ.

(5) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

(6) NIOSH, IAQ Selected References, Sep 1989.

(7) OSHA Instruction CPL 2-2.20B CH-1, Directorate of Technical Support, 13 Nov 90.

(8) DA PAM 25-52, Mail Facility Security and Handling Suspicious Mail, 6 November 2001.

(9) ASTM, D 5952-96, 10 May 1996.

o. **INDOOR FIRING RANGES**

(1) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(2) NGR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges, 30 March 1990. *[11/02 Under Revision]*

(3) CEHND 1110-1-18, USACE Design Manual for Indoor Firing Range, June 1990.

(4) HQDA LTR, Office of the Adjutant General, DACS-SF, subject: Inspection and Evaluation of US Army Indoor Firing Ranges, 26 March 1993.

(5) Departments of the Army and Air Force, NGB-ADE-OM, subject: All State Log Number (I920323) Indoor Range Clean-up at State Owned Armories, 28 July 1992.

(6) NIOSH, Technical Information, December 1975, subject: Lead Exposure and Design Considerations for Indoor Firing Ranges.

(7) All-States Ltr P01-0075, 5 December 2001.

(8) Information Paper, Alternative Ammunition, 15 March 1996.

(9) Information Paper, Bullet Traps, 26 April 1996.

(10) Information Paper, ARNG IFR Action Plan, 28 January 2002.

p. **LEAD**

(1) 29 CFR 1910.1025

(2) 29 CFR 1926.62

(3) 24 CFR 35.61 (HUD, Percentage of Lead in Paint)

(4) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(5) OSHA Instruction CPL 2-2.58, Office of Health Compliance Assistance, 13 December 1993.

(6) Federal Register, 18 April 1990, Vol. 55, No. 75, HUD, Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing, as amended, September 1990, Office of Public and Indian Housing, Department of Housing and Urban Development, 451 Seventh Street, SW, Washington, DC 20410.

(7) NIOSH, Request for Assistance in Preventing Lead Poisoning in Construction Workers, April 1992.

(8) EPA, Strategy for Reducing Lead Exposures, 21 Feb 91.

q. **LIGHTING**

(1) RP-1-1993, Office Lighting, ANSI/IESNA.

(2) RP-7-2001, Industrial Lighting, IES.

r. **OCCUPATIONAL VISION**

(1) DA PAM 40-506, Medical Services, The Army Vision Conservation and Readiness Program, 20 July 2001.

(2) ANSI Z87.1, Practice for Occupational and Educational Eye and Face Protection, 1989, Change A, REAF 1998.

(3) ANSI Z358.1 for Emergency Eyewash and Shower Equipment, 1998.

(4) OTSG Memorandum SGPS-PSP, subject: Acanthameoba Keratitis and Eyewash Stations, 8 May 89.

(4) 29 CFR 1910.133

s. **PAINT SPRAY BOOTH**

(1) NFPA No. 33, Standard for Spray Application Using Flammable and Combustible Materials, 1995.

(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

(3) 29 CFR 1910.94

(4) 29 CFR 1910.107

(5) ANSI Z9.3-1995 for Exhaust Systems - Spray Finishing Operations - Safety Code for Design, Construction, and Ventilation.

(6) ANSI Z9.2-2001, Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems.

t. **PERSONAL PROTECTIVE EQUIPMENT**

(1) Quick Selection Guide to Chemical Protective Clothing, 2nd edition, Forsberg, K and Mansdorf, S., 1993.

(2) Chemical Protective Clothing, Vol 1 and 2, Johnson, J. and Anderson, K., American Industrial Hygiene Association, 1990.

(3) Guidelines for the Selection of Chemical Protective Clothing, 3rd Edition, ACGIH, Inc., Feb 1987.

u. **RADIATION PROTECTION PROGRAM**

(1) NGR 385-11, Safety, Ionizing and Nonionizing Radiation Protection, 18 February 1999.

(2) AR 11-9, Army Radiation Safety Program, 28 May 1999.

(3) 29 CFR 1910.96

(4) 29 CFR 1910.97

v. **RESPIRATORY PROTECTION**

(1) AR 11-34, The Army Respiratory Protection Program, 15 February 1990. *[11/02 Being Updated]*

(2) 29 CFR 1910.134

(3) 42 CFR 84

(4) TB MED 502, Respiratory Protection Program, February 1992. *[11/02 Being Updated as DA PAM 40-502]*

(5) ANSI/CGA G-7.1-1997, Commodity Specification for Air.

(6) ANSI Z88.2-1992, Standard for Respiratory Protection.

w. **SANITATION**

(1) ANSI Z4.1-1986, Change REAF 1995, Sanitation in Places of Employment-Minimum Requirements.

(2) 29 CFR 1910.141

x. **SMOKING**

(1) AR 600-63, Army Health Promotion, 28 April 1996.

(2) DODI 1010.15, Smoke-Free DOD Facilities, 2 January 2001.

(3) DODD1010.10, Health Promotion, 11 March 1986.

y. **VEHICLE EXHAUST**

(1) ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th Edition, 2001.

(2) TI-300f 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

z. **WELDING OPERATION**

(1) 29 CFR 1910.252

(2) 29 CFR 1910.253

(3) 29 CFR 1910.254

(4) ANSI/AWS Z49.1-1999, Safety in Welding and Cutting and Allied Processes.

(5) TM 5-805-7, Welding Design, Procedures and Inspection, 20 May 85.

Industrial Hygiene Survey

Prepared for:

National Guard Armory
1720 East Caracas Avenue
Hershey, PA 16146

21 June 2011

Prepared by:

Non-R[redacted]i, CIH, CSP
Consultant
Non-Respon[redacted]@eorm.com

Reviewed by:

Non-R[redacted]i, CIH
Senior Consultant
Non-Respo[redacted]@eorm.com

Table of Contents

Executive Summary

Environmental and Occupational Risk Management, Inc. (EORM®) was contracted by the National Guard Bureau Industrial Hygiene Region North Office (NGB IH Office) to perform a baseline industrial hygiene (IH) survey of selected Readiness Centers and administrative buildings located in Pennsylvania. This report summarizes the results of the Hershey Armory located at 1720 East Caracas Avenue, which occurred on June 21, 2011.

During the IH survey, EORM personnel observed that the former indoor firing range has been retro-fitted to an employee locker room. The area had been painted and the pit had been filled in.

Overall the Hershey Armory appears to be clean. It was reported that the roof was replaced a few years ago; however there is a leak in the electronic simulated training (EST) room. There was visible water damage to ceiling tiles in the conference room as well.

The results of the lighting survey indicate that Room 7 and the outdoor storage building (Barn) have insufficient lighting.

The results of the indoor air quality survey indicate acceptable conditions on the date of the survey.

EORM noted several chairs at desks throughout the facility with a four-point base.

Many of the written programs such as the Hazard Communication, Emergency Response, Personal Protective Equipment, and Hazardous Energy Control were not available during the survey. Personnel did not have paper copies and could not find any electronic copies. These programs should be available to all personnel and should be reviewed on a periodic basis.

Introduction

Environmental and Occupational Risk Management, Inc. (EORM) was contracted by National Guard Bureau Industrial Hygiene Region North Office (NGB IH Office) to perform an industrial hygiene (IH) survey of selected National Guard Armories located in Pennsylvania. This report summarizes the results of the armory located at 1720 East Caracas Avenue, Hershey, Pennsylvania. The IH survey was performed on June 21, 2011 by Mr. [redacted], Certified Industrial Hygienist (CIH), Certified Safety Professional (CSP), Consultant. Ms. [redacted], CIH, Senior Consultant, reviewed this report and provided project support. The scope of work completed during this survey included the following:

- Inspect the physical condition of the facility and personnel concerns.
- Conduct a lighting survey in all areas of the facility.
- Evaluate the attached garage, if present.
- Collect photographs of the interior and exterior conditions of the armory.
- Prepare a detailed report of findings and sampling results, including recommendations for improvement in any areas of concern and conclusion

EORM's survey activities were aided by the generous assistance of Mr. [redacted] and Sgt. [redacted] who provided information on the armory.

Industrial Hygiene Survey Details

Facility Inspection and Employee Concerns

The Hershey Armory was built in the 1970's. The building has been renovated does not appear from visual inspection to contain asbestos containing materials. The former indoor firing range is located on the backside of the facility and was converted to a locker room approximately 15 years ago.

The building roof was replaced several years ago. Currently there are leaks in the conference room and in the electronic simulated training (EST) room.

Overall the building appears to be clean. There is a moderate amount of dust on the air-conditioning units as well as on shelving, behind computers, and other hard to reach areas.

EORM observed several chairs throughout the facility with a four-point base.

Ventilation System Evaluation

The general heating, ventilating, and air-conditioning (HVAC) for the Hershey Armory is accomplished through forced air systems.

Indoor Air Quality Survey

Temperature (F) and Relative Humidity (%)

The ASHRAE recommended ambient temperature and relative humidity ranges for an occupied environment is less than (<) 65 percent relative humidity and 68 F to 75 F.

Carbon Dioxide (CO_2)

OSHA permissible Exposure Limit (PEL) for CO_2 is 5000 parts per million (ppm) established for industrial settings and is based upon an 8 hr Time Weighted Average (TWA). ASHRAE recommends that carbon dioxide levels are less than 700 ppm above the measured outdoor levels.

Carbon Monoxide (CO)

ACGIH Time Weighted Average (TWA) for CO is 25 ppm. The OSHA Permissible Exposure Limit (PEL) for CO is 50ppm, ASHRAE comfort guidelines recommend levels of CO be maintained below 9.0ppm. Carbon monoxide was not observed inside this facility.

Table 1: IAQ Survey Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temperature (F°)	Relative Humidity (%)
Outdoor Air	0.0	432	74.2	77.7
Training Room	0.0	560	71.7	76.4
Conference Room (5)	0.0	490	71.1	77.4
6	0.0	540	72.1	75.9
7	0.0	523	72.0	74.9
8	0.0	517	72.2	75.1
2	0.0	499	72.0	74.1
1	0.0	468	72.8	74.8
9	0.0	553	72.9	74.3
Entrance	0.0	500	73.2	75.2
Drill Floor	0.0	526	74.0	78.2
19 (Supply)	0.0	752	72.3	65.4

Lighting Survey

The lighting at the Hershey Armory consists of metal halide lamps and fluorescent lights. The metal halide lamps provide lighting for the Drill Hall and the fluorescent lights provide the lighting in all other areas of the facility. A lighting survey was conducted using a Cooke Corporation Cal-Light 400L, serial number U980243. The Cal-Light was calibrated by the manufacturer on September 10, 2010.

The lighting measurements were compared to the Recommended Practice for Lighting Industrial Facilities RP-7-01 and for Office Building RP-1-04. Both RP-7 and RP-1 are approved by the American National Standards Institute (ANSI) and the Illuminating Engineering Society of North America (IESNA). The minimum footcandles for office work areas under RP-1 is 30 footcandles (fc) and under RP-7 for industrial lighting it is 50 fc. Table 2 below, summarizes the results of the lighting survey.

Table 2: Lighting Survey Results

Location	Measurement (fc)	Applicable Standard RP-1/RP-7	Applicable Standard Value (fc) [1]	Meets Applicable RP Standard Values? (Yes/No)
Conference Room (5)	76	RP-1	30	Yes
Training Room	82	RP-1	30	Yes
6	92	RP-1	30	Yes
7	29	RP-1	30	No
8	72.6	RP-1	30	Yes
2	58.7	RP-1	30	Yes
1	56.0	RP-7	50	Yes

Location	Measurement (fc)	Applicable Standard RP-1/RP-7	Applicable Standard Value (fc) [1]	Meets Applicable RP Standard Values? (Yes/No)
9	88.0	RP-1	30	Yes
Entrance	71	RP-1	30	Yes
Drill Floor	74	RP-7	50	Yes
19	68	RP-1	30	Yes
Barn	6.8-16.7	RP-1	30	No

fc = foot-candles

[1] The recommended illuminance values were obtained from the ANSI/IESNA RP-1-04 (Office Lighting) and RP-7-01 (Industrial Lighting)

According to RP-1-04 the lighting survey results indicate insufficient lighting in the Room 7 and in the Barn which is used for storage of equipment. The lighting in the remaining offices, classrooms, storage rooms, and the drill area has sufficient lighting.

Program Evaluations

EORM personnel reviewed program documentation relating to health and safety programs that were available. In many instances, the NCOs present were not able to find the documentation for review or the programs were non-applicable based upon the work being conducted at the readiness center.

The results of the evaluations indicate that the Material Safety Data Sheets (MSDS) were kept in a binder near each storage area of chemicals. In addition, the emergency evacuation maps were prominently displayed to show major evacuation routes out of the building.

Program reviews were not conducted for the following due to either unavailable or not applicable: Hazard Communication, Hearing Conservation, Respiratory Protection (N/A), Personal Protective Equipment, Hazardous Energy Control, or Confined Space Entry (N/A).

Conclusions and Recommendations

Based on the observations and results of the industrial hygiene survey, EORM has concluded the following:

- The results of the IAQ survey indicate enough fresh air is being supplied based on the number of persons present during the survey.
- The lighting survey indicated insufficient lighting in Room 7 and the Barn.
- Chairs with a four-point base can be unstable. All chairs with a four-point base should be replaced with chairs with a five-point base.
- Water damaged section of the ceiling should be replaced after completion of roof repairs to prevent further water damage.
- Written programs such as Hazard Communication, Emergency Response, Personal Protective Equipment and Hazardous Energy Control should be available for employees during working hours. Their content and effectiveness should be reviewed on a periodic basis, i.e. annually.

The results of this survey should be communicated to the participants as well as other people who perform similar job duties that did not participate.

Appendix 1 – Photographs

Appendix 2 – References

RP-1-2004, Office Lighting, ANSI/IESNA

RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.

UFC 3-410-01FA, Unified Facilities Criteria (UFC) for Heating, Ventilating, and Air Conditioning, Department of Defense, 15 May 2003.

ASHRAE 62.2-2010, Ventilation for Acceptable Indoor Air Quality, American Society of Heating Refrigerating and Air-Conditioning Engineers, 2010

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland




Industrial Hygiene Survey
for PAARNG – Hershey Readiness Center
1720 East Caracus Avenue
Hershey, Pennsylvania 16146

AECOM
January 2013
Document No.: 60276421/Hershey Readiness Center

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland

Industrial Hygiene Survey
for PAARNG – Hershey Readiness Center
1720 East Caracus Avenue
Hershey, Pennsylvania 16146

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Non-Responsive
Project Manager
Non-Responsive
Northeast District Health & Safety Manager

AECOM Environment
January 2013
Document No.: 60276421/Hershey Readiness Center

AECOM

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Executive Summary

On November 14, 2012, AECOM Technical Services Northeast, Inc. (AECOM) conducted an Industrial Hygiene (IH) survey of the Hershey Readiness Center facility located at 1720 East Caracus Avenue in Hershey, Pennsylvania. 1SG [redacted] was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Hershey Readiness Center operations.

The industrial hygiene survey was generally conducted in accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings", dated January 2012.

The Hershey Readiness Center is currently staffed by twelve personnel. The facility is configured as an administrative area and a drill hall.

Personnel at the facility were undertaking normal daily activities, which are administrative in nature, at the time of the survey.

The activities undertaken during the industrial hygiene survey included facility descriptions, lead wipe sampling, evaluation of housekeeping, illumination studies, ventilation system evaluation, and a review of the physical building condition.

Housekeeping is performed regularly at the Hershey Readiness Center.

Lighting levels measured throughout the facility were generally adequate as per American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005, with the exception of the drill hall and the storage room off the drill hall.

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U.S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 micrograms per square foot (ug/ft^2) for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas. However, wipe samples collected from the inside of the Heating, Ventilation & Air Conditioning (HVAC) ductwork in the drill hall indicated levels of lead in excess of 200 ug/ft^2.

No damaged suspect asbestos containing materials were observed during the evaluation.

No peeling paint was observed during the evaluation.

No evidence of water intrusion or visible mold growth was observed during the evaluation, but site personnel indicated the presence of water leaks. Water intrusion is a mold growth risk factor.

The HVAC system in the building consists of a boiler room that feeds radiant heaters throughout the building as well as a rooftop HVAC system that provides fresh air from the building exterior in administrative areas. There are three HVAC units located in the overhead space of the drill hall that provide fresh air from outside the building.

1.0 Facility Description and Operations

The Hershey Readiness Center, constructed in 1975, is a one-story administrative facility slab on-grade masonry structure. The building consists primarily of offices, training/classroom, locker/shower rooms, storage and administrative areas, and is finished with painted block and sheetrock walls, lay-in ceiling tiles and floor tile. The Drill Hall area, located in the center of the building, is finished with painted block walls and a concrete floor. According to site personnel the maintenance storage area was converted from a firing range.

The primary activity at the Hershey Readiness Center is routine administrative duties and occasional use by units for support and training of soldiers. The Hershey Readiness Center is currently staffed by five personnel. Vehicle maintenance activities are not undertaken at this facility.

2.0 Sampling in Readiness Centers

2.1.1 Wipe Sampling

Wipe sampling for lead was conducted following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost Wipes. AECOM did not observe dust accumulation on readily accessible horizontal surfaces within areas commonly used in the facility.

The following table presents the results of the lead wipe sampling conducted at the facility.

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
HY-01	**HVAC supply side – in duct**	**510 ug/ft^2**
HY-02	**HVAC fan side – in duct**	**460 ug/ft^2**
HY-03	Drill hall – top of ice maker	<110 ug/ft^2
HY-04	Kitchen – top of electrical panel	<110 ug/ft^2
HY-05	Orderly room – desk	<110 ug/ft^2
HY-06	Office – top of cabinet	<110 ug/ft^2
HY-07	Lobby – floor	<110 ug/ft^2
HY-08	Corridor – supply louver	<110 ug/ft^2
HY-09	Conference room – supply louver	<110 ug/ft^2
HY-10	Storage (Former firing range – bullet trap area)	130 ug/ft^2
HY-11	Storage (Former firing range – light fixture)	<110 ug/ft^2
HY-12	Storage (Former firing range – stored item)	140 ug/ft^2
HY-13	Storage (Former firing range – floor)	<110 ug/ft^2
HY-14	Outside of Storage (former firing range – floor)	<110 ug/ft^2

ug/ft^2 = Micrograms per square foot.

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft^2 for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas. However, wipe samples collected from inside the HVAC duct in the drill hall indicated levels of lead in excess of 200 ug/ft^2. Former firing ranges shall be converted in accordance with NG PAM 420-15. Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

Per Non-Responsive of NGB-IH, the requirement for Lead air sampling has been removed from the Statement of work. It was reported that historically, air samples collected at administrative facilities are typically below the limit of detection.

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls is in good condition. AECOM did not observe damaged or peeling paint during this evaluation.

3.1.2 Suspect Asbestos Containing Materials

AECOM did not observe damaged, friable suspect asbestos-containing materials (ACM) in readily accessible areas of the Hershey Readiness Center during this survey.

Typical miscellaneous suspect building materials observed throughout the building but not sampled include drywall, floor tiles and associated mastic, cove base and associated mastic, ceiling tiles, carpet mastic, and window caulks.

3.1.3 Water Damage/Mold

AECOM did not observe evidence of water intrusion or visible mold growth during this survey, but site personnel indicated the presence of water leaks. Water intrusion is a mold growth risk factor.

3.1.4 Housekeeping

The Hershey Readiness Center was observed to be generally clean and orderly during this assessment. AECOM did not observe dust accumulation on readily accessible horizontal surfaces within areas commonly used in the facility.

3.1.5 Indoor Air Quality/ Ergonomics

The administration section contains general office space. The administration section is generally utilized by all of the Hershey Readiness Center staff members. No Indoor Air Quality concerns were noted by the Hershey Readiness Center personnel.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (^{o} Fahrenheit), and relative humidity (as percentage) are presented in the following table. All readings were within acceptable guidelines.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (^{o}F)	Relative Humidity (%)
Outside – baseline	1.4	378	38.5	35.5
Orderly room	0.5	419	71.4	19.0
Drill hall	1.2	427	71.9	17.8
Battalion office 51	0.7	526	70.9	22.5
Kitchen	1.0	766	75.4	18.6

Table 3-1 Guidelines:
Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard.
OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.
Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.
Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 5.10.1).
Temperature: Winter (clothing insulation = 1.0 clo) Relative humidity 30-60% - Temp - 68 – 75°F
Summer Temp - 73 – 79°F. (Derived from ASHRAE Standard 55-2010)

Hershey Readiness Center personnel did not report any ergonomics issues or concerns. Office furniture and accessories designed to promote ergonomically correct behaviors were observed.

4.0 Ventilation and HVAC System

4.1.1 Ventilation Systems and Potential for Contamination of Clean Air Sources

No potential for contamination of clean air sources was observed at the facility. The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of air handling units that provide fresh air from outside the building exterior to administrative areas and the drill hall.

AECOM did not observe any obvious indications of maintenance issues with the general ventilation system from readily accessible areas. Percentage of outside air supplied by the HVAC system was calculated using CO_2 levels, and was determined to be approximately 50%, using the ASHRAE formula $\%OA=((C_{RA}-C_{SA})/(C_{RA}-C_{OA}))X100$, where C_{RA}=460 ppm CO_2, C_{SA}=439 ppm CO_2, and C_{OA}=418 ppm CO_2. Based on the carbon dioxide levels observed inside the building during this assessment, there appears to be a sufficient quantity of outside air being delivered via the HVAC system in order to satisfy the occupant load.

4.1.2 HVAC Maintenance

The HVAC system is reported to be on an annual maintenance/service schedule. Natural gas boilers feed radiant heaters throughout the remainder of the building including storage areas, the assembly hall as well as provide heat for the facilities domestic water.

5.0 Lighting

Lighting levels in all areas were measured utilizing a Cal-Light 400 light meter that displays lighting levels in foot-candles. Lighting levels were adequate in all areas except the drill hall and the storage room off the drill hall.

Table 5-1: Light Survey

Location	Results (Foot candles)	Met Standard (Y/N)	Standard*
Lobby	34.5	Y	10
Office	77.9	Y	50
Office	53.9	Y	50
Office	70.4	Y	50
Colonel's office	52.5	Y	50
Corridor	33.5	Y	5
Conference room	80.9	Y	30
Office	53.2	Y	50
Office	77.8	Y	50
Office	54.0	Y	50
Office	58.7	Y	50
Storage	45.0	Y	30
Latrine	23.8	Y	5
Latrine	33.4	Y	5
Storage	9-11	N	30
Weapons Simulation	23.2	Y	30
Storage	33.8	Y	30
West corridor	20-30	Y	5
Gym	35.1	Y	30
Orderly room	56.4	Y	50
Kitchen	71.9	Y	50
Storage	32.6	Y	30
Generator room	30.3	Y	30
Boiler room	34.7	Y	30
Storage	33.4	Y	30
Former firing range (maintenance storage)	34.2	Y	30
Drill hall	13.5 - 18.5	N	30
Lower level office	51.4	Y	50
Lower level office	53.2	Y	50
Lower level office	57.2	Y	50
Lower level office	55.5	Y	50
2nd level office	74.5	Y	50
2nd level office	59.5	Y	50
2nd level office	69.6	Y	50
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI/IESNA RP-7-01)			

6.0 Evaluation of Attached Garage

There is no garage associated with the Hershey Readiness Center.

7.0 Conclusions and Limitations

AECOM has conducted this survey in accordance with applicable OSHA methods and standard industrial hygiene practice. The following conclusions were based on the observations and assessments of activities that occurred during the on-site evaluation:

Housekeeping is performed regularly at the Hershey Readiness Center.

Lighting levels measured throughout the facility were generally adequate as per American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005, with the exception of the drill hall and the storage room off the drill hall.

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U.S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 ug/ft^2 for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas. However, wipe samples collected from the inside of the HVAC ductwork in the drill hall indicated levels of lead in excess of 200 ug/ft^2.

No damaged suspect asbestos containing materials were observed during the evaluation.

No peeling paint was observed during the evaluation.

No evidence of water intrusion or visible mold growth was observed during the evaluation, but site personnel indicated the presence of water leaks. Water intrusion is a mold growth risk factor.

The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of a boiler room that feeds radiant heaters throughout the building as well as a rooftop HVAC system that provides fresh air from the building exterior in administrative areas. There are three HVAC units located in the overhead space of the drill hall that provide fresh air from outside the building.

AECOM provided these services consistent with the level and skill ordinarily exercised by members of the profession currently providing similar services under similar circumstances at the time the services were provided. This statement is in lieu of other statements either expressed or implied. This report is intended for the sole use of National Guard Bureau – Army National Guard. The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, and use or re-use of this document, the findings, conclusions, or recommendations is at the risk of said user.

As with all such surveys, the results of the sampling represent conditions found on the date of the survey and may not represent conditions found at other times. Additionally, this survey was limited with respect to the specific parameters indicated above and should not be construed to be a comprehensive evaluation or a definitive representation of conditions within the facility. The information presented in this report is intended to be used as a guide to evaluate the need for further investigation or the need for modifications to the processes or procedures surveyed.

The Client recognizes and agrees that all testing and remediation methods have reliability limitations, no method nor number of sampling locations can guarantee that a condition will be discovered within the performance of the services as authorized by the Client. Additionally, the passage of time may result in a change in the environmental characteristics at this site. This report does not warrant against future operations or conditions that could affect the recommendations made. The results, findings, conclusions, and recommendations expressed in this report are based only on conditions that were observed during AECOM's inspection of the site.

Appendix A

Hershey Readiness Center Facility Layout

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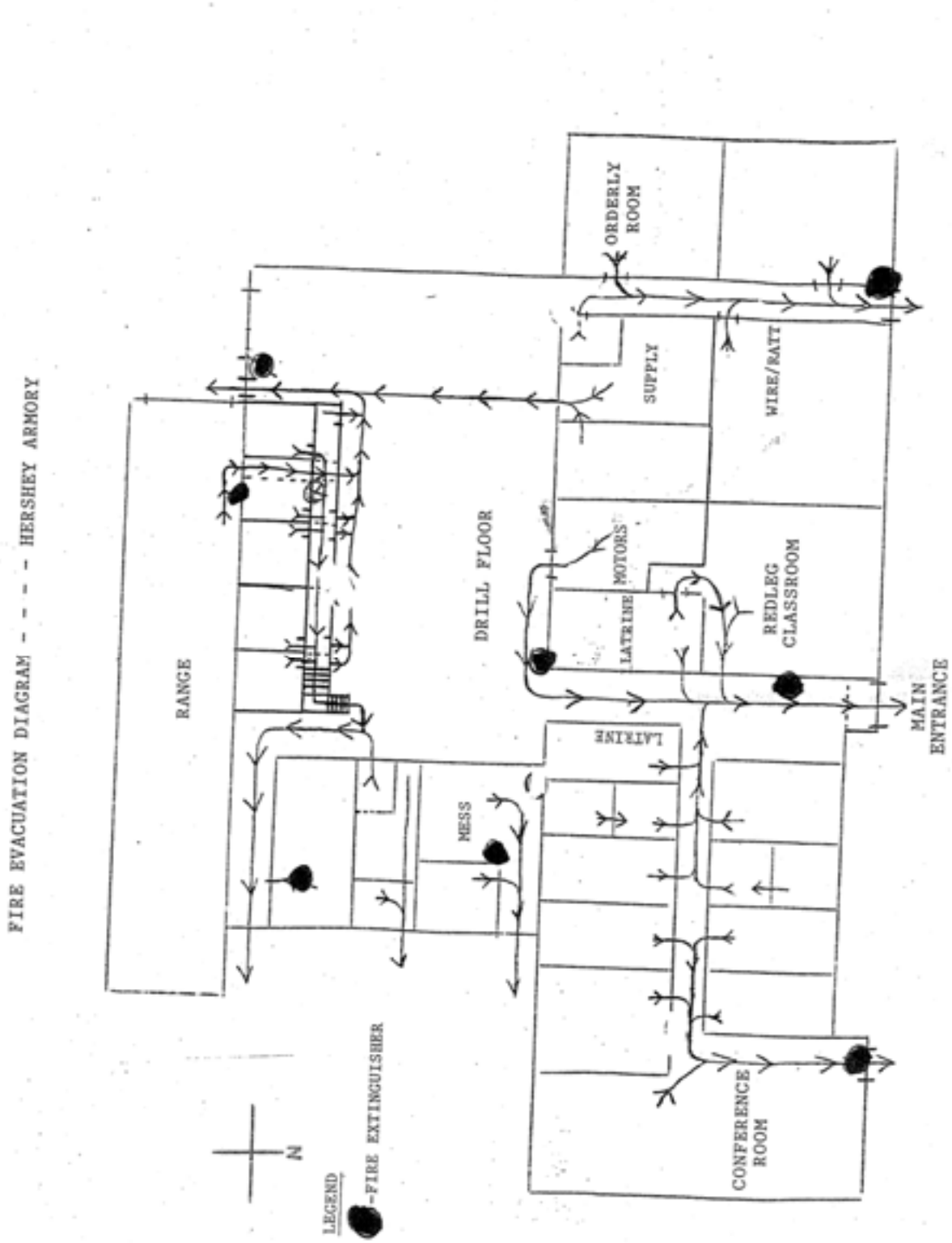

Appendix B

Hershey Readiness Center Photographs

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Photograph 1
 View of facility front

Photograph 2
 View of lobby

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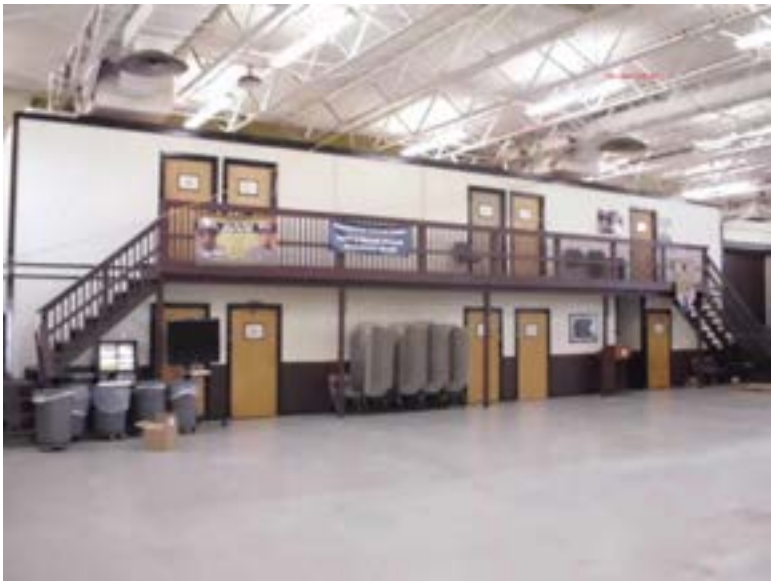
Photograph 3
 View of drill hall

Photograph 4
 View of offices in drill hall

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Photograph 5
 View of boiler room

Photograph 6
 View of kitchen

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Photograph 7
 View of former firing range

Photograph 8
 View of typical HVAC supply grille

Appendix C

Analytical Results

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AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	PA-Group 4c RC's	Chain Of Custody:	314652		
Address:	301-B1 Old Bay Lane, Attn: ARNG-CIG-P, State Military Reservation	Job Location:	Hershey RC	Date Submitted:	11/30/2012		
	Havre de Grace, Maryland 21078	Job Number:	60276421.1	Person Submitting:	AECOM		
		P.O. Number:	W91236-09-A-0020	Date Analyzed:	12/7/2012	Report Date:	12/7/2012
Attention:	Non-R T						

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	Total ug	Final Result	Comments
13018690	HY-01	Flame	Wipe	****	0.111	110 ug/ft²	57	510 ug/ft²	
13018691	HY-02	Flame	Wipe	****	0.111	110 ug/ft²	51	460 ug/ft²	
13018692	HY-03	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13018693	HY-04	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13018694	HY-05	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13018695	HY-06	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13018696	HY-07	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13018697	HY-08	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13018698	HY-09	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13018699	HY-10	Flame	Wipe	****	0.111	110 ug/ft²	15	130 ug/ft²	
13018700	HY-11	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13018701	HY-12	Flame	Wipe	****	0.111	110 ug/ft²	15	140 ug/ft²	
13018702	HY-13	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13018703	HY-14	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	

An AIHA (#101478) and NY ELAP (#10920) Accredited Laboratory

4475 Forbes Blvd. · Lanham, MD, 20706 · (301) 459-3640 · Toll Free (800) 346-0961 · Fax (301) 459-2643

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AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	PA-Group 4e RC's	Chain Of Custody:	514652		
Address:	301-81 Old Bay Lane, Attn: ARNG-CIG-F, State Military Reservation	Job Location:	Horsley RC	Date Submitted:	11/30/2012		
	Havre de Grace, Maryland 21078	Job Number:	60276421.1	Person Submitting:	AECOM		
		P.O. Number:	W912S6-09-A-0010	Date Analyzed:	12/7/2012	Report Date:	12/7/2012

Attention: Non-

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	Total ug	Final Result	Comments

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7300; Water: SM-3111B

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B

See QC Summary for analytical results of quality control samples associated with these samples.

N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)

%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)

Note: All samples were received in good condition unless otherwise noted.

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results

Final results for air and wipe samples are based on client supplied information not verified by this laboratory.

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

Non-Responsive

Ana

Non-Responsive

Technical Manager

An AIHA (#100478) and NY ELAP (#10920) Accredited Laboratory

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4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This Number For Inquiries)

514652

Mailing/Billing Information:
1. Client Name: National Guard Bureau
2. Address 1: 301-BH Old Bay Lane
3. Address 2: Attn: NGB-AVN-SI, State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:
PA-Group He RC's
Hershey RC
3. Job #: 60276121.1 PO #: W91269-05-A-0003
4. Contact Person: [redacted]
5. Submitted by: AECOM [redacted]

Reporting Info (Results provided as soon as technically feasible). If no TAT/Reporting Info is provided, AMA will assign default of 5-Day and email/fax to contacts on file.

Pb Dust Wipe (wipe type: ghost) 14 (QTY)

All samples received in good condition unless otherwise noted.

CLIENT ID #	SAMPLE LOCATION/ID	DATE TIME	VOL/AREA	ANALYSIS / MATRIX	CLIENT CONTACT (LABORATORY STAFF ONLY)
	SEE ATTACHED FIELD DATA SHEETS				Date/Time: Contact: By:
					Date/Time: Contact: By:
					Date/Time: Contact: By:

LABORATORY STAFF ONLY CUSTODY: 11 30 @ 1050 FEDEX [redacted]
7941 9184 5331

AECOM

Surface Sampling Field Data Sheet

Date Collected: 11/14/12
Job Number: 60296421.1
Contact Person: Non-Respo

Job Name: PA - Group 4e RC's
Job Location: Hershey RC CARACUS
Address: 1720 East Caracus Ave
Hershey, PA

Company: AECOM
Phone Number: 315 432 0520
Collected By: Non-Respo
COC Number:

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in^2/ft^2)	Collection Media
HY-01	HVAC-Supply Side	In Duct	16 in^2	Ghost Wipe
HY-02	HVAC-Return Side	In Duct		
HY-03	Drill Hall	Top of Heater		
HY-04	Kitchen	Top of Elec. Box		
HY-05	Orderly Room	Desk		
HY-06	(1) Office (Open)	TOP of Cabinet		
HY-07	Lobby	Floor		
HY-08	Corridor	Supply Louvre		
HY-09	Conference Rm	Supply Louvre		
HY-10	Former Range	Bullet trap Area		
HY-11		Light Fixture		
HY-12		Stored Item		
HY-13		Floor		
HY-14	OUTSIDE STORAGE CAGES	Floor		

Please Return Samples To:
AMA Analytical Services, Inc., 4475 Forbes Blvd., Lanham, MD 20706, (800) 346-0951 (301) 459-3640 Fax, www.amalab.com, info@amalab.com

January 2013

Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. http://www.osha.gov/comp-links.html

2. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998. http://www.dtic.mil/whs/directives/corres/pdf/605501p.pdf

3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF

4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://armypubs.army.mil/epubs/pdf/R40_5.PDF

5. AR 385-10, The Army Safety Program, 23 August 2007; Rapid Action Revision (RAR) issue date: 4 October 2011. http://armypubs.army.mil/epubs/pdf/R385_10.PDF

6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://armypubs.army.mil/epubs/pdf/P40_501.pdf

7. DA PAM 40-11, Preventive Medicine, 22 July 2005, RAR issue date: 19 October 2009. http://armypubs.army.mil/epubs/pdf/p40_11.pdf

8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://armypubs.army.mil/epubs/pdf/P40_503.PDF

9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf

10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current Ed.

11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.

12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.

13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.

14. ANSI/ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality.

15. RP-1-2004, Office Lighting, ANSI/IESNA.

16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.

17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.

18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.

19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf

NATIONAL GUARD BUREAU
ARMY NATIONAL GUARD
REGION NORTH INDUSTRIAL HYGIENE OFFICE
ATTN: NGB-AVS-SI
301-IH OLD BAY LANE
HAVRE DE GRACE, MD 21078-4094

NGB-AVS-SI (40-5f)

21 February 2003

MEMORANDUM FOR PAARNG, Honesdale Armory, ATTN: SSG [redacted], PO Box 431, Tryon St, Honesdale, PA 18432

SUBJECT: Indoor Firing Range Report

1. I have enclosed the industrial hygiene survey report completed by Environmental Management Solutions.

2. Please contact me at (410) 942-0273 ext. 17 or 1-800-550-6967 if you have any questions regarding the enclosed report.

[redacted]
Industrial Hygienist

Encl

CF:
Safety and Occupational Health Manager, COL [redacted]

ENVIRONMENTAL MANAGEMENT SOLUTIONS
INDUSTRIAL HYGIENE CONSULTING

PENNSYLVANIA ARMY NATIONAL GUARD
HONESDALE INDOOR FIRING RANGE
HONESDALE, PENNSYLVANIA

PO BOX 6891, DOUGLASVILLE, GEORGIA 30154
PHONE: 678.596.6539 • FAX: 770.214.6207

Table of Contents

EXECUTIVE SUMMARY

Findings	Recommendations	RAC
This range has been classified as unsafe due to results of ventilation survey and observation of the range.	The range must follow requirements of unsafe ranges until deficiencies are corrected, reinspected, and approved.	RAC 2
Building envelope		
Firing lanes are not marked.	Firing lanes should be marked at the firing line and at the bullet trap.	RAC 3
Several items for sale at an upcoming yard sale have been stored in the range.	No items should be stored in the range at any time. All items must be thoroughly decontaminated before use	RAC 2
One open floor drain is present in the range.	All open floor drains should be sealed to prevent contamination of the sewer system by lead dust.	RAC 2
The entrance door is not weather stripped	Weather strip all access doors to the range	RAC 3
Range lighting		
Lighting was below the required levels at the target line.	Increase range lighting to appropriate levels and replace burned out bulbs.	RAC 3
Emergency and exit lighting are not provided.	Emergency and exit lighting should be provided behind the firing line.	RAC 3
Bullet traps		
A sand type bullet stop is permanently installed, mounted with wooded slats and cardboard to serve as target		
Range use		
Yard sale items to include children's toys and kitchen appliances have been stored I the range.	No items should be stored in the firing range at any time. Stored items should be decontaminated and removed.	RAC 2
No fire extinguisher was found in the vicinity of the range	An ABC-type fire extinguisher should be located in a recessed cabinet near the entrance door, inside of the range	RAC 2
Restricted ammunition has been used in this range.	Pellets, BBs, magnum and armor piercing rounds are not to be used in this range.	RAC 2
Range maintenance		
Dry sweeping of the range is permitted and brooms indicating such were found in the area.	Dry sweeping of indoor firing ranges is prohibited and should not be permitted.	RAC 2
A range custodian has not been appointed.	Personnel should be fully trained in the use and maintenance of the range	RAC 2
Posting of signs		
An illuminated sign is not present to alert personnel while	An illuminated sign should be interlocked with range ventilation to	RAC 4

Findings	Recommendations	RAC
range is in use	alert individuals outside when the range is in use.	
Firing lanes are numbered only at the bullet trap.	Firing lanes should be numbered at the firing line and at the bullet trap and visible to all shooters	RAC 4
Record keeping		
The range has met no record keeping requirements.	All record keeping requirements to include a visitor's log, Range SOP, OSHA compliance program, and records of previous surveys should be kept.	RAC 2
Ventilation		
Ventilation flow rates were all well below the required 50 fpm in all firing lanes.	Consider closing the range and converting to storage space. If firing is to resume, a ventilation system that meets the minimum requirements must be installed and tested.	RAC 2
Smoke tests revealed turbulence with air moving from the firing line behind the firers.	Correct ventilation system deficiencies to provide a uniform and even flow rate	RAC 2

SUBJECT: Industrial Hygiene Survey of the Honesdale Indoor Firing Range Survey performed 19 August 2002 at the Honesdale Army National Guard Armory in Honesdale, Pennsylvania.

BACKGROUND:

Introduction. At the request of Mrs. Non-Responsive of the National Guard Bureau Region North Industrial Hygiene Office, an industrial hygiene survey was performed at the Honesdale Indoor Firing Range at the Honesdale Army National Guard Armory in Honesdale, Pennsylvania. Non-Responsive contract industrial hygienist, Environmental Management Solutions conducted the survey on 19 August 2002. The purpose of the survey was to perform a comprehensive industrial hygiene survey to evaluate range characteristics, ventilation, and quantify employee exposure to lead and beryllium.

Site Description. The Honesdale Indoor Firing Range has not been used for weapons firing and qualification for at least three to four years. The indoor firing range is currently being used for storage space for yard sale items.

Scope of Work. The Indoor Firing Range was visually examined and personnel were consulted to accurately assess potential hazards present. A range inspection checklist found in All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program—Policy and Responsibilities for Inspection, Evaluation, and Operation of Army National Guard Indoor Firing Ranges, was completed for the range. Lighting and ventilation measurements were taken. Smoke candles were utilized to observe airflow patterns in the range. Ventilation studies were performed to quantify performance of the range and its effectiveness in reducing employee exposure to lead and beryllium. Reference information, Instrumentation, Methodology, and Assessment Criteria can be found in Appendix A.

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 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. Further exposure to lead may 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. Lead can build up in the body affecting the blood, heart, and immune systems, if the amount absorbed and stored in the body exceeds the body's ability to expel it. In children, slowed cognitive development and reduced growth are results of overexposure. 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.

Beryllium during short-term exposure may cause irritation of respiratory tract irritation, and chemical pneumonitis (lung inflammation). Long-term exposure can result in skin sensitization, and chronic beryllium disease, which includes cough, weight loss, and weakness. Beryllium is also classified as a human carcinogen, meaning that it will cause cancer in humans.

FINDINGS, DISCUSSION, AND RECOMMENDATIONS

a. Building Envelope. Firing lanes are not marked for this range. A door leads from the firing range to the outside at the bullet trap. Items have been stored in the range for preparation of an upcoming yard sale. Several items including children's items and house wares were stored in the range. There is one open floor drain in front of the firing line. The entrance door to the range is not weather-stripped.

Recommendations.

1. All firing lanes should be marked at the firing line and at the bullet trap so that it is visible to all shooters. [ALL STATES LOG NUMBER P01-0075 1-21c] **(RAC 3)**
2. All doors in front of the firing line should be securely locked to prevent personnel from entering during firing and cleaning operations. [ALL STATES LOG NUMBER P01-0075 1-17a(1)(h)]
3. All open floor drains should be sealed to prevent leakage of lead dusts into sewer system. [ALL STATES LOG NUMBER P01-0075 1-17a(2)(c)] **(RAC 2)**
4. There should be no carpet, drapes, or other fiber-like material stored or brought into the range. Thoroughly clean all items upon removal using a soap and water solution. (See below in section concerning Range Maintenance)[ALL STATES LOG NUMBER P01-0075, 1-17a(2)(d)] **(RAC 2)**
5. 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. Remove and decontaminate items using a soap and water solution (See below in section concerning Range Maintenance) [ALL STATES LOG NUMBER P01-0075 2-3a, 2-4h; ALL STATES LOG NUMBER P01-0075 2-4] **(RAC 2)**
6. Weather-strip all access doors to the range to prevent leakage of lead dust and debris into outlying areas. [DG 415-1 App. A, 3-1h] **(RAC 3)**

b. Range Lighting. Range lighting is not uniform but does cause shadows down range. Lighting measures an average of 29.3 foot-candles (FC) at the target line. Lighting ranged from 2 to 4 FC in other areas of the range. Baffles adequately protect all downrange lighting. Emergency lights are not provided behind the firing line and exit lights were being replaced at the time of the survey.

Recommendations.

1. Lighting is required to be 100 FC at the target line. Replace burned out bulbs to bring lighting to appropriate levels at the target line. [ALL STATES LOG NUMBER P01-0075 1-17c(1)(b)] **(RAC 3)**
2. Emergency lights should be provided behind the firing line in working condition. Exit lighting is also required. Emergency and exit lighting should be installed prior to firing exercises. [ALL STATES LOG NUMBER P01-0075 1-17c(1)(e,f)] **(RAC 3)**

c. ***Bullet Traps.*** A sand type bullet trap is permanently installed in the range, however, wooden slats have been mounted with cardboard across the front in order to mount targets.

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 PA ARNG State Environmental Office prior to emptying for disposal instructions. **(RAC 3)**

d. ***Targets and Target Carriers.*** Target retrieval systems are not provided in this range. Paper targets are mounted to the cardboard, which has been mounted to the bullet trap.

Recommendations.

No recommendations are made for targets or target carriers at this time.

e. ***Range Use.*** The range is used by National Guard personnel for qualification and make up testing. The range has been used for storage of yard sale items to include kitchen appliances, stuffed animals, and children's toys Personnel have walked all over the range to place and rearrange stored items. Restricted ammunition has been used in 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 risk of exposure to anyone who moves or touches stored items. Yard sale items should be thoroughly decontaminated before being sold. [ALL STATES LOG NUMBER P01-0075 1-17d] **(RAC 2)**

2. At no time should the range be used for anything other than weapons qualification testing. This area IS NOT to be used for storage until designated as an official storage area. **(RAC 2)**
3. Individuals other than maintenance and inspection personnel should not be allowed to walk downrange except in regularly cleaned area as needed to pick up brass. [ALL STATES LOG NUMBER P01-0075 1-19f] **(RAC 2)**
4. Pellets, BBs, magnum and armor piercing rounds are not to be used in this range at any time. [ALL STATES LOG NUMBER P01-0075 1-19g] **(RAC 2)**

f. ***Range Maintenance.*** Dry sweeping has occurred in this range and there are brooms found in the area. A range custodian has not been appointed for the range.

Recommendations.

1. Personnel must be fully trained in use and maintenance procedures prior to performing any clean up of the range. 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. [ALL STATES LOG NUMBER P01-0075 1-13c, 29 CFR 1910.1025(h)(ii)] **(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 possibly inhaled. **Dry sweeping of indoor firing ranges is prohibited.** A High Effietency Particulate Air (HEPA) filtered vacuum system is the recommended choice for range cleanup of lead dust and particles only (no bullet casings). If a HEPA vacuum cannot be acquired, a wet method should be used, which includes a solution of detergent and 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 PA ARNG Environmental Office. [29 CFR 1910.1025(h)(ii), NIOSH 76-130, P.24, II, 2] **(RAC 2)**
3. The indoor firing range should be cleaned with the ventilation system operating to prevent dust and debris from entering the worker's breathing zone. Floor areas from behind the firers to the firing line and 15 feet downrange should be cleaned at the end of each firing day. [NIOSH 76-130, p.24, II, 1] **(RAC 2)**
4. Ensure that documentation is kept for the dates, names, personnel, and time spent on the range during cleaning procedures. [All States Log Number P01-0075, 1-22 b] **(RAC 2)**

5. **Air sampling should be performed on personnel during routine maintenance and cleaning procedures to quantify and document employee exposure to lead and to ensure cleaning procedures meet with appropriate requirements and are adequate for keeping airborne dust to a minimum. (NO RAC)**

g. ***Personal Protective Equipment (PPE).*** Personnel did not fire during the survey and hearing and eye protection was not observed in the vicinity of the range.

Recommendations.

1. All personnel are required to wear ANSI approve hearing and eye protection during firing. Extra sets of hearing and eye protection should be provided to all those who will be firing. [ALL STATES LOG NUMBER P01-0075 1-20 a,b] **(RAC 3)**

h. ***Posting of Signs.*** All appropriate warning signs are posted in the range and on the main entrance door to the range. An illuminated warning sign to alert personnel while range is in use is not present and visible at the outside door. Firing lanes are numbered only at the bullet trap.

Recommendations.

1. 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. [ALL STATES LOG NUMBER P01-0075 1-21 c] **(RAC 4)**
2. Firing lanes should be numbered at the firing line and at the bullet trap visible to all shooters. Contact FMO about numbering lanes at the bullet trap. [ALL STATES LOG NUMBER P01-0075 1-21c] **(RAC 4)**
3. A warning should be posted on the access door to the bullet trap, to warn personnel not to enter. [ALL STATES LOG NUMBER P01-0075 1-21c] **(RAC 3)**

i. ***Range Standing Operation Procedure (SOP).*** A Range SOP meeting all requirements is unavailable for this facility as approved by the State Safety Office.

Recommendations.

1. A Range Standing Operation Procedure should be written for this facility that includes the following **(RAC 2)**:

i. Requirements for establishment and maintenance of a visitor's log indicating date, age, and ammunition fired
ii. Requirements for safety briefing for all individuals before entrance to the range given by a designated range safety officer
iii. Work practices
iv. Instructive guidance
v. Personnel responsibilities for performing, supervising, reviewing, and updating the SOP
vi. Authorized ammunition
vii. Posting of signs
viii. Cleaning and maintenance requirements
ix. PPE requirements for maintenance, firing, and cleaning of the range.

j. ***Record keeping.*** A visitor's log was unavailable and the range has met no other record keeping requirements.

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. [ALL STATES LOG NUMBER P01-0075 1-14c] **(RAC 2)**
2. Access to the range should be restricted to **authorized users only** to ensure that all firers are adequately briefed on the status of the range, all requirements, and their appropriate information to include information detailed above recorded. **(RAC 2)**
3. A copy of the visitor's log and any other inspections should be maintained. [ALL STATES LOG NUMBER P01-0075 1-24a] **(RAC 2)**
4. 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 inform employees 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)**

k. ***Ventilation.*** The range is equipped with an operational ventilation system. Air is introduced mid range with 100% of the make-up air exhausted at the bullet trap. The ventilation system does not supply the minimum 50 fpm at

any of the positions in each firing lane. The ventilation system did not measure above 19 fpm. Make up air is not introduced behind the shooters and the air is exhausted before the bullet trap. Supply and exhaust fans are not interlocked with range lighting. The static pressure in the range measured .09" wg. The recommended static pressure range is -.05 to -.15" wg. The range is required to be under negative pressure.

Smoke tests showed air moving from the target line to behind the firing line.

Recommendations.

1. The ventilation system is completely inadequate for firing operations in this range. Being that this range has not been used for firing in three to four years, consideration should be given to closing this range and converting it to storage space for use by the facility. Reference All States Log P01-0075, Addendum, Guidelines and Procedures for IFR Rehabilitation, Conversion and Cleaning.
2. If the range is needed for weapons qualification, a ventilation system that meets the minimum 50 fpm in all lanes must be installed and tested prior to resuming firing operations.

1. ***Air Sampling.*** Air sampling was not conducted at this range due to the amount of storage in the area and the complete inadequacy of the ventilation system to control hazardous dusts formed during firing. This range is classified as unsafe due to the conditions found at the time of the survey.

Recommendations.

1. The range IS NOT to be used for weapons qualifications testing or any other firing until the ventilation system has been upgraded to meet the minimum requirements, items stored in the range have been removed, and the range has passed physical safety, ventilation, and air sampling inspections. **(RAC 1)**

m. ***Range Status.*** This range has been classified as unsafe based on ventilation results.

Recommendations.

1. This range cannot be reclassified until deficiencies are corrected, reinspected, and approved. Personnel must follow requirements of unsafe ranges until such time. **(RAC 2)**
2. For technical information or assistance contact Mrs. [redacted] at the Region North Industrial Hygiene Office, 1-800-550-6967 ext. 17.

[redacted]
Industrial Hygienist

APPENDIX A

REFERENCES

All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program – **POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION, AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES**

AR 40-5, Preventative Medicine, 15 October 1990.

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

DODI 6055.1 (Department of Defense Instruction, Occupational Safety and Health (OSH) program)

National Guard Regulation (NGR) 385-10, Army National Guard Safety and Occupational Health Program, 29 December 1989.

National Guard Pamphlet (NG PAM) 385-16, Guidelines for Converting Firing Ranges to Other Uses, 31 January 1994.

TB MED 503, The Army Industrial Hygiene Program, February 1985.

TB MED 502, Occupational Safety and Health Respiratory Protection Program..

Title 29 Code of Federal Regulations (CFR) 1910.1025, Lead.

APPENDIX B

II. HEALTH HAZARD RACs
(TB MED 503, DODI 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?	OCCAS. >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 (TLV) and Permissible Exposure Limit (PEL)

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 irration 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:

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
10 to 49	5 - 6
49	7 - 8

C. Determine the MPC for health hazards by totaling the points assessed and using the following guide.

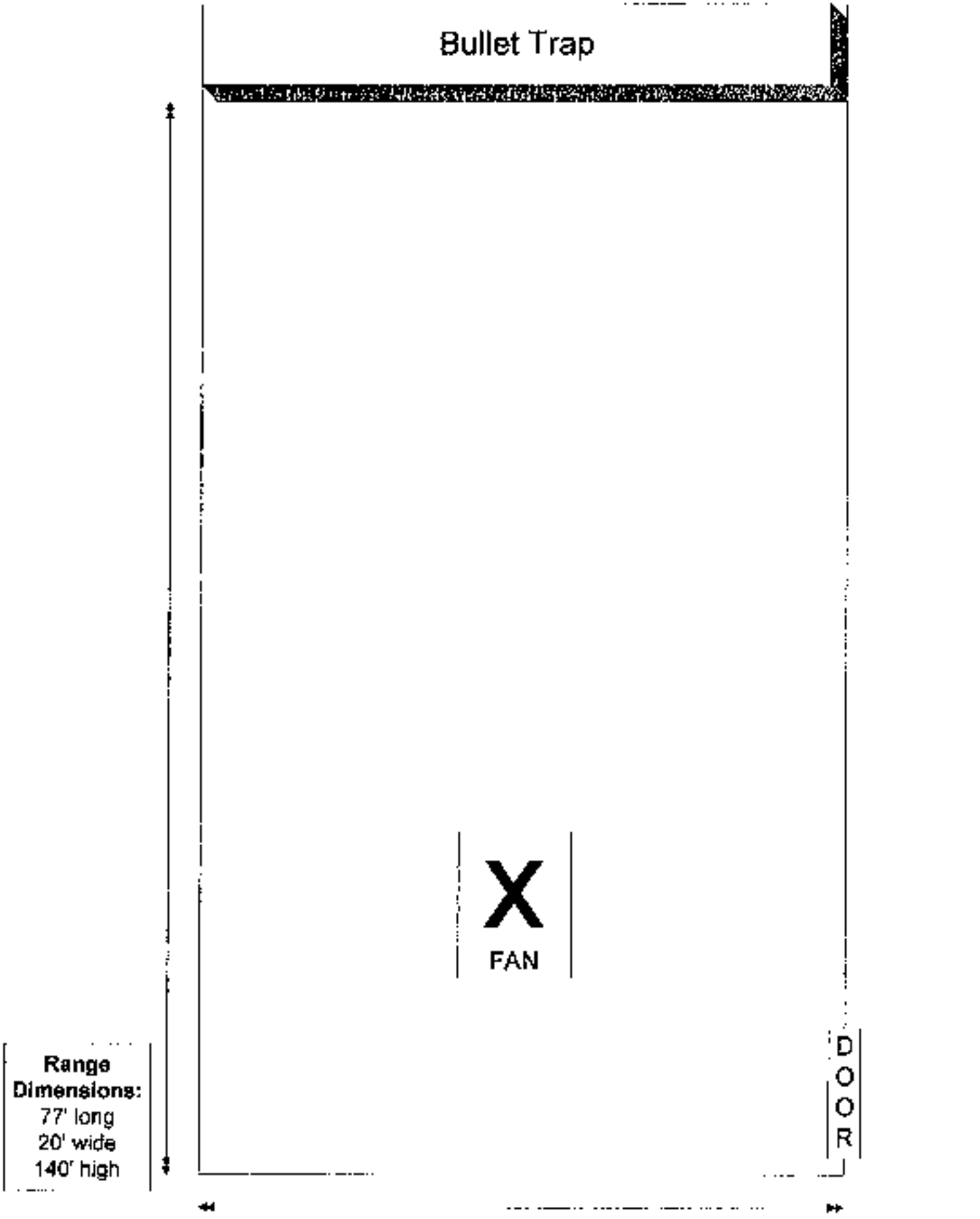
Total Points (sum of A and B, above)	MPC
14 - 16	A
10 - 13	B
5 - 9	C
5	D

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

APPENDIX C

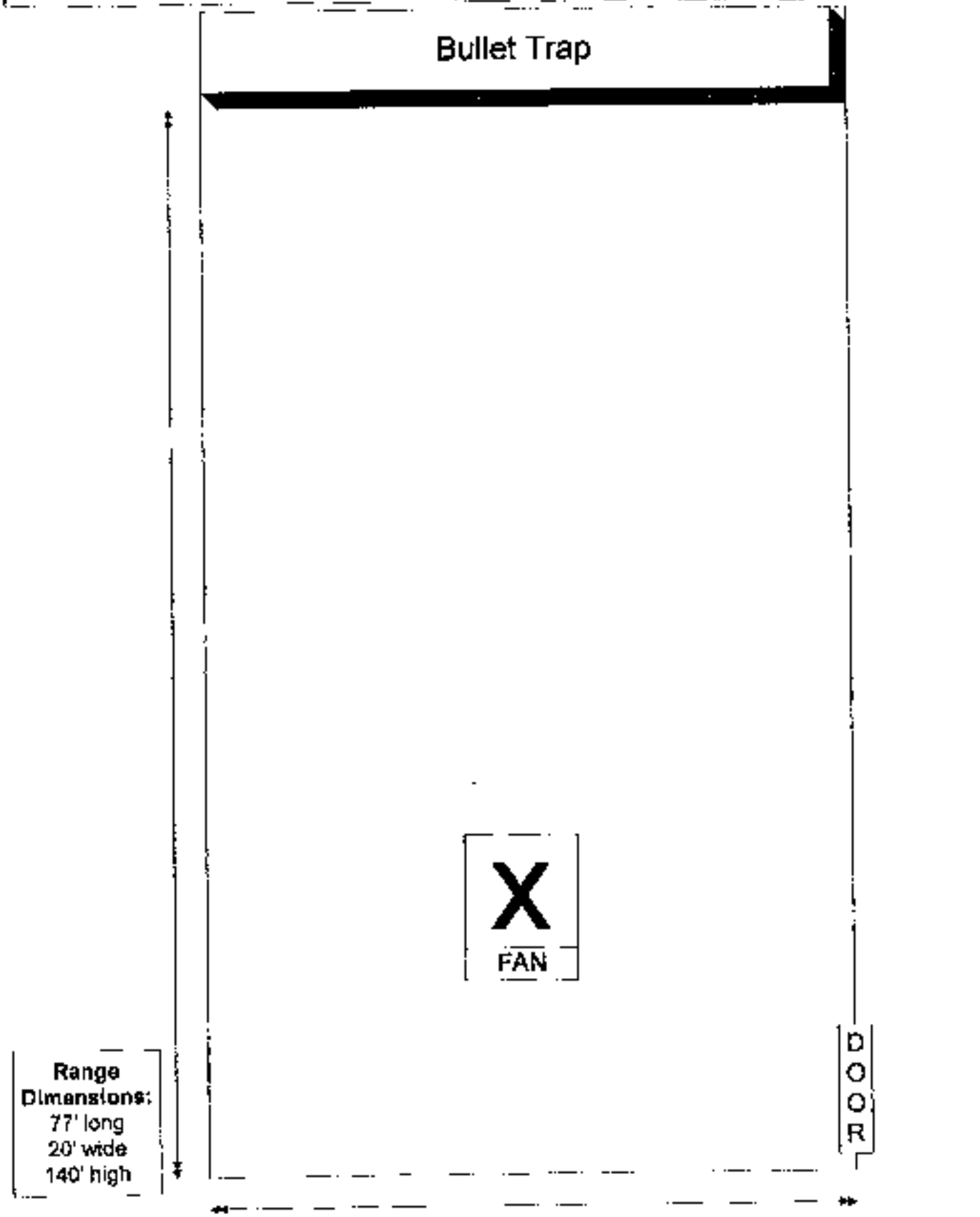
Honesdale Armory Indoor Firing Range



Pennsylvania Army National Guard
Honesdale Indoor Firing Range

Pennsylvania Army National Guard
Horsedale Indoor Firing Range

Honesdale Armory Indoor Firing Range



APPENDIX D

Ventilation Measurements
Indoor Firing Range Lanes

	Lane 1	Lane 2	Lane 3	Lane 4	Lane 5
Standing	19 fpm	1 fpm	2 fpm	7 fpm	0 fpm
Kneeling	0 fpm	0 fpm	0 fpm	0 fpm	0 fpm
Prone	1 fpm	0 fpm	2 fpm	2 fpm	0 fpm
Average	6.66 fpm	0.33 fpm	1.33 fpm	3 fpm	0 fpm

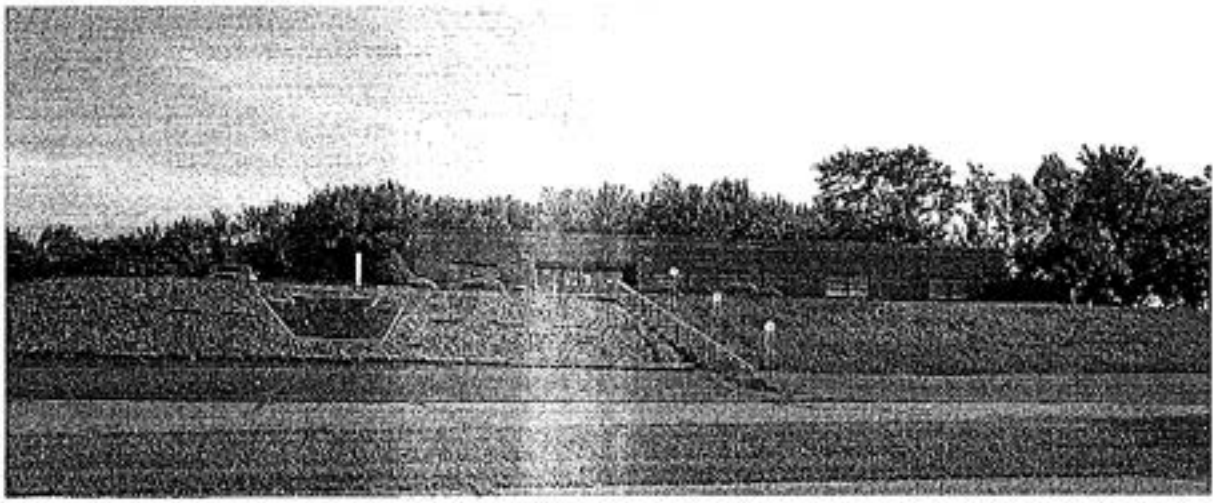
Industrial Hygiene Survey

CO A 1/109th INF (MECH)
HONESDALE, PENNSYLVANIA

June 11, 2003

OPERATIONAL TECHNOLOGIES
CORPORATION

CO A 1/109th INF (MECH)
HONESDALE, PENNSYLVANIA
INDUSTRIAL HYGIENE SURVEY



1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Armory in Honesdale, Pennsylvania on June 11, 2003. The NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. Non-Resp Non-Resp from OpTech, completed this survey. Non-Resp a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the IH Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D.

RECOMMENDATIONS

1. LIGHTING

1.1. Illumination levels were below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

2. LEAD WIPE SAMPLES

2.1. Samples in the locker room along with two of five samples collected in the former indoor firing range exceeded the 200 $\mu g/ft^2$ criterion. Lower levels were detected many other areas of the building. The source of lead contamination was apparently from former firing range activities. Lead dust has migrated from the range throughout the facility. Recommend the facility be wet-wiped/mopped or cleaned with a high efficiency particulate air (HEPA) vacuum during routine housecleaning duties to reduce lead dust levels.

3. WATER INTRUSION

3.1. Water stained ceiling tiles are present in the break room. If this is an active water leak, the source should be repaired. Damaged tiles and insulation should be replaced to prevent mold growth.

2.0. EXECUTIVE SUMMARY

2.1. No indoor air quality problems were noted with the exception of temperatures in a few areas were slightly lower than recommended comfort levels.

2.2. Illumination levels were below recommended minimum standards in most areas of the facility.

2.3. Wipe samples for inorganic lead were collected throughout the facility. Samples in the locker room along with two of five samples collected in the former indoor firing range exceeded the 200 $\mu g/ft^2$ criterion. Lower levels were detected many other areas of the building. The source of lead contamination was apparently from former firing range activities. Lead dust has migrated from the range throughout the facility.

2.4. Air sampling for inorganic lead was conducted. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building.

2.5. Stained ceiling tiles from water intrusion were present in the break room.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	CO A 1/109th INF (MECH)		
ADDRESS	PO BOX 431 , Tyron Street		
	Honesdale, PA 18431		
CONTACT	SSG [redacted]		
PHONE	570-253-2420		
DATE BUILT	1977	**FACILITY SIZE**	22,339 sq. ft.
INDOOR FIRING RANGE	CLOSED		1-floor
ASSISTED			
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	3		
TRADITIONAL (MIL)	110		
CHILD ACTIVITIES	Only those events associated with adult civilian use.		
ADULT ACTIVITIES	Currently, the Marines and blood drives are using the drill area.		

3.1.1. The exterior is brick and is in good condition. The interior was painted block and is in good condition. Heat is provided by a steam boiler system. Central air conditioning is used for cooling.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity (RH) in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 Indoor Air Quality Standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ASHRAE 62-2001, Section 6.1.3, states that concentrations up to 700 ppm CO_2, above outdoor concentrations will achieve an acceptable level of indoor air quality.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ASHRAE 55-1992 recommends that temperature ranges be 73 to 79 degrees Fahrenheit (°F) during the summer and 68 to 74°F during the winter. Relative humidity levels be maintained between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE 1
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO2 (ppm)	Temp. (°F)	RH (%)
1715	Outside – Background	0.0	475	78.4	62.1
1735	Drill Floor	0.0	525	73.9	56.1
1738	Locker Room	0.0	510	72.1	58.1
1742	Kitchen	0.0	508	70.4	59.9
1745	Maintenance Room	0.0	511	72.1	58.1
1749	Supply	0.0	512	73.1	55.4
1752	Commanders Office	0.0	502	72.8	54.2
1755	Orderly Room (occupied)	0.0	518	72.1	55.6
1759	Men's Latrine	0.0	516	73.1	54.2
1804	Classroom	0.0	508	72.6	58.6
1807	Locker Room	0.0	509	73.4	54.1
1810	Range Area (Storage)	0.0	511	73.1	53.8

3.2.5. No indoor air quality problems were noted with the exception of temperatures in a few areas were slightly lower than recommended comfort levels.

3.3. ILLUMINATION

3.3.1. Illumination levels were measured in most areas of the facility. Sunlight was excluded, as much as possible for this survey, by closing doors and blocking windows. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 - 463). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
Assembly Hall	36 - 42	39	75	NO
Range (storage)	26 - 40	32	40	NO
Locker Room	38 - 42	40	40	YES
Classroom	42 – 72	54	70	NO
Male Latrine	26 – 40	35	40	NO
Orderly Room	32 - 46	40	70	NO
Commander's Office	38 - 58	45	70	NO
Supply Room	40 – 44	42	40	YES
Maintenance Area	36 - 48	41	70	NO
Kitchen	46 - 62	51	75	NO

3.3.2. Levels were below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3.4. WIPE SAMPLES

3.4.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples were taken at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot ($\mu g/ft^2$) and are listed in Table 3. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Hon-03162-24	Kitchen Pipe	27
PA Hon-03162-25	Assembly Hall – Pipe	155
PA Hon-03162-26	Locker Room - Top of Locker	392
PA Hon-03162-27	Orderly Room – Window Sill	59
PA Hon-03162-28	Classroom	55
PA Hon-03162-29	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.2. Additional wipe samples were collected during this survey. These samples were collected to further analyze the extent of contamination should the first five samples indicate a possible hazard. Since the sample taken on top of the locker exceeded the 200 µg/ft² criterion (see Section 3.4.4 below), these additional samples were analyzed. The results are presented in Table 4.

TABLE 4
ADDITIONAL WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Hon-03162-30	Male Latrine – Top of Light	180
PA Hon-03162-31	Hallway – Floor	BDL
PA Hon-03162-32	Supply Room	130
PA Hon-03162-33	Lobby	170
PA Hon-03162-34	Janitor's Room	150
PA Hon-03162-35	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits (LOD µg/ft²)

3.4.3. CLOSED FIRING RANGE WIPE SAMPLING

3.4.3.1. Additional wipe samples were collected in the former indoor firing range. This area is presently being utilized for storage. The laboratory analysis results are listed in Table 5.

TABLE 5
FORMER FIRING RANGE WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Hon-03162-36	Floor	BDL
PA Hon-03162-37	Chair Rack	**409**
PA Hon-03162-38	Floor	36
PA Hon-03162-39	Back Stop Floor	85
PA Hon-03162-40	Floor	**675**
PA Hon-03162-41	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.4. WIPE SAMPLING RESULTS

3.4.2.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 µg/ft^2. This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. (See memorandum in Attachment E, Recommendations for Surface Lead Dust in Armories.) Samples in the locker room along with two of five samples collected in the former indoor firing range exceeded the 200 µg/ft^2 criterion. Lower levels were detected many other areas of the building. The source of lead contamination was apparently from former firing range activities. Lead dust has migrated from the range throughout the facility.

3.4.5. AIR SAMPLING

3.4.5.1. Air Sampling for inorganic lead was performed during this survey. Table 6 lists the results of these samples, and is reported in milligrams per cubic meter (mg/m^3) of air.

TABLE 6
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
Non-[redacted]	PA Hon-03162-22	Lead	<0.004 mg/m³	0.05 mg/m³	**YES**
Area – Kitchen	PA Hon-03162-23	Lead	<0.004 mg/m³	0.05 mg/m³	**YES**

mg/m³ = milligrams per cubic meter < = less than (below detection limits)

3.4.4.2. Air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this building.

3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION DAMAGE

3.5.1.1. Stained ceiling tiles from water intrusion were present in the break room.

3.5.2. ASBESTOS

3.5.2.1. No known or observed asbestos was noted in the facility. No samples were taken.

3.5.3. PROGRAMS

3.5.3.1. There are no designated confined space areas within this facility. There are no exhaust ventilation systems to control a hazard. No chemicals besides normal cleaning materials are present. Therefore, a need has not been established for a HAZCOM program, the need for personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.4. HOUSEKEEPING

3.5.4.1. The facility is kept impressively clean and orderly. The ventilation ductwork was also very clean with no dust build-up noted in the ducts.

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

E – Recommendations for Surface Lead in Armories

F – Field Notes
- Equipment Listing

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
Honesdale, PA	PENNSYLVANIA ARNG ARMORY	Honesdale Armory

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR (Initials)
11 June 2003	JSS

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	NA	55[redacted] Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
570-253-2420	COA 1/109 INF (MECH)	3	9

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
3	110			

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	CONROLS 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			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	½ FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	½ 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 WEATHR 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	/		

AEHA Form 271-R (Test), 1 Jan 92 (HSHB-MI-I)

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	3	C

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

SECTION 6. COMMENTS

☐ No comments ☐ See attached sheet

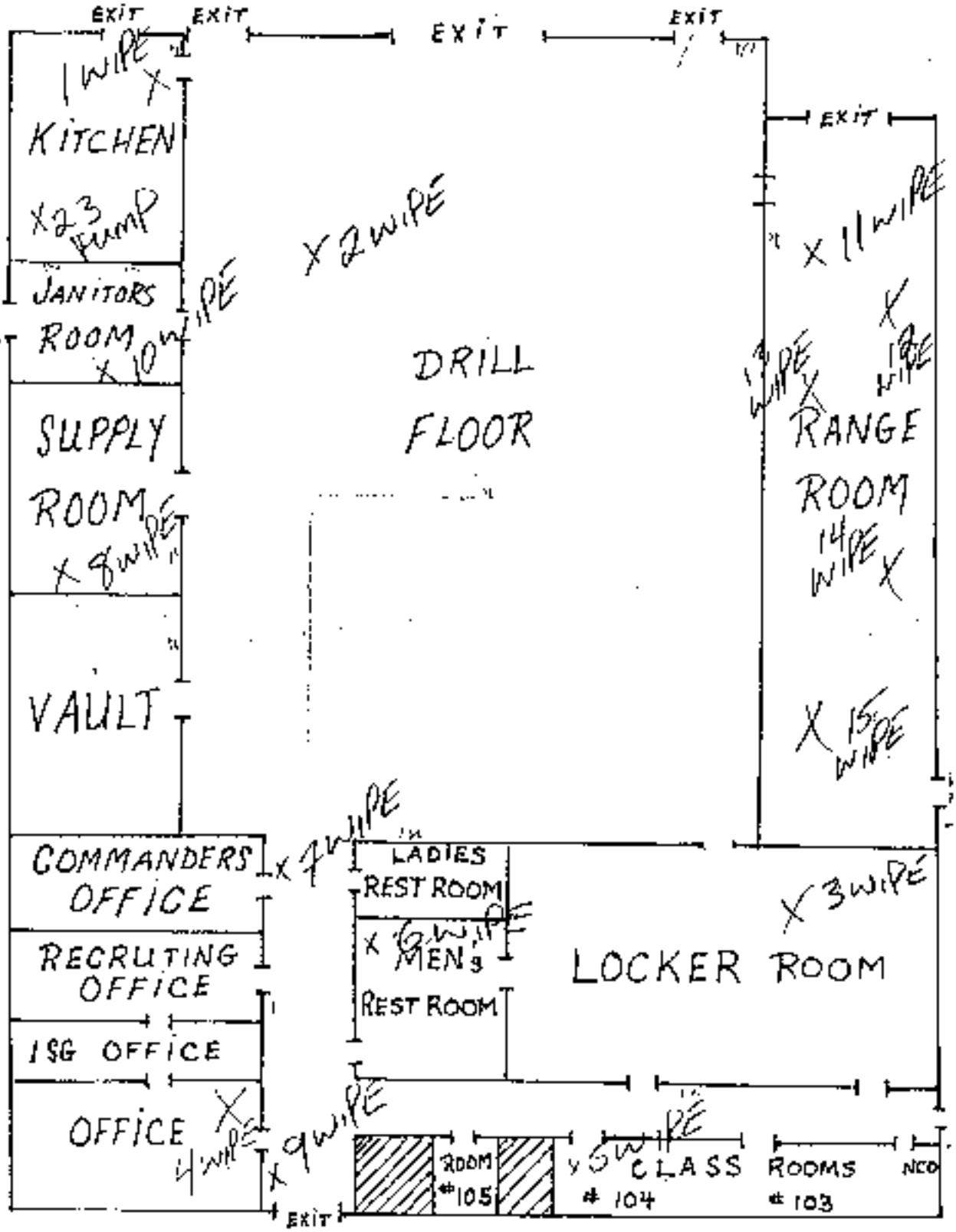
PRIVACY ACT STATEMENT

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

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

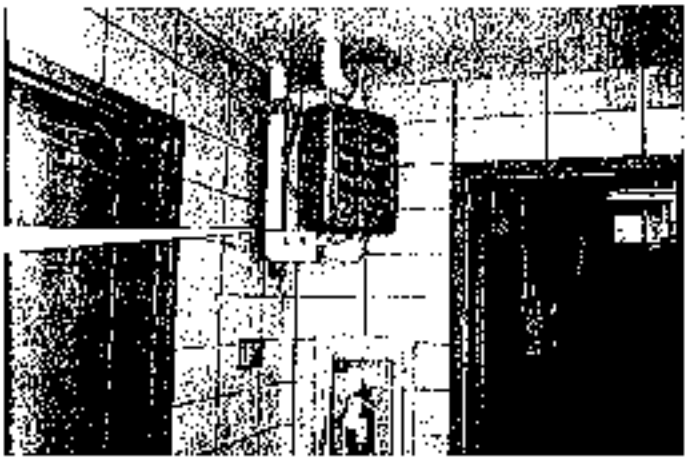
EGRESS PLAN

EVACUATION PLAN

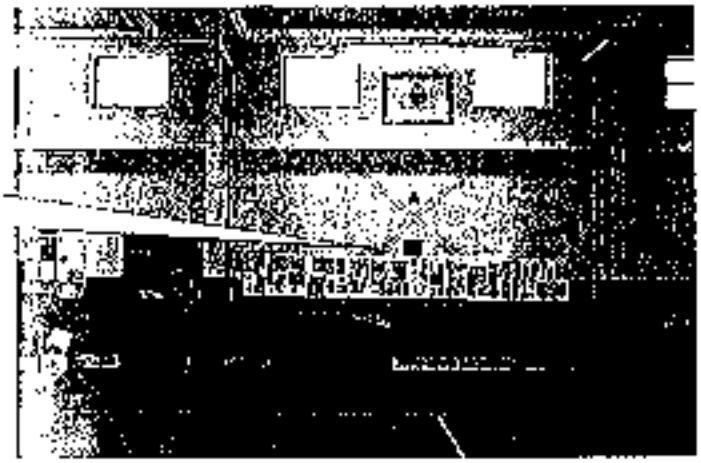


CO A 1/109TH IN (MECH)
HONESDALE, PENNSYLVANIA

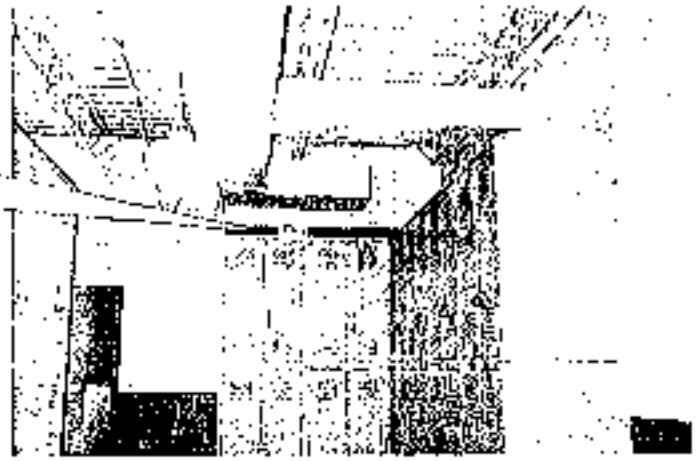
(1) PA Hon-03162-24
Kitchen



(2) PA Hon-03162-25
Assembly Hall - Pipe

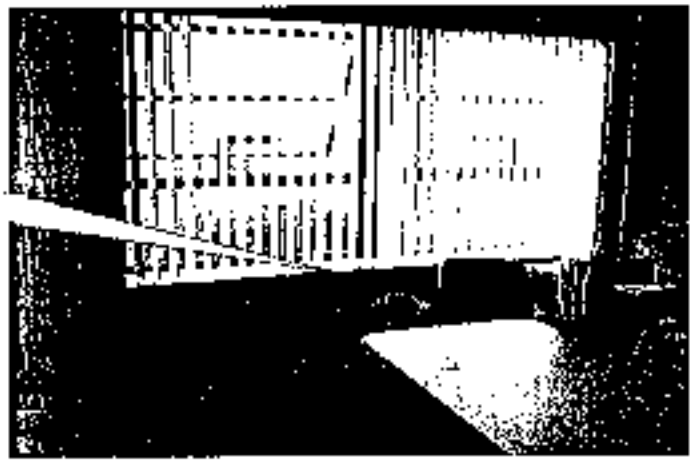


(3) PA Hon-03162-26
Locker Room

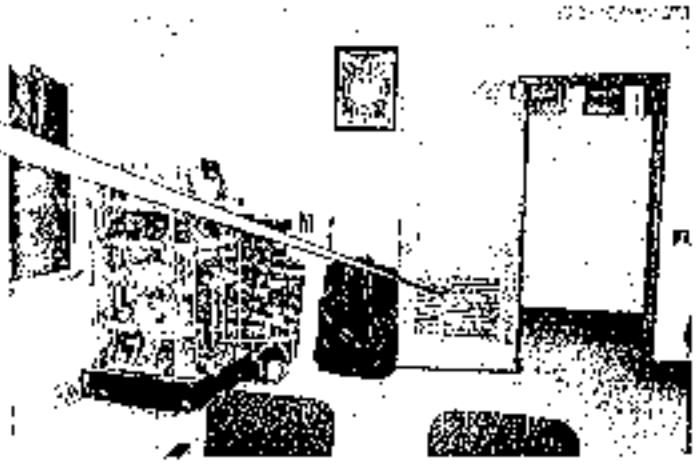


Attachment B

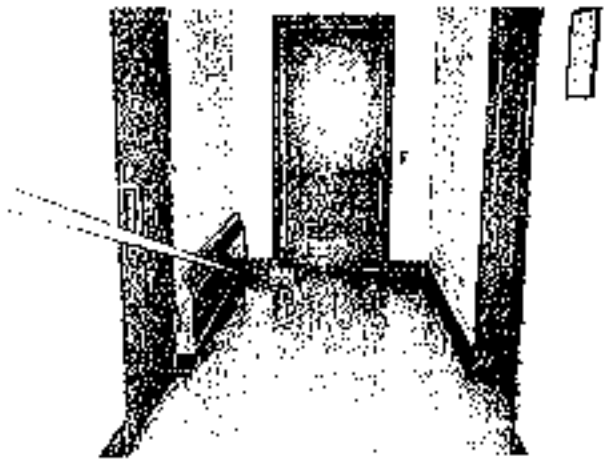
(4) PA Hon-03162-27
Orderly Room



(5) PA Hon-03162-28
Classroom

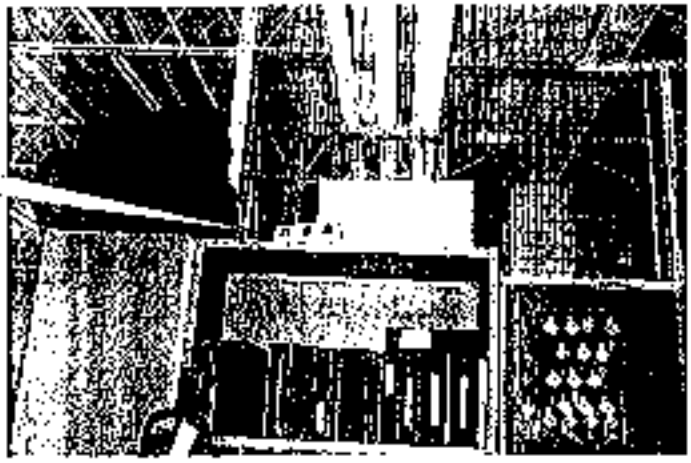


(7) PA Hon-03162-31
Hallway

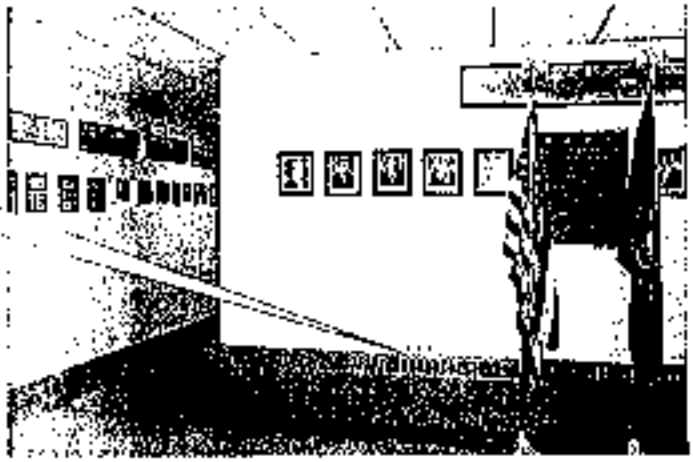


Attachment #1

(8) PA Hon-03162-32
Supply Room



(9) PA Hon-03162-33
Lobby

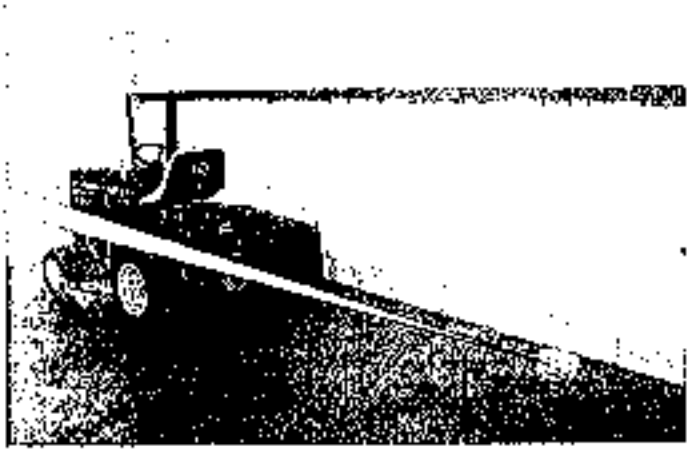


(10) PA Hon -03162-34
State Maintenance

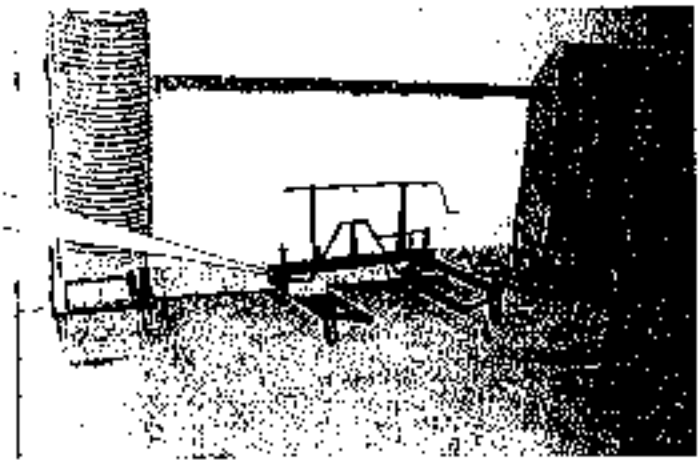
Attachment B

FORMER INDOOR FIRING RANGE

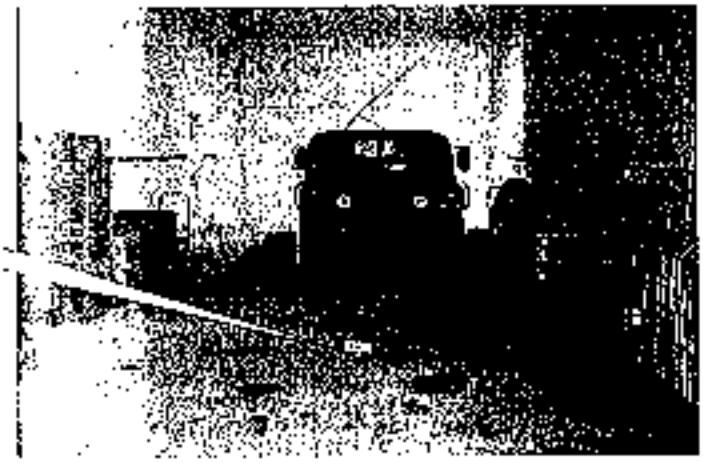
(11) PA Hon-03162-36
Former Range - Floor



(12) PA Hon-03162-37
Former Range – Stored Items



(13) PA Hon-03162-38
Former Range – Center of Floor



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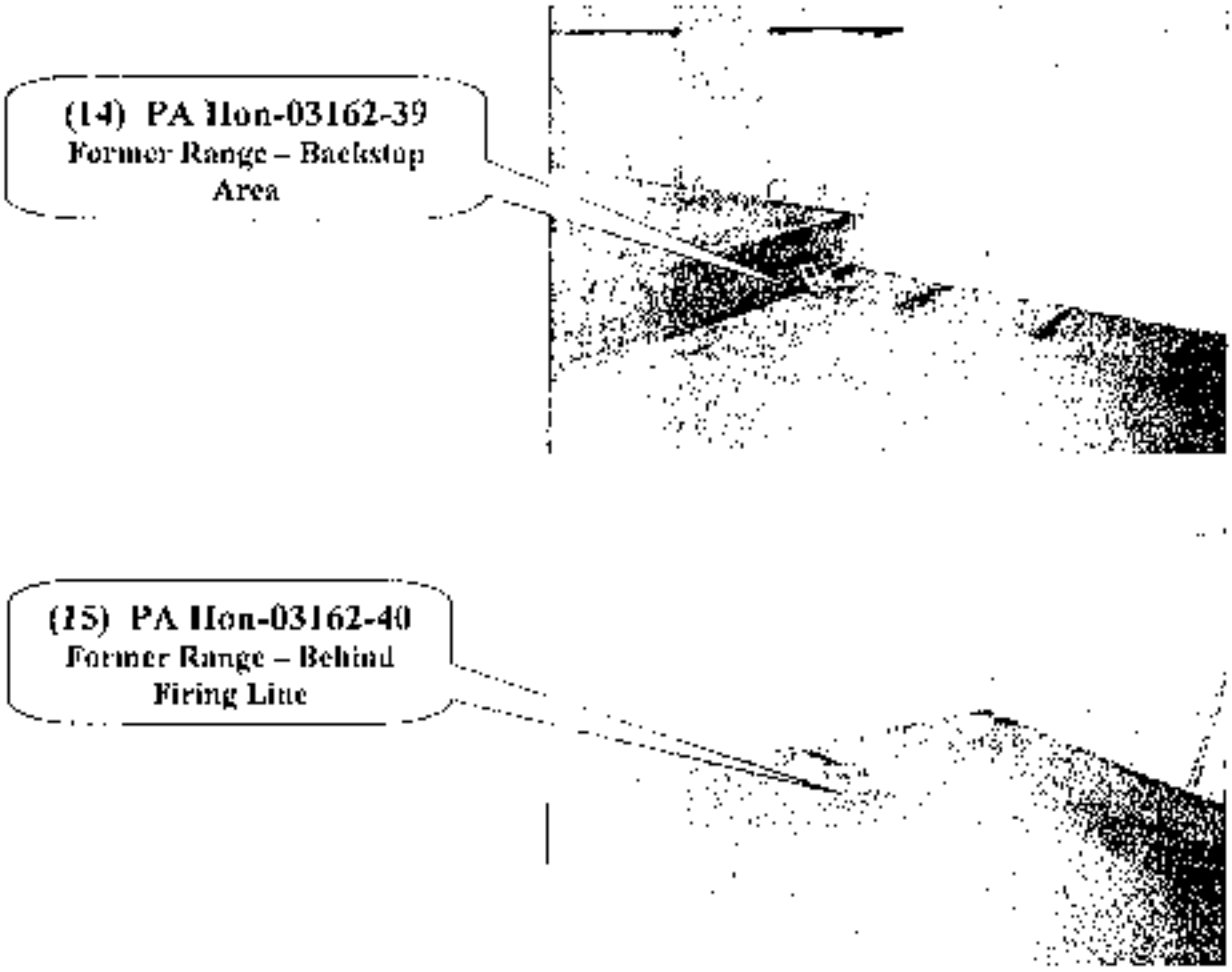

Attachment B

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
AIHA Certificate of Accreditation #480 LAP ID 101533

TABLE I. ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	RES 04605-1
Client:	Operational Technologies, Corp.
Client Project Number / P.O.:	06 03
Client Project Description:	Armories/ Pennsylvania
Date Samples Received:	June 24, 2003
Analysis Type:	USEPA SW846 3050B / AA(7420)
Turnaround:	3-5 Day
Date Samples Analyzed	July 8, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA Hon-03162-24	EM 787972	0.11	3.0	23	27
PA Hon-03162-25	EM 787973	0.11	17.0	23	155
PA Hon-03162-26	EM 787974	0.11	43.1	23	392
PA Hon-03162-27	EM 787975	0.11	6.5	23	59
PA Hon-03162-28	EM 787976	0.11	6.0	23	55
PA Hon-03162-29	EM 787977	0.11	BDL	23	BDL
PA Hon-03162-36	EM 787978	0.11	BDL	23	BDL
PA Hon-03162-37	EM 787979	0.11	45.0	23	409
PA Hon-03162-38	EM 787980	0.11	4.0	23	36
PA Hon-03162-39	EM 787981	0.11	9.3	23	85
PA Hon-03162-40	EM 787982	0.11	74.3	23	675
PA Hon-03162-41	EM 787983	0.11	BDL	23	BDL
PA Ply-03163-03	EM 787984	0.11	BDL	23	BDL
PA Ply-03163-04	EM 787985	0.11	25.1	23	228
PA Ply-03163-05	EM 787986	0.11	19.6	23	178
PA Ply-03163-06	EM 787987	0.11	BDL	23	BDL
PA Ply-03163-07	EM 787988	0.11	28.0	23	255
PA Ply-03163-08	EM 787989	0.11	BDL	23	BDL
PA Ply-03163-15	EM 787990	0.11	16.0	23	145
PA Ply-03163-16	EM 787991	0.11	BDL	23	BDL
PA Ply-03163-17	EM 787992	0.11	154.0	23	1400
PA Ply-03163-18	EM 787993	0.11	BDL	23	BDL
PA Ply-03163-19	EM 787994	0.11	BDL	23	BDL
PA Ply-03163-20	EM 787995	0.11	BDL	23	BDL
PA Nan-03163-24	EM 787996	0.11	7.5	23	68
PA Nan-03163-25	EM 787997	0.11	6.0	23	55
PA Nan-03163-26	EM 787998	0.11	350.0	23	3182
PA Nan-03163-27	EM 787999	0.11	6.3	23	57
PA Nan-03163-28	EM 788000	0.11	BDL	23	BDL
PA Nan-03163-29	EM 788001	0.11	BDL	23	BDL

BDL Below Detection Limit

Data Qa

AMA Analytical Services, Inc.
A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client:	National Guard Bureau	**Job Name:**	Pennsylvania Armories-Honesdale	**Chain Of Custody:**	117548
Address:	301-3H Old Bay Lane, Attn: NGB-AVN-SI, State Military Reservation	**Job Location:**	Not Provided	**Date Analyzed:**	9/22/2003
	Havre de Grace, Maryland 21078	**Job Number:**	Not Provided	**Person Submitting:**	[redacted]
		P.O. Number:	Not Provided	**Report Date:**	22-Sep-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
0367536	PA-Hon-03162-30	Flame	Wipe	****	0.111	108.01	ug/ft²		180	ug/ft²	
0367537	PA-Hon-03162-31	Flame	Wipe	****	0.111	108.01	ug/ft²	<	110	ug/ft²	
0367538	PA-Hon-03162-32	Flame	Wipe	****	0.111	108.01	ug/ft²		130	ug/ft²	
0367539	PA-Hon-03162-33	Flame	Wipe	****	0.111	108.01	ug/ft²		170	ug/ft²	
0367540	PA-Hon-03162-34	Flame	Wipe	****	0.111	108.01	ug/ft²		150	ug/ft²	
0367541	PA-Hon-03162-35	Flame	Wipe	****	0.111	108.01	ug/ft²	<	110	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 intepreting the result.

Analyst: [redacted] Technical Manager: [redacted]

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m³
PA Scr-03162-01	03-20684	260.9	ND	<0.004
PA Scr-03162-02	03-20685	251.7	ND	<0.004
PA Hon-03162-22	03-20686	248.7	ND	<0.004
PA Hon-03162-23	03-20687	237.0	ND	<0.004
PA Ply-03163-01	03-20688	378.1	ND	<0.003
PA Ply-03163-02	03-20689	381.3	ND	<0.003
PA Nan-03163-22	03-20690	351.2	ND	<0.003
PA Nan-03163-23	03-20691	336.9	ND	<0.003
PA All-03168-01	03-20692	503.8	ND	<0.002
PA All-03168-02	03-20693	478.0	ND	<0.002
PA Bet-03168-22	03-20694	276.5	ND	<0.004.
PA Bet-03168-23	03-20695	282.1	ND	<0.004
PA Eas-03169-01	03-20696	297.9	ND	<0.003
PA Eas-03169-02	03-20697	279.3	ND	<0.004
PA Eas-03169-16	03-20698	234.7	ND	<0.004
PA Eas-03169-17	03-20699	226.7	ND	<0.004
PA Tam-03170-01	03-20700	249.6	ND	<0.004
PA Tam-03170-02	03-20701	241.5	ND	<0.004
PA Pot-03170-22	03-20702	420.5	ND	<0.002
PA Pot-03170-23	03-20703	413.6	ND	<0.002
	Prep Blank		ND	
% Recovery	LCS 3		99.	
% Recovery	LCS 4		101.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non-Responsive @md.ngb.army.mil

Attachment D

REFERENCE LIST INDEX

1. General Regulations and National Consensus Standards
2. Specific Regulations and Guidance
   a. Abrasive Blasting
   b. Asbestos
   c. Battery Charging Room
   d. Bird and Bat Manure
   e. Bloodborne Pathogens
   f. Chemical Agent Resistant Coating (CARC) Paint
   g. Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE)
   h. Confined Space Entry Program
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   n. Indoor Air Quality
   o. Indoor Firing Ranges
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   r. Occupational Vision
   s. Paint Spray Booth
   t. Personal Protection
   u. Radiation Protection
   v. Respiratory Protection
   w. Sanitation
   x. Smoking
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GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REFERENCE LIST

1. General Regulations and National Consensus Standards
   a. DODI 6055.1, DOD SOH Program, 19 August 1998.
   b. DODI 6055.5, DOD OEH. *[DRAFT]*
   c. DOD 6055.5-M. DOD Occupational Health Surveillance Manual, 13 May 1987.
   d. DODI 6050.5, DOD Hazard Communication, 29 Oct 90. Change 1, 6 May 1996.
   e. AR 40-5, Preventive Medicine, 15 October 1990. [05/2002 Being Updated]
   f. DA PAM 40-5. Preventive Medicine. *[DRAFT]*
   g. AR 385-10, The Army Safety Program, 29 February 2000.
   h. NGR 385-10, ARNG SOH Program, 7 October 1988, Change 1, 29 December 1989.
   i. Title 29, Part 1910, Occupational Safety and Health Standards. [Current Date]
   j. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 2002.
   k. ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th edition, 2001.
   l. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.
   m. TG 141, USACHPPM Industrial Hygiene Sampling Guide, November 1997.
   n. National Safety Council, Fundamentals of Industrial Hygiene, 5th Edition, 2002.
   o. NIOSH, Pocket Guide to Chemical Hazards, 2001.
   p. NFC, A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. [Current date]
   q. ASHRAE Standards. [Current Dates]
   r. ANSI Standards. [Current Dates]

2. Specific Regulations/Guidance
   a. **ABRASIVE BLASTING**
      (1) ANSI Z9.4 1997, Abrasive Blasting Operations - Ventilation and Safe Practices.
      (2) 29 CFR 1910.94 Ventilation
      (3) 42 CFR 84

   b. **ASBESTOS**
      (1) AR 40-5, Preventive Medicine, 15 October 1990. *[05/2002 Being Updated]*
      (2) AR 200-1, Environmental Protection and Enhancement, Chapter 8, 21 February 1997.
      (3) TB MED 513, Guidelines for the Evaluation and Control of Asbestos Exposure, 15 December 1986. *[05/2000 Under Revision as DA PAM 40-513]*
      (4) TG 157, USAEHA, The Installation Asbestos Management Program Assessment Checklists, July 1990.
      (5) 29 CFR 1910.1001
      (6) 29 CFR 1926.58 (prior to 1994 CFR)
      (7) 29 CFR 1926.1101

(8) MEMORANDUM SGPS-PSP, OTSG, subject: AMEDD Role Supporting Asbestos Abatement/Asbestos Management Programs, 19 Jan 89.

(9) EPA, Guidance for Controlling Asbestos-Containing Materials in Buildings, June 1985.

(10) DD Form 2493-1 (Asbestos Exposure, Part I--Initial Medical Questionnaire)

(11) DD Form 2493-2 (Asbestos Exposure, Part II--Periodic Medical Questionnaire)

(12) EPA NESHAPS Asbestos Regulation (40 CFR 61, Subpart M).

c. BATTERY CHARGING ROOM

(1) TG 022, USAEHA, page 81, Industrial Hygiene Evaluation Guide, October 1975. *[Out of Print]*

(2) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

d. BIRD AND BAT MANURE

(1) TG 142, USAEHA, Managing Health Hazards Associated with Bird and Bat Excrement, Dec 1992.

e. BLOODBORNE PATHOGENS

(1) 29 CFR 1910.1030

(2) TG 190, USAEHA, Guide to Managing Occupational Exposure to Bloodborne Pathogens, Jan 94.

f. CHEMICAL AGENT RESISTANT COATING (CARC) PAINT

(1) TG 144, USAEHA, Guidelines for Controlling Health Hazards in Painting Operations, 24 August 1987.

(2) DA LTR, USAEHA, HSHB-MI-WR, subject: Respiratory Protection When Spraying CARC, 19 November 1992.

(3) TM 43-0139, Painting Instructions for Army Material, 27 July 1988[1 Aug 86.

(4) MEMORANDUM SGPS-PSP, OTSG, subject AMEDD, Occupational Health Requirements in Support of Painting in the Army, 22 February 1985.

(5) AR 750-1, Army Materiel Maintenance Policy and Retail Maintenance Operations (Prohibits welding on CARC paint) 1 July 1996.

g. CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR, EXPLOSIVE (CBRNE)

(1) DODI 6055.gg, DOD Installation CBRNE Emergency Response Guidelines.

(2) DHHS, NIOSH Pub No. 2002 139, Guidance for Protecting Building Environments from Airborne Chemical, Biological, or Radiological Attacks, May 2002.

(3) TG 275, USACHPPM, Personal Protective Equipment Guide for Medical Treatment Facility Personnel Handling Casualties from Weapons of Mass Destruction and Terrorism Events. *[Draft]*

h. **CONFINED SPACE**

(1) 29 CFR 1910.146 (Confined Space Entry)

(2) 29 CFR 1910.147 (Lockout/Tagout)

(3) ANSI Z117.1-Safety Requirements for Confined Spaces, 1995.

(4) SOP for ARNG Confined Space Entry Program, 25 April 1991.

(5) Letter, US Dept of Labor (DOL) addressed to Vanessa Char, 22 Apr 1994.

(6) OSHA Instruction STD 1-7.3, US DOL, subject: 29 CFR 1910.147, the Control of Hazardous Energy (Lockout/Tagout)--Inspection Procedures and Interpretive Guidance, 11 Sep 90.

(7) DHHS, NIOSH Pub No. 87113, A Guide to Safety in Confined Spaces, July 1987.

(8) Confined Space Entry Program for Helicopters, 2003.

i. **DESIGN REVIEW**

(1) DG 415-1, Design Guide for Armories, current.

(2) DG 415-2, Design Guide for Logistics Facilities, current.

(3) DG 415-3, Design Guide for Training Site Facilities, current.

(4) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

(5) TI-300, 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

(6) UFGS 15940A, Overhead Vehicle Tailpipe (and welding Fume) Exhaust Removal Systems, December 2001.

(7) ASHRAE, Standard 62-2002, Ventilation for Acceptable Indoor Air Quality.

(8) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

j. **ERGONOMICS**

(1) DA PAM 40-21, Medical Services, Ergonomics Program, 15 May 2000.

(2) ANSI Z-365, Management of Work Related Musculoskeletal Disorders, 2000.

(3) 29 CFR 1910, *[PROPOSED STANDARD]*

k. **FLAMMABLE STORAGE ROOM**

(1) 29 CFR 1910.106

(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

l. **HAZARD COMMUNICATION**

(1) 29 CFR 1910.1200

(2) NGR 385-10, Chapter 6

m. **HEARING CONSERVATION**

(1) DA PAM 40-501, Medical Services, Hearing Conservation Program, 10 December 1998.

(2) TG 181, USAEHA, Noise Dosimetry and Risk Assessment, May 1999.

(3) TG 175, USAEHA, Readiness thru Hearing Conservation: Guide for Unit Commanders and Supervisors, June 1999.

(4) 29 CFR 1910.95

n. **INDOOR AIR QUALITY (IAQ)**

(1) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

(2) USACERL Technical Report P-91/42, IAQ Management for Operations and Maintenance Personnel, September 1991.

(3) EPA 400/1-91/003 or DHHS, NIOSH, Publication No. 91-114, Building IAQ, A Guide for Building Owners and Facility Managers, December 1991.

(4) ASHRAE, Standard 62-2002, Ventilation for Acceptable IAQ.

(5) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

(6) NIOSH, IAQ Selected References, Sep 1989.

(7) OSHA Instruction CPL 2-2.20B CH-1, Directorate of Technical Support, 13 Nov 90.

(8) DA PAM 25-52, Mail Facility Security and Handling Suspicious Mail, 6 November 2001.

(9) ASTM, D 5952-96, 10 May 1996.

o. **INDOOR FIRING RANGES**

(1) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(2) NGR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges, 30 March 1990. *[11/02 Under Revision]*

(3) CEHND 1110-1-18, USACE Design Manual for Indoor Firing Range, June 1990.

(4) HQDA LTR, Office of the Adjutant General, DACS-SF, subject: Inspection and Evaluation of US Army Indoor Firing Ranges, 26 March 1993.

(5) Departments of the Army and Air Force, NGB-ADE-OM, subject: All State Log Number (I920323) Indoor Range Clean-up at State Owned Armories, 28 July 1992.

(6) NIOSH, Technical Information, December 1975, subject: Lead Exposure and Design Considerations for Indoor Firing Ranges.

(7) All-States Ltr P01-0075, 5 December 2001.

(8) Information Paper, Alternative Ammunition, 15 March 1996.

(9) Information Paper, Bullet Traps, 26 April 1996.

(10) Information Paper, ARNG IFR Action Plan, 28 January 2002.

p. **LEAD**

(1) 29 CFR 1910.1025

(2) 29 CFR 1926.62

(3) 24 CFR 35.61 (HUD, Percentage of Lead in Paint)

(4) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(5) OSHA Instruction CPL 2-2.58, Office of Health Compliance Assistance, 13 December 1993.

(6) Federal Register, 18 April 1990, Vol. 55, No. 75, HUD, Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing, as amended, September 1990. Office of Public and Indian Housing, Department of Housing and Urban Development, 451 Seventh Street, SW, Washington, DC 20410.

(7) NIOSH, Request for Assistance in Preventing Lead Poisoning in Construction Workers, April 1992.

(8) EPA, Strategy for Reducing Lead Exposures, 21 Feb 91.

q. **LIGHTING**

(1) RP-1-1993, Office Lighting, ANSI/IESNA.

(2) RP-7-2001, Industrial Lighting, IES.

r. **OCCUPATIONAL VISION**

(1) DA PAM 40-506, Medical Services, The Army Vision Conservation and Readiness Program, 20 July 2001.

(2) ANSI Z87.1, Practice for Occupational and Educational Eye and Face Protection, 1989, Change A, REAF 1998.

(3) ANSI Z358.1 for Emergency Eyewash and Shower Equipment, 1998.

(4) OTSG Memorandum SGPS-PSP, subject: Acanthamoeba Keratitis and Eyewash Stations, 8 May 89.

(4) 29 CFR 1910.133

s. **PAINT SPRAY BOOTH**

(1) NFPA No. 33, Standard for Spray Application Using Flammable and Combustible Materials, 1995.

(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

(3) 29 CFR 1910.94

(4) 29 CFR 1910.107

(5) ANSI Z9.3-1995 for Exhaust Systems - Spray Finishing Operations - Safety Code for Design, Construction, and Ventilation.

(6) ANSI Z9.2-2001, Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems.

t. **PERSONAL PROTECTIVE EQUIPMENT**

(1) Quick Selection Guide to Chemical Protective Clothing, 2nd edition, Forsberg, K and Mansdorf, S., 1993.

(2) Chemical Protective Clothing, Vol 1 and 2, Johnson, J. and Anderson, K., American Industrial Hygiene Association, 1990.

(3) Guidelines for the Selection of Chemical Protective Clothing, 3rd Edition, ACGIH, Inc., Feb 1987.

u. **RADIATION PROTECTION PROGRAM**

(1) NGR 385-11, Safety, Ionizing and Nonionizing Radiation Protection, 18 February 1999.

(2) AR 11-9, Army Radiation Safety Program, 28 May 1999.

(3) 29 CFR 1910.96

(4) 29 CFR 1910.97

v. **RESPIRATORY PROTECTION**

(1) AR 11-34, The Army Respiratory Protection Program, 15 February 1990. *[11/02 Being Updated]*

(2) 29 CFR 1910.134

(3) 42 CFR 84

(4) TB MED 502, Respiratory Protection Program, February 1992. *[11/02 Being Updated as DA PAM 40-502]*

(5) ANSI/CGA G-7.1-1997, Commodity Specification for Air.

(6) ANSI Z88.2-1992, Standard for Respiratory Protection.

w. **SANITATION**

(1) ANSI Z4.1-1986, Change REAF 1995, Sanitation in Places of Employment-Minimum Requirements.

(2) 29 CFR 1910.141

x. **SMOKING**

(1) AR 600-63, Army Health Promotion, 28 April 1996.

(2) DODI 1010.15, Smoke-Free DOD Facilities, 2 January 2001.

(3) DODD1010.10, Health Promotion, 11 March 1986.

y. **VEHICLE EXHAUST**

(1) ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th Edition, 2001.

(2) TI-300F 1990, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

z. **WELDING OPERATION**

(1) 29 CFR 1910.252

(2) 29 CFR 1910.253

(3) 29 CFR 1910.254

(4) ANSI/AWS Z49.1-1999, Safety in Welding and Cutting and Allied Processes.

(5) TM 5-805-7, Welding Design, Procedures and Inspection, 20 May 85.

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 $\mu g/ft^2$) and windowsills (250 $\mu g/ft^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of 200 $\mu g/ft^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 $\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 $\mu g/ft^2$ on floors and 250 $\mu g/ft^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

PA390

INDUSTRIAL HYGIENE SURVEY
PENNSYLVANIA

		SURVEY DATE	6-11-03
FACILITY	CO A 1/109TH IN (MECH)		
ADDRESS	PO Box 431, Tryon Street		
	Honesdale, PA 18431		
CONTACT	SSG Non-Responsive		
PHONE	570-253-2420		
DATE BUILT	1977	FACILITY SIZE	22,339 SqFt
RANGE	Inactive		
ASSISTED			

STAFF - 3
DRILL - 110

PAINT CONDITION:		
INDOORS	BRICK	Sample?
OUTDOORS	BRICK	Sample?

ASBESTOS		
Area/condition	NO	
Area/condition	NO	

WATER DAMAGE		
Area/condition	BREAK RM	WATER STAINS
Area/condition		

HOUSEKEEPING	GOOD

TIME	AREA	CO	CO_2	TEMP	RH
1715	OUT SIDE	0.0	475	78.4°F	62.1 %
1735	DRILL FLR	0.0	525	73.9°F	56.1 %
1738	LOCKER RM	0.0	510	72.1°F	58.1 %
1742	KITCHEN	0.0	508	70.4°F	59.9 %
1745	MAINT. RM	0.0	511	72.1°F	58.1 %
1749	SUPPLY RM	0.0	512	73.1°F	55.4 %
1752	COMMANDER OFF	0.0	502	72.8°F	54.2 %
1755	ORDERLY RM OCCUPIED	0.0	518	72.1°F	55.6 %
1759	M) LATRINE	0.0	516	73.1°F	54.2 %
1804	CLASS RM	0.0	508	72.6°F	58.6 %
1807	LOCKER RM	0.0	509	73.4°F	54.1 %
1810	RANGE RM	0.0	511	73.1°F	53.8%
				°F	%
				°F	%
				°F	%
				°F	%
				°F	%

INDUSTRIAL HYGIENE SURVEY
PENNSYLVANIA

WIPE SAMPLES		ARMORY	Picture #	
PA Hon-03 1662	24	~~HVAC supply side of filter~~ KITCHEN PIPE	1	17
PA Hon-03	25	~~HVAC on fan side of filter~~ DRAIN PIPE	2	155
PA Hon-03	26	~~Assembly Hall~~ LOCKER (TOP)	3	392
PA Hon-03	27	~~Kitchen~~ ORDERLY OFFICE (WINDOW)	4	51
PA Hon-03	28	~~Supply air grille in occupied office~~ CLASS ROOM	5	53
PA Hon-03	29	BLANK	—	BDL
PA Hon-03	30	MENS URINE (TOP OF LIGHT)	6	180
PA Hon-03	31	HALLWAY FLR	7	DUP
PA Hon-03	32	SUPPLY RM	8	130
PA Hon-03	33	LOBBY	9	120
PA Hon-03	34	JANITORS RM	10	159
PA Hon-03	35	BLANK	—	BDL
PA Hon-03				
PA Hon-03				
PA Hon-03				
PA Hon-03				
PA Hon-03				
PA Hon-03		BLANK		

AIR SAMPLING

Sample #	Pump #	Person/Area	Precal lpm	Postcal lpm	Time On	Time Off	Run Time	Volume (Liters)
PA Hon-03 1623	47669	Person	3.151	3.109	1730	1950	80	248.7
PA Hon-03 1624	23 147637	Kitchen	3.130	3.118	1732	1848	76	237.0
PA Hon-03								

INDUSTRIAL HYGIENE SURVEY
PENNSYLVANIA

CONVERTED INDOOR FIRING RANGE WIPE SAMPLES				
PA Hon-03	36	~~Inside any remaining ventilation ductwork~~ FLR	11	2ND.
PA Hon-03	33	~~Exhaust Ventilation system~~ CHAIR RACK	12	1101
PA Hon-03	38	~~Bullet trap~~ FLR	13	3L
PA Hon-03	35	~~Light fixtures~~ BACK STOP FLR	14	625
PA Hon-03	40	~~Overhead beams~~ FLR	15	675
PA Hon-03	41	~~Stored items~~ BLANK	—	BDL.
PA Hon-03		Floor		
PA Hon-03		Outside the range		
PA Hon-03		Blank		

HVAC SYSTEM: evaluate maintenance schedule and quality of maintenance for HVAC syst.

PROGRAMS	
CONFINED SPACES?	Y – N
HEARING CONSERVATION?	Y – N
RESPIRATORY PROTECTION?	Y – N
HAZCOM?	Y – N
PPE?	Y – N
TRAINING?	Y – N

NOTES

~~VENTILATION:~~

-- BLOOD DRIVES

-- MARINES

NOISE:

DRILL FLR

36, 38, 40, 42 - 39.0 Sq Ft Avg.

RANGE RM

26, 30, 32, 40, 32 32.0

LOCKER RM

40, 38, 42, 40, 42 40.4

CLASS RM

60, 72, 48, 50, 42 54.4

MALE LATRINE

26, 38, 32, 38, 40 34.8

ORDERLY OFF

46, 42, 38, 40, 32 39.6

COMMANDERS OFF

58, 42, 44, 38, 42 44.8

SUPPLY RM

44, 40, 48, 38, 40 42.0

MAINT. RM

36, 48, 40, 36, 44 40.8

KITCHEN

50, 62, 48, 52, 44 51.2

PENNSYLVANIA ARMORY
INDUSTRIAL HYGIENE SURVEY
EQUIPMENT LISTING:

Air Sampling Pumps
SKC Aircheck Samplers 224-44XR
S/N: 647609, 647610, 647626, 647627, 647654, 648324, 648349, 648393

Air Pump Calibrator
DryCal Base m: DC-1B Rev 2.06F S/N B 1827
DryCal Med Cell: m: DC-MC-1 Rev E S/N 1745

Indoor Air Quality
TSI Q-Trak m: 8550 S/N 11050
Metrosonics Carbon Monoxide Logger m: pm7700 S/N 1129
Metrosonics CO Sensor m: gs 7701 S/N 5073

Noise
Quest Sound Level Meter m: 2800 S/N HS4090023
Quest Octave Filter Set m: OB-300 S/N HV4070020
Quest Acoustic Calibrator m: QC-10 S/N QH4090140
Metrosonics db-3080 Noise Dosimeters S/N 4667, 4685
Microphones

ATTACHMENT E

Industrial Hygiene Survey

DET 1 CO C (LORD) 728th MSB

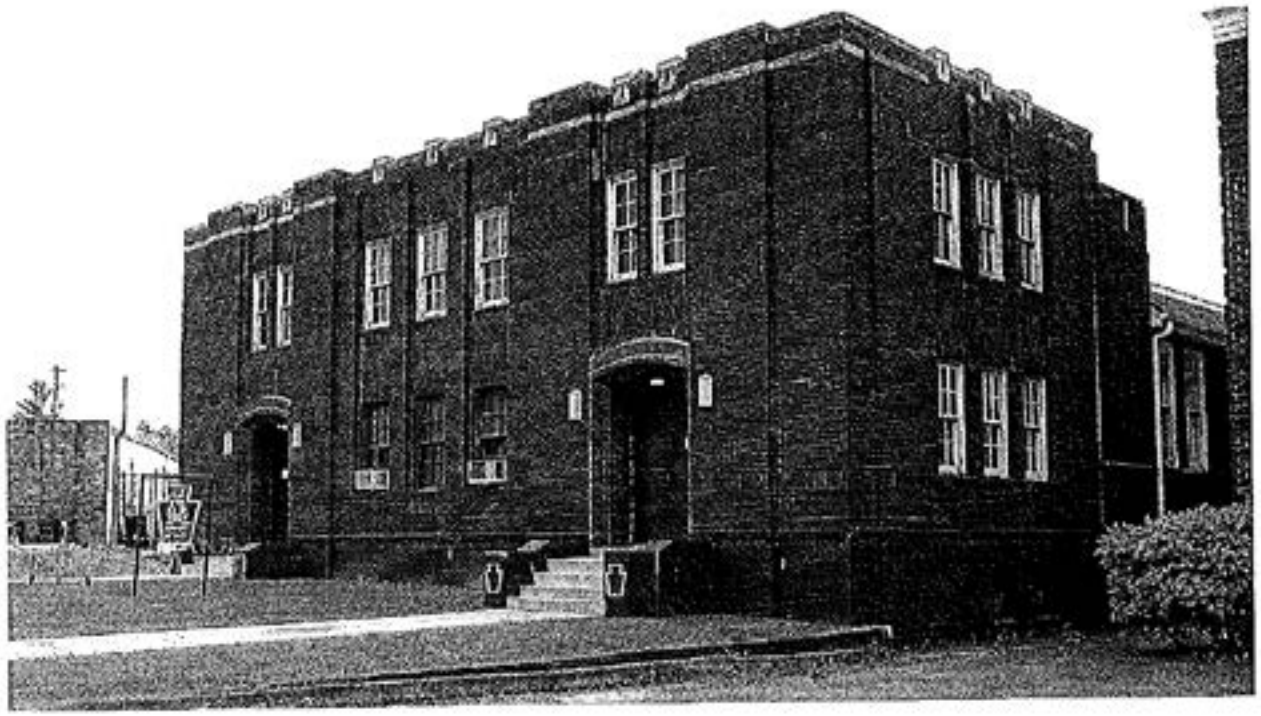
KANE, PENNSYLVANIA

May 21, 2003

OPTECH

OPERATIONAL TECHNOLOGIES
CORPORATION

DET 1 CO C (LORD) 728th MSB
KANE, PENNSYLVANIA
INDUSTRIAL HYGIENE SURVEY



1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Armory in Kane, Pennsylvania on May 21, 2003, with a return trip on December 8, 2003. The NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. Non-[redacted] from OpTech, completed this survey. Non-[redacted] a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the IH Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D.

RECOMMENDATIONS

1. INDOOR AIR QUALITY

1.1. Carbon monoxide and carbon dioxide readings were within recommended limits. Temperatures were below recommended comfort levels in some areas. Relative humidity readings were within required levels. Humidity should be kept below 60% for occupant comfort and controlling mold growth.

2. ILLUMINATION

2.1. Illumination levels were slightly below recommended minimum standards in some areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3. LEAD WIPE SAMPLES

3.1. Samples for inorganic lead collected in the second floor office, the second floor break room, and the basement equipment room, along with all five samples taken in the classroom exceeded the 200 $\mu g/ft^2$ criteria. Lower levels were detected throughout the facility. Apparently the source of lead contamination is from the former indoor firing range activities, which has migrated throughout the facility, and possibly from lead paint. Recommend that the second floor and basement be thoroughly wet-wiped/mopped or cleaned with a high efficiency particulate air (HEPA) vacuum. This method of cleaning should be repeated throughout the facility during routine house cleaning duties, to further reduce lead dust levels.

2.0. EXECUTIVE SUMMARY

2.1. Carbon monoxide and carbon dioxide readings were within recommended limits. Temperatures were below recommended comfort levels in some areas. Relative humidity readings were within required levels. Humidity should be kept below 60% for occupant comfort and controlling mold growth.

2.2. Illumination levels were slightly below recommended minimum standards in some areas of the facility.

2.3. Wipe samples for lead were collected throughout the facility. Samples collected in the second floor office, the second floor break room, and the basement equipment room, along with all five samples taken in the classroom exceeded the 200 $\mu g/ft^2$ criteria. Lower levels were detected throughout the facility. Apparently the source of lead contamination is from the former indoor firing range activities, which has migrated throughout the facility, and possibly from lead paint.

2.4. Air sampling for inorganic lead was collected. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building.

2.5. Asbestos is present in the facility. Nine-inch floor tiles, which are commonly known to contain a high percentage of asbestos, were being abated during the first visit. Asbestos was reported to be present around some windows. These areas were also being abated.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	DET 1 CO C 728TH MSB		
ADDRESS	208 Chestnut St.		
	Kane, PA 16735-1603		
CONTACT	SGT Non-Responsive		
PHONE	814-837-7430		
DATE BUILT	1922	FACILITY SIZE	13,984 sq. ft.
INDOOR FIRING RANGE	CLOSED		2-floors plus basement
ASSISTED			
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	3		
TRADITIONAL (MIL)	78 individuals for drill duty		
CHILD ACTIVITIES	On the second floor, there is a school for high school students with learning disabilities. The classroom is equipped to house fifteen to twenty students. Currently there are eight students and one teacher.		
ADULT ACTIVITIES			

3.1.1. The building was constructed in 1922. The exterior is brick and appeared to be in good condition. The interior has been kept in good condition. The windowsills were being repaired during this visit. The facility is heated by a steam furnace and cooled by window air conditioners. An asbestos abatement was in progress removing asbestos floor tiles in the basement. The facility is listed as having a former indoor firing range. Personnel that were present during the survey had no knowledge of the range.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity (RH) in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 Indoor Air Quality Standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ASHRAE 62-2001, Section 6.1.3, states that concentrations up to 700 ppm CO_2, above outdoor concentrations will achieve an acceptable level of indoor air quality.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ASHRAE 55-1992 recommends that temperature ranges be 73 to 79 degrees Fahrenheit (°F) during the summer and 68 to 74°F during the winter. Relative humidity levels be maintained between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE 1
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO2 (ppm)	Temp. (°F)	RH (%)
1107	Outdoors – Background	0.0	485	79.4	56.4
1126	1st Floor – Male Latrine	0.0	565	73.3	55.9
1129	1st Floor – Female Latrine	0.0	570	74.1	57.2
1135	Assembly Hall	0.0	600	73.0	56.2
1149	2nd Floor – Break Room (occupied)	0.0	590	72.9	55.3
1156	2nd Floor – Classroom (occupied)	0.0	620	73.6	56.0
1158	2nd Floor – Office	0.0	518	73.6	52.6
1204	2nd Floor – Latrine	0.0	565	72.1	55.0
1207	Hallway Stairs	0.0	510	72.1	54.9
1213	Basement	0.0	501	70.5	53.2
1220	Basement - Supply Room (occupied)	0.0	505	69.5	52.2
1234	Maintenance / Boiler Room	0.0	484	68.3	50.3
1243	Basement – Hallway	0.0	497	68.4	51.2
1251	Basement - Equipment Room	0.0	506	66.7	48.1
1254	Review Room	0.0	480	64.6	46.5
1310	Orderly Room	0.0	550	69.1	50.2
1314	1st Floor Office (occupied)	0.0	570	69.8	51.0

3.2.5. Carbon monoxide and carbon dioxide readings were within recommended limits. Temperatures were below recommended comfort levels in some areas. Relative humidity readings were within required levels. Humidity should be kept below 60% for occupant comfort and controlling mold growth.

3.3. ILLUMINATION

3.3.1. Illumination levels were measured in most areas of the facility. Sunlight was excluded, as much as possible for this survey, by closing doors and blocking windows. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 463). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
1st Floor Office	42 - 90	71	70	YES
Male Latrine	30 - 70	58	40	YES
Female Latrine	50 - 78	62	40	YES
Assembly Hall	40 - 90	62	75	NO
Assembly Hall – Locker Area	60 - 70	64	40	YES
2nd Floor Break Room	30 - 80	57	30	YES
2nd Floor Office	50 - 72	63	70	NO
2nd Floor Latrine	40 - 70	59	40	YES
K-6 Office Space	28 - 70	46	70	NO
Basement Hallway	28 - 60	43	7.5	YES
Basement Supply Room	40 - 60	56	40	YES
Boiler / Maintenance Area	28 - 48	38	15	YES
Basement Hall Area	28 - 78	53	7.5	YES
Review Room	38 - 62	46	70	NO

3.3.2. Levels were slightly below recommended minimum standards in some areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3.4. WIPE SAMPLES

3.4.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples were collected at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot ($\mu g/ft^2$) and are listed in Table 3. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Kan-03141-04	2nd Floor Office- Windowsill	845
PA Kan-03141-05	Female Latrine	68
PA Kan-03141-06	Assembly Hall	24
PA Kan-03141-07	2nd Floor – Break Room	3,818
PA Kan-03141-08	Supply Room	29
PA Kan-03141-09	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.2. Additional wipe samples were collected during this first visit. These samples were collected to further analyze the extent of contamination should the first five samples indicate a possible hazard. Since the samples collected in the 2nd Floor Office and the 2nd Floor Break Room exceeded the 200 µg/ft² criteria (see Section 3.4.4), these additional samples were analyzed. The results are presented in Table 4.

TABLE 4
WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Kan-03141-10	Boiler Room/Maintenance Area	170
PA Kan-03141-11	Basement – Hallway Floor	180
PA Kan-03141-12	I/T Equipment Room – Basement	28000
PA Kan-03141-13	Review Room - Basement	120
PA Kan-03141-14	1st Floor Orderly Room	BDL
PA Kan-03141-15	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.3. Since daily High School classes were conducted in the facility and samples taken during the first visit exceeded the criteria, a second visit was scheduled to collect additional wipe samples. These samples were collected in the classroom area. The results are presented in Table 5.

TABLE 5
CLASSROOM AREA WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Kan-03342-02	Classroom Windowsill	240
PA Kan-03342-03	Baseboard by East Door	600
PA Kan-03342-04	Baseboard by West Door	630
PA Kan-03342-05	Southwest Corner – Floor	330
PA Kan-03342-06	Radiator - By Stairs outside Classroom	1900
PA Kan-03342-07	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.4. WIPE SAMPLING RESULTS

3.4.4.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 µg/ft². This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. (See memorandum in Attachment F, Recommendations for Surface Lead Dust in Armories.) Samples in the second floor office, the second floor break room, and the basement equipment room, along with all five samples taken in the classroom exceeded the 200 µg/ft² criteria. Lower levels were detected throughout the facility. Apparently the source of lead contamination is from the former indoor firing range activities, which has migrated throughout the facility, and possibly from lead paint.

3.4.5. AIR SAMPLING

3.4.5.1. Air Sampling for inorganic lead was performed during this survey. Table 5 lists the results of these samples, and is reported in milligrams per cubic meter (mg/m³) of air.

TABLE 5
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
Tim Curtis	PA Kan-03141-01	Lead	<0.002 mg/m³	0.05 mg/m³	YES
Area - Assembly Hall	PA Kan-03141-02	Lead	<0.002 mg/m³	0.05 mg/m³	YES
Area – Basement	PA Kan-03141-03	Lead	<0.002 mg/m³	0.05 mg/m³	YES

mg/m³ = milligrams per cubic meter < = less than (below detection limits)

3.4.5.2. Air samples collected in the facility were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m³ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this

building.

3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION DAMAGE

3.5.1.1. There were no visible signs of water damage.

3.5.2. ASBESTOS

3.5.2.1. Asbestos is present in the facility. Nine-inch floor tiles, which are commonly known to contain a high percentage of asbestos, were being abated during the first visit. Asbestos was reported to be present around some windows. These areas were also being abated.

3.5.3. PROGRAMS

3.5.3.1. There are no designated confined space areas within this facility. There are no exhaust ventilation systems to control a hazard. No chemicals besides normal cleaning materials are present. Therefore, a need has not been established for a HAZCOM program, the need for personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.4. HOUSEKEEPING

3.5.4.1. The facility has been well maintained, clean and orderly.

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

E – Recommendations for Surface Lead in Armories

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
Kane, PA	PENNSYLVANIA ARNG ARMORY	Kane Armory

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR (initials)
21 May / 8 Dec 2003	JSS

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	NA	SGT Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
814-837-7430	DET 1 CO C (AVCRAD) 72D FMS B	3	9

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
3	78			

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	CONROLS 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			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	½ FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	¼ 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 WEATHR 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	/		

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	3	C

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

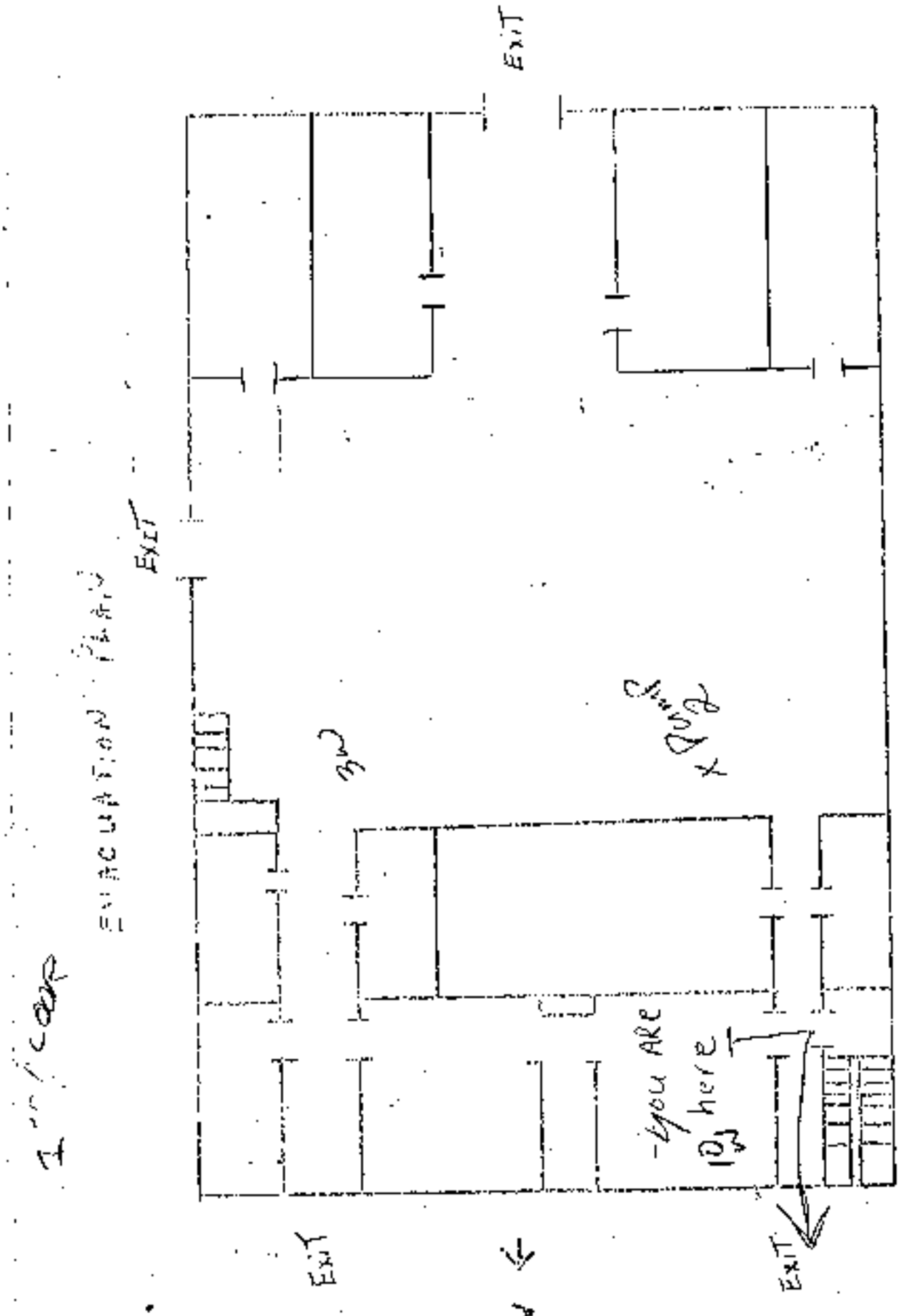
SECTION 6. COMMENTS

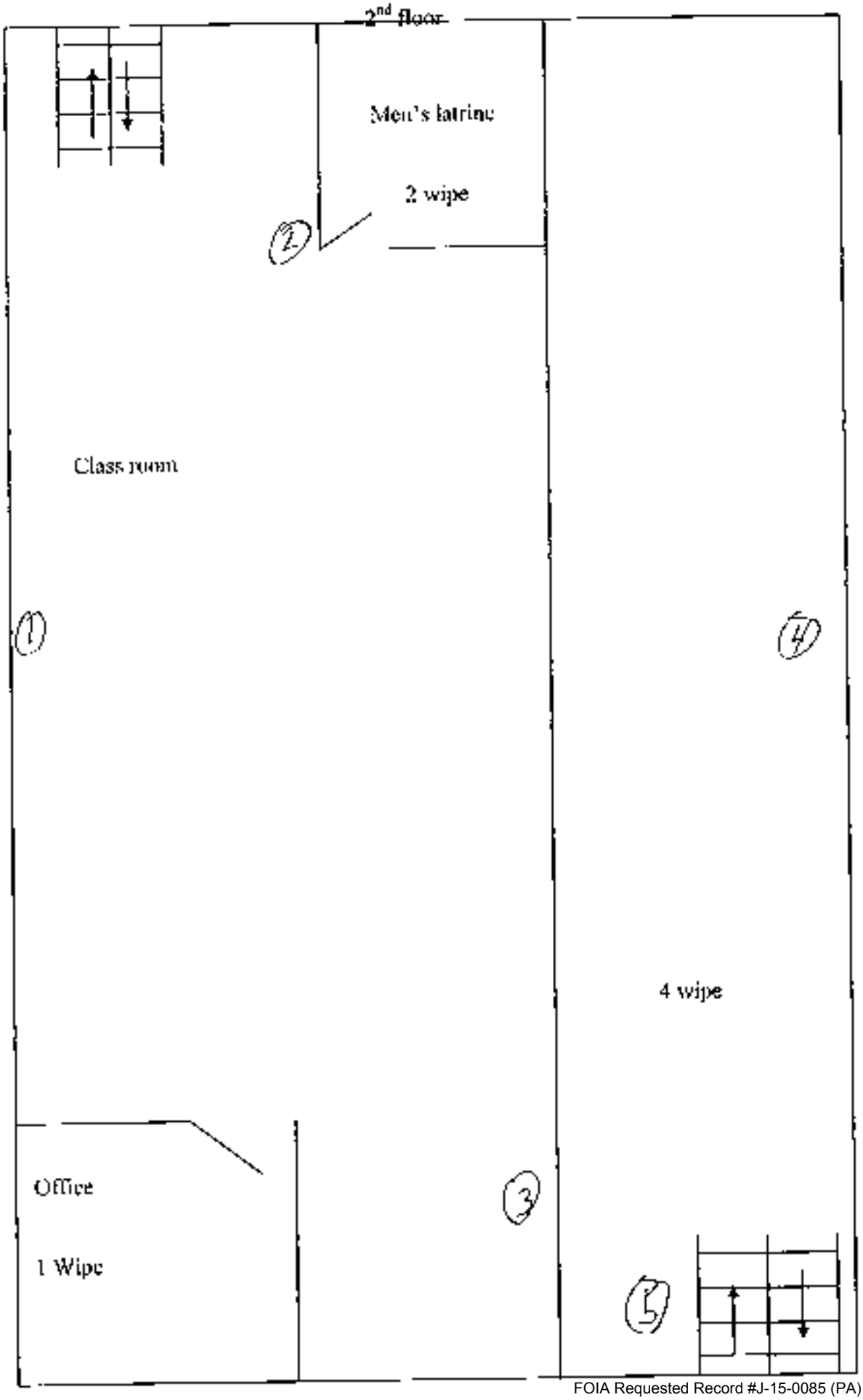
☐ No comments ☐ See attached sheet

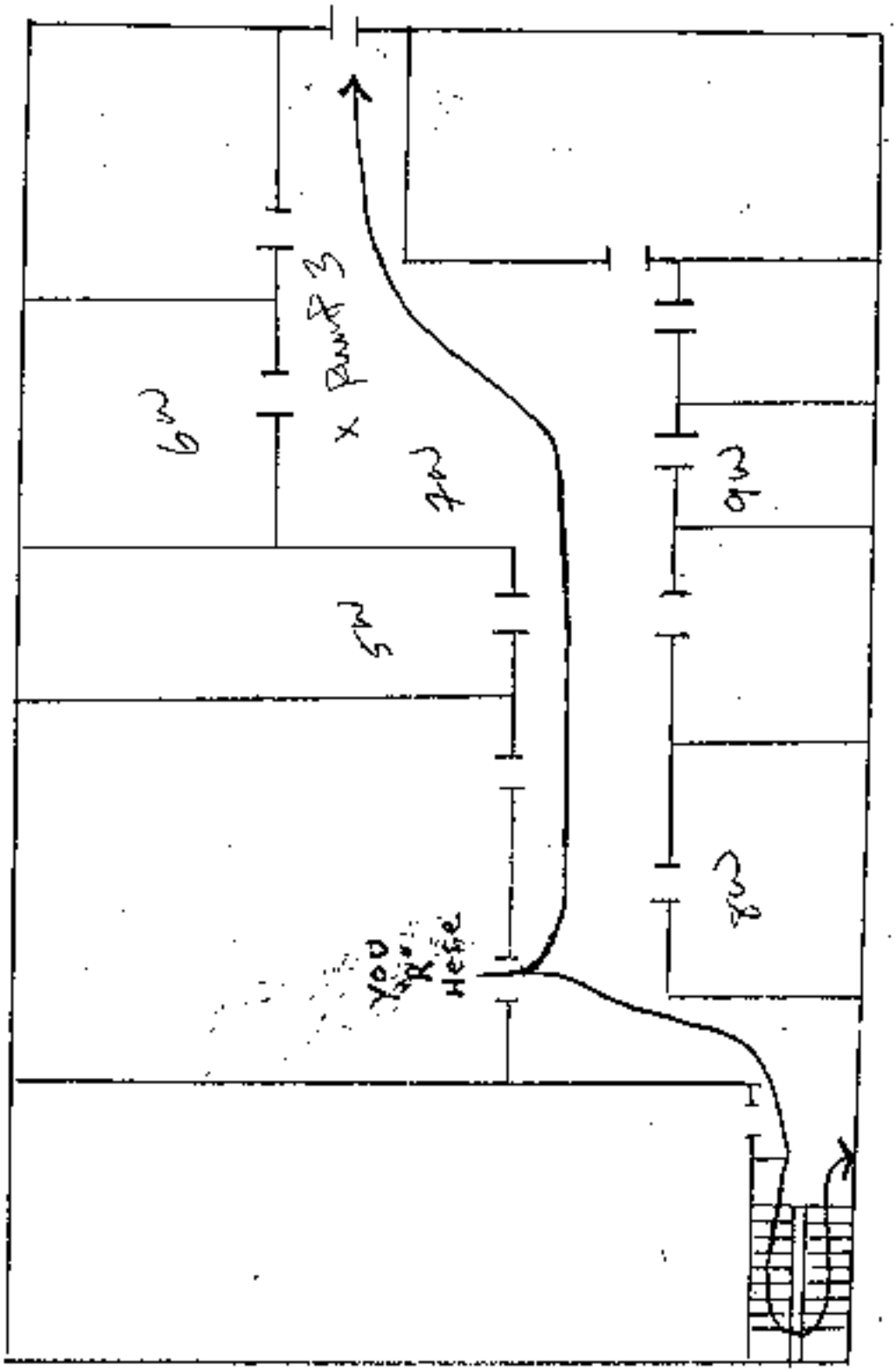
PRIVACY ACT STATEMENT

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

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



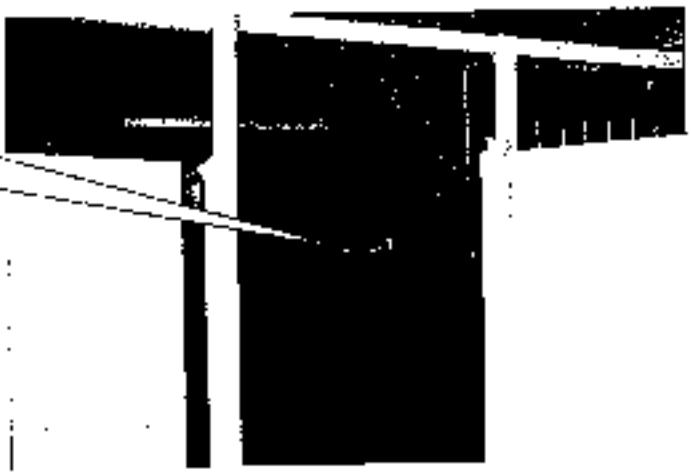




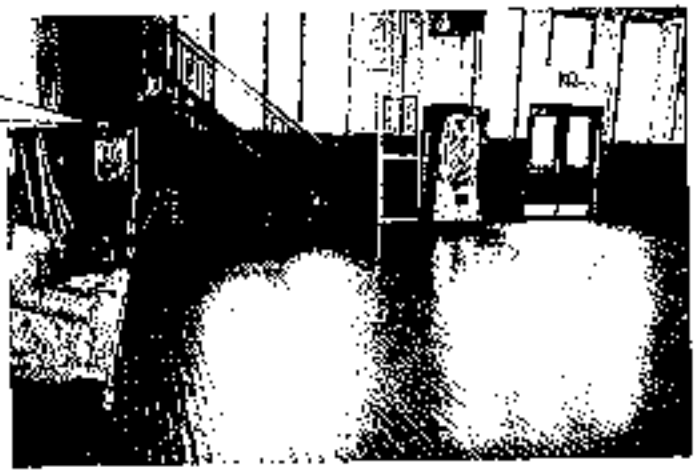
DET 1 CO C (LORD) 728TH MSB
KANE, PENNSYLVANIA

(1) PA Kan-03141-04
Administrative Office

(2) PA Kan-03141-05
Female Latrine

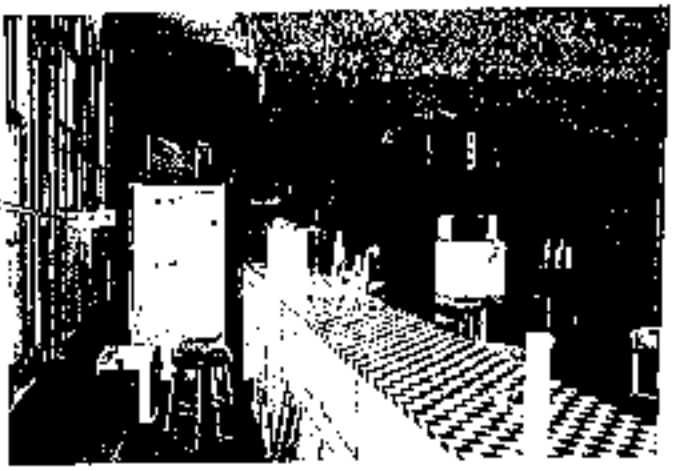


(3) PA Kan-03141-06
Assembly Hall



Attachment B

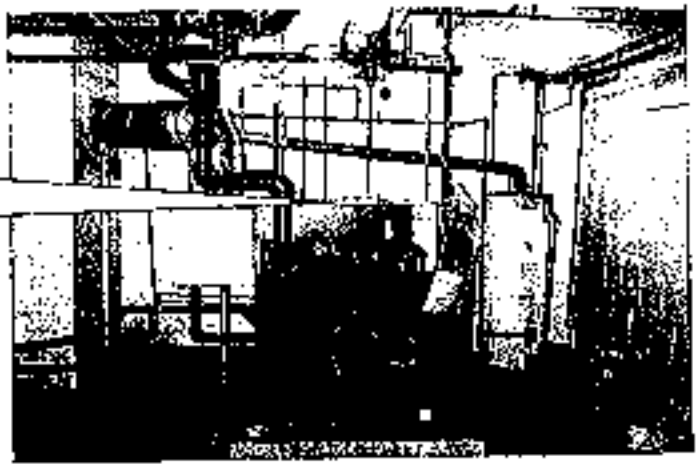
(4) PA Kan-03141-07
Break Room



(5) PA Kan-03141-08
Supply Room

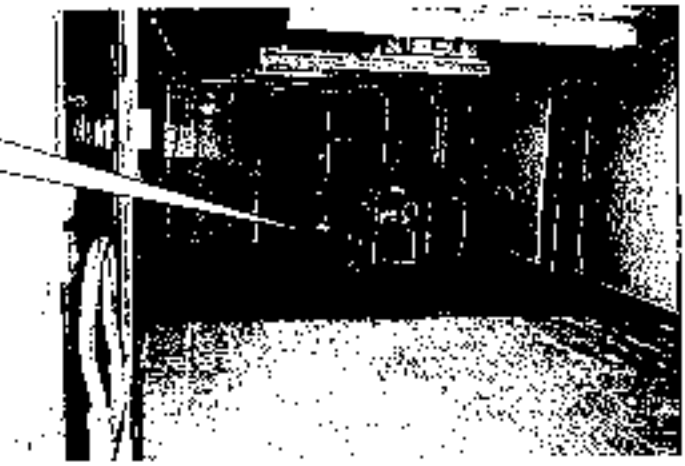
ADDITIONAL SAMPLES

(6) PA Kan-03141-10
Boiler Room



Attachment B

(7) PA Kan-03141-11
Basement Floor

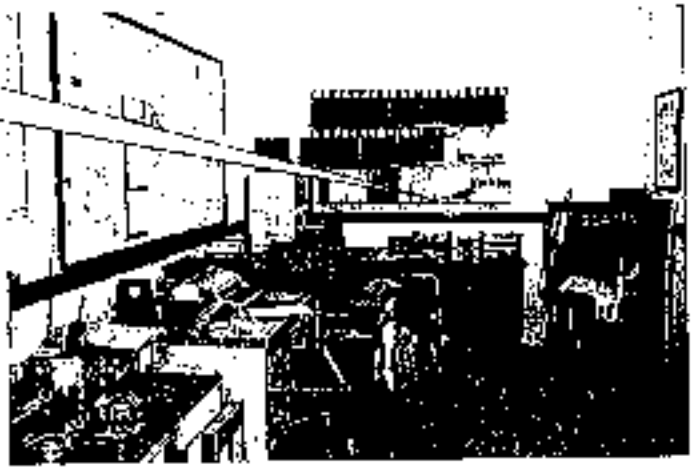


(8) PA Kan-03141-12
Equipment Room

(9) PA Kan-03141-13
Review Room - Basement

Attachment B

(10) PA Kan-03141-14
Orderly Room

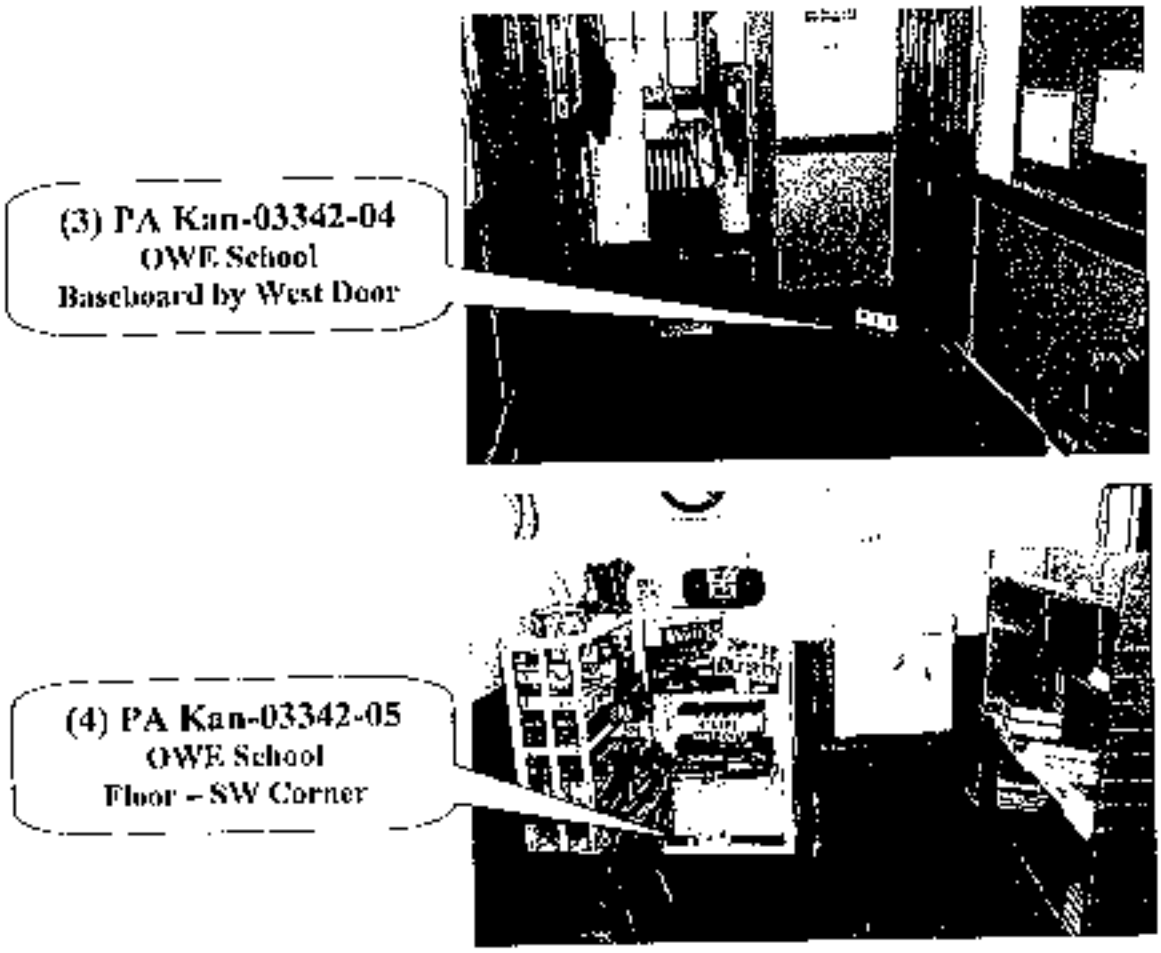


2ND VISIT – OWE SCHOOL AREA WIPE SAMPLES

(1) PA Kan-03342-02
OWE School - Windowsill

(2) PA Kan-03342-03
OWE School
Baseboard by East Door

Attachment B



Attachment B

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
AIHA Certificate of Accreditation #480 LAB ID 101533

TABLE I. ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	RES 93716-1
Client:	Operational Technologies, Corp.
Client Project Number / P.O.:	06 01
Client Project Description:	Armories/Pennsylvania
Date Samples Received:	June 6, 2003
Analysis Type:	USEPA SW846 3050B / AA(7420)
Turnaround:	3-5 Day
Date Samples Analyzed:	June 14, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA Ber-03139-09	EM 778563	0.11	BDL	23	BDL
PA Cle-03140-04	EM 778564	0.11	6.5	23	59
PA Cle-03140-05	EM 778565	0.11	2.8	23	25
PA Cle-03140-06	EM 778566	0.11	7.5	23	68
PA Cle-03140-07	EM 778567	0.11	13.7	23	125
PA Cle-03140-08	EM 778568	0.11	59.9	23	545
PA Cle-03140-09	EM 778569	0.11	BDL	23	BDL
PA Cle-03140-16	EM 778570	0.11	4.6	23	42
PA Cle-03140-17	EM 778571	0.11	25.5	23	232
PA Cle-03140-18	EM 778572	0.11	7.6	23	69
PA Cle-03140-19	EM 778573	0.11	7.0	23	64
PA Cle-03140-20	EM 778574	0.11	5.2	23	47
PA Cle-03140-21	EM 778575	0.11	BDL	23	BDL
PA Kan-03141-04	EM 778576	0.11	93.0	23	845
PA Kan-03141-05	EM 778577	0.11	7.5	23	68
PA Kan-03141-06	EM 778578	0.11	2.6	23	24
PA Kan-03141-07	EM 778579	0.11	420.0	23	3818
PA Kan-03141-08	EM 778580	0.11	3.2	23	29
PA Kan-03141E-09	EM 778581	0.11	BDL	23	BDL
PA Rid-03141-19	EM 778582	0.11	10.0	23	91
PA Rid-03141-20	EM 778583	0.11	BDL	23	BDL
PA Rid-03141-21	EM 778584	0.11	BDL	23	BDL
PA Rid-03141-22	EM 778585	0.11	7.3	23	66
PA Rid-03141-23	EM 778586	0.11	33.7	23	306
PA Rid-03141-24	EM 778587	0.11	BDL	23	BDL
PA Rid-03141-31	EM 778588	0.11	3.6	23	33
PA Rid-03141-32	EM 778589	0.11	5.8	23	53
PA Rid-03141-33	EM 778590	0.11	7.7	23	70
PA Rid-03141-34	EM 778591	0.11	55.0	23	500
PA Rid-03141-35	EM 778592	0.11	211.0	23	1918

BDL = Below Detection Limit

Data Qa

Results
Lead

Client #	DCL #	Total Area (ft^2)	µg/Wipe	µg/ft^2
PA Joh-03134-11	03-30443	0.11	10.	91.
PA Joh-03134-12	03-30444	0.11	34.	310.
PA Joh-03134-13	03-30445	0.11	ND	<91.
PA Joh-03134-14	03-30446	0.11	ND	<91.
PA Joh-03134-15	03-30447	0.11	ND	<91.
PA Joh-03134-16	03-30448	0.11	ND	<91.
PA Cle-03140-10	03-30449	0.11	17.	150.
PA Cle-03140-11	03-30450	0.11	ND	<91.
PA Cle-03140-12	03-30451	0.11	11.	100.
PA Cle-03140-13	03-30452	0.11	ND	<91.
PA Cle-03140-14	03-30453	0.11	87.	790.
PA Cle-03140-15	03-30454	0.11	ND	<91.
PA Kan-03141-10	03-30455	0.11	19.	170.
PA Kan-03141-11	03-30456	0.11	20.	180.
PA Kan-03141-12	03-30457	0.11	3100.	28000.
PA Kan-03141-13	03-30458	0.11	13.	120.
PA Kan-03141-14	03-30459	0.11	ND	<91.
PA Kan-03141-15	03-30460	0.11	ND	<91.
PA Rid-03141-25	03-30461	0.11	ND	<91.
PA Rid-03141-26	03-30462	0.11	110.	1000.
	Prep Blank		ND	
% Recovery	LCS 1		91.	
% Recovery	LCS 2		90.	
RPL			10.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client:	National Guard Bureau	**Job Name:**	Pennsylvania Armories	**Chain Of Custody:**	121311
Address:	301-IH Old Bay Lane, Attn: NGB-AVN-SI, State Military Reservation	**Job Location:**	Kane, Clearfield	**Date Analyzed:**	12/31/2003
	Havre de Grace, Maryland 21078	**Job Number:**	Not Provided	**Person Submitting:**	[redacted]
		P.O. Number:	12-02	**Report Date:**	05-Jan-04
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
0414422	PA Kan-03342-02	Furnace	Wipe	****	0.111	67.51	ug/ft²	240	ug/ft²	
0414423	PA Kan-03342-03	Furnace	Wipe	****	0.111	67.51	ug/ft²	600	ug/ft²	
0414424	PA Kan-03342-04	Flame	Wipe	****	0.111	108.01	ug/ft²	630	ug/ft²	
0414425	PA Kan-03342-05	Furnace	Wipe	****	0.111	67.51	ug/ft²	330	ug/ft²	
0414426	PA Kan-03342-06	Flame	Wipe	****	0.111	108.01	ug/ft²	1900	ug/ft²	
0414427	PA Kan-03342-07	Furnace	Wipe	****	0.111	2.70	ug/ft²	7.9	ug/ft²	
0414428	PA Kan-03342-08	Furnace	Wipe	****	0.111	13.50	ug/ft²	48	ug/ft²	
0414429	PA Kan-03342-09	Furnace	Wipe	****	0.111	2.70	ug/ft²	8.7	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.

Analyst: [redacted]

Technical Manager: [redacted]

An AIHA (#8863), NVLAP (# 101143), & New York ELAP (#10920) Accredited Laboratory
4475 Forbes Blvd. • Lanham, MD 20706 • (301) 459-2640 • Toll Free (800) 346-0961 • Fax (301) 459-2643

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m³
PA But-03136-03	03-17890	347.3	ND	<0.003
PA For-03139-01	03-17891	383.4	ND	<0.003
PA For-03139-02	03-17892	389.5	ND	<0.003
PA For-03139-03	03-17893	374.0	ND	<0.003
PA Cle-03140-01	03-17894	537.5	ND	<0.002
PA Cle-03140-02	03-17895	523.0	ND	<0.002
PA Cle-03140-03	03-17896	493.5	ND	<0.002
PA Kan-03141-01	03-17897	469.4	ND	<0.002
PA Kan-03141-02	03-17898	470.6	ND	<0.002
PA Kan-03141-03	03-17899	464.6	ND	<0.002
PA Rid-03141-16	03-17900	462.6	ND	<0.002
PA Rid-03141-17	03-17901	439.6	ND	<0.002
PA Rid-03141-18	03-17902	452.4	ND	<0.002
PA Bra-03142-01	03-17903	356.0	ND	<0.003
PA Bra-03142-02	03-17904	355.2	ND	<0.003
PA Pun-03142-15	03-17905	336.7	ND	<0.003
PA Pun-03142-16	03-17906	331.9	ND	<0.003
PA Pun-03142-17	03-17907	324.6	ND	<0.003
PA Man-03143-01	03-17908	261.4	ND	<0.004
PA Man-03143-02	03-17909	252.6	ND	<0.004
	Prep Blank 7		ND	
% Recovery	LCS 13		95.	
% Recovery	LCS 14		97.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non-[redacted]@md.ngb.army.mil

Attachment D

REFERENCE LIST INDEX

1. General Regulations and National Consensus Standards
2. Specific Regulations and Guidance
   a. Abrasive Blasting
   b. Asbestos
   c. Battery Charging Room
   d. Bird and Bat Manure
   e. Bloodborne Pathogens
   f. Chemical Agent Resistant Coating (CARC) Paint
   g. Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE)
   h. Confined Space Entry Program
   i. Design Review
   j. Ergonomics
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   m. Hearing Conservation
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   o. Indoor Firing Ranges
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   s. Paint Spray Booth
   t. Personal Protection
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   v. Respiratory Protection
   w. Sanitation
   x. Smoking
   y. Vehicle Exhaust
   z. Welding Operation

GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REFERENCE LIST

1. General Regulations and National Consensus Standards
   a. DODI 6055.1, DOD SOH Program, 19 August 1998.
   b. DODI 6055.5, DOD OEH. *[DRAFT]*
   c. DOD 6055.5-M, DOD Occupational Health Surveillance Manual, 13 May 1987.
   d. DODI 6050.5, DOD Hazard Communication, 29 Oct 90. Change 1, 6 May 1996.
   e. AR 40-5, Preventive Medicine, 15 October 1990. [05/2002 Being Updated]
   f. DA PAM 40-5, Preventive Medicine. *[DRAFT]*
   g. AR 385-10, The Army Safety Program, 29 February 2000.
   h. NGR 385-10, ARNG SOH Program, 7 October 1988, Change 1, 29 December 1989.
   i. Title 29, Part 1910, Occupational Safety and Health Standards. [Current Date]
   j. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 2002.
   k. ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th edition, 2001.
   l. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.
   m. TG 141, USACHPPM Industrial Hygiene Sampling Guide, November 1997.
   n. National Safety Council, Fundamentals of Industrial Hygiene, 5th Edition, 2002.
   o. NIOSH, Pocket Guide to Chemical Hazards, 2001.
   p. NFC, A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. [Current date]
   q. ASHRAE Standards. [Current Dates]
   r. ANSI Standards. [Current Dates]

2. Specific Regulations/Guidance
   a. **ABRASIVE BLASTING**
      (1) ANSI Z9.4 1997, Abrasive Blasting Operations - Ventilation and Safe Practices.
      (2) 29 CFR 1910.94 Ventilation
      (3) 42 CFR 84

   b. **ASBESTOS**
      (1) AR 40-5, Preventive Medicine, 15 October 1990. *[05/2002 Being Updated]*
      (2) AR 200-1, Environmental Protection and Enhancement, Chapter 8, 21 February 1997.
      (3) TB MED 513, Guidelines for the Evaluation and Control of Asbestos Exposure, 15 December 1986. *[05/2000 Under Revision as DA PAM 40-513]*
      (4) TG 157, USAEHA, The Installation Asbestos Management Program Assessment Checklists, July 1994.
      (5) 29 CFR 1910.1001
      (6) 29 CFR 1926.58 (prior to 1994 CFR)
      (7) 29 CFR 1926.1101

(8) MEMORANDUM SGPS-PSP, OTSG, subject: AMEDD Rolo Supporting Asbestos Abatement/Asbestos Management Programs, 19 Jan 89.

(9) EPA, Guidance for Controlling Asbestos-Containing Materials in Buildings, June 1985.

(10) DD Form 2493-1 (Asbestos Exposure, Part I--Initial Medical Questionnaire)

(11) DD Form 2493-2 (Asbestos Exposure, Part II--Periodic Medical Questionnaire)

(12) BPA NESHAPS Asbestos Regulation (40 CFR 61, Subpart M).

c. **BATTERY CHARGING ROOM**

(1) TG 022, USAEHA, page 81, Industrial Hygiene Evaluation Guide, October 1975. *[Out of Print]*

(2) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

d. **BIRD AND BAT MANURE**

(1) TG 142, USAEHA, Managing Health Hazards Associated with Bird and Bat Excrement, Dec 1992.

e. **BLOODBORNE PATHOGENS**

(1) 29 CFR 1910.1030

(2) TG 190, USAEHA, Guide to Managing Occupational Exposure to Bloodborne Pathogens, Jan 94.

f. **CHEMICAL AGENT RESISTANT COATING (CARC) PAINT**

(1) TG 144, USAEHA, Guidelines for Controlling Health Hazards in Painting Operations, 24 August 1987.

(2) DA LTR, USAEHA, HSHB-MI-WR, subject: Respiratory Protection When Spraying CARC, 19 November 1992.

(3) TM 43-0139, Painting Instructions for Army Material, 27 July 19881 Aug 86.

(4) MEMORANDUM SGPS-PSP, OTSG, subject AMEDD, Occupational Health Requirements in Support of Painting in the Army, 22 Febrauery 1985.

(5) AR 750-1, Army Materiel Maintenance Policy and Retail Maintenance Operations (Prohibits welding on CARC paint) 1 July 1996.

g. **CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR, EXPLOSIVE (CBRNE)**

(1) DODI 2000.gg, DOD Installation CBRNE Emergency Response Guidelines.

(2) DHHS, NIOSH Pub No. 2002 139, Guidance for Protecting Building Environments from Airborne Chemical, Biological, or Radiological Attacks, May 2002.

(3) TG 275, USACHPPM, Personal Protective Equipment Guide for Medical Treatment Facility Personnel Handling Casualties from Weapons of Mass Destruction and Terrorism Events. *[Draft]*

h. **CONFINED SPACE**

(1) 29 CFR 1910.146 (Confined Space Entry)
(2) 29 CFR 1910.147 (Lockout/Tagout)
(3) ANSI Z117.1-Safety Requirements for Confined Spaces, 1995.
(4) SOP for ARNG Confined Space Entry Program, 25 April 1991.
(5) Letter, US Dept of Labor (DOL) addressed to Vanessa Char, 22 Apr 1994.
(6) OSHA Instruction STD 1-7.3, US DOL, subject: 29 CFR 1910.147, the Control of Hazardous Energy (Lockout/Tagout)--Inspection Procedures and Interpretive Guidance, 11 Sep 90.
(7) DHHS, NIOSH Pub No. 87113, A Guide to Safety in Confined Spaces, July 1987.
(8) Confined Space Entry Program for Helicopters, 2003.

i. **DESIGN REVIEW**

(1) DG 415-1, Design Guide for Armories, current.
(2) DG 415-2, Design Guide for Logistics Facilities, current.
(3) DG 415-3, Design Guide for Training Site Facilities, current.
(4) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.
(5) TI-300, 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.
(6) UFGS 15940A, Overhead Vehicle Tailpipe (and welding Fume) Exhaust Removal Systems, December 2001.
(7) ASHRAE, Standard 62-2002, Ventilation for Acceptable Indoor Air Quality.
(8) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

j. **ERGONOMICS**

(1) DA PAM 40-21, Medical Services, Ergonomics Program, 15 May 2000.
(2) ANSI Z-365, Management of Work Related Musculoskeletal Disorders, 2000.
(3) 29 CFR 1910. *[PROPOSED STANDARD]*

k. **FLAMMABLE STORAGE ROOM**

(1) 29 CFR 1910.106
(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

l. **HAZARD COMMUNICATION**

(1) 29 CFR 1910.1200
(2) NGR 385-10, Chapter 6

m. **HEARING CONSERVATION**

(1) DA PAM 40-501, Medical Services, Hearing Conservation Program, 10 December 1998.

(2) TG 181, USAEHA, Noise Dosimetry and Risk Assessment, May 1999.

(3) TG 175, USAEHA, Readiness thru Hearing Conservation: Guide for Unit Commanders and Supervisors, June 1999.

(4) 29 CFR 1910.95

n. **INDOOR AIR QUALITY (IAQ)**

(1) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

(2) USACERL Technical Report P-91/42, IAQ Management for Operations and Maintenance Personnel, September 1991.

(3) EPA 400/1-91/003 or DHHS, NIOSH, Publication No. 91-114, Building IAQ, A Guide for Building Owners and Facility Managers, December 1991.

(4) ASHRAE, Standard 62-2002, Ventilation for Acceptable IAQ.

(5) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

(6) NIOSH, IAQ Selected References, Sep 1989.

(7) OSHA Instruction CPL 2-2.20B CH-1, Directorate of Technical Support, 13 Nov 90.

(8) DA PAM 25-52, Mail Facility Security and Handling Suspicious Mail, 6 November 2001.

(9) ASTM, D 5952-96, 10 May 1996.

o. **INDOOR FIRING RANGES**

(1) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(2) NGR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges, 30 March 1990. *[11/02 Under Revision]*

(3) CEHND 1110-1-18, USACE Design Manual for Indoor Firing Range, June 1990.

(4) HQDA LTR, Office of the Adjutant General, DACS-SF, subject: Inspection and Evaluation of US Army Indoor Firing Ranges, 26 March 1993.

(5) Departments of the Army and Air Force, NOB-ADE-OM, subject: All State Log Number (I920323) Indoor Range Clean-up at State Owned Armories, 28 July 1992.

(6) NIOSH, Technical Information, December 1975, subject: Lead Exposure and Design Considerations for Indoor Firing Ranges.

(7) All-States Ltr P01-0075, 5 December 2001.

(8) Information Paper, Alternative Ammunition, 15 March 1996.

(9) Information Paper, Bullet Traps, 26 April 1996.

(10) Information Paper, ARNG IFR Action Plan, 28 January 2002.

p. **LEAD**

(1) 29 CFR 1910.1025

(2) 29 CFR 1926.62

(3) 24 CFR 35.61 (HUD, Percentage of Lead in Paint)

(4) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(5) OSHA Instruction CPL 2-2.58, Office of Health Compliance Assistance, 13 December 1993.

(6) Federal Register, 18 April 1990, Vol. 55, No. 75, HUD, Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing, as amended, September 1990, Office of Public and Indian Housing, Department of Housing and Urban Development, 451 Seventh Street, SW, Washington, DC 20410.

(7) NIOSH, Request for Assistance in Preventing Lead Poisoning in Construction Workers, April 1992.

(8) EPA, Strategy for Reducing Lead Exposures, 21 Feb 91.

q. **LIGHTING**

(1) RP-1-1993, Office Lighting, ANSI/IESNA.

(2) RP-7-2001, Industrial Lighting, IES.

r. **OCCUPATIONAL VISION**

(1) DA PAM 40-506, Medical Services, The Army Vision Conservation and Readiness Program, 20 July 2001.

(2) ANSI Z87.1, Practice for Occupational and Educational Eye and Face Protection, 1989, Change A, REAF 1998.

(3) ANSI Z358.1 for Emergency Eyewash and Shower Equipment, 1998.

(4) OTSG Memorandum SGPS-PSP, subject: Acanthameoba Keratitis and Eyewash Stations, 8 May 89.

(4) 29 CFR 1910.133

s. **PAINT SPRAY BOOTH**

(1) NFPA No. 33, Standard for Spray Application Using Flammable and Combustible Materials, 1995.

(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

(3) 29 CFR 1910.94

(4) 29 CFR 1910.107

(5) ANSI Z9.3-1995 for Exhaust Systems - Spray Finishing Operations - Safety Code for Design, Construction, and Ventilation.

(6) ANSI Z9.2-2001, Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems.

t. **PERSONAL PROTECTIVE EQUIPMENT**

(1) Quick Selection Guide to Chemical Protective Clothing, 2nd edition, Forsberg, K and Mansdorf, S., 1993.

(2) Chemical Protective Clothing, Vol I and 2, Johnson, J. and Anderson, K., American Industrial Hygiene Association, 1990.

(3) Guidelines for the Selection of Chemical Protective Clothing, 3rd Edition, ACGIH, Inc., Feb 1987.

u. **RADIATION PROTECTION PROGRAM**

(1) NGR 385-11, Safety, Ionizing and Nonionizing Radiation Protection, 18 February 1999.

(2) AR 11-9, Army Radiation Safety Program, 28 May 1999.

(3) 29 CFR 1910.96

(4) 29 CFR 1910.97

v. **RESPIRATORY PROTECTION**

(1) AR 11-34, The Army Respiratory Protection Program, 15 February 1990. *[11/02 Being Updated]*

(2) 29 CFR 1910.134

(3) 42 CFR 84

(4) TB MED 502, Respiratory Protection Program, February 1992. *[11/02 Being Updated as DA PAM 40-502]*

(5) ANSI/CGA G-7.1-1997, Commodity Specification for Air.

(6) ANSI Z88.2-1992, Standard for Respiratory Protection.

w. **SANITATION**

(1) ANSI Z4.1-1986, Change REAF 1995, Sanitation in Places of Employment-Minimum Requirements.

(2) 29 CFR 1910.141

x. **SMOKING**

(1) AR 600-63, Army Health Promotion, 28 April 1996.

(2) DODI 1010.15, Smoke-Free DOD Facilities, 2 January 2001.

(3) DODD1010.10, Health Promotion, 11 March 1986.

y. **VEHICLE EXHAUST**

(1) ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th Edition, 2001.

(2) TI-300f 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

z. **WELDING OPERATION**

(1) 29 CFR 1910.252

(2) 29 CFR 1910.253

(3) 29 CFR 1910.254

(4) ANSI/AWS Z49.1-1999, Safety in Welding and Cutting and Allied Processes.

(5) TM 5-805-7, Welding Design, Procedures and Inspection, 20 May 85.

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 $\mu g/ft^2$) and windowsills (250 $\mu g/ft^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of 200 $\mu g/ft^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 $\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 $\mu g/ft^2$ on floors and 250 $\mu g/ft^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

Industrial Hygiene Survey

Pennsylvania Army National Guard (PA ARNG)

Prepared For: NGB ARNG– Region North IH Office

Survey Location:

Kane Readiness Center
208 Chestnut Street
Kane, PA 16735

Prepared By: Aria Environmental, Inc. (AEI)
PO Box 286
Woodbine, MD 21797

Survey Date: September 14, 2011

AEI Project #: J11-586 3k PA Kane RC

_____

Non-Responsive **, DrPH, CIH**

Industrial Hygienist

Table of Contents

List of Tables and Appendices

Executive Summary

Aria Environmental, Inc. (AEI) was contracted to perform an industrial hygiene evaluation for the Pennsylvania Army National Guard (PA ARNG) Kane Readiness Center located at 208 Chestnut Street, Kane, PA 16735. Non-Responsive, DrPH, CIH performed the evaluation on September 14, 2011. The point of contact for the facility was Staff Sergeant Non-. The purpose of the evaluation was to identify and measure the existence and extent of potentially hazardous operations or conditions at Army National Guard (ARNG) facilities. The survey included: (1) evaluations of operations, ventilation system evaluations, noise dosimetry if appropriate, lighting surveys and hazard control evaluations; (2) an evaluation of the physical condition of the facility and personnel concerns including visual inspections for peeling potentially lead-based paint, damaged suspect asbestos-containing materials, water damage or mold problems; indoor air quality concerns; and housekeeping practices; and (3) photographs of the exterior and interior of the readiness center. The results of the evaluation indicated the following:

Paint Chip and Wipe Samples for Lead Contamination: A visual inspection was performed to determine if there were any areas of peeling paint at the facility that could pose a lead exposure hazard. Peeling paint was observed in the basement and in the drill hall. Results of paint chip analyses were below the Pennsylvania definition of lead-based paint (0.5% by weight) in all cases except for the white (11%) and brown (3.7%) paint chips found in the drill hall. Results of dust wipe samples taken throughout the facility were below the recommended maximum criterion for surface contamination of lead (200 µg/ft^2) except for the samples collected from the kitchen floor (1,900 µg/ft^2), the corridor floor (210 µg/ft^2) and the drill hall wrestling mats (210 µg/ft^2).

Visual Inspection for Damaged Asbestos-Containing Materials: A visual inspection was performed to evaluate the condition of suspect asbestos-containing material. Some damaged linoleum sheet flooring was observed and sampled in the women's latrine in the basement. No asbestos was detected in the sample (<1%).

Visual Inspection for Water Damage and Mold Growth: A visual inspection was performed for water damage or visible mold growth at the facility. No water damage or evidence of mold growth was observed.

Visual Inspection for Housekeeping Concerns: A visual inspection was performed to assess the state of housekeeping in the facility. The housekeeping was acceptable. Most areas were clean and tidy.

Lighting: A lighting survey was performed in all areas within the readiness center. The evaluation indicated illumination deficiencies in the squad training room, a couple offices and a storage room. The illumination measurements indoors ranged from 19.5 foot candles (fc) to 95.6 fc.

Indoor Air Quality: Temperature measurements were acceptable and relative humidity measurements were slightly above the comfort ranges. The outdoor relative humidity was high on the day of monitoring, and doors and windows were open. Indoor concentrations of carbon dioxide (CO_2) and carbon monoxide (CO) were below the guidelines in all areas.

Material Safety Data Sheets: The Material Safety Data Sheet (MSDS) notebook was reviewed and found to be complete. Some updates are required.

Overall, the Kane Readiness Center has few industrial hygiene issues, and programs are in place to protect, inform and train employees and maintain the facility.

1 Introduction

Aria Environmental, Inc. (AEI) was contracted to perform an industrial hygiene evaluation for the Pennsylvania Army National Guard (PA ARNG) Kane Readiness Center located at 208 Chestnut Street, Kane, PA 16735. Non-[redacted], DrPH, CIH performed the evaluation on September 14, 2011. The point of contact for the facility was Staff Sergeant Non-[redacted]. The purpose of the evaluation was to identify and measure the existence and extent of potentially hazardous operations or conditions at Army National Guard (ARNG) facilities.

The Kane Readiness Center was built in the 1920s and is staffed with 4 administrative personnel. The operations conducted at the facility include supply and administrative duties. A diagram of the building layout is provided in Appendix A. All sampling sheets and laboratory certificates of analysis are provided in Appendix B. Selected photographs taken during the evaluation are provided in Appendix C. Indoor air quality and lighting survey measurement log sheets are provided in Appendix D. Lists of all references used during the evaluation are included in the main body of the report.

2 Evaluation Methods

The industrial hygiene survey of the Kane Readiness Center consisted of visual inspections, interviews with employees, and sampling plan development in order to achieve the following: (1) evaluations of operations including operation description, sampling for lead in air or on surfaces if appropriate, ventilation system evaluations, noise measurements if appropriate, lighting surveys, hazard control evaluations and any additional information pertinent to the operations; (2) an evaluation of the physical condition of the facility and personnel concerns including visual inspections for peeling potentially lead-based paint, damaged suspect asbestos-containing materials, water damage or mold problems; indoor air quality concerns; and housekeeping practices; and (3) a building layout and photographic documentation of the interior of the facility.

The National Guard Bureau (NGB) Region North IH Office provided all industrial hygiene equipment for air sampling (equipment and media), ventilation, lighting, noise and IAQ survey instruments and paid for laboratory analytical fees. Laboratories were chosen or approved by the NGB IH office.

3 Operations

Operations conducted at the Kane facility consists exclusively of supply and administrative duties. Some vehicle stenciling is performed. No other maintenance of vehicles or other physical tasks are performed at the facility. Ground maintenance and upkeep of the building are the responsibility of the state employed Armorer and not part of the duties of National Guard personnel.

4 Noise Hazards

No noise-generating activities were taking place on the day of the survey. Due to the nature of the tasks performed onsite, no activities requiring noise monitoring are anticipated to occur at the RC.

5 Hazard Controls

Ventilation Systems

Heat is supplied to the facility through gas-fired heater units in the assembly hall and steam heat throughout the rest of the facility. Some window air conditioner units are installed for cooling certain areas but there is no central air conditioning. No local ventilation systems were present at the facility.

6 Physical Condition of the Facility and Personnel Concerns

An evaluation of the physical condition of the facility and personnel concerns was performed including visual inspections for water damage or mold problems; potential ergonomic problems; and housekeeping practices. Lighting measurements were taken in all areas of the facility, and indoor air quality measurements were taken in select areas.

Paint Chip and Dust Wipe Samples for Lead Contamination

A visual inspection was performed to determine if there were any areas of peeling paint at the facility that could pose a lead exposure hazard. Peeling paint was observed and sampled in several areas of the facility. Results are presented in Table 1 and certificates of analysis are included in Appendix B.

Table 1 – Results of Paint Chip Sampling at the PA ARNG RC Kane, PA on September 14, 2011.

Bulk Sample #	Sample Location	Result (% by wt)*
Kane-LBP-01	Basement, Kitchen, white debris on floor from south wall	0.28
Kane-LBP-02	Basement, Kitchen, white paint on ceiling	0.023
Kane-LBP-03	Basement, Corridor, gray and red paint on floor	<0.0092
Kane-LBP-04	Basement, Training Room, white paint on brick wall	0.17
Kane-LBP-05	Basement, Supply Room, white paint on ceiling	0.01
Kane-LBP-06	1st Floor, Drill Hall, white paint on south brick wall	**11**
Kane-LBP-07	1st Floor, Drill Hall, brown paint on north brick wall	**3.7**

*The EPA and the Commonwealth of Pennsylvania define lead-based paint as 0.5% by weight.

To determine if any cross contamination of lead from any source into areas of the facility existed, wipe samples were collected using ghost wipes and 10cm x 10cm templets. The Environmental Protection Agency (EPA) and the Commonwealth of Pennsylvania limits for lead in dust are 40 micrograms per square foot (µg/ft^2) on floors, 250 µg/ft^2 on window sills, and 400 µg/ft^2 in window troughs. These limits apply to pre-1978 Army facilities only if children under 6 years of age occupy them for 60 or more hours per year. The NGB Region North Industrial Hygiene Office concurs with the US Army Public Health Command recommended maximum level for adult exposures of 200 µg/ft^2 on floors and frequently contacted surfaces, which is more stringent for window sills than the EPA/State standards. Dust wipe samples were submitted to Aerosol Monitoring and Analysis Analytical Services, Inc. (AMA) for atomic absorption spectrophotometry (AAS) following the analytical method ASTM D3335-85A. All wipe samples collected from the facility were below the recommended maximum criterion. Results are given in Table 2 and certificates of analysis are included in Appendix B.

Table 2 – Results of Dust Wipe Sampling for PA ARNG Kane Readiness Center on September 14, 2011.

Wipe Sample #	Sample Location	Result (µg/ft²)*
KRC-LBP-01	Kitchen – floor	**1,900**
KRC-LBP-02	Corridor – floor	**210**
KRC-LBP-03	Vault - top of cabinet	<110
KRC-LBP-04	Drill Hall – floor	<110
KRC-LBP-05	Drill Hall - wrestling mats	**210**
KRC-LBP-06	Med Admin Office - top of refrigerator	120
KRC-LBP-07	Office #13 - floor	<110
KRC-LBP-08	Break Room - window sill	150

*The recommended maximum level for adult exposures is 200 µg/ft² lead on surfaces.

Visual Inspection for Damaged Asbestos-Containing Materials

A visual inspection was performed to determine if there were any suspect asbestos-containing material and its condition. Damaged suspect asbestos-containing material (linoleum sheet flooring) was observed and sampled in the women's latrine in the basement. No asbestos was detected in the sample. Results are given in Table 3 and certificates of analysis are included in Appendix B.

Table 3 – Results of Asbestos Sampling for the PA ARNG RC Kane, PA on September 14, 2011.

Bulk Sample #	Sample Location	Result (%)*
Kane-ASB-01	Basement, Women's Latrine, Linoleum Sheet Flooring, Off-white w/blue and green specks	No asbestos detected

*The EPA defines an asbestos-containing material as one percent (1%) or more asbestos by visual estimation.

Visual Inspection for Water Damage and Mold Growth

A visual inspection was performed to determine if there was any water damage or visible mold growth at the facility. No water damage or evidence of mold growth was observed on the day on the inspection.

Visual Inspection for Housekeeping Concerns

A visual inspection was performed to assess the state of housekeeping in the facility. The housekeeping was good. All areas were clean and tidy.

Lighting

Illumination levels were measured using a Cal-Light 400L, calibrated on March 9, 2011, and compared to minimum lighting requirements for various facilities and functions based on the following references: American National Standards Institute/Illumination Engineering Society of

North America (ANSI/IESNA) Standard RP-1-04 (Office Lighting) and ANSI/IESNA Standard RP-7-01 (Lighting Industrial Facilities).

A lighting survey was performed in all areas within the readiness center. The evaluation indicated illumination deficiencies in the squad training room, a couple offices and a storage room. The illumination measurements indoors ranged from 17.7 foot candles (fc) to 95.6 fc. The complete results of the evaluation are presented in Appendix D, including whether the results met minimum requirements for illumination.

Indoor Air Quality (IAQ)

Indoor air quality measurements (i.e., temperature, relative humidity, carbon dioxide and carbon monoxide) were taken using a TSI Q-Trak Plus Model 8554, factory calibrated in February, 2011. Temperature, relative humidity and carbon dioxide (CO_2) measurements were compared to the recommended levels established by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE). Carbon monoxide (CO) concentrations were compared to the ACGIH Threshold Limit Value (TLV) for CO and the Environmental Protection Agency's (EPA's) National Ambient Air Quality Standard (NAAQS) for CO.

Industry guidelines or standards for seasonal temperature and humidity ranges for thermal comfort are established by ASHRAE standard 55-2010. These ranges are presented in Table 4. The U.S. EPA also recommends maintaining relative humidity below 60% and ideally between 30 and 50% to prevent mold growth. Complete results are provided in Appendix D with the lighting survey measurements.

Table 4 - Acceptable Ranges of Temperature and Relative Humidity in Summer and Winter[a]

Relative Humidity	Winter Temperature	Summer Temperature
30%	68.5°F – 76.0°F	74.0°F – 80°F
40%	68.5°F – 75.5°F	73.5°F – 79.5°F
50%	68.5°F – 74.5°F	73.0°F – 79.0°F
60%	68.0°F – 74.0°F	72.5°F – 78.0°F

[a]adapted from ASHRAE Standard 55-2010

Temperature and Relative Humidity

Indoor temperature and relative humidity (Rh) measurements in select areas of the facility ranged from 74.7° to 76.1° F and 58.4 to 60.2% Rh. Temperature was acceptable and relative humidity measurements were slightly above the comfort range on the day of the survey. The outdoor temperature and relative humidity was 73.6° F and 51.6% on the day of monitoring and doors and windows were open in most of the facility.

Carbon Dioxide (CO_2) and Carbon Monoxide (CO)

Carbon dioxide and carbon monoxide measurements are used to assess ventilation system performance. The exhaled breath of building occupants is the main indoor source of carbon dioxide; therefore, the build up of CO_2 indicates inadequate ventilation. The concentration of concern for carbon dioxide is set by ASHRAE standard 62.1–2010 as 700 ppm above outdoor concentrations. Indoor levels of CO_2 ranged from 431 to 491 parts per million (ppm). CO_2 measurements were below the guideline in all areas, indicating adequate fresh air exchange.

Carbon monoxide is a byproduct of incomplete combustion. Indoor concentrations indicate contamination caused by improperly vented or malfunctioning boilers, furnaces or stoves or from vehicle exhaust entering the building from garages, loading docks, nearby roads or parking lots. The concentration of interest set by ASHRAE standard 62.1-2010 and the National Ambient Air Quality Standards (NAAQS) for carbon monoxide is an 8 hour average of 9 ppm. The ACGIH TLV for CO is 25 ppm. Indoor levels of CO ranged from 0.7 to 1.6 ppm; therefore, concentrations are below occupational exposure limits, ASHRAE and the NAAQS-recommended CO concentrations.

Additional Information

Material Safety Data Sheets
The Material Safety Data Sheet (MSDS) notebook was reviewed and found to be complete. Some updates are required including retiring old data sheets per the OSHA Hazard Communication Standard: 29 CFR 1910.1200.

7 Conclusions

The results of the evaluation indicated no concerns with the following at the facility: contamination of clean air sources, water intrusion, noise hazards, visible mold and the presence of damaged suspect asbestos-containing materials and housekeeping. The results of the evaluation indicated industrial hygiene concerns in the following areas: peeling lead-based paint, accumulated lead-containing dust, relative humidity, material safety data sheets and lighting. Overall, the Kane Readiness Center has few industrial hygiene issues, and programs are in place to protect, inform and train employees and maintain the facility.

8 Limitations

This report has been prepared for the exclusive use of the U.S. Army National Guard (USARNG) and/or their agents. This service has been performed in accordance with generally accepted industrial hygiene and environmental practices. No other warranty, expressed or implied, is made. Our conclusions and recommendations are based, in part, upon information provided to us by others and our site observations. We have not verified the completeness or accuracy of the information provided to us by others, unless otherwise noted. Our observations and recommendations are based upon conditions readily visible at the site at the time of our site visit, and upon current industry standards.

By virtue of providing the services described in this report, the preparer does not assume the responsibility of the person(s) in charge of the site, or otherwise undertake responsibility for reporting to any local, state, or federal public agencies any conditions at the site that my present a potential danger to public health, safety, or the environment. It is the Client's responsibility to notify the appropriate local, state, or federal public agencies as required by law, or otherwise to disclose, in a timely manner, any information that may be necessary to prevent any danger to public health, safety, or the environment. Under this scope of services, the preparer assumes no responsibility regarding response actions initiated as a result of these findings. Response actions are the sole responsibility of the Client and should be conducted in accordance with local, state, and/or federal requirements, and should be performed by appropriately licensed personnel as warranted.

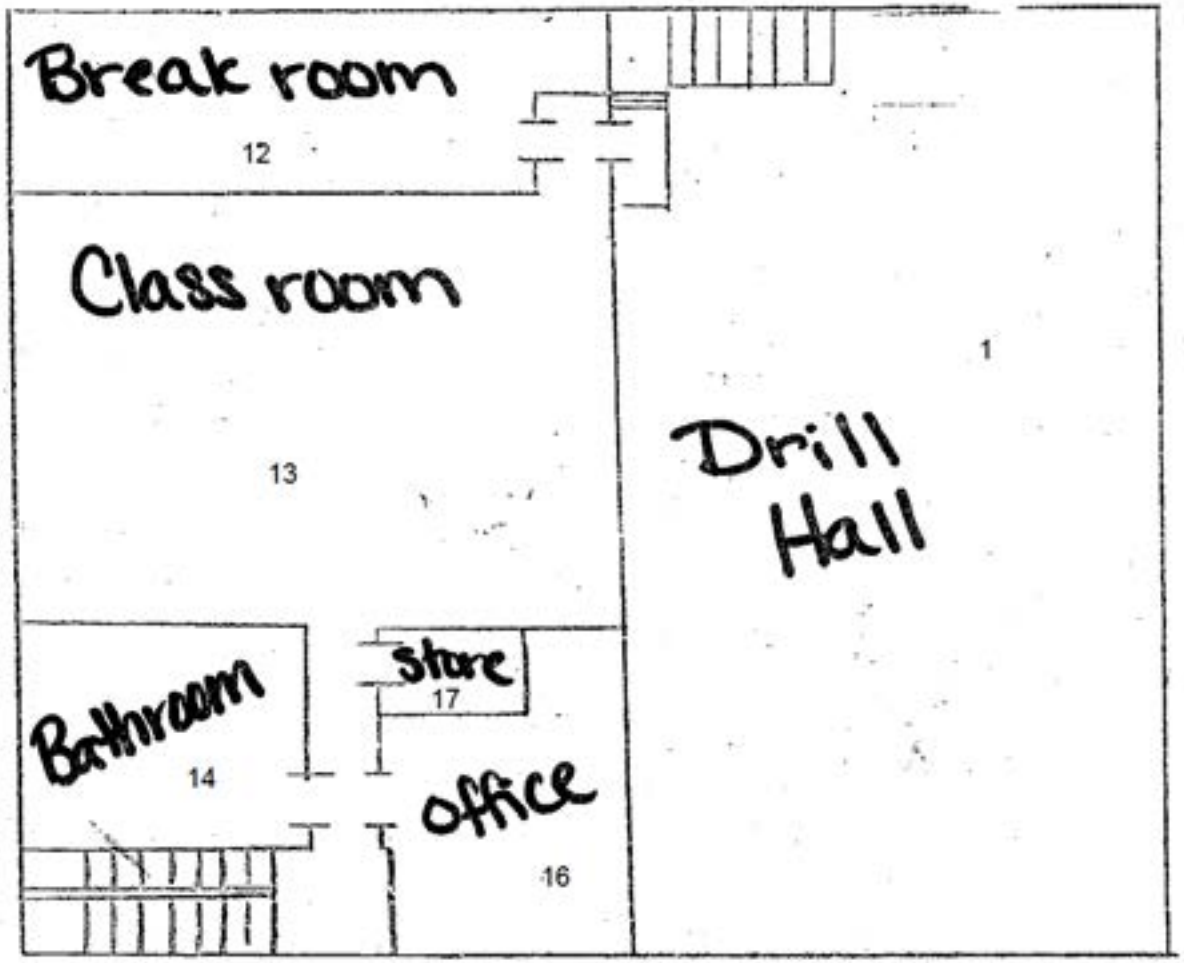
9 References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current edition.
2. Title 24, Code of Federal Regulations (CFR), Part 35, Subpart B, Sections 35.110, Definitions of Lead-Based Paint, Housing and Urban Development, U.S. Department of Housing.
3. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998.
4. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, May 25, 2007.
5. Army Regulation (AR) 385-10, The Army Safety Program, August 23, 2007.
6. Army Regulation (AR) 420-70 Buildings and Structures, 29 May 1992.
7. Army Regulation (AR) 200-1 Environmental Protection and Enhancement, 21 February 1997.
8. Army Regulation (AR) 420-1 Army Facilities Management, 19 February 2008.
9. Department of the Army Pamphlet (DA PAM) 40-501, Medical Service, Hearing Conservation Program, December 15, 1998.
10. Department of the Army Pamphlet (DA PAM) 40-503, Medical Service, Industrial Hygiene Program, October 30, 2000.
11. Technical Manual (TM) 5-810-1, Mechanical Design, Heating, Ventilation, and Air Conditioning, June 1991.
12. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current edition.
13. RP-1-2004 (Office Lighting) and RP-7-2001 (Industrial Lighting), Illuminating Engineering Society of North America (IESNA)/ANSI.
14. The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), Standard 62.1-2010, "Ventilation for Acceptable Indoor Air Quality" and Standard 55-2010, "Thermal Environmental Conditions for Human Occupancy".
15. NIOSH website: http://www.cdc.gov/niosh/.
16. OSHA website: http://www.osha.gov/.
17. Army Public Health Command website: http://phc.amedd.army.mil/Pages/default.aspx.
18. EPA website: http://www.epa.gov.

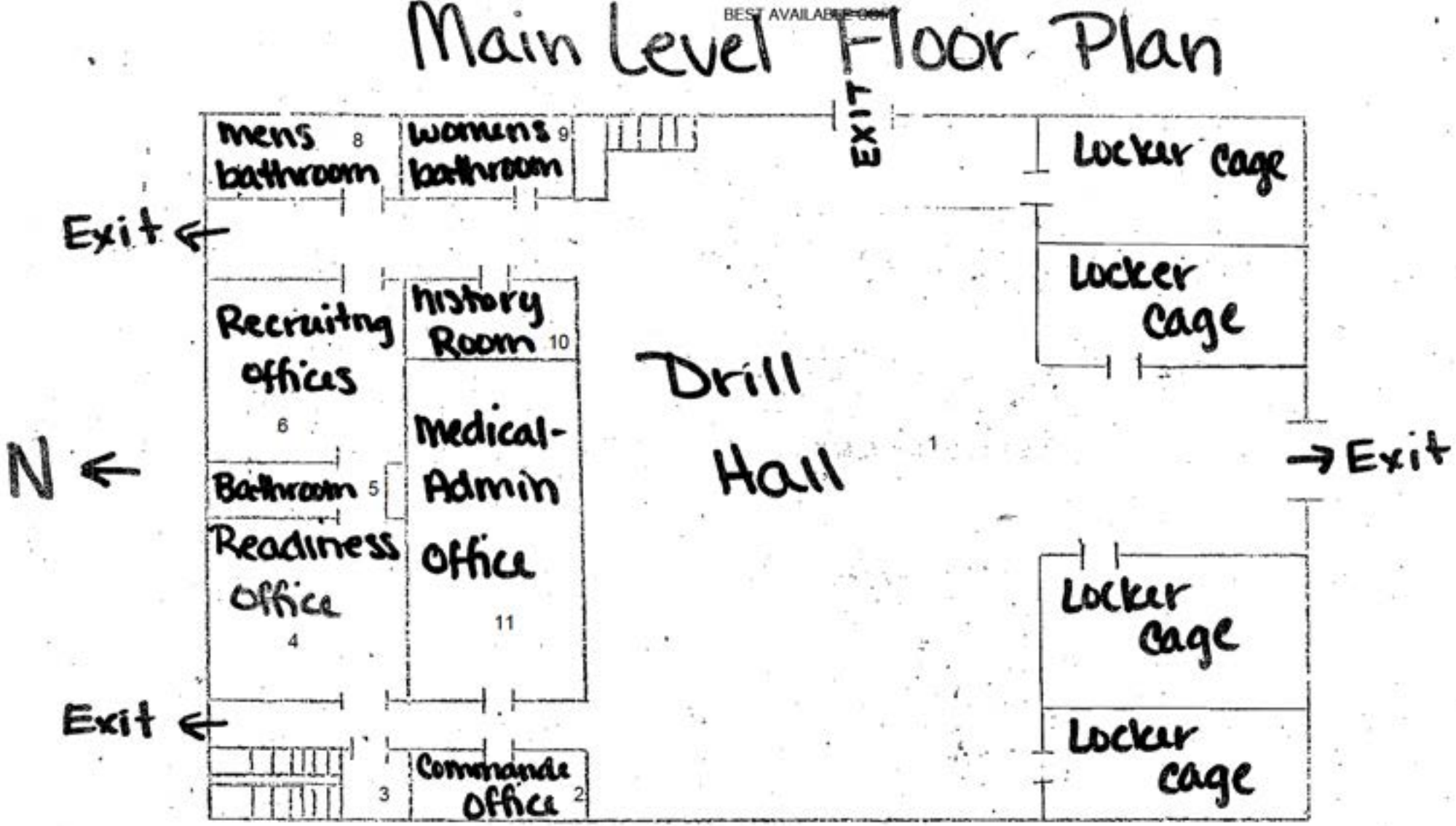
Appendix A
Building Layout

Upper Level Floor Plan

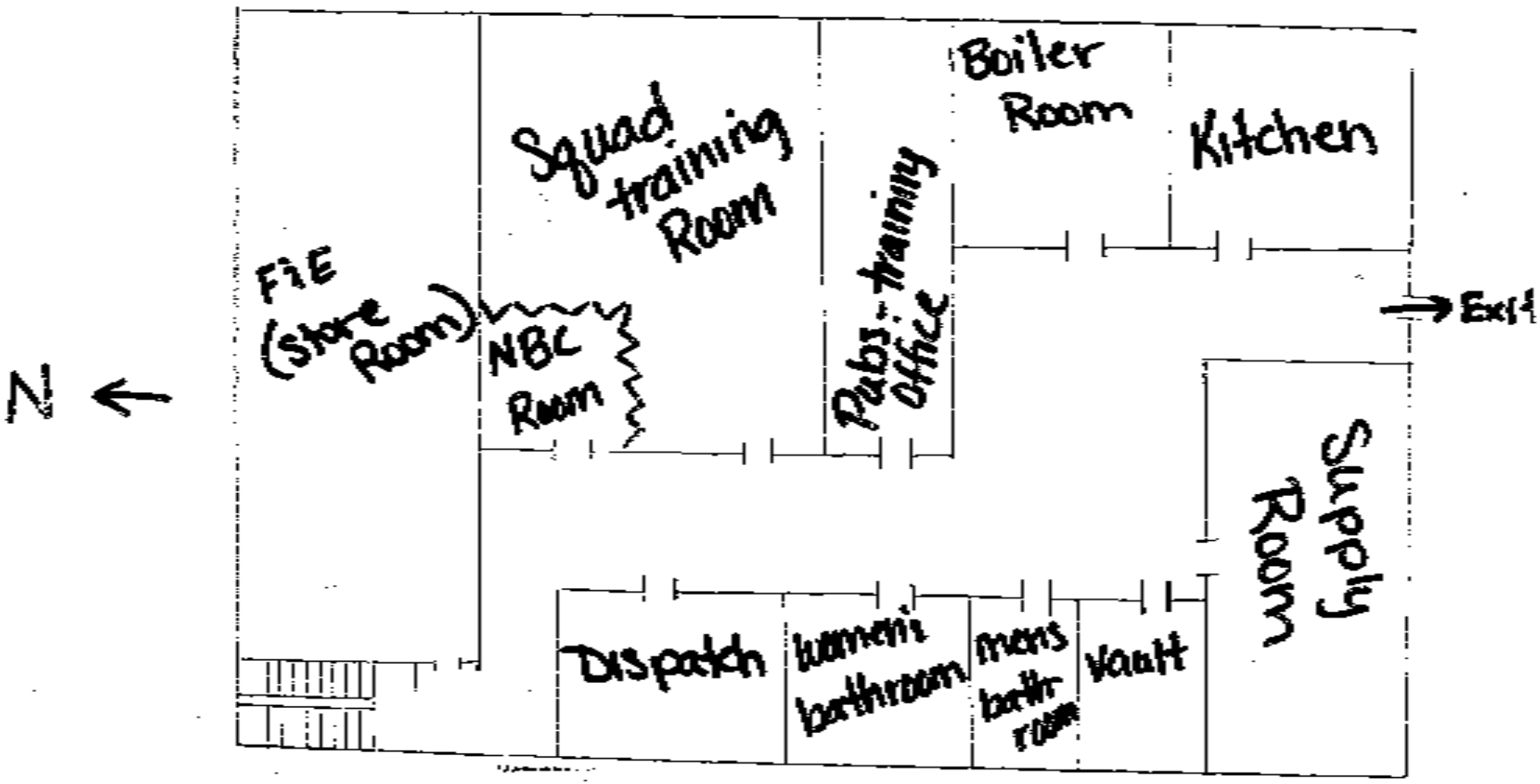
N ←



Main Level Floor Plan



Basement Floor Plan



Appendix B
Certificates of Analysis for Dust Wipe and Bulk Samples

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY
INDUSTRIAL HYGIENE, ENVIRONMENTAL LEAD & ENVIRONMENTAL MICROBIOLOGY
ISO/IEC 17025:2005
www.aihaccreditedlabs.org
LAP #100470

Client:	National Guard Bureau	**Job Name:**	Kane Readiness Center	**Chain Of Custody:**	511431		
Address:	301-B1 Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation	**Job Location:**	Kane, PA	**Date Submitted:**	9/23/2011		
	Havre de Grace, Maryland 21078	**Job Number:**	Not Provided	**Person Submitting:**	Non-Responsiv		
		P.O. Number:	W912K6-09-A-0003	**Date Analyzed:**	10/11/2011	**Report Date:**	10/14/2011

Attention: Non-Responsiv

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		Total ug	Final Result		Comments
12002551	KRC-1	Flame	Wipe	****	0.108	110	ug/ft²	200	1900	ug/ft²	
12002552	KRC-2	Flame	Wipe	****	0.108	110	ug/ft²	23	210	ug/ft²	
12002553	KRC-3	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
12002554	KRC-4	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
12002555	KRC-5	Flame	Wipe	****	0.108	110	ug/ft²	23	210	ug/ft²	
12002556	KRC-6	Flame	Wipe	****	0.108	110	ug/ft²	13	120	ug/ft²	
12002557	KRC-7	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
12002558	KRC-8	Flame	Wipe	****	0.350	31	ug/ft²	60	150	ug/ft²	
12002559	Kane-LBP-1	Flame	Paint Chip	****	N/A	0.008	%Pb		0.28	%Pb	
12002560	Kane-LBP-2	Flame	Paint Chip	****	N/A	0.0087	%Pb		0.023	%Pb	
12002561	Kane-LBP-3	Flame	Paint Chip	****	N/A	0.0092	%Pb		<0.0092	%Pb	
12002562	Kane-LBP-4	Flame	Paint Chip	****	N/A	0.0097	%Pb		0.17	%Pb	
12002563	Kane-LBP-5	Flame	Paint Chip	****	N/A	0.0087	%Pb		0.01	%Pb	
12002564	Kane-LBP-6	Flame	Paint Chip	****	N/A	0.0096	%Pb		11	%Pb	
12002565	Kane-LBP-7	Flame	Paint Chip	****	N/A	0.0094	%Pb		3.7	%Pb	

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

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INDUSTRIAL HYGIENE, ENVIRONMENTAL LEAD & ENVIRONMENTAL MICROBIOLOGY
ISO/IEC 17025:2005
www.aihaaccreditedlabs.org
LAP, LLC #100470

Client:	National Guard Bureau	**Job Name:**	Kane Readiness Center	**Chain Of Custody:**	511431		
Address:	301-III Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation	**Job Location:**	Kane, PA	**Date Submitted:**	9/23/2011		
	Havre de Grace, Maryland 21078	**Job Number:**	Not Provided	**Person Submitting:**	Non-Responsive		
		P.O. Number:	W912K6-09-A-0003	**Date Analyzed:**	10/11/2011	**Report Date:**	10/14/2011

Attention: Non-Responsive

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	Total ug	Final Result	Comments

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B

N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)

%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)

Note: All samples were received in good condition unless otherwise noted.

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results

Final results for air and wipe samples are based on client supplied information nor verified by this laboratory.

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

See QC Summary for analytical results of quality control samples associated with these samples.

Analyst: Non-Responsive

Technical Manager: Non-Responsive

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AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

NVLAP 101143-0

CERTIFICATE OF ANALYSIS

Client:	National Guard Bureau	**Job Name:**	Kane Readiness Center	**Chain Of Custody:**	511431
Address:	301-BH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation	**Job Location:**	Kane, PA	**Date Analyzed:**	10/11/2011
	Havre de Grace, Maryland 21078	**Job Number:**	Not Provided	**Person Submitting:**	Non-Responsive
		P.O. Number:	W912K6-09-A-0003		

Attention: Non-Responsive

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 Type	Sample Color	Homogeneity	Analyst ID	Comments
12002566	Kane-ASB-1	NAD	--	--	--	--	--	--	--	--	--	100	V	Multi	Homogeneous	PC	

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"

Uncertainty: For samples containing asbestos in range of 1-10% the CV is 0.43, 11-35% CV=0.55, >35 CV=0.23

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

Technical Director Non-Responsive **Analyst(s)** Non-Responsive

An AIHA (#100470), NVLAP (101143-0), and NY ELAP (#10920) Accredited Laboratory

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OM (410) 247-2024 | 199262 | 210 REV. 6.08

AMA Analytical Services, Inc.
Focused on Results www.amalab.com
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4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This Number For Inquires) 511431

PV2

Mailing/Billing Information:

1. Client Name: National Guard Bureau
2. Address 1: 301-IH Old Bay Lane
3. Address 2: Attn: NGB-AVN-SI, State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:

1. Job Name: KANE READINESS CENTER
2. Job Location: KANE, PA
3. Job #: [redacted] : W912K6-09-A-0003
4. Contact Person [redacted] 42-0273
5. Submitted By [redacted]

Reporting Information (Results will be provided [redacted]

AFTER HOURS (must be pre-scheduled)

- ☐ Immediate Date Due: ______
- ☐ 24 Hours Time Due: ______

Comments: ______

NORMAL BUSINESS HOURS

- ☐ Immediate
- ☐ Next Day
- ☐ 2 Day
- ☐ 3 Day
- ☒ 5 Day + Date Due: 9/30/11
- ☐ Results Required By Noon (Every Attempt Will Be Made to Accommodate)

REPORT TO: [redacted] Report ...ARCADIS ENVIRO.COM ...s.army.mil ...s.army.mil

Asbestos Analysis

PCM Air – Please Indicate Filter Type:
- ☐ NIOSH 7400 ______ (QTY)
- ☐ Fiberglass ______ (QTY)

TEM Air – Please Indicate Filter Type:
- ☐ AHERA ______ (QTY)
- ☐ NIOSH 7402 ______ (QTY)
- ☐ Other (specify ______) ______ (QTY)

PLM Bulk
- ☒ EPA 600 – Visual Estimate 1 (QTY)
- ☐ EPA Point Count ______ (QTY)
- ☐ NY State Friable 198.1 ______ (QTY)
- ☐ Grav. Reduction ELAP 198.6 ______ (QTY)
- ☐ Other (specify ______) ______ (QTY)

MISC
- ☐ Vermiculite
- ☐ Asbestos Soil PLM __ (Qual) PLV __ (Quant) PLM/TEM __ (Qual) PLM/TEM __ (Quant)

TEM Bulk
- ☐ ELAP 198.4/Chatfield ______ (QTY)
- ☐ NY State PLM/TEM ______ (QTY)
- ☐ Residual Ash ______ (QTY)

TEM Dust
- ☐ Qual. (pres/abs) Vacuum/Dust ______ (QTY)
- ☐ Quan. (s/area) Vacuum D5755-95 ______ (QTY)
- ☐ Quan. (s/area) Dust D6480-99 ______ (QTY)

TEM Water
- ☐ Qual. (pres/abs) ______ (QTY)
- ☐ ELAP 198.2/EPA 100.2 ______ (QTY)
- ☐ EPA 100.1 ______ (QTY)

☒ All samples received in good condition unless otherwise noted. (TEM Water samples ______ °C)

Metals Analysis
- ☒ Pb Paint Chip 7 (QTY)
- ☒ Pb Dust Wipe (wipe type: ______) 8 (QTY)
- ☐ Pb Air ______ (QTY)
- ☐ Pb Soil/Solid ______ (QTY)
- ☐ Pb TCLP ______ (QTY)
- ☐ Drinking Water ☐ Pb ____ (QTY) ☐ Cu ____ (QTY) ☐ As ____ (QTY)
- ☐ Waste Water ☐ Pb ____ (QTY) ☐ Cu ____ (QTY) ☐ As ____ (QTY)
- ☐ Pb Fume (Media ______) ______ (QTY)

Fungal Analysis

Collection Apparatus for Spore Traps/Air Samples: ______
Collection Media: ______
- ☐ Spore-Trap ______ (QTY)
- ☐ Surface Swab ______ (QTY)
- ☐ Surface Tape ______ (QTY)
- ☐ Other (Specify ______) ______ (QTY)
- ☐ Surface Vacuum Dust ______ (QTY)
- ☐ Culturable ID Genus (Media ______) ______ (QTY)
- ☐ Culturable ID Species (Media ______) ______ (QTY)

SAMPLE INFORMATION / ANALYSIS / MATRIX

CLIENT ID NUMBER	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPE AREA	TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	[illegible]	[illegible]	TAPE	SWAB
KRC-1		9/14/11		1000 in²				X				X				
KRC-2																
KRC-3																
KRC-4																
KRC-5																
KRC-6																
KRC-7																
KRC-8				1 ft²												
KANE-LBP-1											X					
KANE-LBP-2											X					
KANE-LBP-3											X					
KANE-LBP-4											X					

CLIENT CONTACT (LABORATORY STAFF ONLY)

Date/Time: Contact: By:

Date/Time: Contact: By:

Date/Time: Contact: By:

[redacted]

LABORATORY STAFF ONLY: (CUSTODY)

1. Date/Time RCVD: 9/30/11 @ 1030 Via: FedEx By (Print) [redacted]
2. Date/Time Analyzed: ___/___/___ @ ___ By (Print) ______
3. Results Reported To: ______ Via: ______ Date: ___/___/___ Time: ______ Initials: ______
4. Comments: PB50 TPB2 000

OW(410) 247-2024   199202   210 REV 6.06

AMA Analytical Services, Inc.
Focused on Results   www.amalab.com
AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)
4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This Number For Inquires)   2 of 2   5\1431

Mailing/Billing Information:
1. Client Name: National Guard Bureau
2. Address 1: 301-IH Old Bay Lane
3. Address 2: Attn: NGB-AVN-SL State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273   Fax #: (410) 942-0254

Submittal Information:
1. Job Name: KANE RC
2. Job Location: KANE, PA
3. Job #: Non-Responsive [redacted] : W912K6-09-A-0003
4. Contact Person [redacted] @ phone # (410) 942-0273
5. Submitted By: [redacted] Signature:

Reporting Information (Results will be provided as soon as technically feasible):

AFTER HOURS (must be pre-scheduled)	NORMAL BUSINESS HOURS			REPORT TO:
☐ Immediate Date Due: ____ ☐ 24 Hours Time Due: ____ Comments: ____	☐ Immediate ☐ Next Day ☐ 2 Day	☐ 3 Day ☐ 5 Day + Date Due: ____	☐ Results Required By Noon (Every Attempt Will Be Made to Accomodate)	☒ Include Non-Responsive [redacted] h Report ☒ [redacted] ☐ Fa[redacted] s.army.mil ☐ Ve[redacted] s.army.mil

Asbestos Analysis

PCM Air – Please Indicate Filter Type:
- ☐ NIOSH 7400 ____ (QTY)
- ☐ Fiberglass ____ (QTY)

TEM Air – Please Indicate Filter Type:
- ☐ AHERA ____ (QTY)
- ☐ NIOSH 7402 ____ (QTY)
- ☐ Other (specify ____) ____ (QTY)

PLM Bulk
- ☒ EPA 600 – Visual Estimate ____ 1 ____ (QTY)
- ☐ EPA Point Count ____ (QTY)
- ☐ NY State Friable 198.1 ____ (QTY)
- ☐ Grav. Reduction ELAP 198.6 ____ (QTY)
- ☐ Other (specify ____) ____ (QTY)

MISC
- ☐ Vermiculite
- ☐ Asbestos Soil PLM __(Qual) PLM __(Quant) PLM/TEM __(Qual) PLM/TEM __(Quant)

TEM Bulk
- ☐ ELAP 198.4/Chatfield ____ (QTY)
- ☐ NY State PLM/TEM ____ (QTY)
- ☐ Residual Ash ____ (QTY)

TEM Dust
- ☐ Qual. (pres/abs) Vacuum/Dust ____ (QTY)
- ☐ Quan. (s/area) Vacuum D5755-95 ____ (QTY)
- ☐ Quan. (s/area) Dust D6480-99 ____ (QTY)

TEM Water
- ☐ Qual. (pres/abs) ____ (QTY)
- ☐ ELAP 198.2/EPA 100.2 ____ (QTY)
- ☐ EPA 100.1 ____ (QTY)

☐ All samples received in good condition unless otherwise noted. (TEM Water samples ____ °C)

Metals Analysis
- ☐ Pb Paint Chip ____ (QTY)
- ☐ Pb Dust Wipe (wipe type ____) ____ (QTY)
- ☐ Pb Air ____ (QTY)
- ☐ Pb Soil/Solid ____ (QTY)
- ☐ Pb TCLP ____ (QTY)
- ☐ Drinking Water ☐ Pb ____ (QTY) ☐ Cu ____ (QTY) ☐ As ____ (QTY)
- ☐ Waste Water ☐ Pb ____ (QTY) ☐ Cu ____ (QTY) ☐ As ____ (QTY)
- ☐ Pb Furnace (Media ____) ____ (QTY)

Fungal Analysis
Collection Apparatus for Spore Trap/Air Sample: ____
Collection Media ____
- ☐ Spore-Trap ____ (QTY) ☐ Surface Vacuum Dust ____ (QTY)
- ☐ Surface Swab ____ (QTY) ☐ Culturable ID Genus (Media ____) ____ (QTY)
- ☐ Surface Tape ____ (QTY) ☐ Culturable ID Species (Media ____) ____ (QTY)
- ☐ Other (Specify ____) ____ (QTY)

SAMPLE INFORMATION / ANALYSIS / MATRIX

CLIENT ID NUMBER	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPE AREA	TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	WATER	WIPE	TAPE	SWAB
KANE-LBP-5		9/14/11						X			X					
KANE-LBP-6		↓						X			X					
KANE-LBP-7		↓						X			X					
KANE-ASB-1		✓					X				X					

CLIENT CONTACT (LABORATORY STAFF ONLY)

Date/Time: ____ Contact: ____ By: ____

Date/Time: ____ Contact: ____ By: ____

Date/Time: ____ Contact: ____ By: ____

Non-Responsive [redacted]

LABORATORY STAFF ONLY: (CUSTODY)
1. Date/Time RCVD: ____/____/____ @ ____ Via: ____ By (Print) ____ S[redacted]
2. Date/Time Analyzed: ____/____/____ @ ____ By (Print) ____ Sign: ____
3. Results Reported To: ____ Via: ____ Date: ____/____/____ Time: ____ Initials: ____
4. Comments: ____

Appendix C
Photo Documentation

Kane, PA Readiness Center

Exterior

Garage Storage Building

Drill Hall

Deteriorating Paint on Drill Hall Ceiling

Kane, PA Readiness Center

Classroom

Kitchen

Flammable Materials Storage Cabinet

Arms Vault

Kane, PA Readiness Center

Arms Vault

Asbestos Thermal System Insulation on 3 Pipes in F&E Store Rom

Delaminated Peeling Paint on Floor

Boiler Room

Appendix D
IAQ and Lighting Survey Log Sheets

National Guard Industrial Hygiene Survey For Indoor Air Quality and Light Level

State	PA	City	Kane	IAQ							Light		
Date	9/14/2011	Inspector	Non-	Instrument		TSI Q-Trak Plus Model 7565-X					Instrument		CAL-LIGHT 400
Facility Description	**Readiness Center**			Serial Number		7565-X0839020					Serial Number		k070003
Weather Conditions				Last Calibration		Feb-11					Last Calibration		9-Mar-11
Location	Function	No. Occupants	Time	Temp. (°F)	Exceeded	RH (%)	Exceeded	CO_2 (ppm)	Exceeded	CO (ppm)	Exceeded	Illuminance (fc)	Insufficient	Illuminance Reference Value (fc)
1	Drill Hall	1	1:20 PM	76.1		58.4		482		1.6		95.6		30-50
12	Break Room	1	1:30 PM	75.7		58.9		491		0.8				
19	Squad training	1	1:35 PM	74.7		60.2		431		0.7		19.5	X	30-50
18	F&E Store Room	1										34.6		30
20	Office	2										22.3	X	30-50
21	Boiler Room	1										64.0		30
22	Kitchen	1										67.9		50
23	Storage	2										60.1		30
24	Vault	1										54.2		30
25	Men's Latrine	1										33.8		5
26	Women's Latrine	1										24.4		5
27	Dispatch	1										35.9		30-50
28	Corridor	1										65.1		5
12	Break Room	1										38.4		10
13	Office	4										75.3		30-50
14	Bathroom	1										37.9		5
15	Stairwell	1										52.1		5
16	Office	2										50.4		30-50
2	Office	2										21.0	X	30-50
3	Stairwell	1										66.3		5
4	Office	2										82.7		30-50
5	Bathroom	1										20.7		5

National Guard Industrial Hygiene Survey For Indoor Air Quality and Light Level

State	PA	City	Kane	IAQ							Light		
Date	9/14/2011	Inspector	Non-	Instrument		TSI Q-Trak Plus Model 7565-X					Instrument		CAL-LIGHT 400
Facility Description	**Readiness Center**			Serial Number		7565-X0839020					Serial Number		k070003
Weather Conditions				Last Calibration		Feb-11					Last Calibration		9-Mar-11
Location	Function	No. Occupants	Time	Temp. (°F)	Exceeded	RH (%)	Exceeded	CO_2 (ppm)	Exceeded	CO (ppm)	Exceeded	Illuminance (fc)	Insufficient	Illuminance Reference Value (fc)
6	Office	2										79.8		30-50
7	Hall	1										22.3		5
8	Men's Bathroom	1										30.5		5
9	Women's Bathroom	1										48.7		5
10	Storage	1										17.7	X	30
11	Office/Break Room	1										90.5		30-50
Outside				73.6		51.6		397		0.8				

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland




Industrial Hygiene Survey
for PAARNG – Kane Readiness Center
208 Chestnut Street
Kane, Pennsylvania 16735

AECOM
January 2013
Document No.: 60276421/Kane Readiness Center

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland

Industrial Hygiene Survey
for PAARNG – Kane Readiness Center
208 Chestnut Street
Kane, Pennsylvania 16735

Non-Responsive
[redacted]
Industrial Hygienist

Non-Responsive
[redacted]
Project Manager

Non-Responsive
[redacted]
Northeast District Health & Safety Manager

AECOM Environment
January 2013
Document No.: 60276421/Kane Readiness Center

AECOM

Contents

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Executive Summary

On November 8, 2012, AECOM Technical Services Northeast, Inc. (AECOM) conducted an Industrial Hygiene (IH) survey of the Kane Readiness Center facility located at 208 Chestnut Street in Kane, Pennsylvania. SPC Non-Pa[redacted] was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Kane Readiness Center operations.

The industrial hygiene survey was generally conducted in accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings", dated January 2012.

The Kane Readiness Center is currently staffed by three personnel. The facility is configured as an administrative area and a drill hall.

Personnel at the facility were undertaking normal daily activities, which are administrative in nature, at the time of the survey.

The activities undertaken during the industrial hygiene survey included facility descriptions, lead wipe sampling, evaluation of housekeeping, illumination studies, ventilation system evaluation, and a review of the physical building condition.

Housekeeping is performed regularly at the Kane Readiness Center. AECOM did not observe dust accumulation on readily accessible horizontal surfaces within areas commonly used administrative areas in the facility.

Lighting levels measured throughout the facility were generally adequate as per American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005. Lighting levels in the boiler room were below recommended guidelines.

Wipe samples collected in association with the facility indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U.S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 micrograms per square foot (ug/ft^2) for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

Damaged/peeling lead-based paint was observed at the Kane Readiness Center during this survey. Approximately 2,000 square feet is located on the basement floor and 100 square feet is located on the south wall of the kitchen.

Damaged suspect asbestos containing ceiling plaster was observed during the evaluation. The material was sampled and found not to contain asbestos.

Evidence of water intrusion was observed in the kitchen. Water intrusion is a mold growth risk factor.

There is no active Heating, Ventilation & Air Conditioning (HVAC) system in the building. The building is heated by a boiler system that feeds radiant heaters throughout the facility.

1.0 Facility Description and Operations

The Kane Readiness Center, constructed in 1922, is a two-story administrative facility masonry structure with a full basement. The building consists primarily of offices, training/classroom, locker/shower rooms, storage and administrative areas, and is finished with plaster walls, lay-in ceiling tiles, hardwood and concrete floors, and floor tile. The Drill Hall, located in the center of the building, is finished with painted block walls and a hardwood floor. According to site personnel there is no firing range at this facility.

The primary activity at the Kane Readiness Center is routine administrative duties. The Kane Readiness Center is currently staffed by approximately 3 personnel. No vehicle maintenance activities are undertaken at this facility.

2.0 Sampling in Readiness Centers

2.1.1 Wipe Sampling

Wipe sampling for lead was following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost Wipes. AECOM did not observe dust accumulation on readily accessible horizontal surfaces within areas commonly used administrative areas in the facility.

The following table presents the results of the lead wipe sampling conducted at the facility.

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
KN-01	Drill hall north – floor	<110 ug/ft^2
KN-02	Drill hall south – floor	<110 ug/ft^2
KN-03	Drill hall – top of rolled up wrestling mat	<110 ug/ft^2
KN-04	Kitchen	<110 ug/ft^2
KN-05	Medical administrative office – desk	<110 ug/ft^2
KN-06	Medical administrative office – shelf	<110 ug/ft^2
KN-07	Corridor – floor	<110 ug/ft^2

ug/ft^2 = Micrograms per square foot.

Wipe samples collected in association with the facility indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft^2 for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas. Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

Per Non-Responsive of NGB-IH, the requirement for Lead air sampling has been removed from the Statement of work. It was reported that historically, air samples collected at administrative facilities are typically below the limit of detection.

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls is in generally good condition. AECOM observed damaged/peeling paint on the basement floor and the south wall of the kitchen during this evaluation. Paint chip samples were collected and found to contain quantifiable levels of lead. Approximately 2,000 square feet of damaged lead-based paint is located on the basement floor and approximately 100 square feet is located on the south wall of the kitchen. Laboratory analytical results are presented in Appendix C.

Sample Number	Sample Location	Lead Concentration
KN-08	Basement Hall - Floor	0.045 % Pb
KN-09	Kitchen Wall	0.63% Pb

3.1.2 Suspect Asbestos Containing Materials

AECOM observed damaged, friable suspect asbestos-containing materials (ACM) in readily accessible areas of the Kane Readiness Center during this survey. Specifically, damaged plaster was present in the kitchen. AECOM collected bulk samples of the material. It was not found to contain asbestos. Laboratory analytical results are presented in Appendix C.

Typical suspect miscellaneous building materials observed throughout the building but not sampled include sheetrock and associated joint compound, floor tiles and associated mastic, cove base and associated mastic, ceiling tiles, pipe insulation, and window caulk.

There is approximately 273 linear feet (LF) of presumed ACM pipe insulation in good condition in basement spaces in the facility. Approximately 140 LF is located in the F&E storage room, 20 LF in the stairwell, 33 LF in the corridor adjacent to the stairwell, 45 LF in the squad training room, 20 LF in the Pubs-Training Office, and 15 LF and associated fittings in the boiler room.

3.1.3 Water Damage/Mold

AECOM observed evidence of water intrusion in the kitchen during this survey. No visible mold growth was observed.

3.1.4 Housekeeping

The Kane Readiness Center was observed to be generally clean and orderly during this assessment. AECOM did not observe dust accumulation on readily accessible horizontal surfaces within areas commonly used in the facility. There was some dust accumulation on a wrestling mat that was rolled up in the drill hall.

3.1.5 Indoor Air Quality/ Ergonomics

The administration section contains general office space. The administration section is generally utilized by all of the Kane Readiness Center staff members. No Indoor Air Quality concerns were noted by the Kane Readiness Center personnel.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (^{o} Fahrenheit), and relative humidity (as percentage) are presented in the following table. All readings were within acceptable guidelines.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (^{o}F)	Relative Humidity (%)
Outside – baseline	0.8	334	34.2	39.2
Main office (readiness)	0.9	555	73.3	23.3
Medical administrative office	0.7	561	73.4	24.5
2nd floor classroom	0.6	533	70.5	27.7
Basement hall	0.9	453	71.2	23.0
Drill hall	0.8	403	62.9	24.7

Table 3-1 Guidelines:
Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard.
OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.
Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.
Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 5.10.1).
Temperature: Winter (clothing insulation = 1.0 clo) Relative humidity 30-60% - Temp - 68 – 75°F
Summer Temp - 73 – 79°F. (Derived from ASHRAE Standard 55-2010)

Kane Readiness Center personnel did not report any ergonomics issues or concerns. Office furniture and accessories designed to promote ergonomically correct behaviors were observed.

4.0 Ventilation and HVAC System

4.1.1 Ventilation Systems and Potential for Contamination of Clean Air Sources

No potential for contamination of clean air sources was observed at the facility.

4.1.2 HVAC Maintenance

There is no HVAC system associated with the building.

5.0 Lighting

Lighting levels in all areas were measured utilizing Extech model 401-025 light meter that displays lighting levels in foot-candles. Lighting levels were adequate in all areas with the exception of the boiler room.

Table 5-1: Light Survey

Location		Results (Foot candles)	Met Standard (Y/N)	Standard*
Basement	FRG store room	42.1	Y	30
	Squad training room	61.5	Y	50
	Pubs training office	71.8	Y	50
	Boiler room	12.1	N	30
	Kitchen	50.8	Y	50
	Supply room	61.6	Y	30
	Men's bathroom	46.8	Y	5
	Women's bathroom	63.1	Y	5
	Dispatch	53.2	Y	50
	Stairway	58.0	Y	5
Main level	Men's bathroom	27.5	Y	5
	Women's bathroom	42.1	Y	5
	Recruiting offices	76.5	Y	50
	Bathroom	28.6	Y	5
	Readiness office	82.6	Y	50
	Medical administrative office	102.7	Y	50
	Corridor	70.4	Y	5
	Commander's office	76.1	Y	50
	Platoon SGT office	52.0	Y	50
	Drill hall	35	Y	10
	Locker cage	43.1	Y	30
	Locker cage	56.2	Y	30
	Locker cage	48.7	Y	30
	Locker cage	35.1	Y	30
Upper level	Break room	41.9	Y	10
	Classroom	41.2	Y	30
	Bathroom	21.6	Y	5
	Office	59.3	Y	50
	Stairway	45.9	Y	5
	Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI RP-7-01)			

6.0 Evaluation of Attached Garage

There is no garage associated with the Kane Readiness Center.

7.0 Conclusions and Limitations

AECOM has conducted this survey in accordance with applicable OSHA methods and standard industrial hygiene practice. The following conclusions were based on the observations and assessments of activities that occurred during the on-site evaluation:

Housekeeping is performed regularly at the Kane Readiness Center. AECOM did not observe dust accumulation on readily accessible horizontal surfaces within areas commonly used administrative areas in the facility.

Lighting levels measured throughout the facility were generally adequate as per American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005. Lighting levels in the boiler room were below recommended guidelines.

Wipe samples collected in association with the facility indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U.S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 ug/ft^2 for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

Damaged/peeling lead-based paint was observed at the Kane Readiness Center during this survey. Approximately 2,000 square feet is located on the basement floor and 100 square feet is located on the south wall of the kitchen.

Damaged suspect asbestos containing ceiling plaster was observed during the evaluation. The material was sampled and found not to contain asbestos.

Evidence of water intrusion was observed in the kitchen. Water intrusion is a mold growth risk factor.

There is no active Heating, Ventilation & Air Conditioning (HVAC) system in the building. The building is heated by a boiler system that feeds radiant heaters throughout the facility.

AECOM provided these services consistent with the level and skill ordinarily exercised by members of the profession currently providing similar services under similar circumstances at the time the services were provided. This statement is in lieu of other statements either expressed or implied. This report is intended for the sole use of National Guard Bureau – Army National Guard. The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, and use or re-use of this document, the findings, conclusions, or recommendations is at the risk of said user.

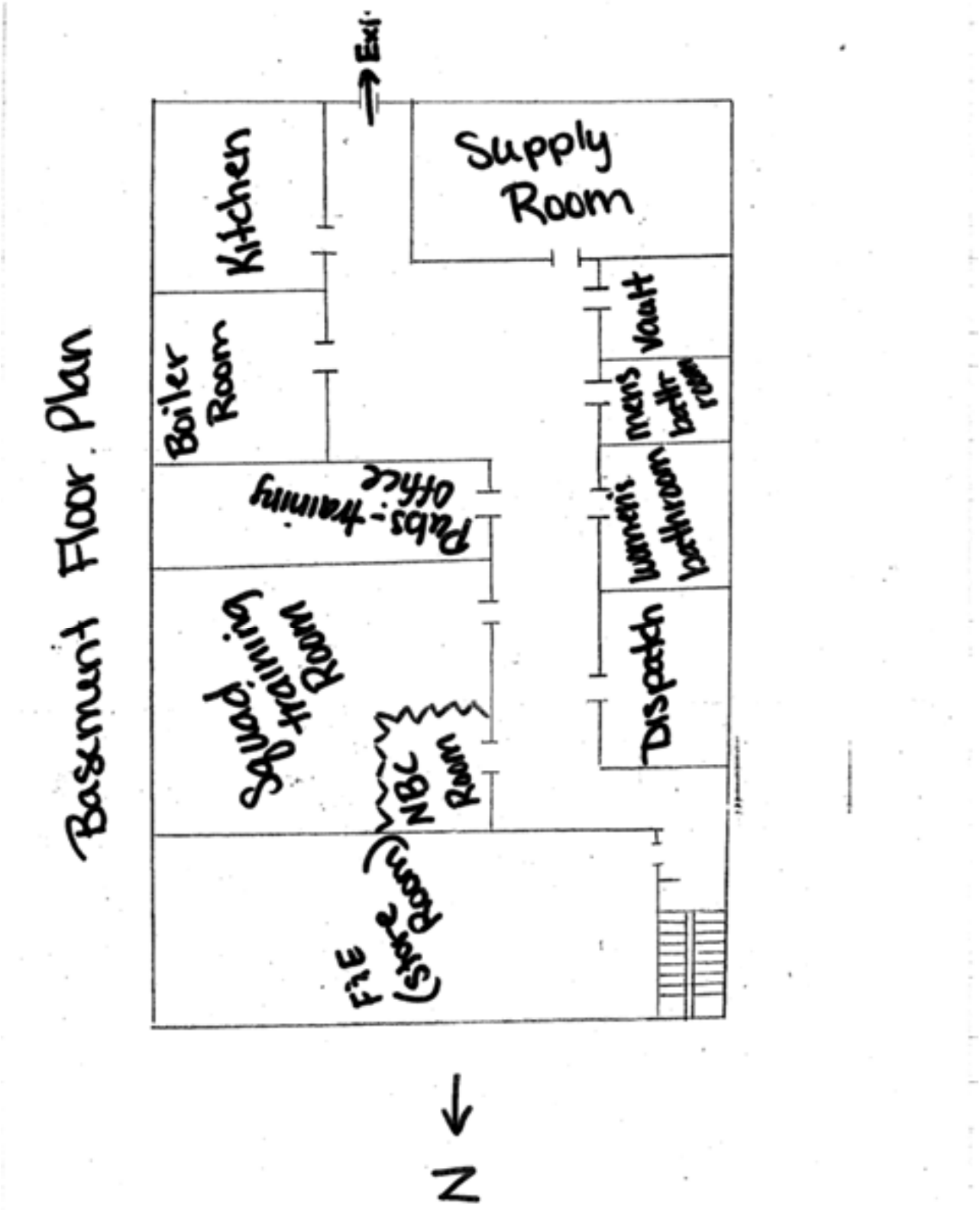
As with all such surveys, the results of the sampling represent conditions found on the date of the survey and may not represent conditions found at other times. Additionally, this survey was limited with respect to the specific parameters indicated above and should not be construed to be a comprehensive evaluation or a definitive representation of conditions within the facility. The information presented in this report is intended to be used as a guide to evaluate the need for further investigation or the need for modifications to the processes or procedures surveyed.

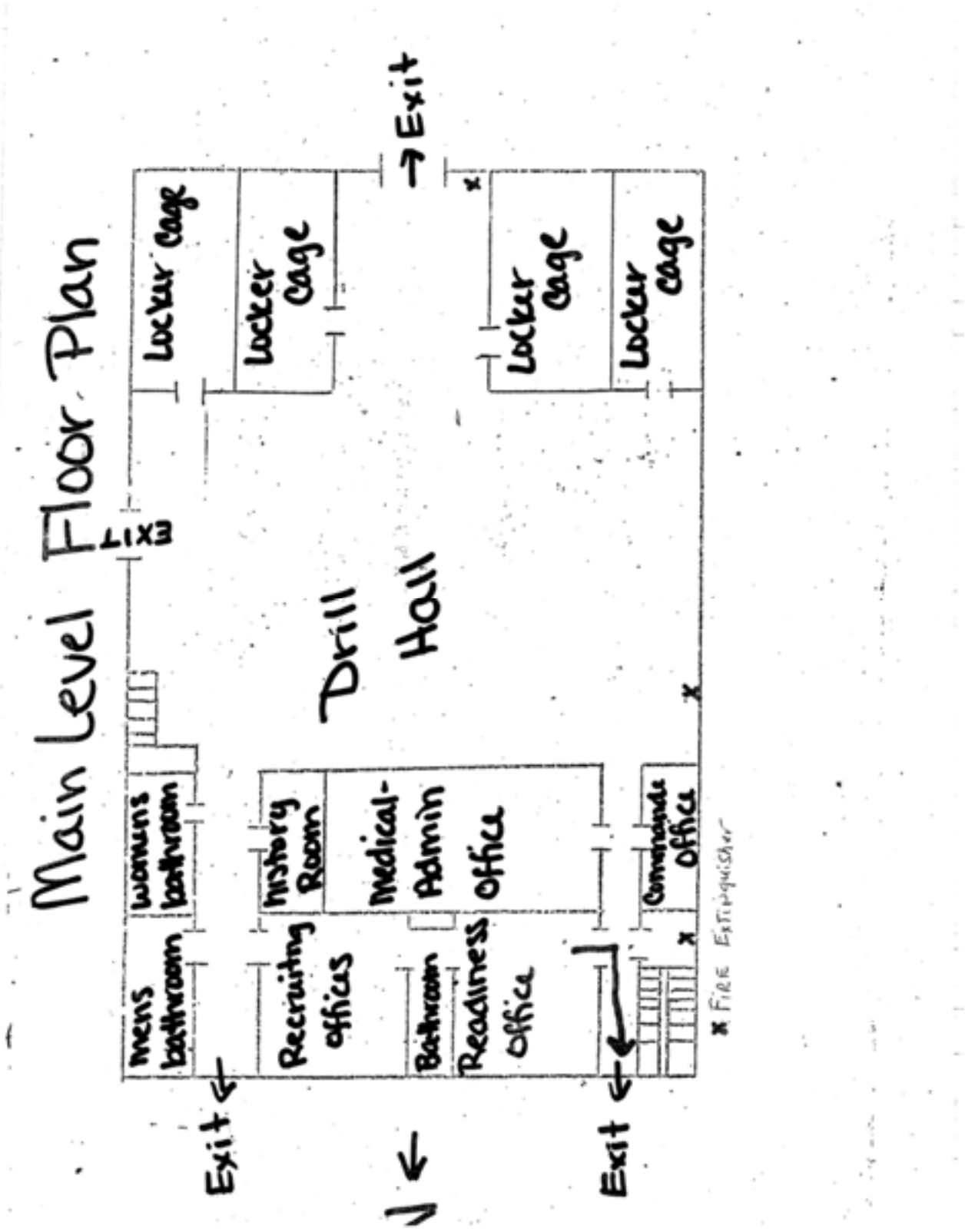
The Client recognizes and agrees that all testing and remediation methods have reliability limitations, no method nor number of sampling locations can guarantee that a condition will be discovered within the performance of the services as authorized by the Client. Additionally, the passage of time may result in a change in the environmental characteristics at this site. This report does not warrant against future operations or conditions that could affect the recommendations made. The results, findings, conclusions, and recommendations expressed in this report are based only on conditions that were observed during AECOM's inspection of the site.

Appendix A

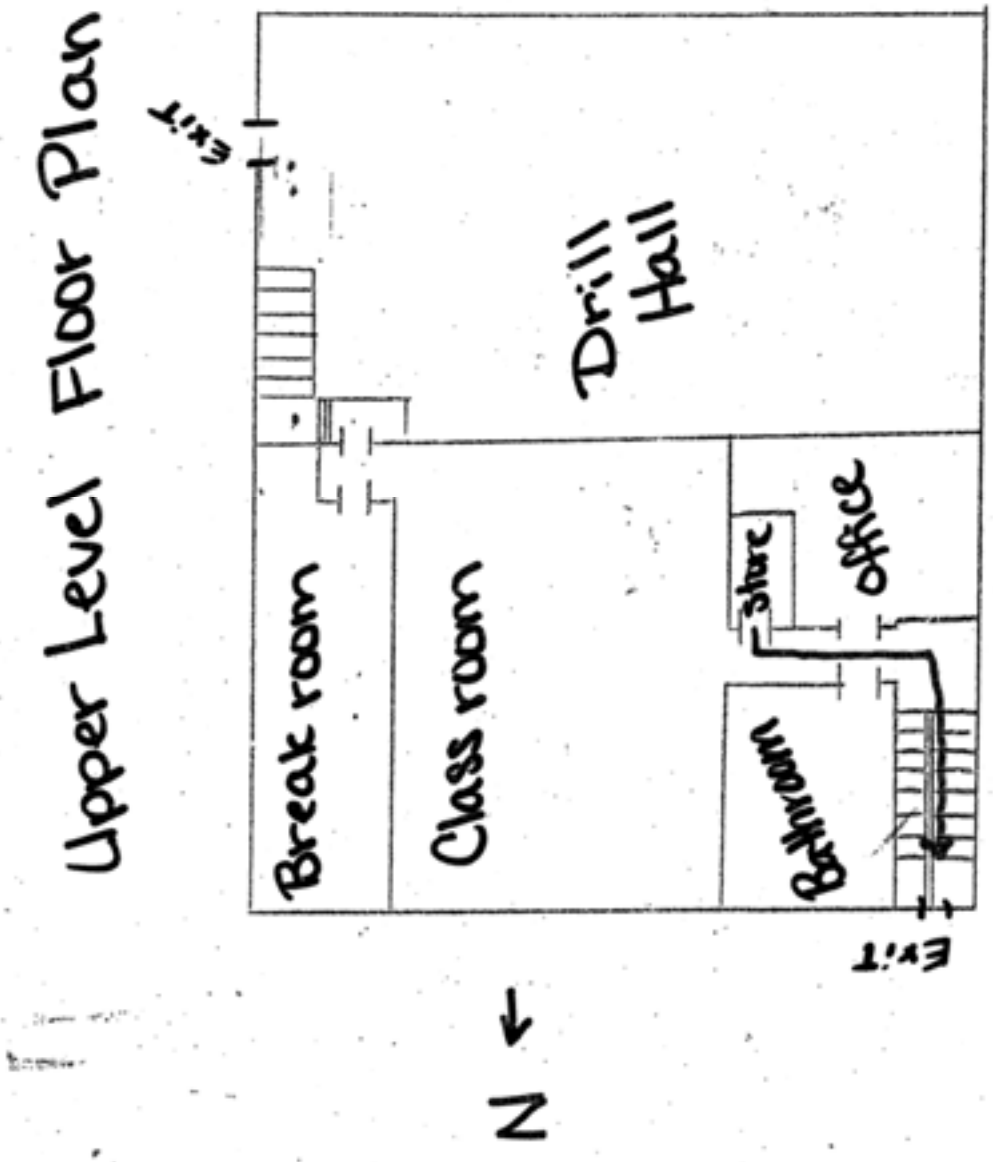
Kane Readiness Center Facility Layout

AECOM





AECOM



Appendix B

Kane Readiness Center Photographs

AECOM

Photograph 1

Facility Front
Photograph 2

Basement Classroom - ACM Pipe Insulation

AECOM

Photograph 3

Basement Corridor - ACM Pipe Insulation
Photograph 4

Boiler Room

AECOM

Photograph 5

Damaged Kitchen Ceiling Plaster
Photograph 6

Damaged Paint Basement Floor

AECOM

Photograph 7

Damaged Paint Kitchen South Wall

Photograph 8

Drill Hall

AECOM

Photograph 9

2nd Floor Office / Classroom

Photograph 10

Kitchen

AECOM

Photograph 11

Medical Office

Photograph 12

Unit Heater In Drill Hall

AECOM

Photograph 13

Wipe Sample Location In Drill Hall

Appendix C

Analytical Results

AECOM

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	PA-Group 4a RC's	Chain Of Custody:	514468		
Address:	301-B1 Old Bay Lane, Attn: ARNG-CEC-P, State Military Reservation	Job Location:	Kane	Date Submitted:	10/22/2012		
	Havre de Grace, Maryland 21078	Job Number:	60276423.1	Person Submitting:	AECOM		
		P.O. Number:	W912K5-09-A-6003	Date Analyzed:	11/15/2012	Report Date:	11/19/2012

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		Total ug	Final Result		Comments
13014044	KN-01	Flame	Wipe	****	0.111	100	ug/ft²	<12	<100	ug/ft²	
13014045	KN-02	Flame	Wipe	****	0.111	100	ug/ft²	<12	<100	ug/ft²	
13014046	KN-03	Flame	Wipe	****	0.111	100	ug/ft²	<12	<100	ug/ft²	
13014047	KN-04	Flame	Wipe	****	0.111	100	ug/ft²	<12	<100	ug/ft²	
13014048	KN-05	Flame	Wipe	****	0.111	100	ug/ft²	<12	<100	ug/ft²	
13014049	KN-06	Flame	Wipe	****	0.111	100	ug/ft²	<12	<100	ug/ft²	
13014050	KN-07	Flame	Wipe	****	0.111	100	ug/ft²	<12	<100	ug/ft²	
13014051	KN-08	Flame	Paint Chip	****	N/A	0.0010	%Pb		0.045	%Pb	
13014052	KN-09	Flame	Paint Chip	****	N/A	0.0201	%Pb		0.63	%Pb	

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AECOM

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

AIHA LAP, LLC ACCREDITED LABORATORY

CERTIFICATE OF ANALYSIS

Client:	National Guard Bureau	Job Name:	PA-Group 4e RC's	Chain Of Custody:	514468
Address:	301-B1 Old Bay Lane, Attn: ARNG-CSG-P, State Military Reservation	Job Location:	Kane	Date Submitted:	11/12/2012
	Havre de Grace, Maryland 21078	Job Number:	60276421.1	Person Submitting:	AECOM
		P.O. Number:	W912QR-08-A-0003	Date Analyzed:	11/15/2012 Report Date: 11/19/2012

Attention: [redacted]

Summary of Atomic Absorption Analysis for Lead

Page 2 of 2

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Total ug	Final Result	Comments

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B

NA = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)

%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)

Note: All samples were received in good condition unless otherwise noted.

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results.

Final results for air and wipe samples are based on client supplied information not verified by this laboratory.

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

See QC Summary for analytical results of quality control samples associated with these samples.

Analyst: [redacted]

Technical Manager: [redacted]

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AECOM

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP 101143-0

Client:	National Guard Bureau	Job Name:	PA-Group 4: RC's	Chain Of Custody:	514468
Address:	301-80 Old Bay Lane, Attn: ARNG-CSG-P, State Military Reservation	Job Location:	Kane	Date Analyzed:	11/15/2012
	Havre de Grace, Maryland 21078	Job Number:	60276421.1	Person Submitting:	AECOM
		P.O. Number:	W912KJ-09-A-3000		

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 Type	Sample Color	Homogeneity	Analyst ID	Comments
13014053	KN-10A	NAD	--	--	--	--	--	--	--	--	--	100	CPL	White	Homogeneous	LBP	
13014054	KN-10B	NAD	--	--	--	--	--	--	--	--	--	100	CPL	White	Homogeneous	LBP	
13014055	KN-10C	NAD	--	--	--	--	--	--	--	--	--	100	CPL	White	Homogeneous	LBP	

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"

Uncertainty: For samples containing asbestos in range of 1-10% the CV is 0.43, 11-35% CV=0.55, >35 CV=0.25

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

Technical Director [redacted] Analyst(s) [redacted]

AECOM

Surface Sampling Field Data Sheet

Date Collected: 11/8/12
Job Number: 60276424.1
Contact Person: Non-Respon

Job Name: ~~KANE RC~~ PA Group 4e RC's
Job Location: KANE RC
Address: 208 Chestnut St.
KANE, PA, 16735

Company: AECOM
Phone Number: 3154320506
Collected By: Non-Resp
COC Number:

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in^2/ft^2)	Collection Media
KN-01	Drill Hall - N	Floor	16 in^2	Ghost WIPE
KN-02	" " - S	Floor	"	"
KN-03	" " "	on rolled wrestling mat	"	"
KN-04	Kitchen		"	"
KN-05	med Admin Office	Desk	"	"
KN-06	med Admin Office	on shelf	"	"
KN-07	Corridor	Floor	"	"
KN-08	Basement Hall	Floor	NA	Bulk
KN-09	Kitchen	Wall	NA	Bulk

Please Return Samples To:
AMA Analytical Services, Inc., 4075 Forbes Blvd. Lanham, MD 20706, (800) 346-0861(C01) 459-2640 Fax, www.amalab.com, lab@amalab.com

AECOM

Bulk Sampling Survey Sheet

Date Collected: 11/8/12
Job Number: 60276171.1
Contact Person: [redacted]

Job Name: ~~KANE~~ REPA Group 4e DC's
Job Location: PA KANE RC
Address: 208 Chestnut ST
KANE, PA

Page 2 of 2
Company: AECOM
Phone Number: 215 4820826
Collected By: [redacted]
COC Number:

Sample Number	Homogeneous Area ID	Type of Material	Sample Location	Friable	Condition of Material	Accessibility	Photo	Comments
KN-10A	10 B	Ceiling plaster Surf.	kitchen	☒ Yes ☐ No ☐ Potentially	☐ Good ☐ Fair ☒ Poor	☐ Low ☒ Medium ☐ High	☒ Yes ☐ No	Plaster
KN-10B	10	↓	↓	☒ Yes ☐ No ☐ Potentially	☐ Good ☐ Fair ☒ Poor	☐ Low ☒ Medium ☐ High	☒ Yes ☐ No	↓
KN-10C	10	↓	↓	☒ Yes ☐ No ☐ Potentially	☐ Good ☐ Fair ☒ Poor	☐ Low ☒ Medium ☐ High	☒ Yes ☐ No	↓
				☐ Yes ☐ No ☐ Potentially	☐ Good ☐ Fair ☐ Poor	☐ Low ☐ Medium ☐ High	☐ Yes ☐ No	
				☐ Yes ☐ No ☐ Potentially	☐ Good ☐ Fair ☐ Poor	☐ Low ☐ Medium ☐ High	☐ Yes ☐ No	
				☐ Yes ☐ No ☐ Potentially	☐ Good ☐ Fair ☐ Poor	☐ Low ☐ Medium ☐ High	☐ Yes ☐ No	
				☐ Yes ☐ No ☐ Potentially	☐ Good ☐ Fair ☐ Poor	☐ Low ☐ Medium ☐ High	☐ Yes ☐ No	
				☐ Yes ☐ No ☐ Potentially	☐ Good ☐ Fair ☐ Poor	☐ Low ☐ Medium ☐ High	☐ Yes ☐ No	
				☐ Yes ☐ No ☐ Potentially	☐ Good ☐ Fair ☐ Poor	☐ Low ☐ Medium ☐ High	☐ Yes ☐ No	
				☐ Yes ☐ No ☐ Potentially	☐ Good ☐ Fair ☐ Poor	☐ Low ☐ Medium ☐ High	☐ Yes ☐ No	

Please Return Samples To:
AMA Analytical Services, Inc., 4475 Forbes Blvd., Lanham, MD 20706, (800) 346-0961/(301) 459-2640 Fax, www.amalab.com, info@amalab.com

AECOM

AMA Analytical Services, Inc.
Focused on Results www.amalab.com
AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)
4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This Number For Inquiries)

514468

Mailing/Billing Information:
1. Client Name: National Guard Bureau
2. Address 1: 301-H Old Bay Lane
3. Address 2: Attn: NGB-AVN-SL State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:
(1) (Ref Name) Pb-Group 4e RC's
(2) (Ref Location) KANE
3. Job #: 60276121.1 P.O. #: W912K8-09-A-0003
4. Contact Person: [redacted]
5. Submitted by: AECOM (Signature) [redacted]

Reporting Info (Results provided as soon as technically feasible). If no TAT/Reporting Info is provided, AMA will assign defaults of 5-Day and Reporting Info contacts on file.

AFTER HOURS (must be pre-scheduled): ☐ Immediate Date Due: ___ ☐ 24-Hours Time Due: ___ Comments: ___

NORMAL BUSINESS HOURS: ☐ Immediate ☐ Next Day ☐ 2-Day ☐ 3-Day ☒ 5-Day – NA ☐ Other ☐ Results Required By Noon

REPORT TO: ☒ Include QA/QC in Data Report with Report ☒ Email [redacted] @aecom.com ☐ Fax ☐ Verbal

Asbestos Analysis
PCM Air – Please Indicate Filter Type: ☐ NIOSH 7400 ___ (QTY) ☐ Fiberglass ___ (QTY)
TEM Air* – Please Indicate Filter Type: ☐ AHERA ___ (QTY) ☐ NIOSH 7402 ___ (QTY) ☐ Other (specify) ___ (QTY)
PLM Bulk: ☒ EPA 600 – Visual Estimate 2 (QTY) ☐ EPA Point Count ___ (QTY) ☐ NY State Friable 198.1 ___ (QTY) ☐ Grav. Reduction ELAP 198.6 ___ (QTY) ☐ Other (specify) ___ (QTY)
MISC: ☐ Vermiculite
☐ Asbestos Soil PLM ... ☐ ... If field duplicates are submitted, they are required to complete bottom section.

TEM Bulk: ☐ ELAP 198.4/Chatfield ___ (QTY) ☐ NY State PLM/TEM ___ (QTY) ☐ Residual Ash ___ (QTY)
TEM Dust*: ☐ Qual. (presence) Vacuum/Dust ___ (QTY) ☐ Quan. (s/area) Vacuum D5755-95 ___ (QTY) ☐ Quan. (s/area) Dust D6480-99 ___ (QTY)
TEM Water: ☐ Qual. (presence) ___ (QTY) ☐ ELAP 198.2/EPA 100.2 ___ (QTY) ☐ EPA 100.1 ___ (QTY)
☒ All samples received in good condition unless otherwise noted.
(TEM Water samples ___ °C)

Metals Analysis
☒ Pb Paint Chip 2 (QTY)
☒ *Pb Dust Wipe (wipe type) Ghost 7 (QTY)
☐ *Pb Air ___ (QTY)
☐ Pb Soil/Solid ___ (QTY)
☐ Pb TCLP ___ (QTY)
☐ Drinking Water ☐ Pb ___ (QTY) ☐ Cu ___ (QTY) ☐ As ___ (QTY)
☐ Waste Water ☐ Pb ___ (QTY) ☐ Cu ___ (QTY) ☐ As ___ (QTY)
☐ Pb Furnace (Media ___) ___ (QTY)

Fungal Analysis
Collection Apparatus for Spore Traps/Air Samples: ___
Collection Media: ___
☐ *Spore Trap ___ (QTY) ☐ Surface Vacuum Dust ___ (QTY)
☐ *Surface Swab ___ (QTY) ☐ Culturable ... ___ (QTY)
☐ *Surface Tape ___ (QTY) ☐ Culturable ... ___ (QTY)
☐ Other (Specify) ___ (QTY)

CLIENT ID #	SAMPLE INFORMATION SAMPLE LOCATION/ID	DATE/TIME	VOL (L)/Wipe Area	ANALYSIS	MATRIX	CLIENT CONTACT (LABORATORY STAFF ONLY)
						Date/Time: Contact: By:
	SEE ATTACHED FIELD DATA SHEETS					
						Date/Time: Contact: By:
						Date/Time: Contact: By:

LABORATORY STAFF ONLY: (CUSTODY)
1. Date/Time RCVD: 11/12/12 1000 Via FedEx By [redacted]
2. Date/Time Analyzed: ___/___/___ ___ By ___ Sign ___
3. Results Reported By: ___ Via: ___ Date ___/___/___ Time ___ Initials ___
4. Comments: 7939 6820 3647

January 2013

Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. http://www.osha.gov/comp-links.html

2. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998. http://www.dtic.mil/whs/directives/corres/pdf/605501p.pdf

3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF

4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://armypubs.army.mil/epubs/pdf/R40_5.PDF

5. AR 385-10, The Army Safety Program, 23 August 2007; Rapid Action Revision (RAR) issue date: 4 October 2011. http://armypubs.army.mil/epubs/pdf/R385_10.PDF

6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://armypubs.army.mil/epubs/pdf/P40_501.pdf

7. DA PAM 40-11, Preventive Medicine, 22 July 2005, RAR issue date: 19 October 2009. http://armypubs.army.mil/epubs/pdf/p40_11.pdf

8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://armypubs.army.mil/epubs/pdf/P40_503.PDF

9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf

10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current Ed.

11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.

12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.

13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.

14. ANSI/ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality.

15. RP-1-2004, Office Lighting, ANSI/IESNA.

16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.

17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.

18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.

19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf

Industrial Hygiene Survey

CO C 1/111th INF (MECH)

KUTZTOWN, PENNSYLVANIA

June 23, 2003

OPTECH

OPERATIONAL TECHNOLOGIES CORPORATION

CO C 1/111th INF (MECH)
KUTZTOWN, PENNSYLVANIA
INDUSTRIAL HYGIENE SURVEY

1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Armory in Kutztown, Pennsylvania on June 23, 2003. The NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. Non-Respo Non-Respons from OpTech, completed this survey. Non-Responsive a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the IH Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D.

RECOMMENDATIONS

1. INDOOR AIR QUALITY

1.1. Indoor temperatures were slightly higher than recommended comfort levels in a couple areas. Relative humidity levels exceeded the recommended 60% level in all areas of the facility. Humidity should be maintained below 60% relative humidity for occupant comfort and controlling mold growth. No mold was observed during the survey.

2. ILLUMINATION

2.1. Illumination levels were below recommended minimum standards in some areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3. LEAD WIPE SAMPLES

3.1. A lead wipe sample collected in the break room along with all five samples in the former indoor firing range exceeded the 200 $\mu g/ft^2$ criteria. Lower levels of lead were detected in the facility. Apparently lead contamination is from former range activities, which has migrated to other areas of the facility. Some lead dust may also be from lead-contaminated paint. Recommend that the contaminated areas be wet-wiped/mopped and/or cleaned using a high efficiency particulate air (HEPA) vacuum. This method of cleaning should be repeated during routine housekeeping duties to further reduce lead dust levels.

2.0. EXECUTIVE SUMMARY

2.1. Carbon monoxide and carbon dioxide levels were within recommended ranges. Indoor temperatures were slightly higher than recommended comfort levels in a couple areas. Relative humidity levels exceeded the recommended 60% level in all areas of the facility. Humidity should be maintained below 60% relative humidity for occupant comfort and controlling mold growth. No mold was observed during the survey.

2.2. Illumination levels were below recommended minimum standards in some areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

2.3. Wipe samples for inorganic lead were collected throughout the facility. A sample collected in the break room along with all five samples in the former indoor firing range exceeded the 200 $\mu g/ft^2$ criteria. Lower levels of lead were detected in the facility. Apparently lead contamination is from former range activities, which has migrated to other areas of the facility. Some lead dust may also be from lead-contaminated paint.

2.4. Air sampling for inorganic lead was accomplished. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	CO C 1/111th INF (MECH)		
ADDRESS	390 College Blvd.		
	Kutztown, PA 19530		
CONTACT	SFC Non-Responsive		
PHONE			
DATE BUILT	1959	FACILITY SIZE	16,637 sq. ft.
INDOOR FIRING RANGE	CLOSED		1-floor plus basement
ASSISTED			
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	6		
TRADITIONAL (MIL)	140		
CHILD ACTIVITIES	Occasionally wedding reception		
ADULT ACTIVITIES			

3.1.1. The exterior is brick and appears to be in good condition. The interior has been kept in good condition. The building is heated with a natural gas steam furnace and cooled with window air conditioners.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity (RH) in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 Indoor Air Quality Standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ASHRAE 62-2001, Section 6.1.3, states that concentrations up to 700 ppm CO_2, above outdoor concentrations will achieve an acceptable level of indoor air quality.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ASHRAE 55-1992 recommends that temperature ranges be 73 to 79 degrees Fahrenheit (°F) during the summer and 68 to 74°F during the winter. Relative humidity levels be maintained between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE 1
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO2 (ppm)	Temp. (°F)	RH (%)
1109	Outdoors - Background	0.0	490	86.4	69.3
1130	Assembly Hall	0.0	540	80.2	64.8
1132	Kitchen	0.0	532	79.6	63.8
1135	Male Latrine	0.0	520	81.5	67.4
1140	Drying Room	0.0	515	77.4	63.8
1144	Classroom	0.0	518	75.3	62.1
1147	Recruiting Office	0.0	513	73.4	62.4
1151	Female Latrine	0.0	511	73.1	63.8
1155	Training Office	0.0	506	72.1	64.4

3.2.5. Carbon monoxide and carbon dioxide levels were within recommended ranges. Indoor temperatures were slightly higher than recommended comfort levels in a couple areas. Relative humidity levels exceeded the recommended 60% level in all areas of the facility. Humidity should be maintained below 60% relative humidity for occupant comfort and controlling mold growth. No mold was observed during the survey.

3.3. ILLUMINATION

3.3.1. Illumination levels were measured in most areas of the facility. Sunlight was excluded, as much as possible for this survey, by closing doors and blocking windows. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 -- 463). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
Kitchen	40 - 50	45	75	NO
Supply Room	38 - 44	41	40	YES
Locker Room	40 – 52	46	40	YES
Drying Room	38 - 42	40	40	YES
Male Latrine	32 – 40	36	40	NO
Readiness Room	36 - 42	40	70	NO
Female Latrine	38 – 48	43	40	YES
Fitness Center	34 – 44	40	50	NO

3.3.2. Levels were below recommended minimum standards in some areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3.4. WIPE SAMPLES

3.4.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples were taken at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot ($\mu g/ft^2$) and are listed in Table 3. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Kut-03174-03	Assembly Hall - Board trim	59
PA Kut-03174-04	Kitchen – Pipe	58
PA Kut-03174-05	Female Latrine – Top of Locker	94
PA Kut-03174-06	Orderly Room – AC unit	30
PA Kut-03174-07	Male Latrine- Window Sill	BDL
PA Kut-03174-08	BLANK Sample	BDL

µg/ft² - micrograms per square foot BDL - Below Detection Limits

3.4.2. CLOSED FIRING RANGE WIPE SAMPLING

3.4.2.1. Additional wipe samples were take in the former indoor firing range. This area is presently being utilized as a locker room. The laboratory analysis results are listed below in Table 4.

TABLE 4
FORMER FIRING RANGE WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Kut-03174-15	Top of Locker	367
PA Kut-03174-16	Floor	682
PA Kut-03174-17	Window Sill	205
PA Kut-03174-18	Brick Wall	662
PA Kut-03174-19	Pump	1,564
PA Kut-03174-20	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.3. Additional wipe samples were collected during this survey. These samples were collected to further analyze the extent of contamination should the first five samples indicate a possible hazard. Since samples in the former firing range exceeded the 200 µg/ft² criterion (see Section 3.4.4), these additional samples were analyzed. The results are presented below in Table 5.

TABLE 5
ADDITIONAL WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Kut-03174-09	Locker Room – Top of Locker	BDL
PA Kut-03174-10	1st Classroom	BDL
PA Kut-03174-11	Utility Room Shelf	BDL
PA Kut-03174-12	Recruiting – Vent	BDL
PA Kut-03174-13	Break Room	600
PA Kut-03174-14	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.4. WIPE SAMPLING RESULTS

3.4.4.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 µg/ft². This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. (See memorandum in Attachment E, Recommendations for Surface Lead Dust in Armories.) The sample collected in the break room along with all five samples in the former indoor firing range exceeded the 200 µg/ft² criteria. Lower levels of lead were detected in the facility. Apparently lead contamination is from former

range activities, which has migrated to other areas of the facility. Some lead dust may also be from lead-contaminated paint.

3.4.5. AIR SAMPLING

3.4.5.1. Air Sampling for inorganic lead was performed during this survey. Table 6 lists the results of these samples, and is reported in milligrams per cubic meter (mg/m^3) of air.

TABLE 6
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
Non-[redacted]	PA Kut-03174-01	Lead	<0.002 mg/m^3	0.05 mg/m^3	YES
Area – Kitchen	PA Kut-03174-02	Lead	<0.002 mg/m^3	0.05 mg/m^3	YES

mg/m^3 = milligrams per cubic meter < = less than (below detection limits)

3.4.5.2. Air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this building.

3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION DAMAGE

3.5.1.1.There was no visible water intrusion damage done to the building.

3.5.2. LEAD PAINT

3.5.2.1. No peeling paint was noted and no paint samples were collected.

3.5.3. ASBESTOS

3.5.3.1. All known asbestos containing material had recently been abated.

3.5.4. PROGRAMS

3.5.4.1. There are no designated confined space areas within this facility. There are no exhaust ventilation systems to control a hazard. No chemicals besides normal cleaning materials are present. Therefore, a need has not been established for a HAZCOM program, the need for personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.5. HOUSEKEEPING

3.5.5.1. The facility has been very well maintained and kept clean.

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

E – Recommendations for Surface Lead in Armories

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
Kutztown, PA	PENNSYLVANIA ARNG ARMORY	Kutztown Armory

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR (initials)
23 June 2003	JSS

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	NA	SFC Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
	COC 1/111th INF (MECH)	3	9

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
6	140			

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	CONROLS 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			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	½ FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	¾ 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 WEATHR 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	/		

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	3	C

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

SECTION 6. COMMENTS

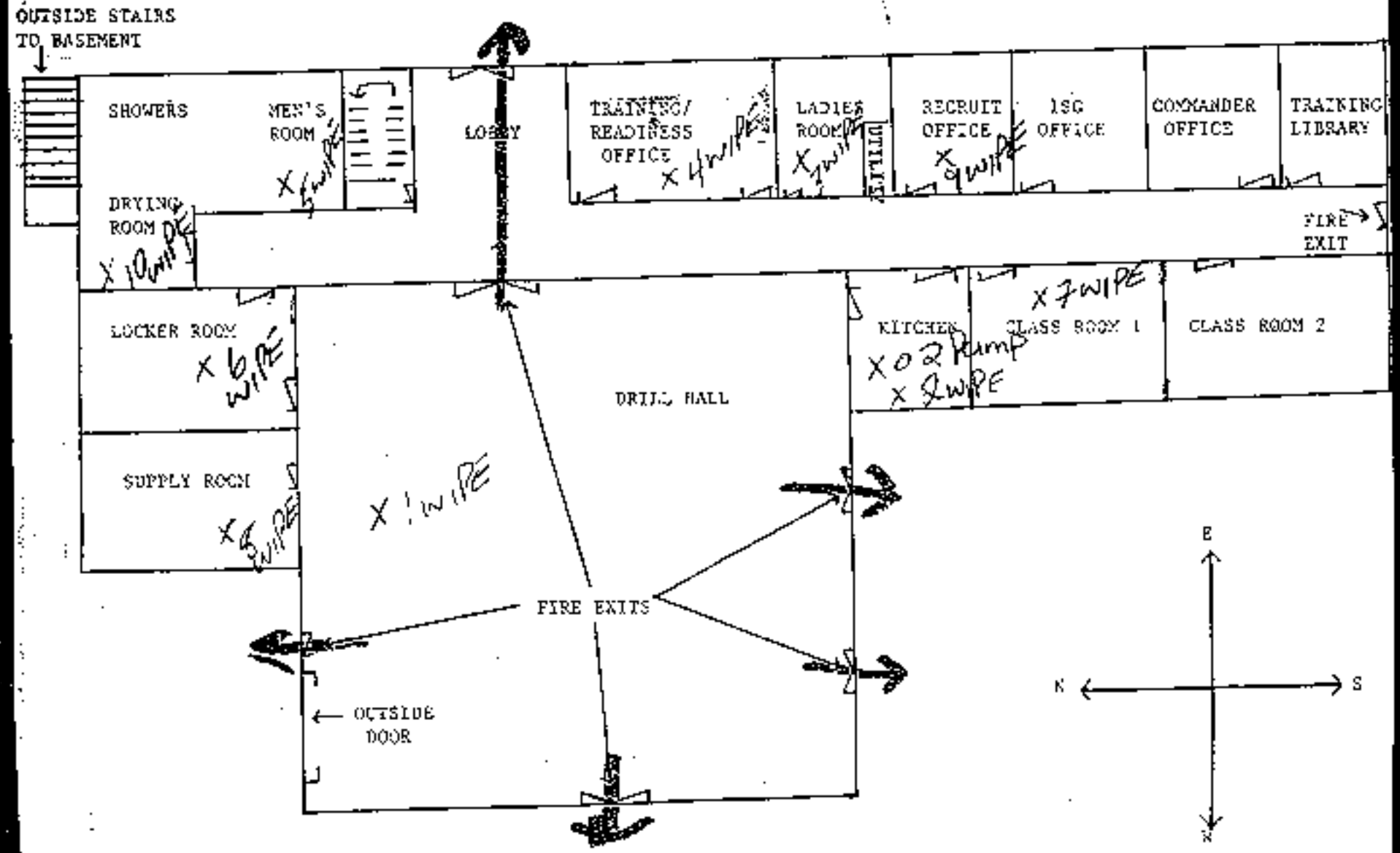
☐ No comments ☐ See attached sheet

PRIVACY ACT STATEMENT

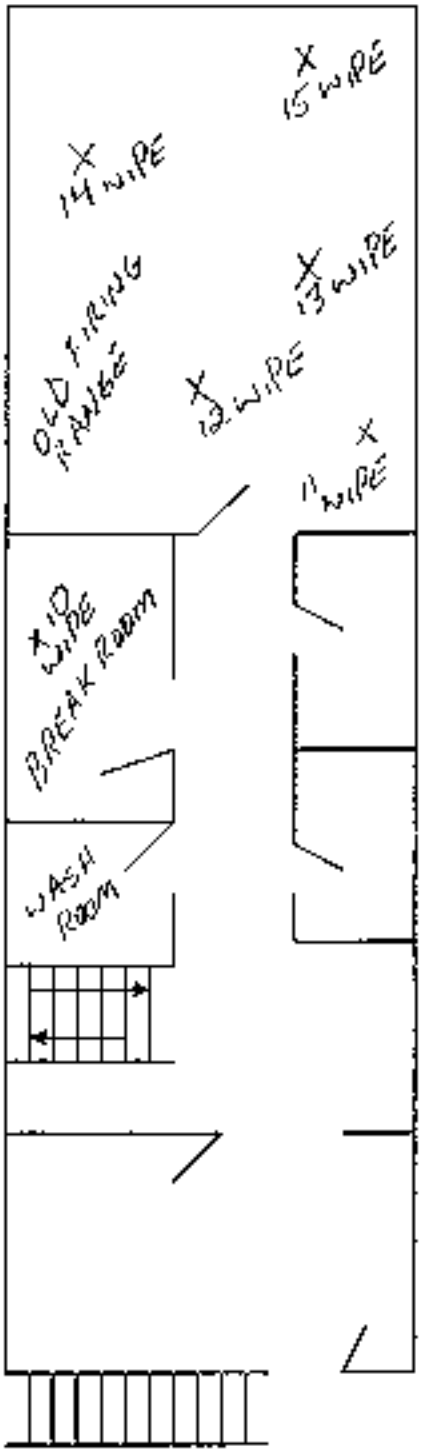
Title 5 US Code, Section 301; Executive Order 9397 authorized the use of your Social Security Number as an identification number. The purpose of this information is to identify and monitor data relating each DA civilian and military employee exposed to a hazardous workplace or operation. The use of this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

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

FIRE EVACUATION PLAN FOR ARMORY BUILDING

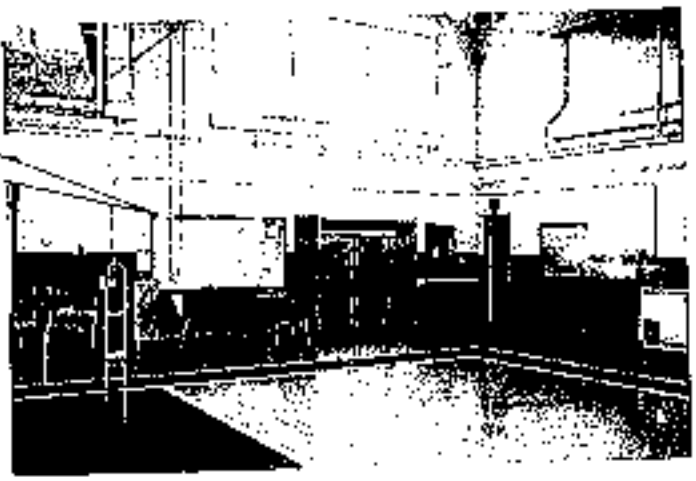


Basement

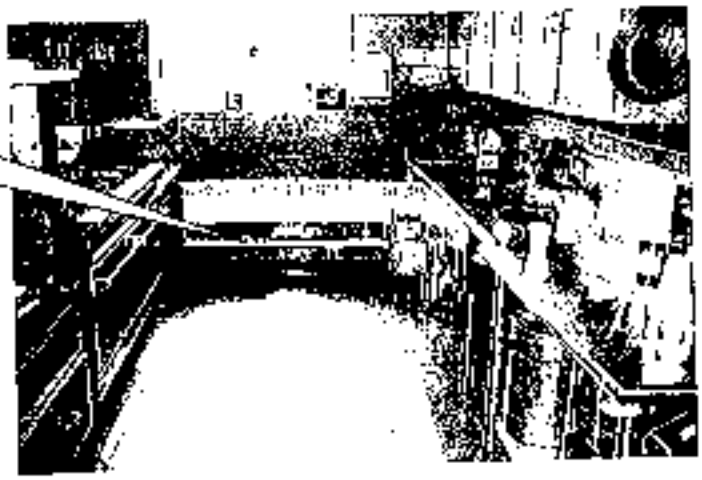


CO C 1/111TH INF (MECH)
KUTZTOWN, PENNSYLVANIA

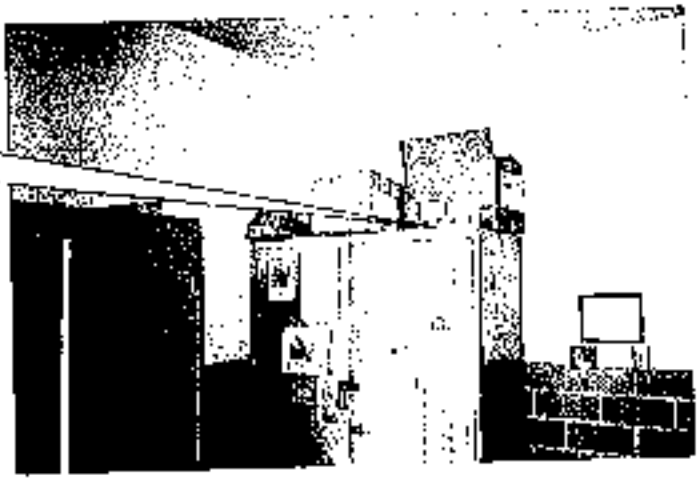
(1) PA Kut-03174-03
Assembly Hall



(2) PA Kut-03174-04
Kitchen

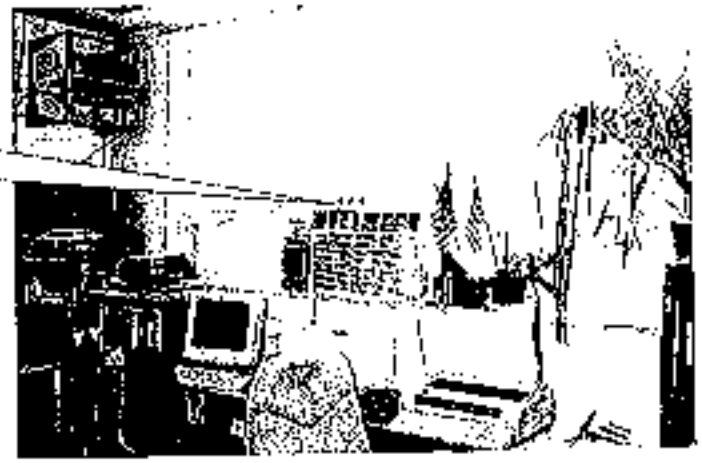


(3) PA Kut-03174-05
Female Latrine

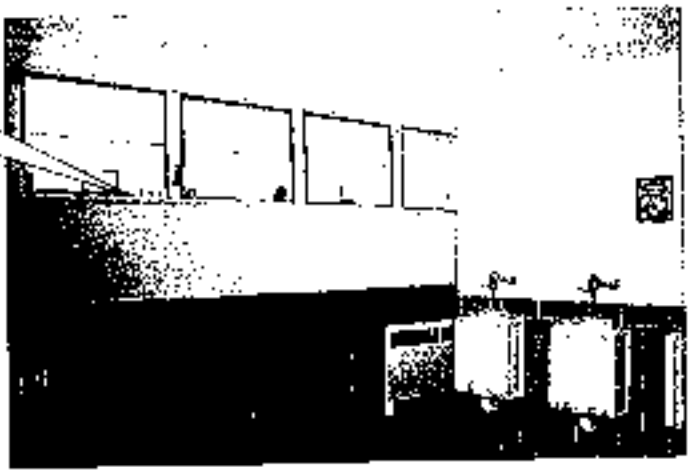


Attachment B

(4) PA Kut-03174-06
Orderly Room

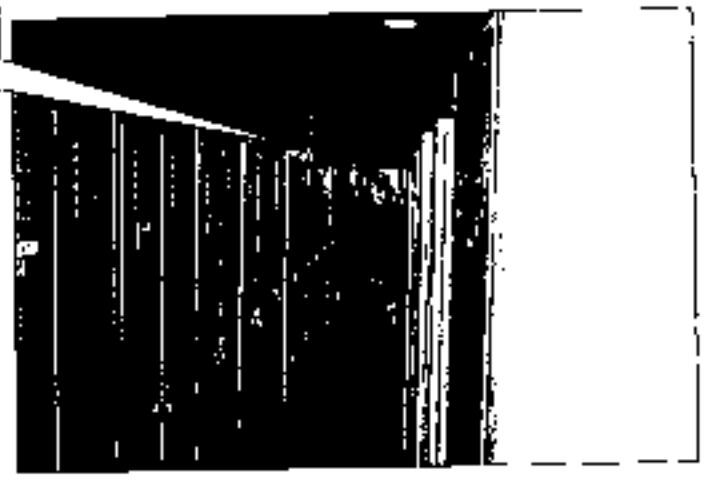


(5) PA Kut-03174-07
Male Latrine



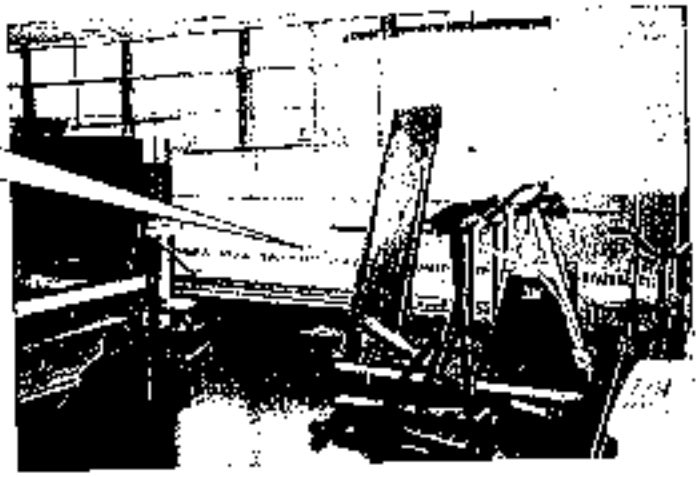
ADDITIONAL SAMPLES

(6) PA Kut-03174-09
Locker Room

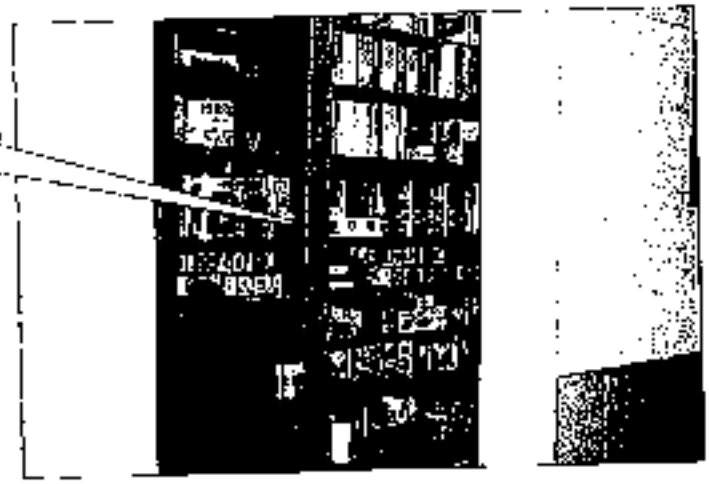


Attachment B

(7) PA Kut-03174-10
Classroom/Fitness Center



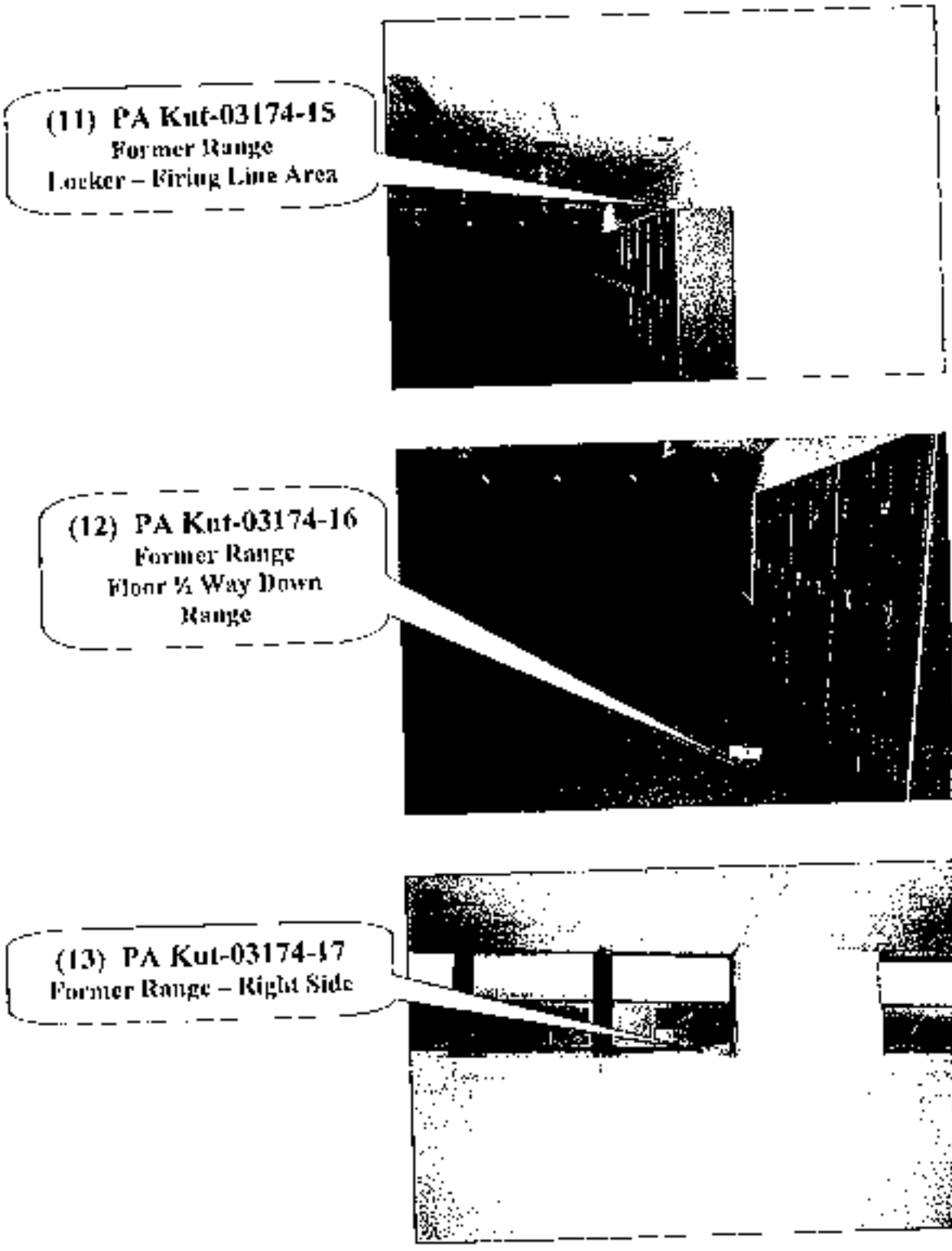
(8) PA Kut-03174-11
Utility Room



(10) PA Kut-03174-13
Break Room

Attachment B

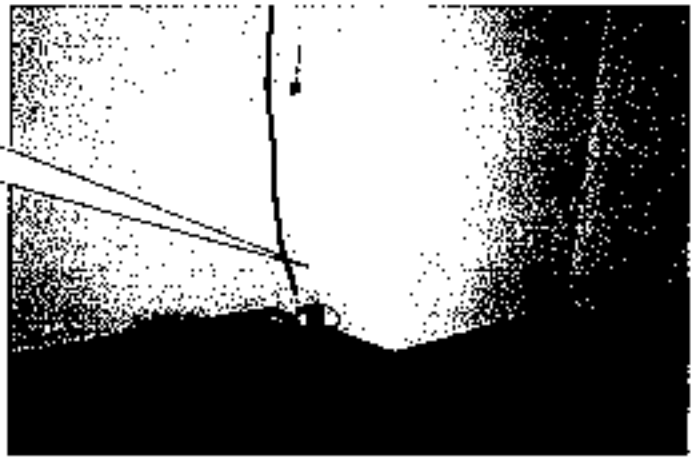
FORMER INDOOR FIRING RANGE



Attachment B

(14) PA Kut-03174-18
Former Range
Backstop Floor

(15) PA Kut-03174-19
Former Range
Backstop Area



RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
AIHA Certificate of Accreditation #480 LAB ID 101533

TABLE ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	RES 95335-1
Client:	Operational Technologies, Corp.
Client Project Number / P.O.:	06 03
Client Project Description:	Armories/ Pennsylvania
Date Samples Received:	July 11, 2003
Analysis Type:	USEPA SW846 3050B / AA(7420)
Turnaround:	3-5 Day
Date Samples Analyzed:	July 15, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA WES-03171-18	EM 794520	0.11	3.2	23	29
PA WES-03171-19	EM 794521	0.11	3.5	23	32
PA WES-03171-20	EM 794522	0.11	BDL	23	BDL
PA WES-03171-21	EM 794523	0.11	5.5	23	50
PA WES-03171-22	EM 794524	0.11	3.5	23	32
PA WES-03171-23	EM 794525	0.11	BDL	23	BDL
PA WES-03171-30	EM 794526	0.11	BDL	23	BDL
PA WES-03171-31	EM 794527	0.11	BDL	23	BDL
PA WES-03171-32	EM 794528	0.11	5.0	23	45
PA WES-03171-33	EM 794529	0.11	BDL	23	BDL
PA WES-03171-34	EM 794530	0.11	10.1	23	92
PA WES-03171-35	EM 794531	0.11	BDL	23	BDL
PA KUT-03174-03	EM 794532	0.11	6.5	23	59
PA KUT-03174-04	EM 794533	0.11	6.4	23	58
PA KUT-03174-05	EM 794534	0.11	10.3	23	94
PA KUT-03174-06	EM 794535	0.11	3.3	23	30
PA KUT-03174-07	EM 794536	0.11	BDL	23	BDL
PA KUT-03174-08	EM 794537	0.11	BDL	23	BDL
PA KUT-03174-15	EM 794538	0.11	40.4	23	367
PA KUT-03174-16	EM 794539	0.11	75.0	23	682
PA KUT-03174-17	EM 794540	0.11	22.5	23	205
PA KUT-03174-18	EM 794541	0.11	72.8	23	662
PA KUT-03174-19	EM 794542	0.11	172.0	23	1564
PA KUT-03174-20	EM 794543	0.11	BDL	23	BDL
PA HAM-03174-24	EM 794544	0.11	13.5	23	123
PA HAM-03174-25	EM 794545	0.11	30.7	23	279
PA HAM-03174-26	EM 794546	0.11	20.0	23	182
PA HAM-03174-27	EM 794547	0.11	43.5	23	395
PA HAM-03174-28	EM 794548	0.11	10.8	23	98
PA HAM-03174-29	EM 794549	0.11	BDL	23	BDL

BDL = Below Detection Limit

Page 4 of 5

Data Qa [illegible]

AMA Analytical Services, Inc.
A Specialized Environmental Laboratory

NVLAP
NY ELAP
AIHA

CERTIFICATE OF ANALYSIS

Client:	National Guard Bureau	**Job Name:**	Pennsylvania Armories-Kutztown	**Chain Of Custody:**	117534
Address:	301-BH Old Bay Lane, Attn: NGB-AVN-SI, State Military Reservation	**Job Location:**	Not Provided	**Date Analyzed:**	09/22/2003
	Havre de Grace, Maryland 21078	**Job Number:**	Not Provided	**Person Submitting:**	[redacted]
		P.O. Number:	Not Provided	**Report Date:**	22-Sep-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
0367566	PA-Kut-03174-09	Flame	Wipe	****	0.111	108.01	ug/ft²	<	110	ug/ft²	
0367567	PA-Kut-03174-10	Flame	Wipe	****	0.111	108.01	ug/ft²	<	110	ug/ft²	
0367568	PA-Kut-03174-11	Flame	Wipe	****	0.111	108.01	ug/ft²	<	110	ug/ft²	
0367569	PA-Kut-03174-12	Flame	Wipe	****	0.111	108.01	ug/ft²	<	110	ug/ft²	
0367570	PA-Kut-03174-13	Flame	Wipe	****	0.111	108.01	ug/ft²		600	ug/ft²	
0367571	PA-Kut-03174-14	Flame	Wipe	****	0.111	108.01	ug/ft²	<	110	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.

Analyst: [redacted]   Technical Manager: [redacted]

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m^3
PA Ber-03171-01	03-20704	338.4	ND	<0.003
PA Ber-03171-02	03-20705	327.0	ND	<0.003
PA Wes-03171-16	03-20706	423.5	ND	<0.002
PA Wes-03171-17	03-20707	414.8	ND	<0.002
PA Kut-03174-01	03-20708	467.4	ND	<0.002
PA Kut-03174-02	03-20709	463.1	ND	<0.002
PA Ham-03174-22	03-20710	333.0	ND	<0.003
PA Ham-03174-23	03-20711	323.8	ND	<0.003
PA Rea-03175-01	03-20712	158.6	ND	<0.006
PA Rea-03175-02	03-20713	162.1	ND	<0.006
PA Ann-03175-16	03-20714	159.6	ND	<0.006
PA Ann-03175-17	03-20715	147.5	ND	<0.007
PA Ann-03175-31	03-20716	147.5	ND	<0.007
PA Ann-03175-32	03-20717	142.7	ND	<0.007
PA Pot-03176-01	03-20718	281.9	ND	<0.004
PA Pot-03176-02	03-20719	266.8	ND	<0.004
PA Sel-03177-01	03-20720	382.4	ND	<0.003
PA Sel-03177-02	03-20721	377.2	ND	<0.003
PA Pho-03177-16	03-20722	354.4	ND	<0.003
PA Pho-03177-17	03-20723	348.6	ND	<0.003
	Prep Blank		ND	
% Recovery	LCS 5		97.	
% Recovery	LCS 6		98.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive
Analyst

Non-Responsive
Reviewer

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non-[redacted]@md.ngb.army.mil

Attachment D

REFERENCE LIST INDEX

1. General Regulations and National Consensus Standards
2. Specific Regulations and Guidance
   a. Abrasive Blasting
   b. Asbestos
   c. Battery Charging Room
   d. Bird and Bat Manure
   e. Bloodborne Pathogens
   f. Chemical Agent Resistant Coating (CARC) Paint
   g. Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE)
   h. Confined Space Entry Program
   i. Design Review
   j. Ergonomics
   k. Flammable Storage Room
   l. Hazard Communication
   m. Hearing Conservation
   n. Indoor Air Quality
   o. Indoor Firing Ranges
   p. Lead
   q. Lighting
   r. Occupational Vision
   s. Paint Spray Booth
   t. Personal Protection
   u. Radiation Protection
   v. Respiratory Protection
   w. Sanitation
   x. Smoking
   y. Vehicle Exhaust
   z. Welding Operation

GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REFERENCE LIST

1. General Regulations and National Consensus Standards
   a. DODI 6055.1, DOD SOH Program, 19 August 1998.
   b. DODI 6055.5, DOD OEH. *[DRAFT]*
   c. DOD 6055.5-M, DOD Occupational Health Surveillance Manual, 13 May 1987.
   d. DODI 6050.5, DOD Hazard Communication, 29 Oct 90. Change 1, 6 May 1996.
   e. AR 40-5, Preventive Medicine, 15 October 1990. [05/2002 Being Updated]
   f. DA PAM 40-5, Preventive Medicine. *[DRAFT]*
   g. AR 385-10, The Army Safety Program, 29 February 2000.
   h. NGR 385-10, ARNG SOH Program, 7 October 1988, Change 1, 29 December 1989.
   i. Title 29, Part 1910, Occupational Safety and Health Standards. [Current Date]
   j. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 2002.
   k. ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th edition, 2001.
   l. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.
   m. TG 141, USACHPPM Industrial Hygiene Sampling Guide, November 1997.
   n. National Safety Council, Fundamentals of Industrial Hygiene, 5th Edition, 2002.
   o. NIOSH, Pocket Guide to Chemical Hazards, 2001.
   p. NFC, A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. [Current date]
   q. ASHRAE Standards. [Current Dates]
   r. ANSI Standards. [Current Dates]

2. Specific Regulations/Guidance
   a. **ABRASIVE BLASTING**
      (1) ANSI Z9.4 1997, Abrasive Blasting Operations - Ventilation and Safe Practices.
      (2) 29 CFR 1910.94 Ventilation
      (3) 42 CFR 84

   b. **ASBESTOS**
      (1) AR 40-5, Preventive Medicine, 15 October 1990. *[05/2002 Being Updated]*
      (2) AR 200-1, Environmental Protection and Enhancement, Chapter 8, 21 February 1997.
      (3) TB MED 513, Guidelines for the Evaluation and Control of Asbestos Exposure, 15 December 1986. *[05/2000 Under Revision as DA PAM 40-513]*
      (4) TG 157, USAEHA, The Installation Asbestos Management Program Assessment Checklists, July 1994.
      (5) 29 CFR 1910.1001
      (6) 29 CFR 1926.58 (prior to 1994 CFR)
      (7) 29 CFR 1926.1101

(8) MEMORANDUM SGPS-PSP, OTSG, subject: AMEDD Role Supporting Asbestos Abatement/Asbestos Management Programs, 19 Jan 89.

(9) EPA, Guidance for Controlling Asbestos-Containing Materials in Buildings, June 1985.

(10) DD Form 2493-1 (Asbestos Exposure, Part I--Initial Medical Questionnaire)

(11) DD Form 2493-2 (Asbestos Exposure, Part II--Periodic Medical Questionnaire)

(12) EPA NESHAPS Asbestos Regulation (40 CFR 61, Subpart M).

c. **BATTERY CHARGING ROOM**

(1) TG 022, USAEHA, page 81, Industrial Hygiene Evaluation Guide, October 1975. *[Out of Print]*

(2) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

d. **BIRD AND BAT MANURE**

(1) TG 142, USAEHA, Managing Health Hazards Associated with Bird and Bat Excrement, Dec 1992.

e. **BLOODBORNE PATHOGENS**

(1) 29 CFR 1910.1030

(2) TG 190, USAEHA, Guide to Managing Occupational Exposure to Bloodborne Pathogens, Jan 94.

f. **CHEMICAL AGENT RESISTANT COATING (CARC) PAINT**

(1) TG 144, USAEHA, Guidelines for Controlling Health Hazards in Painting Operations, 24 August 1987.

(2) DA LTR, USAEHA, HSHB-MI-WR, subject: Respiratory Protection When Spraying CARC, 19 November 1992.

(3) TM 43-0139, Painting Instructions for Army Material, 27 July 19881 Aug 86.

(4) MEMORANDUM SGPS-PSP, OTSG, subject AMEDD, Occupational Health Requirements in Support of Painting in the Army, 22 February 1985.

(5) AR 750-1, Army Materiel Maintenance Policy and Retail Maintenance Operations (Prohibits welding on CARC paint) 1 July 1996.

g. **CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR, EXPLOSIVE (CBRNE)**

(1) DODI 2000.gg, DOD Installation CBRNE Emergency Response Guidelines.

(2) DHHS, NIOSH Pub No. 2002 139, Guidance for Protecting Building Environments from Airborne Chemical, Biological, or Radiological Attacks, May 2002.

(3) TG 275, USACHPPM, Personal Protective Equipment Guide for Medical Treatment Facility Personnel Handling Casualties from Weapons of Mass Destruction and Terrorism Events. *[Draft]*

h. **CONFINED SPACE**

(1) 29 CFR 1910.146 (Confined Space Entry)
(2) 29 CFR 1910.147 (Lockout/Tagout)
(3) ANSI Z117.1-Safety Requirements for Confined Spaces, 1995.
(4) SOP for ARNG Confined Space Entry Program, 25 April 1991.
(5) Letter, US Dept of Labor (DOL) addressed to Vanessa Char, 22 Apr 1994.
(6) OSHA Instruction STD 1-7.3, US DOL, subject: 29 CFR 1910.147, the Control of Hazardous Energy (Lockout/Tagout)--Inspection Procedures and Interpretive Guidance, 11 Sep 90.
(7) DHHS, NIOSH Pub No. 87113, A Guide to Safety in Confined Spaces, July 1987.
(8) Confined Space Entry Program for Helicopters, 2003.

i. **DESIGN REVIEW**

(1) DG 415-1, Design Guide for Armories, current.
(2) DG 415-2, Design Guide for Logistics Facilities, current.
(3) DG 415-3, Design Guide for Training Site Facilities, current.
(4) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.
(5) TI-300, 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.
(6) UFGS 15940A, Overhead Vehicle Tailpipe (and welding Fume) Exhaust Removal Systems, December 2001.
(7) ASHRAE, Standard 62-2002, Ventilation for Acceptable Indoor Air Quality.
(8) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

j. **ERGONOMICS**

(1) DA PAM 40-21, Medical Services, Ergonomics Program, 15 May 2000.
(2) ANSI Z-365, Management of Work Related Musculoskeletal Disorders, 2000.
(3) 29 CFR 1910. *[PROPOSED STANDARD]*

k. **FLAMMABLE STORAGE ROOM**

(1) 29 CFR 1910.106
(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

l. **HAZARD COMMUNICATION**

(1) 29 CFR 1910.1200
(2) NGR 385-10, Chapter 6

m. **HEARING CONSERVATION**

(1) DA PAM 40-501, Medical Services, Hearing Conservation Program, 10 December 1998.

(2) TG 181, USAEHA, Noise Dosimetry and Risk Assessment, May 1999.

(3) TG 175, USAEHA, Readiness thru Hearing Conservation: Guide for Unit Commanders and Supervisors, June 1999.

(4) 29 CFR 1910.95

n. **INDOOR AIR QUALITY (IAQ)**

(1) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

(2) USACERL Technical Report P-91/42, IAQ Management for Operations and Maintenance Personnel, September 1991.

(3) EPA 400/1-91/003 or DHHS, NIOSH, Publication No. 91-114, Building IAQ, A Guide for Building Owners and Facility Managers, December 1991.

(4) ASHRAE, Standard 62-2002, Ventilation for Acceptable IAQ.

(5) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

(6) NIOSH, IAQ Selected References, Sep 1989.

(7) OSHA Instruction CPL 2-2.20B CH-1, Directorate of Technical Support, 13 Nov 90.

(8) DA PAM 25-52, Mail Facility Security and Handling Suspicious Mail, 6 November 2001.

(9) ASTM, D 5952-96, 10 May 1996.

o. **INDOOR FIRING RANGES**

(1) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(2) NGR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges, 30 March 1990. *[11/02 Under Revision]*

(3) CEHND 1110-1-18, USACE Design Manual for Indoor Firing Range, June 1990.

(4) HQDA LTR, Office of the Adjutant General, DACS-SF, subject: Inspection and Evaluation of US Army Indoor Firing Ranges, 26 March 1993.

(5) Departments of the Army and Air Force, NGB-ADE-OM, subject: All State Log Number (1920323) Indoor Range Clean-up at State Owned Armories, 28 July 1992.

(6) NIOSH, Technical Information, December 1975, subject: Lead Exposure and Design Considerations for Indoor Firing Ranges.

(7) All-States Ltr P01-0075, 5 December 2001.

(8) Information Paper, Alternative Ammunition, 15 March 1996.

(9) Information Paper, Bullet Traps, 26 April 1996.

(10) Information Paper, ARNG IFR Action Plan, 28 January 2002.

p. **LEAD**

(1) 29 CFR 1910.1025

(2) 29 CFR 1926.62

(3) 24 CFR 35.61 (HUD, Percentage of Lead in Paint)

(4) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(5) OSHA Instruction CPL 2-2.58, Office of Health Compliance Assistance, 13 December 1993.

(6) Federal Register, 18 April 1990, Vol. 55, No. 75, HUD, Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing, as amended, September 1990, Office of Public and Indian Housing, Department of Housing and Urban Development, 451 Seventh Street, SW, Washington, DC 20410.

(7) NIOSH, Request for Assistance in Preventing Lead Poisoning in Construction Workers, April 1992.

(8) EPA, Strategy for Reducing Lead Exposures, 21 Feb 91.

q. **LIGHTING**

(1) RP-1-1993, Office Lighting, ANSI/IESNA.

(2) RP-7-2001, Industrial Lighting, IES.

r. **OCCUPATIONAL VISION**

(1) DA PAM 40-506, Medical Services, The Army Vision Conservation and Readiness Program, 20 July 2001.

(2) ANSI Z87.1, Practice for Occupational and Educational Eye and Face Protection, 1989, Change A, REAF 1998.

(3) ANSI Z358.1 for Emergency Eyewash and Shower Equipment, 1998.

(4) OTSG Memorandum SGPS-PSP, subject: Acanthameoba Keratitis and Eyewash Stations, 8 May 89.

(4) 29 CFR 1910.133

s. **PAINT SPRAY BOOTH**

(1) NFPA No. 33, Standard for Spray Application Using Flammable and Combustible Materials, 1995.

(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

(3) 29 CFR 1910.94

(4) 29 CFR 1910.107

(5) ANSI Z9.3-1995 for Exhaust Systems - Spray Finishing Operations - Safety Code for Design, Construction, and Ventilation.

(6) ANSI Z9.2-2001, Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems.

t. **PERSONAL PROTECTIVE EQUIPMENT**

(1) Quick Selection Guide to Chemical Protective Clothing, 2nd edition, Forsberg, K and Mansdorf, S., 1993.

(2) Chemical Protective Clothing, Vol 1 and 2, Johnson, J. and Anderson, K., American Industrial Hygiene Association, 1990.

(3) Guidelines for the Selection of Chemical Protective Clothing, 3rd Edition, ACGIH, Inc., Feb 1987.

u. **RADIATION PROTECTION PROGRAM**

(1) NGR 385-11, Safety, Ionizing and Nonionizing Radiation Protection, 18 February 1999.

(2) AR 11-9, Army Radiation Safety Program, 28 May 1999.

(3) 29 CFR 1910.96

(4) 29 CFR 1910.97

v. **RESPIRATORY PROTECTION**

(1) AR 11-34, The Army Respiratory Protection Program, 15 February 1990. *[11/02 Being Updated]*

(2) 29 CFR 1910.134

(3) 42 CFR 84

(4) TB MED 502, Respiratory Protection Program, February 1992. *[11/02 Being Updated as DA PAM 40-502]*

(5) ANSI/CGA G-7.1-1997, Commodity Specification for Air.

(6) ANSI Z88.2-1992, Standard for Respiratory Protection.

w. **SANITATION**

(1) ANSI Z4.1-1986, Change REAF 1995, Sanitation in Places of Employment-Minimum Requirements.

(2) 29 CFR 1910.141

x. **SMOKING**

(1) AR 600-63, Army Health Promotion, 28 April 1996.

(2) DODI 1010.15, Smoke-Free DOD Facilities, 2 January 2001.

(3) DODD1010.10, Health Promotion, 11 March 1986.

y. **VEHICLE EXHAUST**

(1) ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th Edition, 2001.

(2) TI-300f 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

z. **WELDING OPERATION**

(1) 29 CFR 1910.252

(2) 29 CFR 1910.253

(3) 29 CFR 1910.254

(4) ANSI/AWS Z49.1-1999, Safety in Welding and Cutting and Allied Processes.

(5) TM 5-805-7, Welding Design, Procedures and Inspection, 20 May 85.

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 $\mu g/ft^2$) and windowsills (250 $\mu g/ft^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of 200 $\mu g/ft^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 $\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 $\mu g/ft^2$ on floors and 250 $\mu g/ft^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

INDUSTRIAL HYGIENE SURVEY

HHC 3/103RD ARMOR BN

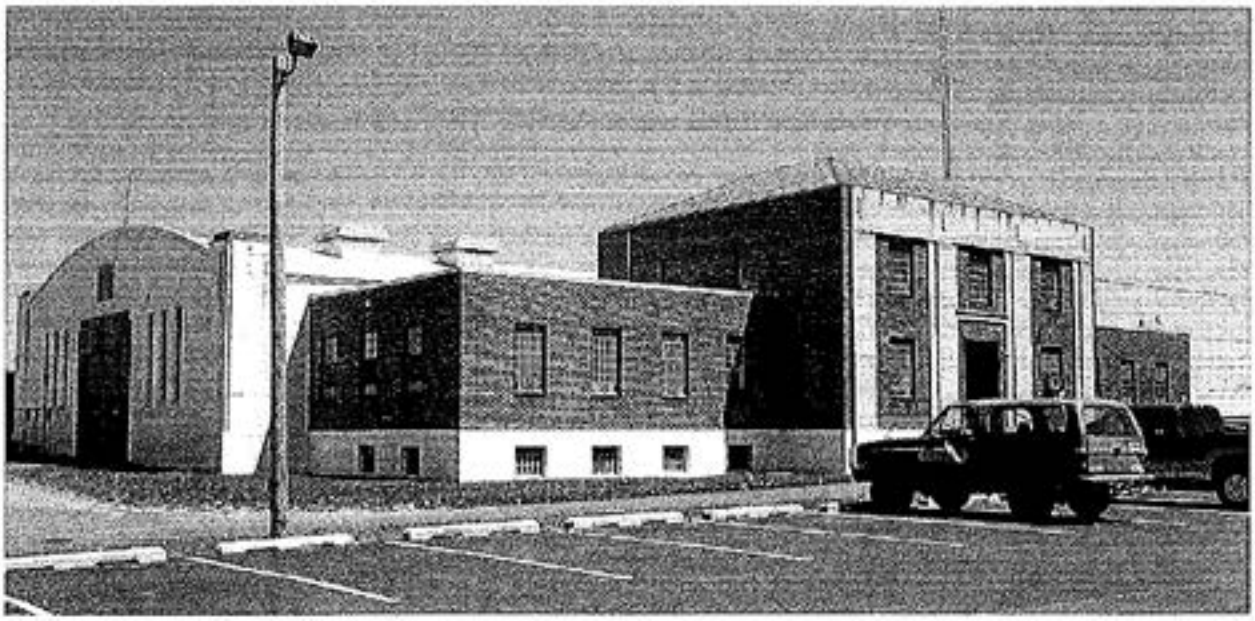
LEWISBURG, PA

April 28, 2003

OPTECH

OPERATIONAL TECHNOLOGIES
CORPORATION

HHC 1/103RD ARMOR BN
LEWISBURG, PENNSYLVANIA
INDUSTRIAL HYGIENE SURVEY



1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Armory in Lewisburg, Pennsylvania on April 28, 2003. NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. Non-Respo Non-Respons from OpTech, completed this survey. Non-Response, a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the IH Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D.

RECOMMENDATIONS

1. ILLUMINATION

1.1. Illumination levels were below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

2. WIPE SAMPLES

2.1. Wipe sampling results for inorganic lead were below the 200 micrograms per square foot criteria. Lower levels of lead were detected in a few areas. Recommend that areas with lead detected be wet-wiped/mopped or cleaned using a high efficiency particulate air (HEPA) vacuum during routine housekeeping duties.

2.0. EXECUTIVE SUMMARY

2.1. No significant indoor air quality problems were noted, although indoor temperatures were above recommended comfort levels and relative humidity levels were slightly lower than recommended.

2.2. Illumination levels were below recommended minimum standards in most areas of the facility.

2.3. Wipe samples for inorganic lead were collected. Sample results were within recommended levels, although lower levels were detected in a few areas.

2.4. Air sampling for inorganic lead was taken. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	HHC 3/103RD ARMOR BN		
ADDRESS	580 US RT 15 South		
	Lewisburg, PA 17837		
CONTACT	LTC Non-Responsive		
PHONE	570-523-3468		
DATE BUILT	1938/53/69	FACILITY SIZE	34,232 sq.ft.
INDOOR FIRING RANGE	2-INACTIVE		2 floors
ASSISTED	Cap Non-Responsive		
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	13		
TRADITIONAL (MIL)	260		
CHILD ACTIVITIES	Facility rented out about 12 times per year for receptions, circus, & gun shows		
ADULT ACTIVITIES			

3.1.1. The exterior of the building is brick and cement black and appears to be in good condition. The interior has been kept in good condition. The two former indoor firing ranges have not been cleaned. No access to the ranges is allowed until cleaning has been accomplished.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity (RH) in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 Indoor Air Quality Standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ASHRAE 62-2001, Section 6.1.3, states that concentrations up to 700 ppm CO_2, above outdoor concentrations will achieve an acceptable level of indoor air quality.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ASHRAE 55-1992 recommends that temperature ranges be 73 to 79 degrees Fahrenheit (°F) during the summer and 68 to 74°F during the winter. Relative humidity levels be maintained between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE 1
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO_2 (ppm)	Temp. (°F)	RH (%)
1335	Outdoors - Background	0.0	467	73.4	10.8
1355	Assembly Hall	0.0	530	81.1	19.8
1400	Family Support Center	0.0	475	80.0	19.9
1405	Recruiting Office	0.0	478	79.5	19.5
1410	HHC Orderly Room (occupied)	0.0	476	78.8	20.1
1420	2nd Floor N. Bunk Room	0.0	598	81.0	21.5
1425	2nd Floor – S2/S3 Office (occupied)	0.0	514	80.8	20.6
1430	2nd Floor – S1 Office	0.0	523	80.9	19.7
1435	Kitchen	0.0	521	79.0	21.3
1440	Supply (occupied)	0.0	550	78.4	23.2
1445	Fitness Center (occupied)	0.0	598	78.0	27.7
1450	Drill Floor	0.0	482	77.5	22.3

3.2.5. Carbon monoxide and carbon dioxide levels were within recommended limits. Indoor temperatures were above recommended comfort levels in a few areas. Relative humidity levels were slightly below recommended comfort levels in several areas.

3.3. ILLUMINATION

3.3.1. Illumination levels were measured in most areas of the facility. Sunlight was excluded, as much as possible for this survey, by closing doors and blocking windows. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 – 463). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
Family Support Center	84 – 92	87.5	70	YES
Desks	82 – 86	84	70	YES
Recruiting – South	46 – 88	69	70	NO
Desk	88	88	70	YES
Recruiting – North	40 – 52	45	70	NO
Desk	40	40	70	NO
Corridor	10 – 28	20	7.5	YES
HHC Orderly Room	40 – 82	63	70	NO
Desks	42 – 80	62	70	NO
Supply Room	52 – 78	65	30	YES
Commander's Office	82 – 104	94	70	YES
Desk	86	86	70	YES
Female Latrine	24 – 30	27	40	NO
Kitchen	34 – 42	40	75	NO
Ventilation Hood – Supplemental	22 – 28	25	75	NO
Supply Office	16 – 22	19	70	NO
Desks	18 – 20	19	70	NO
Storage	10 – 28	18	30	NO
Fitness Center	12 – 32	22	50	NO
2nd Floor				
Training Office	38 – 68	57	70	NO
Desk	34	34	70	NO
S-1 Office	40 – 74	61	70	NO
Desks	50 – 52	51	70	NO

Location	Luminance Range (fc)	Average	Standard	Standard Met
S-2/S-3 Office	24 - 80	62	70	NO
Desks	30 – 66	48	70	NO
Conference Area	54 - 78	64	30	YES
BN XO's Office	22 - 64	48	70	NO
Desk	50	50	70	NO

3.3.2. Levels were below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3.4. WIPE SAMPLES

3.4.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples were taken at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot ($\mu g/ft^2$) and are listed in Table 3. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
LEAD WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead ($\mu g/ft^2$)
PA Lew-03118-24	Kitchen – Top of Mixer	BDL
PA Lew-03118-25	HHC – Orderly Room	57
PA Lew-03118-26	Recruiting Office	73
PA Lew-03118-27	Assembly Hall - East Wall	BDL
PA Lew-03118-28	Floor by Former Firing Range	91
PA Lew-03118-29	BLANK Sample	BDL

$\mu g/ft^2$ = microgram per square foot BDL = Below Detection Limit

3.4.2. WIPE SAMPLING RESULTS

3.4.2.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 $\mu g/ft^2$. This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. (See memorandum in Attachment E, Recommendations for Surface Lead Dust in Armories.) All samples were below the 200 $\mu g/ft^2$ criteria. Lower levels were detected in a few areas of the facility. Lower levels of lead were

detected in the HHC Orderly Room, Recruiting Office and the floor immediately outside the former indoor firing range.

3.4.3. AIR SAMPLING

3.4.3.1. Air Sampling for inorganic lead was performed during this survey. Table 4 lists the results of these samples, and is reported in milligrams per cubic meter (mg/m^3) of air.

TABLE 4.
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
[redacted]	PA Lew-03118-22	Lead	<0.003 mg/m^3	0.05 mg/m^3	YES
Area – Assembly Hall	PA Lew-03118-23	Lead	<0.004 mg/m^3	0.05 mg/m^3	YES

mg/m^3 = milligrams per cubic meter < = less than (below detection limits)

3.4.3.2. Air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this building.

3.4.4. ADDITIONAL LEAD SAMPLING

3.4.4.1 Additional wipe samples were collected during this survey. These samples were taken to further analyze the extent of contamination should the first five samples indicate a possible hazard. Since the first five wipe samples were within acceptable limits, these additional samples were not analyzed.

3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION DAMAGE

3.5.1.1. No water intrusion problems were reported or observed within the building.

3.5.2. PROGRAMS

3.5.21. There are no designated confined space areas within this facility. A need has not been established for a HAZCOM program, the need for personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.3. HOUSEKEEPING

3.5.3.1. The facility is impressively clean, orderly and is being kept in very good condition.

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

E – Recommendations for Surface Lead in Armories

F – Field Notes
- Equipment Listing

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
Lewisburg, PA	PENNSYLVANIA ARNG ARMORY	Lewisburg Armory

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR (Initials)
10 April 2003	JSS

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	NA	LTC Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
570	HHC 3/103rd ARMOR BN	2	9

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
13	260			

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	CONROLS 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			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	½ FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	¼ 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 WEATHR 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	/		

AEHA Form 271-R (Test), 1 Jan 92 (HSHB-MI-I)

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	U	3

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

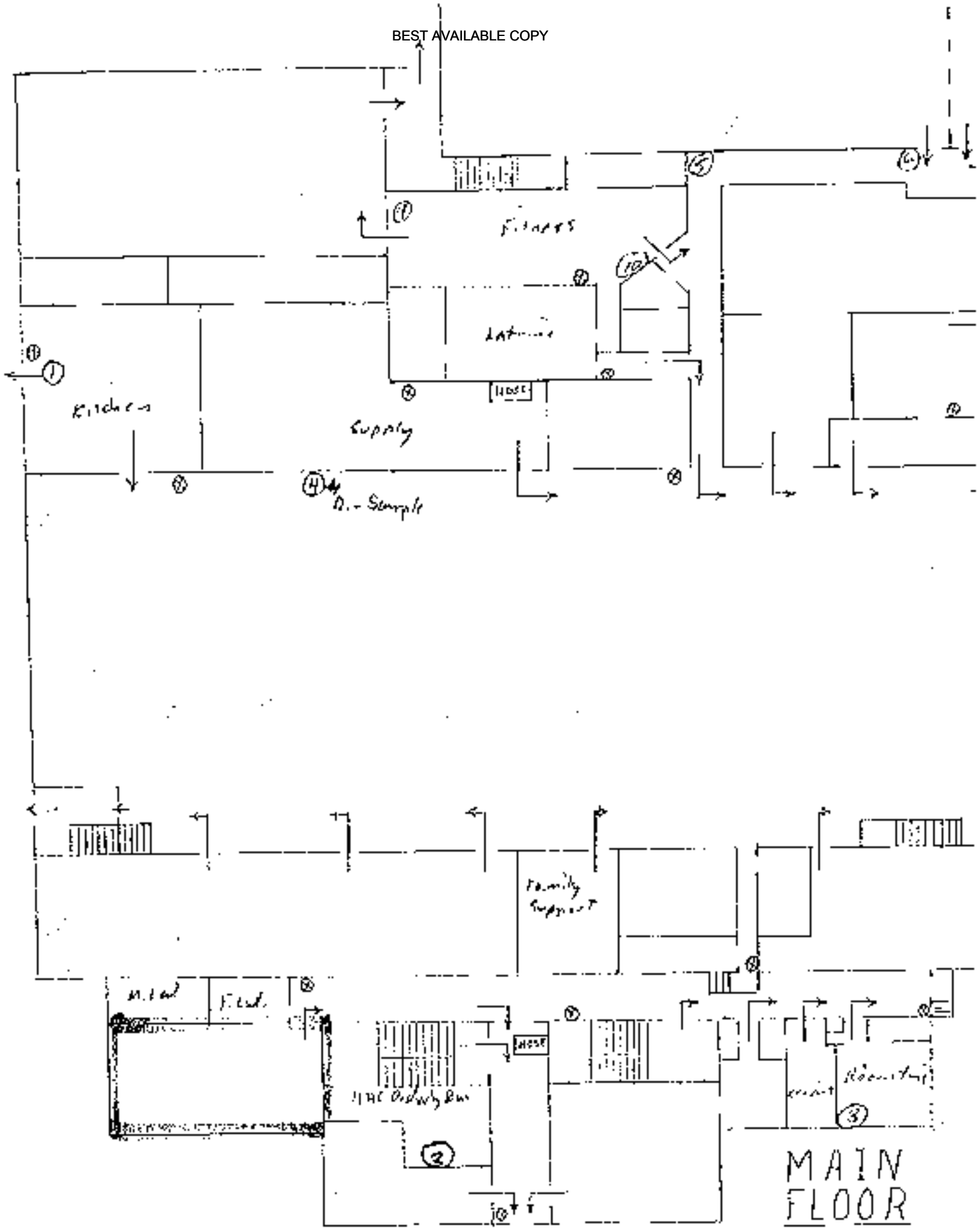
SECTION 6. COMMENTS

☐ No comments ☐ See attached sheet

PRIVACY ACT STATEMENT

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

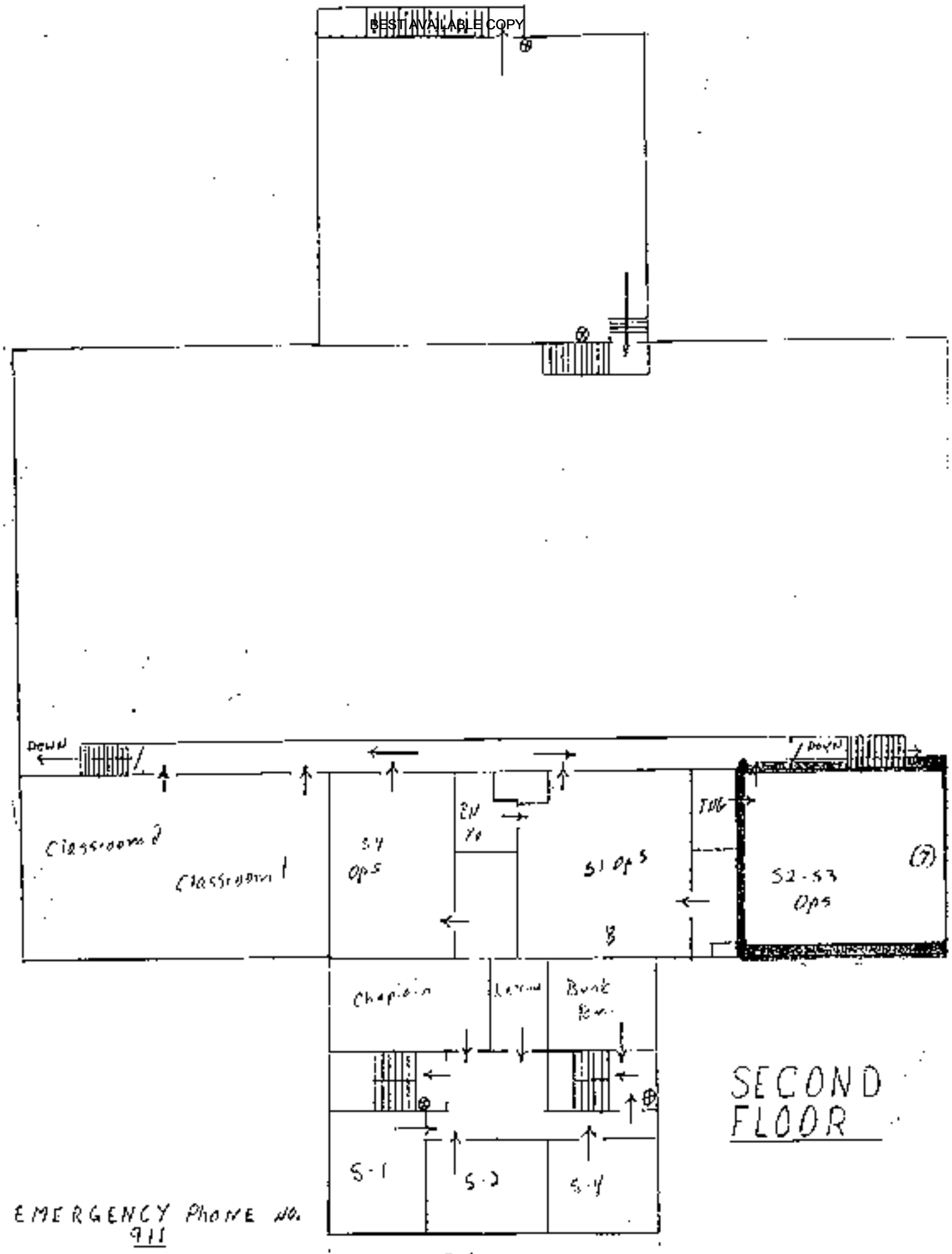
Disclosure of your Social Security Number is not mandatory; however, nondisclosures may result in untimely provision of proper medical monitoring.



EMERGENCY NO. 911

B-3

(W) = Wipe Sample



HHC 3/103rd ARMOR BN
LEWISBURG, PENNSYLVANIA
WIPE SAMPLING POINTS

(1) PA Lew-03118-24
Kitchen - Mixer

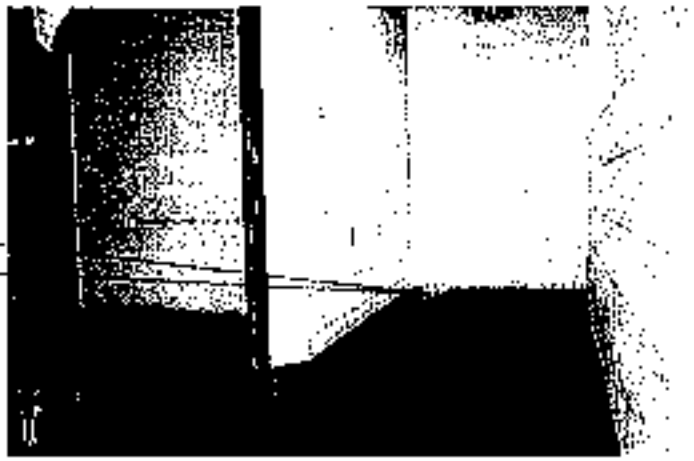
(2) PA Lew-03118-25
HHC Orderly Room

(3) PA Lew-03118-26
Recruiting Office

Attachment B

(4) PA Lew-03118-27
Assembly Hall – East Wall

(5) PA Lew-03118-28
Floor by Former Range

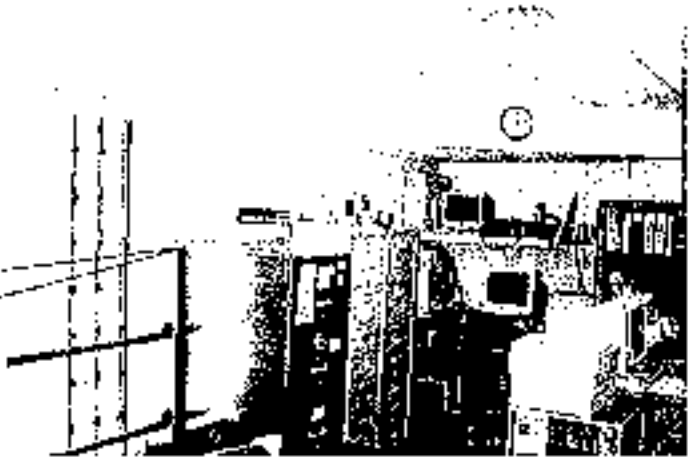


Attachment 18

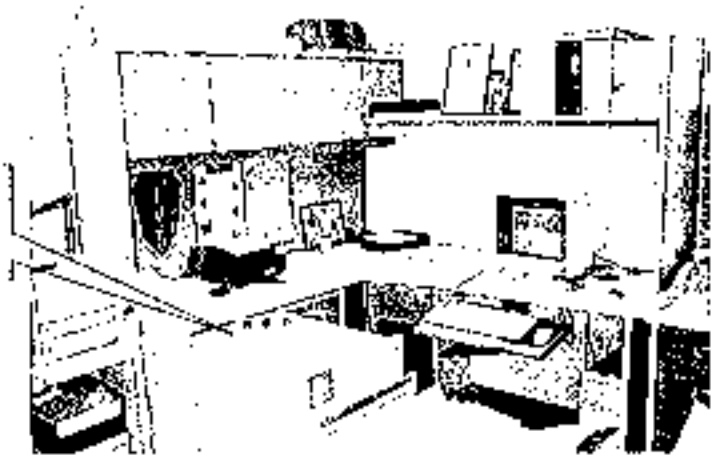
ADDITIONAL SAMPLES

(6) PA Lew-03118-30
Floor Outside Range

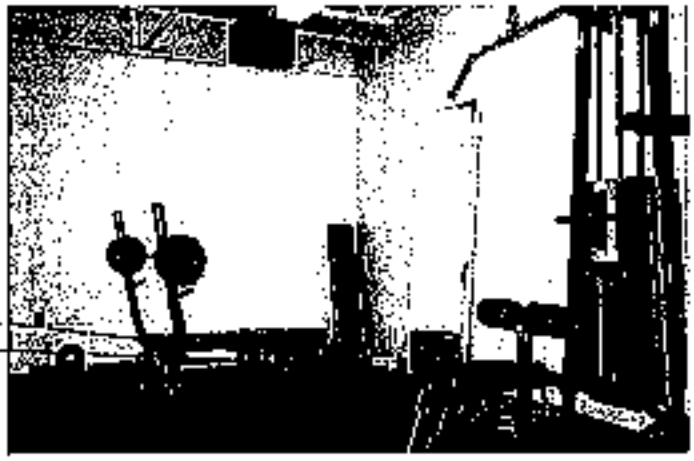
(7) PA Lew-03118-31
S-2/S-3 Ops



(8) PA Lew-03118-32
S-1 Ops



(9) PA Lew-03118-33
Fitness Center - North End



(10) PA Lew-03118-34
Fitness Center – South End

Attachment B

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non-[redacted]@md.ngb.army.mil

Attachment D

REFERENCE LIST INDEX

1. General Regulations and National Consensus Standards
2. Specific Regulations and Guidance
   a. Abrasive Blasting
   b. Asbestos
   c. Battery Charging Room
   d. Bird and Bat Manure
   e. Bloodborne Pathogens
   f. Chemical Agent Resistant Coating (CARC) Paint
   g. Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE)
   h. Confined Space Entry Program
   i. Design Review
   j. Ergonomics
   k. Flammable Storage Room
   l. Hazard Communication
   m. Hearing Conservation
   n. Indoor Air Quality
   o. Indoor Firing Ranges
   p. Lead
   q. Lighting
   r. Occupational Vision
   s. Paint Spray Booth
   t. Personal Protection
   u. Radiation Protection
   v. Respiratory Protection
   w. Sanitation
   x. Smoking
   y. Vehicle Exhaust
   z. Welding Operation

GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REFERENCE LIST

1. General Regulations and National Consensus Standards
   a. DODI 6055.1, DOD SOH Program, 19 August 1998.
   b. DODI 6055.5, DOD OEH. *[DRAFT]*
   c. DOD 6055.5-M, DOD Occupational Health Surveillance Manual, 13 May 1987.
   d. DODI 6050.5, DOD Hazard Communication, 29 Oct 90. Change 1, 6 May 1996.
   e. AR 40-5, Preventive Medicine, 15 October 1990. [05/2002 Being Updated]
   f. DA PAM 40-5, Preventive Medicine. *[DRAFT]*
   g. AR 385-10, The Army Safety Program, 29 February 2000.
   h. NGR 385-10, ARNG SOH Program, 7 October 1988, Change 1, 29 December 1989.
   i. Title 29, Part 1910, Occupational Safety and Health Standards. [Current Date]
   j. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 2002.
   k. ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th edition, 2001.
   l. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.
   m. TG 141, USACHPPM Industrial Hygiene Sampling Guide, November 1997.
   n. National Safety Council, Fundamentals of Industrial Hygiene, 5th Edition, 2002.
   o. NIOSH, Pocket Guide to Chemical Hazards, 2001.
   p. NFC, A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. [Current date]
   q. ASHRAE Standards. [Current Dates]
   r. ANSI Standards. [Current Dates]

2. Specific Regulations/Guidance
   a. **ABRASIVE BLASTING**
      (1) ANSI Z9.4 1997, Abrasive Blasting Operations - Ventilation and Safe Practices.
      (2) 29 CFR 1910.94 Ventilation
      (3) 42 CFR 84

   b. **ASBESTOS**
      (1) AR 40-5, Preventive Medicine, 15 October 1990. *[05/2002 Being Updated]*
      (2) AR 200-1, Environmental Protection and Enhancement, Chapter 8, 21 February 1997.
      (3) TB MED 513, Guidelines for the Evaluation and Control of Asbestos Exposure, 15 December 1986. *[05/2000 Under Revision as DA PAM 40-513]*
      (4) TG 157, USAEHA, The Installation Asbestos Management Program Assessment Checklists, July 1994.
      (5) 29 CFR 1910.1001
      (6) 29 CFR 1926.58 (prior to 1994 CFR)
      (7) 29 CFR 1926.1101

(8) MEMORANDUM SGPS-PSP, OTSG, subject: AMEDD Role Supporting Asbestos Abatement/Asbestos Management Programs, 19 Jan 89.

(9) EPA, Guidance for Controlling Asbestos-Containing Materials in Buildings, June 1985.

(10) DD Form 2493-1 (Asbestos Exposure, Part I--Initial Medical Questionnaire)

(11) DD Form 2493-2 (Asbestos Exposure, Part II--Periodic Medical Questionnaire)

(12) EPA NESHAPS Asbestos Regulation (40 CFR 61, Subpart M).

c. **BATTERY CHARGING ROOM**

(1) TG 022, USAEHA, page 81, Industrial Hygiene Evaluation Guide, October 1975. *[Out of Print]*

(2) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

d. **BIRD AND BAT MANURE**

(1) TG 142, USAEHA, Managing Health Hazards Associated with Bird and Bat Excrement, Dec 1992.

e. **BLOODBORNE PATHOGENS**

(1) 29 CFR 1910.1030

(2) TG 190, USAEHA, Guide to Managing Occupational Exposure to Bloodborne Pathogens, Jan 94.

f. **CHEMICAL AGENT RESISTANT COATING (CARC) PAINT**

(1) TG 144, USAEHA, Guidelines for Controlling Health Hazards in Painting Operations, 24 August 1987.

(2) DA LTR, USAEHA, HSHB-MI-WR, subject: Respiratory Protection When Spraying CARC, 19 November 1992.

(3) TM 43-0139, Painting Instructions for Army Material, 27 July 19881 Aug 86.

(4) MEMORANDUM SGPS-PSP, OTSG, subject AMEDD, Occupational Health Requirements in Support of Painting in the Army, 22 February 1985.

(5) AR 750-1, Army Materiel Maintenance Policy and Retail Maintenance Operations (Prohibits welding on CARC paint) 1 July 1996.

g. **CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR, EXPLOSIVE (CBRNE)**

(1) DODI 2000.gg, DOD Installation CBRNE Emergency Response Guidelines.

(2) DHHS, NIOSH Pub No. 2002 139, Guidance for Protecting Building Environments from Airborne Chemical, Biological, or Radiological Attacks, May 2002.

(3) TG 275, USACHPPM, Personal Protective Equipment Guide for Medical Treatment Facility Personnel Handling Casualties from Weapons of Mass Destruction and Terrorism Events. *[Draft]*

h. **CONFINED SPACE**

(1) 29 CFR 1910.146 (Confined Space Entry)
(2) 29 CFR 1910.147 (Lockout/Tagout)
(3) ANSI Z117.1-Safety Requirements for Confined Spaces, 1995.
(4) SOP for ARNG Confined Space Entry Program, 25 April 1991.
(5) Letter, US Dept of Labor (DOL) addressed to Vanessa Char, 22 Apr 1994.
(6) OSHA Instruction STD 1-7.3, US DOL, subject: 29 CFR 1910.147, the Control of Hazardous Energy (Lockout/Tagout)--Inspection Procedures and Interpretive Guidance, 11 Sep 90.
(7) DHHS, NIOSH Pub No. 87113, A Guide to Safety in Confined Spaces, July 1987.
(8) Confined Space Entry Program for Helicopters, 2003.

i. **DESIGN REVIEW**

(1) DG 415-1, Design Guide for Armories, current.
(2) DG 415-2, Design Guide for Logistics Facilities, current.
(3) DG 415-3, Design Guide for Training Site Facilities, current.
(4) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.
(5) TI-300, 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.
(6) UFGS 15940A, Overhead Vehicle Tailpipe (and welding Fume) Exhaust Removal Systems, December 2001.
(7) ASHRAE, Standard 62-2002, Ventilation for Acceptable Indoor Air Quality.
(8) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

j. **ERGONOMICS**

(1) DA PAM 40-21, Medical Services, Ergonomics Program, 15 May 2000.
(2) ANSI Z-365, Management of Work Related Musculoskeletal Disorders, 2000.
(3) 29 CFR 1910. *[PROPOSED STANDARD]*

k. **FLAMMABLE STORAGE ROOM**

(1) 29 CFR 1910.106
(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

l. **HAZARD COMMUNICATION**

(1) 29 CFR 1910.1200
(2) NGR 385-10, Chapter 6

m. **HEARING CONSERVATION**

(1) DA PAM 40-501, Medical Services, Hearing Conservation Program, 10 December 1998.

(2) TG 181, USAEHA, Noise Dosimetry and Risk Assessment, May 1999.

(3) TG 175, USAEHA, Readiness thru Hearing Conservation: Guide for Unit Commanders and Supervisors, June 1999.

(4) 29 CFR 1910.95

n. **INDOOR AIR QUALITY (IAQ)**

(1) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

(2) USACERL Technical Report P-91/42, IAQ Management for Operations and Maintenance Personnel, September 1991.

(3) EPA 400/1-91/003 or DHHS, NIOSH, Publication No. 91-114, Building IAQ, A Guide for Building Owners and Facility Managers, December 1991.

(4) ASHRAE, Standard 62-2002, Ventilation for Acceptable IAQ.

(5) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

(6) NIOSH, IAQ Selected References, Sep 1989.

(7) OSHA Instruction CPL 2-2.20B CH-1, Directorate of Technical Support, 13 Nov 90.

(8) DA PAM 25-52, Mail Facility Security and Handling Suspicious Mail, 6 November 2001.

(9) ASTM, D 5952-96, 10 May 1996.

o. **INDOOR FIRING RANGES**

(1) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(2) NGR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges, 30 March 1990. *[11/02 Under Revision]*

(3) CEHND 1110-1-18, USACE Design Manual for Indoor Firing Range, June 1990.

(4) HQDA LTR, Office of the Adjutant General, DACS-SF, subject: Inspection and Evaluation of US Army Indoor Firing Ranges, 26 March 1993.

(5) Departments of the Army and Air Force, NGB-ADE-OM, subject: All State Log Number (I920323) Indoor Range Clean-up at State Owned Armories, 28 July 1992.

(6) NIOSH, Technical Information, December 1975, subject: Lead Exposure and Design Considerations for Indoor Firing Ranges.

(7) All-States Ltr P01-0075, 5 December 2001.

(8) Information Paper, Alternative Ammunition, 15 March 1996.

(9) Information Paper, Bullet Traps, 26 April 1996.

(10) Information Paper, ARNG IFR Action Plan, 28 January 2002.

p. **LEAD**

(1) 29 CFR 1910.1025

(2) 29 CFR 1926.62

(3) 24 CFR 35.61 (HUD), Percentage of Lead in Paint)

(4) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(5) OSHA Instruction CPL 2-2.58, Office of Health Compliance Assistance, 13 December 1993.

(6) Federal Register, 18 April 1990, Vol. 55, No. 75, HUD, Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing, as amended, September 1990, Office of Public and Indian Housing, Department of Housing and Urban Development, 451 Seventh Street, SW, Washington, DC 20410.

(7) NIOSH, Request for Assistance in Preventing Lead Poisoning in Construction Workers, April 1992.

(8) EPA, Strategy for Reducing Lead Exposures, 21 Feb 91.

q. **LIGHTING**

(1) RP-1-1993, Office Lighting, ANSI/IESNA.

(2) RP-7-2001, Industrial Lighting, IES.

r. **OCCUPATIONAL VISION**

(1) DA PAM 40-506, Medical Services, The Army Vision Conservation and Readiness Program, 20 July 2001.

(2) ANSI Z87.1, Practice for Occupational and Educational Eye and Face Protection, 1989, Change A, REAF 1998.

(3) ANSI Z358.1 for Emergency Eyewash and Shower Equipment, 1998.

(4) OTSG Memorandum SGPS-PSP, subject: Acanthameoba Keratitis and Eyowash Stations, 8 May 89.

(4) 29 CFR 1910.133

s. **PAINT SPRAY BOOTH**

(1) NFPA No. 33, Standard for Spray Application Using Flammable and Combustible Materials, 1995.

(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

(3) 29 CFR 1910.94

(4) 29 CFR 1910.107

(5) ANSI Z9.3-1995 for Exhaust Systems - Spray Finishing Operations - Safety Code for Design, Construction, and Ventilation.

(6) ANSI Z9.2-2001, Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems.

t. **PERSONAL PROTECTIVE EQUIPMENT**

(1) Quick Selection Guide to Chemical Protective Clothing, 2nd edition, Forsberg, K and Mansdorf, S., 1993.

(2) Chemical Protective Clothing, Vol 1 and 2, Johnson, J. and Anderson, K., American Industrial Hygiene Association, 1990.

(3) Guidelines for the Selection of Chemical Protective Clothing, 3rd Edition, ACGIH, Inc., Feb 1987.

u. **RADIATION PROTECTION PROGRAM**

(1) NGR 385-11, Safety, Ionizing and Nonionizing Radiation Protection, 18 February 1999.

(2) AR 11-9, Army Radiation Safety Program, 28 May 1999.

(3) 29 CFR 1910.96

(4) 29 CFR 1910.97

v. **RESPIRATORY PROTECTION**

(1) AR 11-34, The Army Respiratory Protection Program, 15 February 1990. *[11/02 Being Updated]*

(2) 29 CFR 1910.134

(3) 42 CFR 84

(4) TB MED 502, Respiratory Protection Program, February 1992. *[11/02 Being Updated as DA PAM 40-502]*

(5) ANSI/CGA G-7.1-1997, Commodity Specification for Air.

(6) ANSI Z88.2-1992, Standard for Respiratory Protection.

w. **SANITATION**

(1) ANSI Z4.1-1986, Change REAF 1995, Sanitation in Places of Employment-Minimum Requirements.

(2) 29 CFR 1910.141

x. **SMOKING**

(1) AR 600-63, Army Health Promotion, 28 April 1996.

(2) DODI 1010.15, Smoke-Free DOD Facilities, 2 January 2001.

(3) DODD1010.10, Health Promotion, 11 March 1986.

y. **VEHICLE EXHAUST**

(1) ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th Edition, 2001.

(2) TI-300f 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

z. **WELDING OPERATION**

(1) 29 CFR 1910.252

(2) 29 CFR 1910.253

(3) 29 CFR 1910.254

(4) ANSI/AWS Z49.1-1999, Safety in Welding and Cutting and Allied Processes.

(5) TM 5-805-7, Welding Design, Procedures and Inspection, 20 May 85.

INDUSTRIAL HYGIENE SURVEY
PENNSYLVANIA

		SURVEY DATE	28 Apr 03
FACILITY	HHC 3/103RD Armor BN		
ADDRESS	580 US RT 15 South		
	Lewisburg, PA 17837		
CONTACT	LTC [redacted]		
PHONE	570-523-3468		
DATE BUILT	1938/53/69	FACILITY SIZE	34232 SqFt
RANGE	2-Inactive		
ASSISTED	Capt [redacted]		

FT-13 Trad. 260 | 1 circus, 1-Gun show, wedding | Antique } 12 /yr

PAINT CONDITION:			
INDOORS		Sample?	
OUTDOORS		Sample?	

ASBESTOS		
Area/condition		
Area/condition		

WATER DAMAGE		
Area/condition		
Area/condition		

HOUSEKEEPING	

TIME	AREA	CO	CO_2	TEMP	RH
1335	Outdoors	0.0	467	73.4°F	10.8 %
1355	Assembly Hall	0.0	530	81.1 °F	19.8 %
1400	Family Support	0.0	475	80.0°F	19.9 %
1405	Recruiting	0.0	478	79.5 °F	19.5 %
1410	AHC Orderly Rms (occup)	0.0	476	78.8 °F	20.1 %
1420	2ND Floor N. - Bunk Rm	0.0	548	81.0°F	21.5 %
1425	2ND Floor S2-S3 (occup)	0.0	514	80.8 °F	20.6 %
1430	" S1	0.0	523	80.9 °F	19.7 %
1435	Kitchen	0.0	521	79.0°F	21.3 %
1440	Supply (occup)	0.0	350	78.4°F	23.2 %
1445	Fitness (occup)	0.0	598	78.0°F	27.7 %
1450	Drill Floor	1.0	482	77.5°F	22.3 %
				°F	%
				°F	%
				°F	%
				°F	%
				°F	%
				°F	%

INDUSTRIAL HYGIENE SURVEY
PENNSYLVANIA

Lewisburg

WIPE SAMPLES		ARMORY	Picture #
PA Lew-03 118	-24	~~HVAC supply side of filter~~ Kitchen Mixer	1
PA Lew-03	25	~~HVAC on fan side of filter~~ HHC Orderly Rm	2
PA Lew-03	26	~~Assembly Hall~~ Recruiting OFS	3
PA Lew-03	27	~~Kitchen~~ Assembly Hall E. Wall	4
PA Lew-03	28	~~Supply air grille in occupied office~~ Floor by Range	5
PA Lew-03	29	BLANK	
PA Lew-03	30	Outside Range - Floor	6
PA Lew-03	31	52-53 gpm	7
PA Lew-03	32	51 OPS	8
PA Lew-03	33	Fitness - N. End	9
PA Lew-03	34	Fitness - S. End	10
PA Lew-03	35	BLANK	
PA Lew-03			
PA Lew-03			
PA Lew-03			
PA Lew-03			
PA Lew-03			
PA Lew-03		BLANK	

AIR SAMPLING

Sample #	Pump #	Person/Area	Precal lpm	Postcal lpm	Time On	Time Off	Run Time	Volume (Liters)
PA Lew-03/18-22	647609	Non-Responsive	3.209	3.215	1356	1528	92	295.2
PA Lew-03/18-23	648593	Area - Assembly Hall	3.178	3.209	1358	1526	88	279.7
PA Lew-03								

Family Support
84, 88, 84, 12 350/4 = 87.5 Sr Avg
D. 86, 82 168/2 = 84.0

Recruiting S.
72, 88, 46, 206/3 = 68.7
D. 88

Recruiting N
44, 52, 40 136/3 = 45.3
D-40

Corridor
28, 16, 24, 18, 22, 10, 20
138/7 = 19.7

Hall [illegible]
40, 42, 56, 80, 70, 80, 80, 82 566/8 = 65.3 [illegible]
D. 84, 40 124/2 = 62.0

Supply Room
78, 52, 66 196/3 = 65.3

[illegible]
84, 104, 82, 84 374/4 = 93.5
D - 86

F. Lat.
24, 26, 30 80/3 = 26.7

Trng Off 2ND
58, 64, 68 170/3 = 56.7
D. 34

51 Office 2ND
60, 74, 72, 58, 40 304/5 = 60.8
D. 52, 50 102/2 [illegible]

Kitchen
42, 40, 42, 34, 40, 42 240/6 = 40.0

Hood Supp
26, 22, 28 76/3 = 25.3

Supply Office
20, 16, 16, 22, 22 96/5 = 19.2
D - 18, 20 38/2 = 19.0

Gunnery
10, 18, 20, 28, 16 92/5 = 18.4

E. Mess
18, 12, 28, 12, 30, 32
16, 20, 32 200/9 = 22.2

PENNSYLVANIA ARMORY
INDUSTRIAL HYGIENE SURVEY
EQUIPMENT LISTING

Air Sampling Pumps
SKC Aircheck Samplers 224-44XR
S/N: 647609, 647610, 647626, 647627, 647654, 648324, 648349, 648393

Air Pump Calibrator
DryCal Base m: DC-1B Rev 2.06F S/N B 1827
DryCal Med Cell: m: DC-MC-1 Rev F S/N 1745

Indoor Air Quality
TSI Q-Trak m: 8550 S/N 11050
Metrosonics Carbon Monoxide Logger m: pm7700 S/N 1129
Metrosonics CO Sensor m: gs 7701 S/N 5073

Noise
Quest Sound Level Meter m: 2800 S/N HS4090023
Quest Octave Filter Set m: OB-300 S/N HV4070020
Quest Acoustic Calibrator m: QC-10 S/N QE4090140
Metrosonics db-3080 Noise Dosimeters S/N 4667, 4685
Microphones

ATTACHMENT E

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 $\mu g/ft^2$) and windowsills (250 $\mu g/ft^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of 200 $\mu g/ft^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 $\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 $\mu g/ft^2$ on floors and 250 $\mu g/ft^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

INDUSTRIAL HYGIENE SURVEY

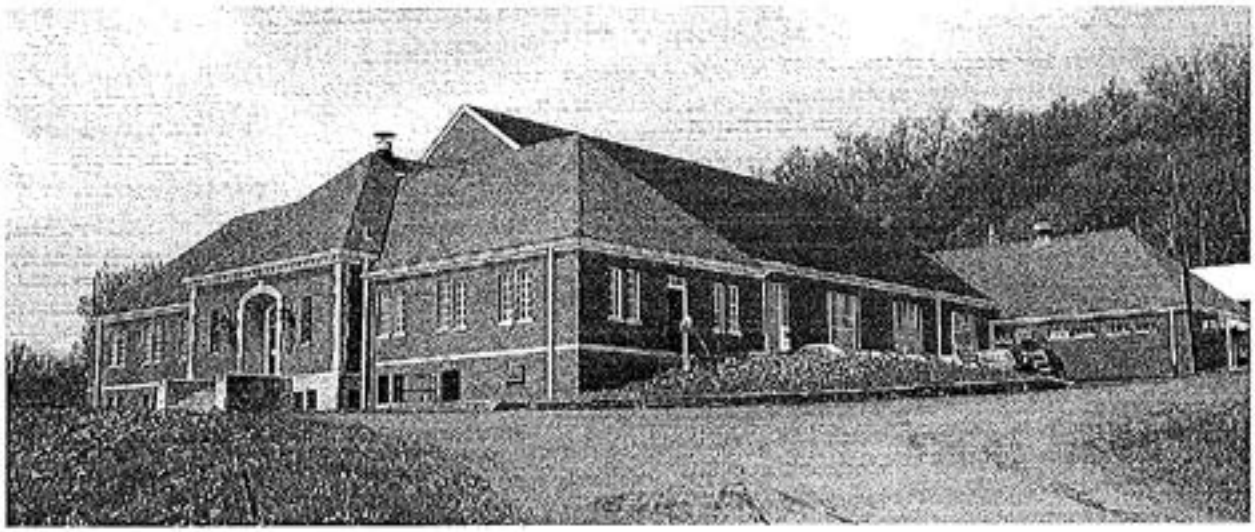
HHC (-) 2/112TH MECH INF

LEWISTOWN, PA

April 29, 2003

OPTECH
OPERATIONAL TECHNOLOGIES
CORPORATION

HHC (-) 2/112TH MECH INF
LEWISTOWN, PENNSYLVANIA
INDUSTRIAL HYGIENE SURVEY



1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the armory in Lewistown, Pennsylvania on April 29, 2003. NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. Non-Respo Non-Respons from OpTech, completed this survey. Non-Responsive a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the IH Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D.

RECOMMENDATIONS

1. ILLUMINATION

1.1. Illumination levels were below recommended minimum standards in many areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

2. WIPE SAMPLES

2.1. Wipe sampling results for inorganic lead collected in the assembly hall, kitchen, training library, S4 office and the indoor firing range exceeded the 200 micrograms per square foot criteria. The contamination in the basement areas is from previous firing range activities. Suspect that areas on the main floor that exceeded the criteria is from lead paint, that has accumulated over the years. Recommend that the entire basement area plus effected main floor areas be wet-wiped/mopped or cleaned using a high efficiency particulate air (HEPA) vacuum. The entire facility should be cleaned in this same manner during routine cleaning duties.

2.0. EXECUTIVE SUMMARY

2.1. No indoor air quality problems were noted.

2.2. Illumination levels were below recommended minimum standards in most areas of the facility.

2.3. Wipe samples for inorganic lead were collected. Sample results exceeded recommended levels in the assembly hall, training library, the S4 office plus the former indoor firing range.

2.4. Air sampling for inorganic lead was accomplished. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	HHC (-) 2/112TH MECH INF		
ADDRESS	28 Armory Lane (1101 US Hwy 522N)		
	Lewistown, PA 17044		
CONTACT	CPT Non-Responsive		
PHONE	717-248-5842		
DATE BUILT	1930	FACILITY SIZE	14,078 sq.ft.
INDOOR FIRING RANGE	CLOSED		1 floor plus basement
ASSISTED	CPT Non-Responsive		State Maint.
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	9		
TRADITIONAL (MIL)	150		
CHILD ACTIVITIES	Facility used by outside organizations 3 to 5 times per year		
ADULT ACTIVITIES			

3.1.1. The exterior of the building is brick and appears to be in good condition. The interior has been kept in very good condition. The former indoor firing range had very recently been cleaned.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity (RH) in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 Indoor Air Quality Standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ASHRAE 62-2001, Section 6.1.3, states that concentrations up to 700 ppm CO_2, above outdoor concentrations will achieve an acceptable level of indoor air quality.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ASHRAE 55-1992 recommends that temperature ranges be 73 to 79 degrees Fahrenheit (°F) during the summer and 68 to 74°F during the winter. Relative humidity levels be maintained between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE 1
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO_2 (ppm)	Temp. (°F)	RH (%)
1255	Outdoors -- Background	0.0	455	75.8	45.3
1315	Classroom	0.0	549	71.3	48.3
1320	S4 Office (occupied)(window open)	0.0	483	70.9	49.7
1325	Mail Room (occupied)	0.0	520	71.1	48.4
1328	AO Office	0.0	511	71.3	45.4
1332	BN Training Office (occupied)	0.0	529	71.6	47.6
1337	Kitchen	0.0	520	72.1	44.2
1342	Recruiting Office (occupied)	0.0	556	72.7	42.5
1348	Basement – Former Range	0.0	547	73.2	46.6
1355	Basement – North Locker Room	0.0	528	72.3	48.3

3.2.5. No indoor air quality problems were noted. The furnace was not operating and some windows were open.

3.3. ILLUMINATION

3.3.1. Illumination levels were measured in most areas of the facility. Sunlight was excluded, as much as possible for this survey, by closing doors and blocking windows. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 - 463). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
1st FLOOR				
Classroom	32 - 88	70	75	NO
Small Latrine	42 - 56	48	40	YES
S4 Office	26 - 90	66	70	NO
Dusk	78	78	70	YES
Mail Room	22 - 30	27	75	NO
AO Office	38 - 68	54	70	NO
Desk	62	62	70	NO
BN Training Office	28 - 58	42	70	NO
Desks	28 - 48	38	70	NO
Kitchen	38 - 66	57	75	NO
Kitchen Storage	22 - 88	54	30	YES
Recruiting Office	52 - 82	70	70	YES
Desk	72	72	70	YES
Drill Floor	22 - 66	28	75	NO
Female Latrine	28 - 42	36	40	NO
BASEMENT				
Stairs to Basement	14 - 26	21	7.5	YES
Locker Room - Former Range	8 - 40	26	40	NO
Training Library	8 - 16	13	75	NO
Locker Room - North	24 - 44	36	40	NO
Supply Office	32 - 66	48	70	NO
Storage Area	18 - 74	48	30	YES

3.3.2. Levels were below recommended minimum standards in many areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3.4. WIPE SAMPLES

3.4.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples were taken at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot ($\mu g/ft^2$) and are listed in Table 3. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
LEAD WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead ($\mu g/ft^2$)
PA Lew-03119-22	BN Training Office	100
PA Lew-03119-23	Assembly Hall – West Wall	1418
PA Lew-03119-24	Kitchen	424
PA Lew-03119-25	Recruiting Office	35
PA Lew-03119-26	Basement – Training Library	720
PA Lew-03119-27	BLANK Sample	BDL

$\mu g/ft^2$ = micrograms per square foot BDL = Below Detection Limits

3.4.2. ADDITIONAL LEAD SAMPLING

3.4.2.1. Additional wipe samples were collected during this survey. These samples were collected to further analyze the extent of contamination should the first five samples indicate a possible hazard. Since the samples taken in the assembly hall, kitchen, and the training library exceeded the recommended criteria (see Section 3.4.4.), the additional samples were analyzed. The results are listed in Table 4.

TABLE 4
ADDITIONAL LEAD WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead ($\mu g/ft^2$)
PA Lew-03119-35	S4 Office	250
PA Lew-03119-36	AO Office	BDL
PA Lew-03119-37	Admin Office	BDL
PA Lew-03119-38	Assembly Hall – Southwest Corner	21000
PA Lew-03119-39	BLANK Sample	BDL

$\mu g/ft^2$ = micrograms per square foot BDL = Below Detection Limits

3.4.3. CLOSED FIRING RANGE WIPE SAMPLING

3.4.3.1. Additional wipe samples were collected in the former indoor firing range. This area is utilized for individual lockers. The laboratory analysis results are listed in Table 5.

TABLE 5
FORMER FIRING RANGE LEAD WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Lew-03119-28	Bullet Trap Floor	BDL
PA Lew-03119-29	Ceiling Heater	**9772**
PA Lew-03119-30	Light Fixture – ½ Way Down Range	**8473**
PA Lew-03119-31	Top of Locker	113
PA Lew-03119-32	West End – Floor	27
PA Lew-03119-33	Outside Range	BDL
PA Lew-03119-34	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.4. WIPE SAMPLING RESULTS

3.4.4.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 $\mu g/ft^2$. This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. (See memorandum in Attachment E, Recommendations for Surface Lead Dust in Armories.) Samples in the assembly hall, kitchen, training library, the S4 office plus the former indoor firing range exceeded the 200 $\mu g/ft^2$ criteria. Areas in the basement that exceeded the criteria are from previous indoor firing range activities. Suspect that lead dust in the kitchen, assembly hall and the S4 office is from lead paint that has accumulated over the years.

3.4.5. AIR SAMPLING

3.4.5.1. Air Sampling for inorganic lead was performed during this survey. Table 6 lists the results of these samples, and is reported in milligrams per cubic meter (mg/m^3) of air.

TABLE 6
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
Non-Responsive	PA Lew-03119-19	Lead	<0.002 mg/m³	0.05 mg/m³	YES
Area – Assembly Hall	PA Lew-03119-19	Lead	<0.003 mg/m³	0.05 mg/m³	YES
Area – Basement	PA Lew-03119-19	Lead	<0.003 mg/m³	0.05 mg/m³	YES

mg/m³ = milligrams per cubic meter < = less than (below detection limits)

3.4.5.2. Air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this building.

3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION DAMAGE

3.5.1.1. No water intrusion problems were reported or observed within the building.

3.5.2. PROGRAMS

3.5.2.1. There are no designated confined space areas within this facility. A need has not been established for a HAZCOM program, the need for personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.3. HOUSEKEEPING

3.5.3.1. The facility is impressively clean, orderly and is being kept in very good condition.

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

E – Recommendations for Surface Lead in Armories

F – Field Notes
- Equipment Listing

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
Lewistown, PA	PENNSYLVANIA ARNG ARMORY	Lewistown Armory

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR (initials)
29 April 2003	JSS

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	NA	SFT Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
717-248-5842	HHC (-) 2 1/112 INFANTRY MECH DIV	3	9

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
9	150			

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	CONROLS 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			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	½ FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	¼ 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 WEATHR 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	/		

AEHA Form 271-R (Test), 1 Jan 92 (HSHB-MI-I)

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	3	C

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

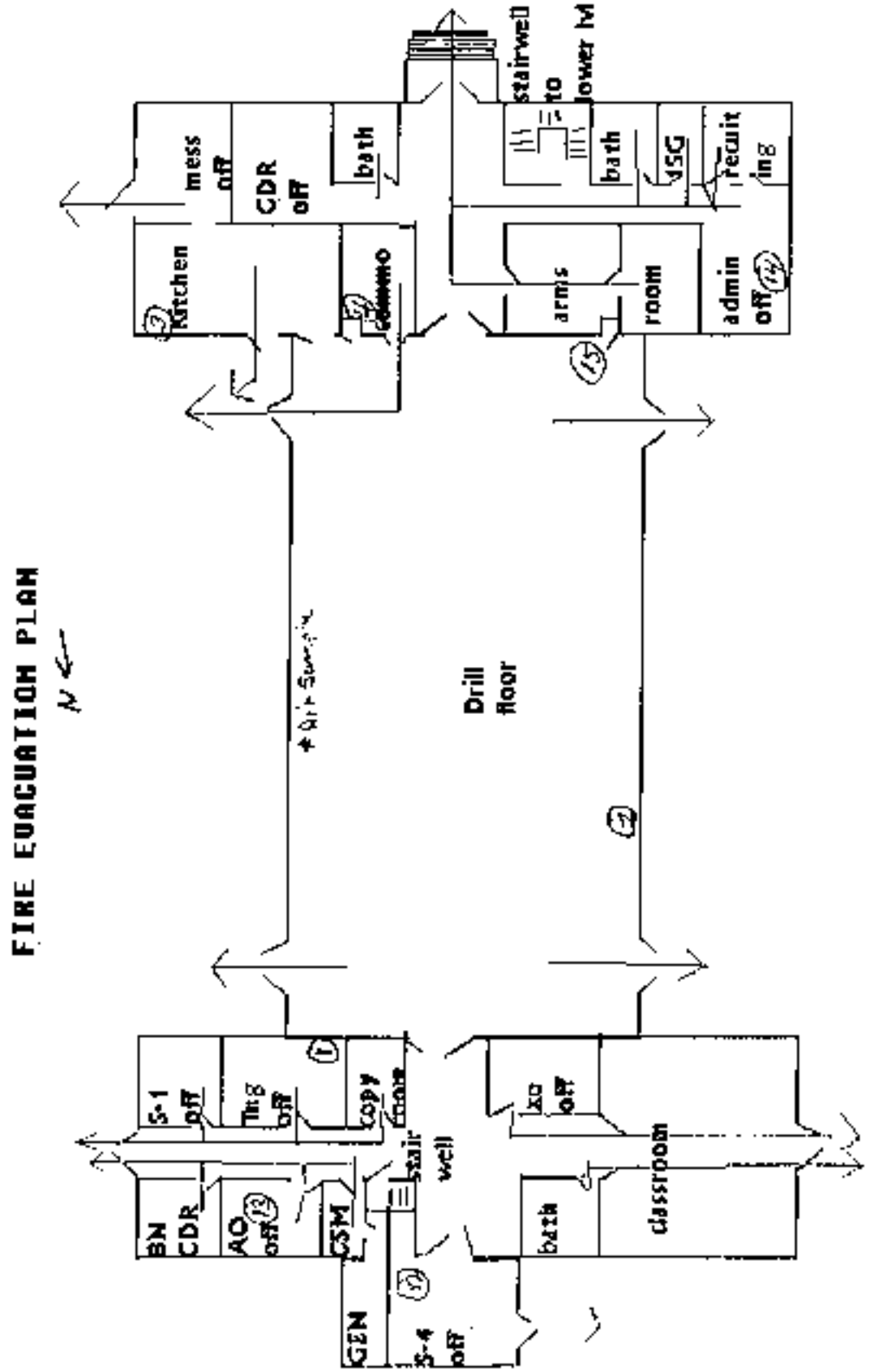
SECTION 6. COMMENTS

☐ No comments ☐ See attached sheet

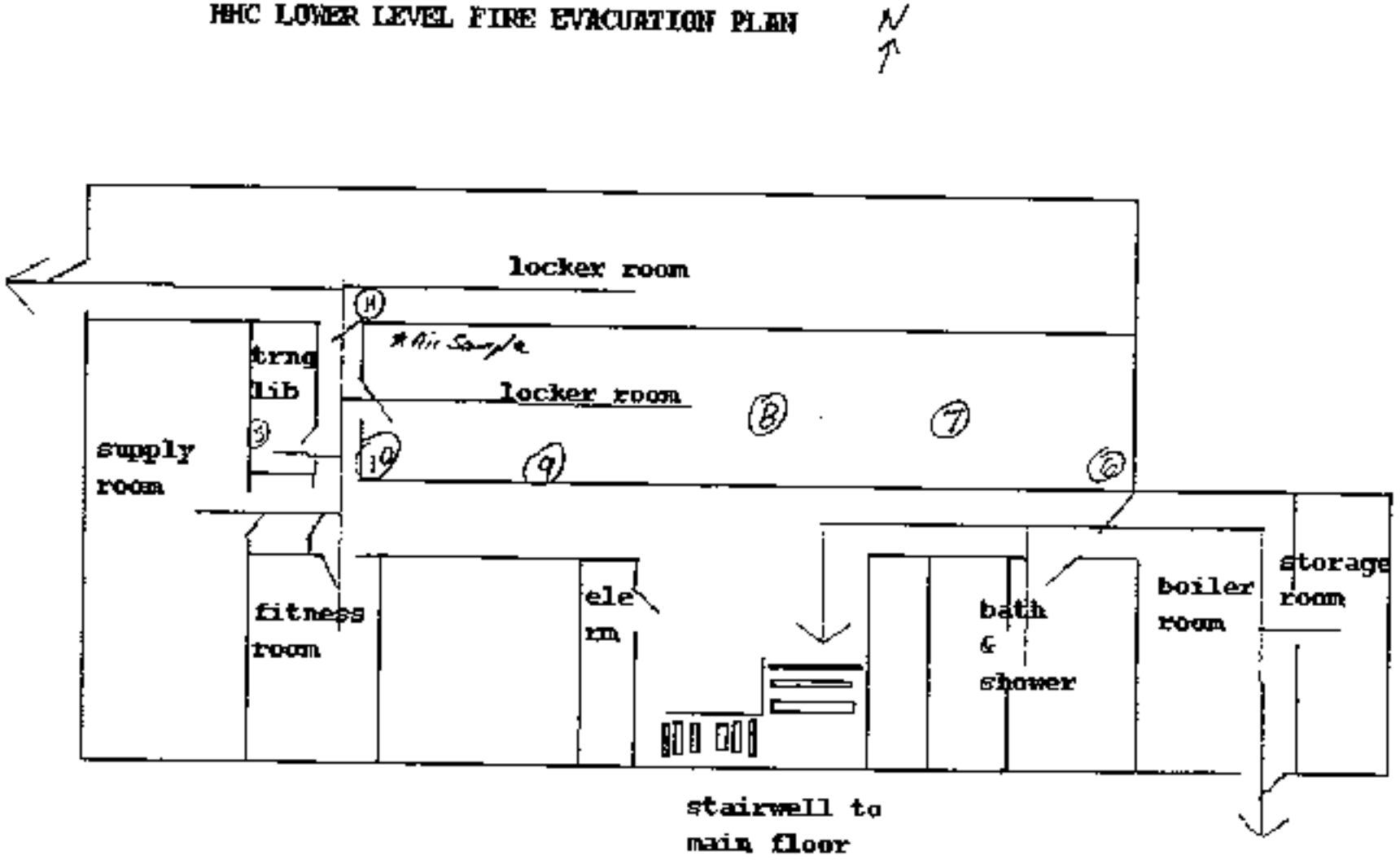
PRIVACY ACT STATEMENT

Title 6 US Code, Section 301; Executive Order 9397 authorized the use of your Social Security Number as an identification number. The purpose of this information is to identify and monitor data relating each DA civilian and military employee exposed to a hazardous workplace or operation. The use of this information is to provide histories of exposures for any given worker.

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



HHC LOWER LEVEL FIRE EVACUATION PLAN

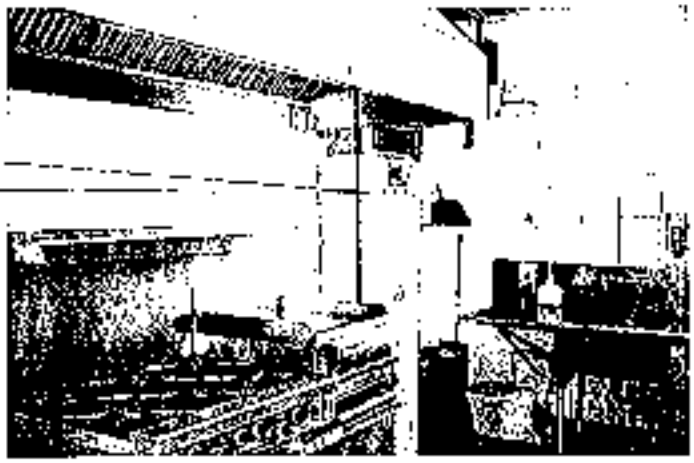


HHC (-) 2/112TH MECH INF
LEWISTOWN, PENNSYLVANIA
WIPE SAMPLING POINTS

(1) PA Lew-03119-22
BN Training Office

(2) PA Lew-03119-23
Assembly Hall – West Wall

(3) PA Lew-03119-24
Basement - Kitchen

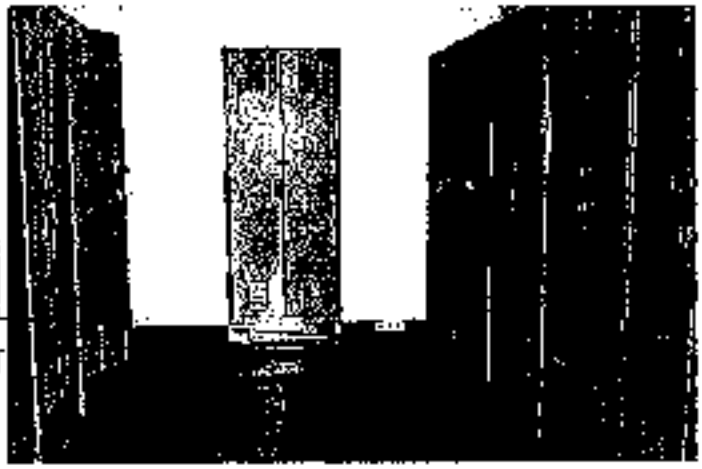


(4) PA Lew-03119-25
Recruiting Office

(5) PA Lew-03119-26
BN Training Office

FORMER RANGE SAMPLES

(6) PA Lew-03119-28
East End – Former Bullet Trap



(7) PA Lew-03119-29
Ceiling Heater

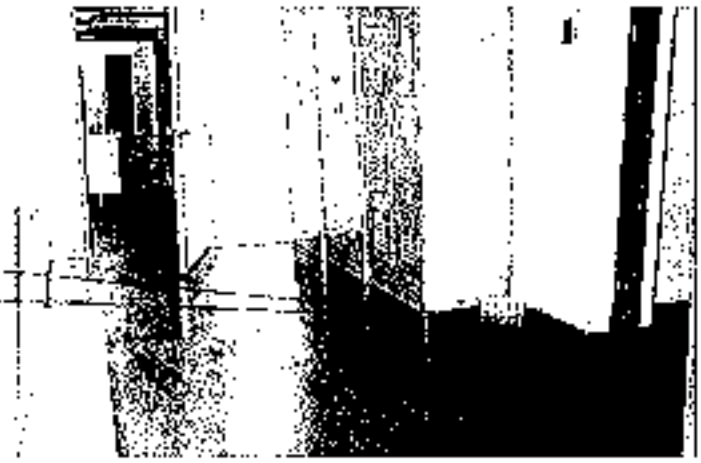
(8) PA Lew-03119-30
Light Fixture –
½ Way Down Range

(9) PA Lew-03119-31
Top of Locker

Area Air Sample

(10) PA Lew-03119-32
West End - Floor

(11) PA Lew-03119-33
Outside Former Range

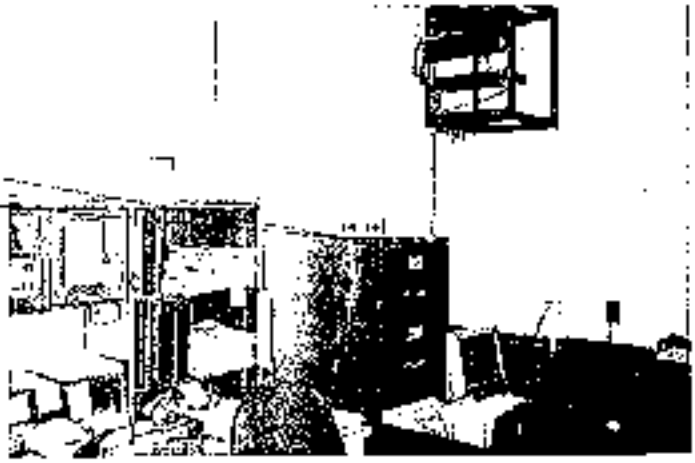


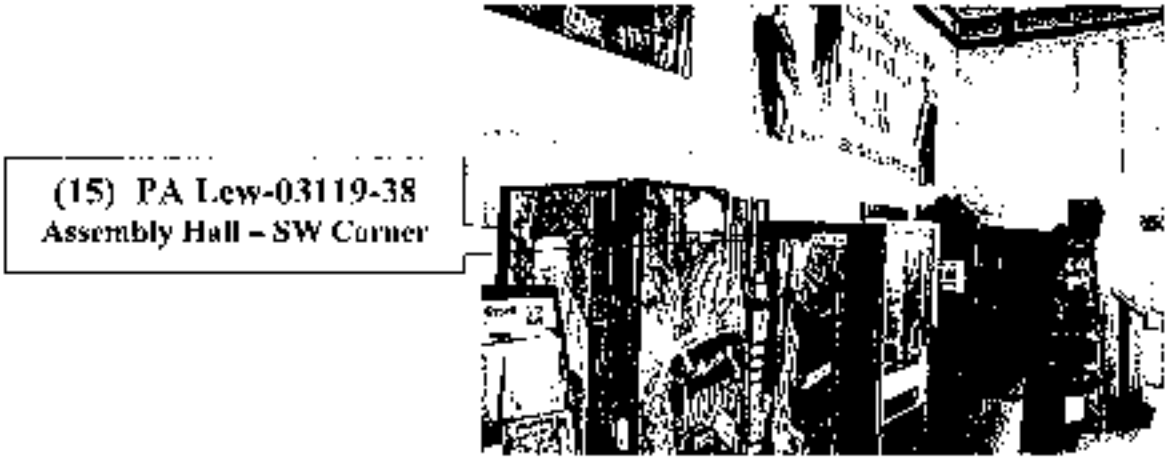
ADDITIONAL SAMPLES

(12) PA Lew-03119-35
S4 Office

(13) PA Lew-03119-36
AO Office

(14) PA Lew-03119-37
Admin Office





(15) PA Lew-03119-38
Assembly Hall – SW Corner

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
AIHA Certificate of Accreditation #9480 LAB ID 101533

TABLE I. ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	RES 92699-1
Client:	Operational Technologies, Corp.
Client Project Number / P.O.:	05 01
Client Project Description:	Armories/Pennsylvania
Date Samples Received:	May 8, 2003
Analysis Type:	USEPA SW846 3050B / AA(7420)
Turnaround:	3-5 Day
Date Samples Analyzed:	May 13, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA LEW-03119-22	EM 767365	0.11	11.0	23	100
PA LEW-03119-23	EM 767366	0.11	156.0	23	1418
PA LEW-03119-24	EM 767367	0.11	46.6	23	424
PA LEW-03119-25	EM 767368	0.11	3.8	23	35
PA LEW-03119-26	EM 767369	0.11	79.2	23	720
PA LEW-03119-27	EM 767370	0.11	BDL	23	BDL
PA LEW-03119-28	EM 767371	0.11	BDL	23	BDL
PA LEW-03119-29	EM 767372	0.11	1075.0	23	9772
PA LEW-03119-30	EM 767373	0.11	932.0	23	8473
PA LEW-03119-31	EM 767374	0.11	12.4	23	113
PA LEW-03119-32	EM 767375	0.11	3.0	23	27
PA LEW-03119-33	EM 767376	0.11	BDL	23	BDL
PA LEW-03119-34	EM 767377	0.11	BDL	23	BDL
PA HUN-03120-03	EM 767378	0.11	BDL	23	BDL
PA HUN-03120-04	EM 767379	0.11	BDL	23	BDL
PA HUN-03120-05	EM 767380	0.11	BDL	23	BDL
PA HUN-03120-06	EM 767381	0.11	BDL	23	BDL
PA HUN-03120-07	EM 767382	0.11	BDL	23	BDL
PA HUN-03120-08	EM 767383	0.11	BDL	23	BDL

*Calculations Based On A 1 sq.ft. Sample Area Unless Otherwise Noted

BDL = Below Detection Limit

Data Qa

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client:	National Guard Bureau	**Job Name:**	Pennsylvania Armories	**Chain Of Custody:**	117502
Address:	301-III Old Bay Lane, Attn: NGB-AVN-SI, State Military Reservation	**Job Location:**	Not Provided	**Date Analyzed:**	9/11/2003
	Havre de Grace, Maryland 21078	**Job Number:**	Not Provided	**Person Submitting:**	[redacted]
		P.O. Number:	Not Provided	**Report Date:**	12-Sep-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
0366431	PAAb-03113-43	Flame	Wipe	****	0.111	108.00 ug/ft²	< 110 ug/ft²	
0366432	PAAb-03113-44	Flame	Wipe	****	0.111	108.00 ug/ft²	< 110 ug/ft²	
0366433	PATyr-03114-10	Flame	Wipe	****	0.111	108.00 ug/ft²	< 110 ug/ft²	
0366434	PATyr-03114-11	Flame	Wipe	****	0.111	108.00 ug/ft²	< 110 ug/ft²	
0366435	PATyr-03114-12	Flame	Wipe	****	0.111	108.00 ug/ft²	< 110 ug/ft²	
0366436	PATyr-03114-13	Flame	Wipe	****	0.111	108.00 ug/ft²	< 110 ug/ft²	
0366437	PATyr-03114-14	Flame	Wipe	****	0.111	108.00 ug/ft²	530 ug/ft²	
0366438	PATyr-03114-15	Flame	Wipe	****	0.111	108.00 ug/ft²	< 110 ug/ft²	
0366439	PAWil-03115-10	Flame	Wipe	****	0.111	108.00 ug/ft²	< 110 ug/ft²	
0366440	PAWil-03115-11	Flame	Wipe	****	0.111	108.00 ug/ft²	< 110 ug/ft²	
0366441	PAWil-03115-12	Flame	Wipe	****	0.111	108.00 ug/ft²	< 110 ug/ft²	
0366442	PAWil-03115-13	Flame	Wipe	****	0.111	108.00 ug/ft²	< 110 ug/ft²	
0366443	PAWil-03115-14	Flame	Wipe	****	0.111	108.00 ug/ft²	< 110 ug/ft²	
0366444	PAWil-03115-15	Flame	Wipe	****	0.111	108.00 ug/ft²	< 110 ug/ft²	
0366445	PASun-03119-15	Flame	Wipe	****	0.111	108.00 ug/ft²	< 110 ug/ft²	
0366446	PASun-03119-16	Flame	Wipe	****	0.111	108.00 ug/ft²	< 110 ug/ft²	
0366447	PASun-03119-17	Flame	Wipe	****	0.111	108.00 ug/ft²	< 110 ug/ft²	
0366448	PASun-03119-18	Flame	Wipe	****	0.111	108.00 ug/ft²	< 110 ug/ft²	
0366449	PALew-03119-35	Flame	Wipe	****	0.111	108.00 ug/ft²	250 ug/ft²	
0366450	PALew-03119-36	Flame	Wipe	****	0.111	108.00 ug/ft²	< 110 ug/ft²	

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.

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client:	National Guard Bureau	Job Name:	Pennsylvania Armories	Chain Of Custody:	117502
Address:	301-III Old Day Lane, Attn: NGB-AVN-SI, State Military Reservation	Job Location:	Not Provided	Date Analyzed:	9/11/2003
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	[redacted]
		P.O. Number:	Not Provided	Report Date:	12-Sep-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
0366451	PALew-03119-37	Flame	Wipe	****	0.111	108.00	ug/ft²	< 110	ug/ft²	
0366452	PALew-03119-38	Flame	Wipe	****	0.111	108.00	ug/ft²	21000	ug/ft²	
0366453	PALew-03119-39	Flame	Wipe	****	0.111	108.00	ug/ft²	< 110	ug/ft²	
0366454	PAHon-03120-09	Flame	Wipe	****	0.111	108.00	ug/ft²	< 110	ug/ft²	
0366455	PAHon-03120-10	Flame	Wipe	****	0.111	108.00	ug/ft²	< 110	ug/ft²	
0366456	PAHon-03120-11	Flame	Wipe	****	0.111	108.00	ug/ft²	< 110	ug/ft²	
0366457	PAHon-03120-12	Flame	Wipe	****	0.111	108.00	ug/ft²	< 110	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.

Analyst: [redacted]

Technical Manager: [redacted]

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m³
PA Loc-03118-02	03-17870	599.6	ND	<0.002
PA Loc-03118-03	03-17871	541.0	ND	<0.002
PA Loc-03118-04	03-17872	531.7	ND	<0.002
PA Lew-03118-22	03-17873	295.2	ND	<0.003
PA Lew-03118-23	03-17874	279.7	ND	<0.004
PA Sun-03119-01	03-17875	410.4	ND	<0.002
PA Sun-03119-02	03-17876	411.6	ND	<0.002
PA Lew-03119-19	03-17877	411.6	ND	<0.002
PA Lew-03119-20	03-17878	398.9	ND	<0.003
PA Lew-03119-21	03-17879	373.4	ND	<0.003
PA Hun-03120-01	03-17880	350.2	ND	<0.003
PA Hun-03120-02	03-17881	341.8	ND	<0.003
PA Joh-03134-01	03-17882	395.3	ND	<0.003
PA Joh-03134-02	03-17883	380.9	ND	<0.003
PA Joh-03134-03	03-17884	349.1	ND	<0.003
PA Joh-03135-01	03-17885	450.7	ND	<0.002
PA Joh-03135-02	03-17886	405.0	ND	<0.002
PA Joh-03135-03	03-17887	381.4	ND	<0.003
PA But-03136-01	03-17888	362.5	ND	<0.003
PA But-03136-02	03-17889	348.3	ND	<0.003
	Prep Blank 6		ND	
% Recovery	LCS 11		96.	
% Recovery	LCS 12		98.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non-Responsive @md.ngb.army.mil

Attachment D

REFERENCE LIST INDEX

1. General Regulations and National Consensus Standards
2. Specific Regulations and Guidance
   a. Abrasive Blasting
   b. Asbestos
   c. Battery Charging Room
   d. Bird and Bat Manure
   e. Bloodborne Pathogens
   f. Chemical Agent Resistant Coating (CARC) Paint
   g. Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE)
   h. Confined Space Entry Program
   i. Design Review
   j. Ergonomics
   k. Flammable Storage Room
   l. Hazard Communication
   m. Hearing Conservation
   n. Indoor Air Quality
   o. Indoor Firing Ranges
   p. Lead
   q. Lighting
   r. Occupational Vision
   s. Paint Spray Booth
   t. Personal Protection
   u. Radiation Protection
   v. Respiratory Protection
   w. Sanitation
   x. Smoking
   y. Vehicle Exhaust
   z. Welding Operation

GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REFERENCE LIST

1. General Regulations and National Consensus Standards
   a. DODI 6055.1, DOD SOH Program, 19 August 1998.
   b. DODI 6055.5, DOD OEH. *[DRAFT]*
   c. DOD 6055.5-M, DOD Occupational Health Surveillance Manual, 13 May 1987.
   d. DODI 6050.5, DOD Hazard Communication, 29 Oct 90. Change 1, 6 May 1996.
   e. AR 40-5, Preventive Medicine, 15 October 1990. [05/2002 Being Updated]
   f. DA PAM 40-5, Preventive Medicine. *[DRAFT]*
   g. AR 385-10, The Army Safety Program, 29 February 2000.
   h. NGR 385-10, ARNG SOH Program, 7 October 1988, Change 1, 29 December 1989.
   i. Title 29, Part 1910, Occupational Safety and Health Standards. [Current Date]
   j. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 2002.
   k. ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th edition, 2001.
   l. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.
   m. TG 141, USACHPPM Industrial Hygiene Sampling Guide, November 1997.
   n. National Safety Council, Fundamentals of Industrial Hygiene, 5th Edition, 2002.
   o. NIOSH, Pocket Guide to Chemical Hazards, 2001.
   p. NFC, A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. [Current date]
   q. ASHRAE Standards. [Current Dates]
   r. ANSI Standards. [Current Dates]

2. Specific Regulations/Guidance
   a. **ABRASIVE BLASTING**
      (1) ANSI Z9.4 1997, Abrasive Blasting Operations - Ventilation and Safe Practices.
      (2) 29 CFR 1910.94 Ventilation
      (3) 42 CFR 84

   b. **ASBESTOS**
      (1) AR 40-5, Preventive Medicine, 15 October 1990. *[05/2002 Being Updated]*
      (2) AR 200-1, Environmental Protection and Enhancement, Chapter 8, 21 February 1997.
      (3) TB MED 513, Guidelines for the Evaluation and Control of Asbestos Exposure, 15 December 1986. *[05/2000 Under Revision as DA PAM 40-513]*
      (4) TG 157, USAEHA, The Installation Asbestos Management Program Assessment Checklists, July 1994.
      (5) 29 CFR 1910.1001
      (6) 29 CFR 1926.58 (prior to 1994 CFR)
      (7) 29 CFR 1926.1101

(8) MEMORANDUM SGPS-PSP, OTSG, subject: AMEDD Role Supporting Asbestos Abatement/Asbestos Management Programs, 19 Jan 89.

(9) EPA, Guidance for Controlling Asbestos-Containing Materials in Buildings, June 1985.

(10) DD Form 2493-1 (Asbestos Exposure, Part I--Initial Medical Questionnaire)

(11) DD Form 2493-2 (Asbestos Exposure, Part II--Periodic Medical Questionnaire)

(12) EPA NESHAPS Asbestos Regulation (40 CFR 61, Subpart M).

c. **BATTERY CHARGING ROOM**

(1) TG 022, USAEHA, page 81, Industrial Hygiene Evaluation Guide, October 1975. *[Out of Print]*

(2) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

d. **BIRD AND BAT MANURE**

(1) TG 142, USAEHA, Managing Health Hazards Associated with Bird and Bat Excrement, Dec 1992.

e. **BLOODBORNE PATHOGENS**

(1) 29 CFR 1910.1030

(2) TG 190, USAEHA, Guide to Managing Occupational Exposure to Bloodborne Pathogens, Jan 94.

f. **CHEMICAL AGENT RESISTANT COATING (CARC) PAINT**

(1) TG 144, USAEHA, Guidelines for Controlling Health Hazards in Painting Operations, 24 August 1987.

(2) DA LTR, USAEHA, HSHB-MI-WR, subject: Respiratory Protection When Spraying CARC, 19 November 1992.

(3) TM 43-0139, Painting Instructions for Army Material, 27 July 19881 Aug 86.

(4) MEMORANDUM SGPS-PSP, OTSG, subject AMEDD, Occupational Health Requirements in Support of Painting in the Army, 22 February 1985.

(5) AR 750-1, Army Materiel Maintenance Policy and Retail Maintenance Operations (Prohibits welding on CARC paint) 1 July 1996.

g. **CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR, EXPLOSIVE (CBRNE)**

(1) DODI 2000.gg, DOD Installation CBRNE Emergency Response Guidelines.

(2) DHHS, NIOSH Pub No. 2002-139, Guidance for Protecting Building Environments from Airborne Chemical, Biological, or Radiological Attacks, May 2002.

(3) TG 275, USACHPPM, Personal Protective Equipment Guide for Medical Treatment Facility Personnel Handling Casualties from Weapons of Mass Destruction and Terrorism Events. *[Draft]*

h. **CONFINED SPACE**

(1) 29 CFR 1910.146 (Confined Space Entry)

(2) 29 CFR 1910.147 (Lockout/Tagout)

(3) ANSI Z117.1-Safety Requirements for Confined Spaces, 1995.

(4) SOP for ARNG Confined Space Entry Program, 25 April 1991.

(5) Letter, US Dept of Labor (DOL) addressed to Vanessa Char, 22 Apr 1994.

(6) OSHA Instruction STD 1-7.3, US DOL, subject: 29 CFR 1910.147, the Control of Hazardous Energy (Lockout/Tagout)--Inspection Procedures and Interpretive Guidance, 11 Sep 90.

(7) DHHS, NIOSH Pub No. 87113, A Guide to Safety in Confined Spaces, July 1987.

(8) Confined Space Entry Program for Helicopters, 2003.

i. **DESIGN REVIEW**

(1) DG 415-1, Design Guide for Armories, current.

(2) DG 415-2, Design Guide for Logistics Facilities, current.

(3) DG 415-3, Design Guide for Training Site Facilities, current.

(4) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

(5) TI-300, 1090, Aumerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

(6) UFGS 15940A, Overhead Vehicle Tailpipe (and welding Fume) Exhaust Removal Systems, December 2001.

(7) ASHRAE, Standard 62-2002, Ventilation for Acceptable Indoor Air Quality.

(8) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

j. **ERGONOMICS**

(1) DA PAM 40-21, Medical Services, Ergonomics Program, 15 May 2000.

(2) ANSI Z-365, Management of Work Related Musculoskeletal Disorders, 2000.

(3) 29 CFR 1910. *[PROPOSED STANDARD]*

k. **FLAMMABLE STORAGE ROOM**

(1) 29 CFR 1910.106

(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

l. **HAZARD COMMUNICATION**

(1) 29 CFR 1910.1200

(2) NGR 385-10, Chapter 6

m. **HEARING CONSERVATION**

(1) DA PAM 40-501, Medical Services, Hearing Conservation Program, 10 December 1998.

(2) TG 181, USAEHA, Noise Dosimetry and Risk Assessment, May 1999.

(3) TG 175, USAEHA, Readiness thru Hearing Conservation: Guide for Unit Commanders and Supervisors, June 1999.

(4) 29 CFR 1910.95

n. **INDOOR AIR QUALITY (IAQ)**

(1) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

(2) USACERL Technical Report P-91/42, IAQ Management for Operations and Maintenance Personnel, September 1991.

(3) EPA 400/1-91/003 or DHHS, NIOSH, Publication No. 91-114, Building IAQ, A Guide for Building Owners and Facility Managers, December 1991.

(4) ASHRAE, Standard 62-2002, Ventilation for Acceptable IAQ.

(5) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

(6) NIOSH, IAQ Selected References, Sep 1989.

(7) OSHA Instruction CPL 2-2.20B CH-1, Directorate of Technical Support, 13 Nov 90.

(8) DA PAM 25-52, Mail Facility Security and Handling Suspicious Mail, 6 November 2001.

(9) ASTM, D 5952-96, 10 May 1996.

o. **INDOOR FIRING RANGES**

(1) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(2) NGR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges, 30 March 1990. *[11/02 Under Revision]*

(3) CEHND 1110-1-18, USACE Design Manual for Indoor Firing Range, June 1990.

(4) HQDA LTR, Office of the Adjutant General, DACS-SF, subject: Inspection and Evaluation of US Army Indoor Firing Ranges, 26 March 1993.

(5) Departments of the Army and Air Force, NGB-ADE-OM, subject: All State Log Number (I920323) Indoor Range Clean-up at State Owned Armories, 28 July 1992.

(6) NIOSH, Technical Information, December 1975, subject: Lead Exposure and Design Considerations for Indoor Firing Ranges.

(7) All-States Ltr P01-0075, 5 December 2001.

(8) Information Paper, Alternative Ammunition, 15 March 1996.

(9) Information Paper, Bullet Traps, 26 April 1996.

(10) Information Paper, ARNG IFR Action Plan, 28 January 2002.

p. **LEAD**

(1) 29 CFR 1910.1025

(2) 29 CFR 1926.62

(3) 24 CFR 35.61 (HUD, Percentage of Lead in Paint)

(4) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(5) OSHA Instruction CPL 2-2.58, Office of Health Compliance Assistance, 13 December 1993.

(6) Federal Register, 18 April 1990, Vol. 55, No. 75, HUD, Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing, as amended, September 1990, Office of Public and Indian Housing, Department of Housing and Urban Development, 451 Seventh Street, SW, Washington, DC 20410.

(7) NIOSH, Request for Assistance in Preventing Lead Poisoning in Construction Workers, April 1992.

(8) EPA, Strategy for Reducing Lead Exposures, 21 Feb 91.

q. **LIGHTING**

(1) RP-1-1993, Office Lighting, ANSI/IESNA.

(2) RP-7-2001, Industrial Lighting, IES.

r. **OCCUPATIONAL VISION**

(1) DA PAM 40-506, Medical Services, The Army Vision Conservation and Readiness Program, 20 July 2001.

(2) ANSI Z87.1, Practice for Occupational and Educational Eye and Face Protection, 1989, Change A, REAF 1998.

(3) ANSI Z358.1 for Emergency Eyewash and Shower Equipment, 1998.

(4) OTSG Memorandum SGPS-PSP, subject: Acanthamoeba Keratitis and Eyewash Stations, 8 May 89.

(4) 29 CFR 1910.133

s. **PAINT SPRAY BOOTH**

(1) NFPA No. 33, Standard for Spray Application Using Flammable and Combustible Materials, 1995.

(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

(3) 29 CFR 1910.94

(4) 29 CFR 1910.107

(5) ANSI Z9.3-1995 for Exhaust Systems - Spray Finishing Operations - Safety Code for Design, Construction, and Ventilation.

(6) ANSI Z9.2-2001, Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems.

t. **PERSONAL PROTECTIVE EQUIPMENT**

(1) Quick Selection Guide to Chemical Protective Clothing, 2nd edition, Forsberg, K and Mansdorf, S., 1993.

(2) Chemical Protective Clothing, Vol 1 and 2, Johnson, J. and Anderson, K., American Industrial Hygiene Association, 1990.

(3) Guidelines for the Selection of Chemical Protective Clothing, 3rd Edition, ACGIH, Inc., Feb 1987.

u. **RADIATION PROTECTION PROGRAM**

(1) NGR 385-11, Safety, Ionizing and Nonionizing Radiation Protection, 18 February 1999.

(2) AR 11-9, Army Radiation Safety Program, 28 May 1999.

(3) 29 CFR 1910.96

(4) 29 CFR 1910.97

v. **RESPIRATORY PROTECTION**

(1) AR 11-34, The Army Respiratory Protection Program, 15 February 1990. *[11/02 Being Updated]*

(2) 29 CFR 1910.134

(3) 42 CFR 84

(4) TB MED 502, Respiratory Protection Program, February 1992. *[11/02 Being Updated as DA PAM 40-502]*

(5) ANSI/CGA G-7.1-1997, Commodity Specification for Air.

(6) ANSI Z88.2-1992, Standard for Respiratory Protection.

w. **SANITATION**

(1) ANSI Z4.1-1986, Change REAF 1995, Sanitation in Places of Employment-Minimum Requirements.

(2) 29 CFR 1910.141

x. **SMOKING**

(1) AR 600-63, Army Health Promotion, 28 April 1996.

(2) DODI 1010.15, Smoke-Free DOD Facilities, 2 January 2001.

(3) DODD1010.10, Health Promotion, 11 March 1986.

y. **VEHICLE EXHAUST**

(1) ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th Edition, 2001.

(2) TI-300T 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

z. **WELDING OPERATION**

(1) 29 CFR 1910.252

(2) 29 CFR 1910.253

(3) 29 CFR 1910.254

(4) ANSI/AWS Z49.1-1999, Safety in Welding and Cutting and Allied Processes.

(5) TM 5-805-7, Welding Design, Procedures and Inspection, 20 May 85.

INDUSTRIAL HYGIENE SURVEY
PENNSYLVANIA

		SURVEY DATE	29 Apr 03
FACILITY	HHC (-) 2 1/12th MECH INF		
ADDRESS	Rt 522, 28 Armory Lane (1101 US Hwy 522 N)		
	Lewistown, PA 17044		
CONTACT	Non-Responsive Cpt. Non-Responsive		
PHONE	717-248-5842		
DATE BUILT	1930	FACILITY SIZE	14,078 SqFt
RANGE	~~Inactive~~	CLOSED - Recently cleaned	
ASSISTED	Cpt Non-Responsive		

FT 9 3-5 time/mo,

PAINT CONDITION:	Trad. 150	
INDOORS	Very Good	Sample? no
OUTDOORS	Brick - Good cond	Sample? no

ASBESTOS		
Area/condition	None noted	
Area/condition		

WATER DAMAGE		
Area/condition	None noted	
Area/condition		

HOUSEKEEPING	Very good

TIME	AREA	CO	CO_2	TEMP	RH
1255	Out Doors	0.0	455	75.8°F	45.3%
1315	Classroom	0.0	549	71.3 °F	48.3 %
1320	S-4 (occup) (door open)	0.0	483	70.9°F	49.7 %
1325	Mail Rm (occup)	0.0	520	71.1 °F	48.4 %
1328	AO Office	0.0	511	71.3 °F	45.4 %
1332	BN Trng office (occup)	0.0	509	71.6 °F	47.8 %
1337	Kitchen	0.0	520	72.1 °F	44.2 %
1342	Recruiting (occup)	0.0	556	72.7 °F	43.5 %
1348	Basement - Former Range	0.0	547	73.2 °F	46.6 %
1355	Locker Rm 1)	0.0	528	72.3 °F	48.3 %
				°F	%
				°F	%
				°F	%
				°F	%
				°F	%
				°F	%
				°F	%

INDUSTRIAL HYGIENE SURVEY
PENNSYLVANIA

Lew | Lewistown

WIPE SAMPLES	ARMORY	Picture #
PA AII-03 119 - 22	~~HVAC supply side of filter~~ Bn Tng Office	1
PA AII-03 23	~~HVAC on far side of filter~~ Assembly Hall W. Wall	2
PA AII-03 24	~~Assembly Hall~~ Kitchen	3
PA AII-03 25	~~Kitchen~~ Recruiting Office	4
PA AII-03 26	~~Supply air grille in occupied office~~ Basement - training library	5
PA AII-03 27	BLANK	
PA AII-03 35	S-4 Office	12
PA AII-03 36	AO Office	13
PA AII-03 37	Admin Office	14
PA AII-03 38	Assembly Hall SW Corner	15
PA AII-03 :		
PA AII-03 39	BLANK	
PA AII-03		
PA AII-03		
PA AII-03		
PA AII-03		
PA AII-03		
PA AII-03	BLANK	

AIR SAMPLING

Sample #	Pump #	Person/Area	Precal lpm	Postcal lpm	Time On	Time Off	Run Time	Volume (Liters)
PALew03119-19	647609	[redacted]	3.230	3.191	1314	1523	129	411.6
PALew03119-20	648393	Area - Assembly Hall	3.236	3.191	1316	1521	125	398.9
PALew03119-21	647654	Area - Basement	3.144	3.086	1321	1522	121	373.4

INDUSTRIAL HYGIENE SURVEY
PENNSYLVANIA

Low

CONVERTED INDOOR FIRING RANGE WIPE SAMPLES

PA AR-03 29	~~Inside any remaining ventilation ductwork~~ Bullet Trap Floor	6
PA AR-03 29	~~Exhaust ventilation system~~ Ceiling Heater	7
PA AR-03 30	~~Bullet trap~~ Light Fixture Facing Down	8
PA AR-03 31	~~Light fixtures~~ Top of Locker	9
PA AR-03 32	~~Overhead heaters~~ West End - Floor	10
PA AR-03 33	~~Stored items~~ Outside Range	11
PA AR-03	~~Floor~~	
PA AR-03	~~Other than range~~	
PA AR-03 34	Blank	

HVAC SYSTEM: evaluate maintenance schedule and quality of maintenance for HVAC syst.

PROGRAMS	
CONFINED SPACES?	Y – N
HEARING CONSERVATION?	Y – N
RESPIRATORY PROTECTION?	Y – N
HAZCOM?	Y – N
PPE?	Y – N
TRAINING?	Y – N

VENTILATION:

NOISE:

010 54th Inn.

4 N

Classroom   Sme Issue

32, 70, 80, 82, 62, 88,
72, 62, 78, 70, 76   772/11 = 70.2 Ceiling

Small Latrine

46, 56, 42   144/3 = 48.0

S-4 Office

26, 50, 58, 68, 80, 88, 90   460/7 = 65.7
D - 78

Mail Room

22, 28, 30   80/3 = 26.7

AO Office

38, 50, 58, 68   214/4 = 53.5
D - 62

BN Tng Office

58, 36, 32, 28, 46, 50   250/6 = 41.7
D - 26, 48   76/2 = 38.0

5

Kitchen

66, 60, 58, 64, 54, 28   340/6 = 56.7

Kitchen Storage

58, 38, 22, 64, 88   270/5 = 54.0

Receiving

52, 22, 82, 70, 76   352/5 = 70.4
D - 72

Drill Floor (G)

72, 30, 30, 32, 32, 32, 34, 36, 32,
50, 44, 52, 66, 46, 62, 52   676/14 = 28.3

F. Latrine

38, 42, 28   108/3 = 36.0

Stairs to Basement

14, 22, 34, 26, 22, 18, 22   148/7 = 21.1

BASEMENT

Former Range Locker Room

16, 24, 20, 32, 40, 38, 22, 30,
30, 8, 22, 28   310/12 = 25.8

Tng Library

8, 14, 16   38/3 = 12.7

Locker Rm N

24, 28, 42, 34, 32, 36, 44, 44   284/8 = 35.5

Supply Office

56, 32, 32, 52, 66   238/5 = 47.6
D - 38

Storage

74, 24, 60, 66, 32, 18
60, 44   384/8 = 48.0

PENNSYLVANIA ARMORY
INDUSTRIAL HYGIENE SURVEY
EQUIPMENT LISTING

Air Sampling Pumps
SKC Aircheck Samplers 224-44XR
S/N: 647609, 647610, 647626, 647627, 647654, 648324, 648349, 648393

Air Pump Calibrator
DryCal Base m: DC-1B Rev 2.06F S/N B 1827
DryCal Med Cell: m: DC-MC-1 Rev E S/N 1745

Indoor Air Quality
TSI Q-Trak m: 8550 S/N 11050
Metrosonics Carbon Monoxide Logger m: pm7700 S/N 1129
Metrosonics CO Sensor m: gs 7701 S/N 5073

Noise
Quest Sound Level Meter m: 2800 S/N HS4090023
Quest Octave Filter Set m: OB-300 S/N HV4070020
Quest Acoustic Calibrator m: QC-10 S/N QB4090140
Metrosonics db-3080 Noise Dosimeters S/N 4667, 4685
Microphones

ATTACHMENT E

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(b)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 $\mu g/ft^2$) and windowsills (250 $\mu g/ft^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of 200 $\mu g/ft^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 $\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 $\mu g/ft^2$ on floors and 250 $\mu g/ft^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

Attachment E

Industrial Hygiene Survey

Pennsylvania Army National Guard (PA ARNG)

Prepared For: NGB ARNG– Region North IH Office

Survey Location:

Lewistown Readiness Center

28 Armory Lane, Route 522
Lewsitown, PA 17044

Prepared By: Aria Environmental, Inc. (AEI)
PO Box 286
Woodbine, MD 21797

Survey Date: September 12, 2011

AEI Project #: J11-590 3i PA Lewistown RC

_____

Non-Responsive **, DrPH, CIH**
Industrial Hygienist

Table of Contents

List of Tables and Appendices

Executive Summary

Aria Environmental, Inc. (AEI) was contracted to perform an industrial hygiene evaluation for the Pennsylvania Army National Guard (PA ARNG) Lewistown Readiness Center located at 28 Armory Lane, Lewistown, PA 17044. Non-[redacted], DrPH, CIH performed the evaluation on September 12, 2011. The point of contact for the facility was CPT Non-[redacted]. The purpose of the evaluation was to identify and measure the existence and extent of potentially hazardous operations or conditions at Army National Guard (ARNG) facilities. The survey included: (1) evaluations of operations including ventilation system evaluations, noise dosimetry if appropriate, lighting surveys, hazard control evaluations and any additional information pertinent to the operations; (2) an evaluation of the physical condition of the facility and personnel concerns including visual inspections for peeling potentially lead-based paint, damaged suspect asbestos-containing materials, water damage or mold problems; indoor air quality concerns; and housekeeping practices; and (3) photographs of the exterior and interior of the readiness center. The results of the evaluation indicated the following:

Vehicle Exhaust Ventilation: Two local vehicle exhaust ventilation systems with one drop each serve the maintenance garage. The flow rates were 225 and 380 cubic feet per minute (CFM) which indicate that the American Conference of Governmental Industrial Hygienists (ACGIH) Ventilation Manual flow requirements for the types of vehicles that could be serviced in the garage are not met in either drop. The ventilation should be upgraded if vehicles will be serviced in the future at this maintenance garage.

Paint Chip and Wipe Samples for Lead Contamination: A visual inspection was performed to determine if there were any areas of peeling paint at the facility that could pose a lead exposure hazard. Two samples of the peeling paint were collected and reported to contain 0.018 and 0.039% lead by weight which are not considered lead-based paint according to Pennsylvania and the United States Environmental Protection Agency (EPA) definitions (0.5% lead by weight). Results of dust wipe samples taken throughout the facility were below the recommended maximum criterion for surface contamination of lead (200 micrograms per square foot (µg/ft^2)) in all areas sampled except for the floor wipe collected in Mechanical Room 41 (480 µg/ft^2).

Visual Inspection for Damaged Asbestos-Containing Materials: A visual inspection was performed to determine if there were any suspect asbestos-containing material (ACM) and its condition. No damaged suspect ACM was observed.

Visual Inspection for Water Damage and Mold Growth: A visual inspection was performed to determine if any evidence of water damage or mold growth existed. No evidence of mold growth or water damage was observed.

Visual Inspection for Housekeeping Concerns: A visual inspection was performed to assess the state of housekeeping in the facility. The housekeeping was good.

Lighting: A lighting survey was performed in all areas within the readiness center. The evaluation indicated illumination deficiencies in a few offices, storage areas and mechanical rooms. The illumination measurements indoors ranged from 0.6 foot candles (fc) to 122 fc.

Indoor Air Quality: Temperature and relative humidity measurements were mostly within the comfort ranges for the summer season on the day of the survey. Indoor concentrations of carbon dioxide (CO_2) and carbon monoxide (CO) were below the guidelines in all areas.

Material Safety Data Sheets: The Material Safety Data Sheet (MSDS) notebook was reviewed and found to require updates including retiring old data sheets per OSHA 29 CFR 1910.1200.

Overall, the Lewistown Readiness Center has few industrial hygiene issues, and programs are in place to protect, inform and train employees and maintain the facility.

1 Introduction

Aria Environmental, Inc. (AEI) was contracted to perform an industrial hygiene evaluation for the Pennsylvania Army National Guard (PA ARNG) Lewistown Readiness Center located 28 Armory Lane, Lewistown, PA 17044. Non- , DrPH, CIH performed the evaluation on September 12, 2011. The point of contact for the facility was CPT Non- . The purpose of the evaluation was to identify and measure the existence and extent of potentially hazardous operations or conditions at Army National Guard (ARNG) facilities.

Construction of a second floor and renovation of the first floor of the Lewistown Readiness Center was completed in 2009. The readiness center is staffed by 22 administrative personnel. The operations conducted at the facility include supply and administrative duties. A diagram of the building layout is provided in Appendix A. All sampling sheets and laboratory certificates of analysis are provided in Appendix B. Selected photographs taken during the evaluation are provided in Appendix C. Indoor air quality and lighting survey measurement log sheets are provided in Appendix D. Lists of all references used during the evaluation are included in the main body of the report.

2 Evaluation Methods

The industrial hygiene survey of the Lewistown Readiness Center consisted of visual inspections, interviews with employees, and sampling plan development in order to achieve the following: (1) evaluations of operations including operation description, sampling for lead in air or on surfaces if appropriate, ventilation system evaluations, noise measurements if appropriate, lighting surveys, hazard control evaluations and any additional information pertinent to the operations; (2) an evaluation of the physical condition of the facility and personnel concerns including visual inspections for peeling potentially lead-based paint, damaged suspect asbestos-containing materials, water damage or mold problems; indoor air quality concerns; and housekeeping practices; and (3) a building layout and photographic documentation of the interior of the facility.

The National Guard Bureau (NGB) Region North IH Office provided all industrial hygiene equipment for air sampling (equipment and media), ventilation, lighting, noise and indoor air quality (IAQ) survey instruments and paid for laboratory analytical fees. Laboratories were chosen or approved by the NGB IH office.

3 Operations

Operations conducted at the Lewistown facility consist exclusively of supply and administrative duties. Some vehicle stenciling is performed. No other maintenance of vehicles or other physical tasks are performed at the facility. Ground maintenance and upkeep of the building are the responsibility of the state employed Armorer and not part of the duties of National Guard personnel.

4 Noise Hazards

No noise-generating activities were taking place on the day of the survey. Due to the nature of the tasks performed onsite, no activities requiring noise monitoring are anticipated to occur at the RC.

5 Hazard Controls

Ventilation Systems

Local exhaust ventilation systems were present in the maintenance garage. Ventilation systems were evaluated using a TSI VelociCalc Plus model 9555-P. The unit was factory calibrated in March 2011. Flow rates were measured on all local exhaust ventilation units, by taking measurements at each drop or across the face of grills or vents. Measurements were compared to the American Conference of Governmental Industrial Hygienists (ACGIH) Industrial Ventilation Manual, latest edition or the Department of the Army Technical Manual 5-810-1 Mechanical Design Heating, Ventilating, and Air-conditioning to determine adequacy.

Vehicle Exhaust Ventilation – Two local vehicle exhaust ventilation systems with one drop each serve the maintenance garage. Airflow was measured at the drop faces. The calculated flow rates are shown in Table 1A (380 and 225 cubic feet per minute (CFM)). The measurements indicate that the ACGIH Ventilation Manual flow requirements for the types of vehicles that could be serviced in the garage are not met. Ventilation requirements for tactical vehicles typically serviced in National Guard facilities are listed in Table 1B. However, vehicles are rarely run above idle or half throttle which is typically only about 600-700 RPM. Therefore, the necessary exhaust volumes may be less than those required by the ACGIH manual where volumes are calculated for engines running at full speed or higher when under load.

Table 1A - Vehicle Tailpipe Exhaust Ventilation Measurements for the PA ARNG Lewistown Readiness Center.

LEV Point ID	Location	Dimensions	Measured Value (cfm)	Meets Requirements?
A	Maintenance Garage	8" Diameter LEV	380	**No**
B	Maintenance Garage	8" Diameter LEV	225	**No**

Table 1B - Representative Vehicle Tailpipe Ventilation Requirements Based on the ACGIH Industrial Ventilation Manual, Figure VA-85-02.

Vehicle Type	Tailpipe Temperature (°F)	Engine Displacement (ft^3)	Engine Revolutions per Minute (RPM)	Required Exhaust Flow (CFM)
5 Ton Cargo Truck	300	0.293	1,700	857
2.5 Ton Cargo Truck	300	0.277	2,500	1,192
High Mobility Multipurpose Wheeled Vehicle (HMMWV)	297	0.219	3,300	1,284
Commercial Utility Cargo or Sport Utility Vehicle (CUCV or SUV)	267	0.219	3,800	1,370
Heavy Expanded Mobility Tactical Truck (HEMTT)	300	0.426	2,350	1,722

6 Physical Condition of the Facility and Personnel Concerns

An evaluation of the physical condition of the facility and personnel concerns was performed including visual inspections for water damage or mold problems; potential ergonomic problems;

and housekeeping practices. Lighting measurements were taken in all areas of the facility, and indoor air quality measurements were taken in select areas.

Paint Chip and Dust Wipe Samples for Lead Contamination

A visual inspection was performed to determine if there were any areas of peeling paint at the facility that could pose a lead exposure hazard. Peeling paint was observed in Mechanical Rooms 41 and 43. Two bulk samples of the peeling paint were collected and submitted to Aerosol Monitoring and Analysis Analytical Services, Inc. for analysis by atomic absorption spectrophotometry (AAS). Sample 20110912-01 from the south wall of Room 41 was reported to contain 0.018% lead by weight, and sample 20110912-02 from the floor oat the mezzanine level in Room 43 was reported to contain 0.018% lead by weight. These concentrations of lead are well below the Pennsylvania and EPA definition of lead-based paint (0.5% lead by weight).

To determine if any cross contamination of lead from any source into areas of the facility existed, wipe samples were collected using ghost wipes and 10cm x 10cm templets. The Environmental Protection Agency (EPA) and the Commonwealth of Pennsylvania limits for lead in dust are 40 micrograms per square foot (µg/ft^2) on floors, 250 µg/ft^2 on window sills, and 400 µg/ft^2 in window troughs. These limits apply to pre-1978 Army facilities only if children under 6 years of age occupy them for 60 or more hours per year. The NGB Region North Industrial Hygiene Office concurs with the US Army Public Health Command recommended maximum level for adult exposures of 200 µg/ft^2 on floors and frequently contacted surfaces, which is more stringent for window sills than the EPA/State standards. Dust wipe samples were submitted to AMA for atomic absorption spectrophotometry (AAS) following the analytical method ASTM D3335-85A. All wipe samples collected from the facility were below the recommended maximum except for the wipe sample collected from the floor of mechanical room 44 (480 µg/ft^2). Results are given in Table 2 and certificates of analysis are included in Appendix B.

Table 2 – Results of Dust Wipe Sampling for PA ARNG Lewistown Readiness Center on September 12, 2011.

Wipe Sample #	Sample Location	Result (µg/ft^2)*
LRC-1	Room 22 – floor	<110
LRC-2	Room 23 – desk top	<110
LRC-3	Room 27 – floor	<12
LRC-4	Room 28 – floor	<110
LRC-5	Room 6 – top of lockers	<110
LRC-6	Room 5 – vault – on bench top	<110
LRC-7	Room 4 – floor	<110
LRC-8	Room 4 – desk top	<110
LRC-9	Room 41 – Mechanical Room - floor	**480**
LRC-10	Room 42 – Former Firing Range – floor	<110
LRC-11	Room 44 – Former Firing Range – top of locker	<110

LRC-12	Room 45 – floor	<110
LRC-13	Assembly Hall – window sill	<110
LRC-14	Assembly Hall – HVAC return side	95
LRC-15	Assembly Hall – floor under bleachers	<110
LRC-16	Room 64 – top of transformer	<110
LRC-17	Office 51 – supply air diffuser	<86
LRC-18	Room 48 – Family Readiness – table	<110
LRC-19	Room 57 – Storage – bookshelf	<110
LRC-20	Room 2 Supply – floor	<110

*The recommended maximum level for adult exposures is 200 µg/ft^2 lead on surfaces.

Visual Inspection for Damaged Asbestos-Containing Materials

A visual inspection was performed to determine if there was any damaged suspect asbestos-containing material (ACM). No damaged suspect ACM was observed.

Visual Inspection for Water Damage and Mold Growth

A visual inspection was performed to determine if there was any water damage or visible mold growth at the facility. No water damage or evidence of mold growth was observed on the day on the inspection.

Visual Inspection for Housekeeping Concerns

A visual inspection was performed to assess the state of housekeeping in the facility. The housekeeping was good. Most areas were clean and tidy.

Lighting

Illumination levels were measured using a Cal-Light 400L, calibrated on March 9, 2011, and compared to minimum lighting requirements for various facilities and functions based on the following references: American National Standards Institute/Illumination Engineering Society of North America (ANSI/IESNA) Standard RP-1-04 (Office Lighting) and ANSI/IESNA Standard RP-7-01 (Lighting Industrial Facilities).

A lighting survey was performed in all areas within the readiness center. The evaluation indicated illumination deficiencies in a few areas: offices 22 and 23, mechanical rooms 8-10, conference room 27, the secure briefing room 26, office 29, unit storage 4, and locker room 44. The illumination measurements indoors ranged from 0.6 foot candles (fc) to 122 fc. The complete results of the evaluation are presented in Appendix D, including whether the results met minimum requirements for illumination.

Indoor Air Quality (IAQ)

Indoor air quality measurements (i.e., temperature, relative humidity, carbon dioxide and carbon monoxide) were taken using a TSI Q-Trak Plus Model 8554, factory calibrated in February, 2011. Temperature, relative humidity and carbon dioxide (CO_2) measurements were compared

to the recommended levels established by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE). Carbon monoxide (CO) concentrations were compared to the ACGIH Threshold Limit Value (TLV) for CO and the Environmental Protection Agency's (EPA's) National Ambient Air Quality Standard (NAAQS) for CO.

Industry guidelines or standards for seasonal temperature and humidity ranges for thermal comfort are established by ASHRAE standard 55-2010. These ranges are presented in Table 3. The U.S. EPA also recommends maintaining relative humidity below 60% and ideally between 30 and 50% to prevent mold growth. Complete results are provided in Appendix D with the lighting survey measurements.

Table 3 - Acceptable Ranges of Temperature and Relative Humidity in Summer and Winter[a]

Relative Humidity	Winter Temperature	Summer Temperature
30%	68.5°F – 76.0°F	74.0°F – 80°F
40%	68.5°F – 75.5°F	73.5°F – 79.5°F
50%	68.5°F – 74.5°F	73.0°F – 79.0°F
60%	68.0°F – 74.0°F	72.5°F – 78.0°F

[a]adapted from ASHRAE Standard 55-2010

Temperature and Relative Humidity
Indoor temperature and relative humidity (Rh) measurements in the facility ranged from 68.4 to 78.6° F and 54.5 to 61.0% Rh. Temperatures and relative humidity were mostly within the summer comfort ranges in the areas monitored.

Carbon Dioxide (CO_2) and Carbon Monoxide (CO)
Carbon dioxide and carbon monoxide measurements are used to assess ventilation system performance. The exhaled breath of building occupants is the main indoor source of carbon dioxide; therefore, the build up of CO_2 indicates inadequate ventilation. The concentration of concern for carbon dioxide is set by ASHRAE standard 62.1–2010 as 700 ppm above outdoor concentrations. Indoor levels of CO_2 ranged from 450 to 601 parts per million (ppm). CO_2 measurements were below the guideline in all areas, indicating adequate fresh air exchange.

Carbon monoxide is a byproduct of incomplete combustion. Indoor concentrations indicate contamination caused by improperly vented or malfunctioning boilers, furnaces or stoves or from vehicle exhaust entering the building from garages, loading docks, nearby roads or parking lots. The concentration of interest set by ASHRAE standard 62.1-2010 and the National Ambient Air Quality Standards (NAAQS) for carbon monoxide is an 8 hour average of 9 ppm. The ACGIH TLV for CO is 25 ppm. Indoor levels of CO ranged from 0.7 to 0.8 ppm; therefore, concentrations are below occupational exposure limits, ASHRAE and the NAAQS-recommended CO concentrations.

Additional Information

Material Safety Data Sheets
The Material Safety Data Sheet (MSDS) notebook was reviewed and required updating including retiring old data sheets per the OSHA Hazard Communication Standard: 29 CFR 1910.1200.

7 Conclusions

The results of the evaluation indicated no concerns with the following at the facility: contamination of clean air sources, water intrusion, peeling lead-based paints, noise hazards, visible mold, the presence of damaged suspect asbestos-containing materials and housekeeping. The results of the evaluation indicated industrial hygiene concerns in the following areas: vehicle exhaust ventilation in the maintenance garage, one area with accumulated lead-containing dust on the floor, MSDS notebook maintenance and lighting. Overall, the Lewistown Readiness Center has few industrial hygiene issues, and programs are in place to protect, inform and train employees and maintain the facility.

8 Limitations

This report has been prepared for the exclusive use of the U.S. Army National Guard (USARNG) and/or their agents. This service has been performed in accordance with generally accepted industrial hygiene and environmental practices. No other warranty, expressed or implied, is made. Our conclusions and recommendations are based, in part, upon information provided to us by others and our site observations. We have not verified the completeness or accuracy of the information provided to us by others, unless otherwise noted. Our observations and recommendations are based upon conditions readily visible at the site at the time of our site visit, and upon current industry standards.

By virtue of providing the services described in this report, the preparer does not assume the responsibility of the person(s) in charge of the site, or otherwise undertake responsibility for reporting to any local, state, or federal public agencies any conditions at the site that my present a potential danger to public health, safety, or the environment. It is the Client's responsibility to notify the appropriate local, state, or federal public agencies as required by law, or otherwise to disclose, in a timely manner, any information that may be necessary to prevent any danger to public health, safety, or the environment. Under this scope of services, the preparer assumes no responsibility regarding response actions initiated as a result of these findings. Response actions are the sole responsibility of the Client and should be conducted in accordance with local, state, and/or federal requirements, and should be performed by appropriately licensed personnel as warranted.

9 References

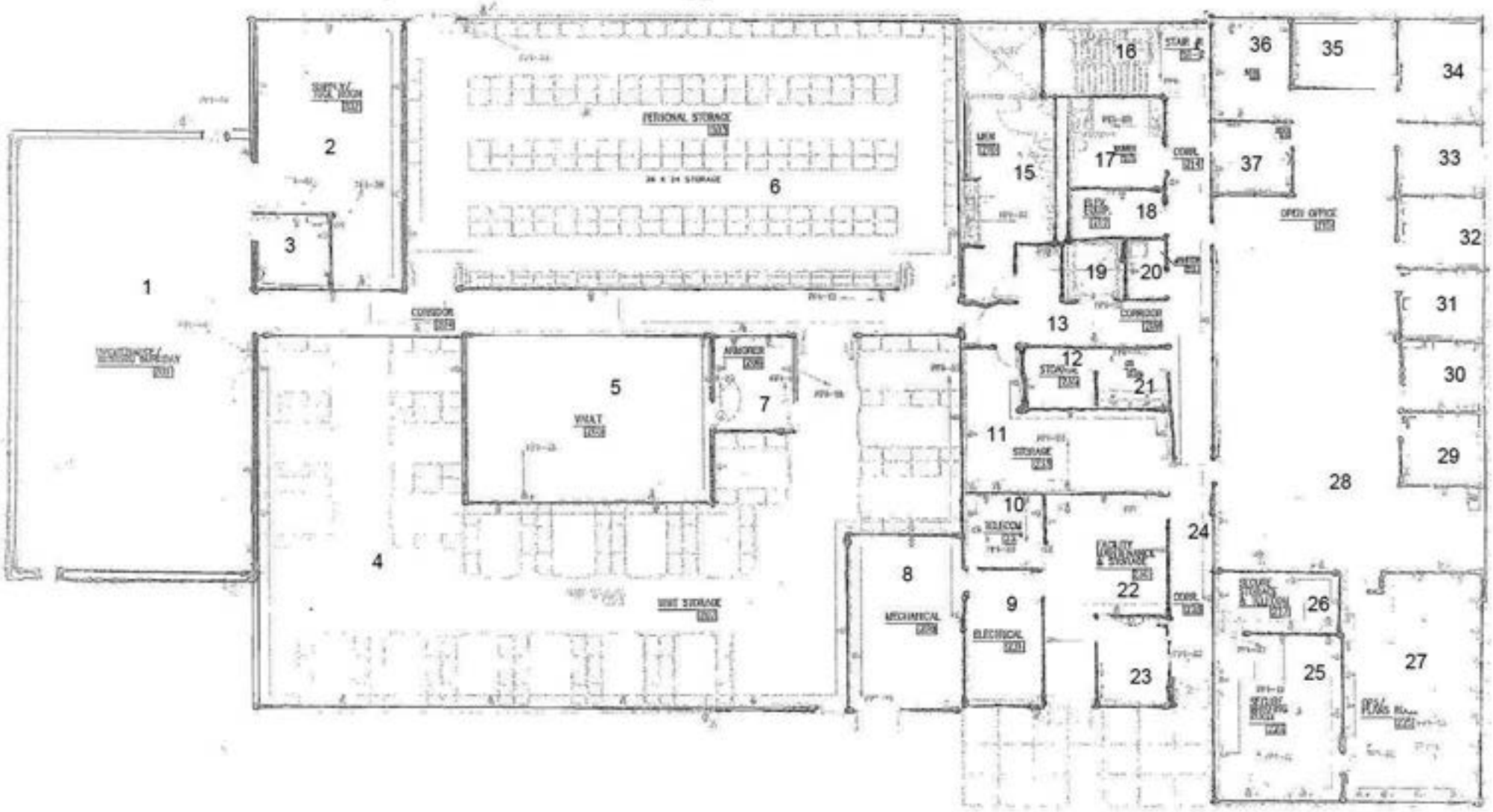
1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current edition.
2. Title 24, Code of Federal Regulations (CFR), Part 35, Subpart B, Sections 35.110, Definitions of Lead-Based Paint, Housing and Urban Development, U.S. Department of Housing.
3. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998.
4. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, May 25, 2007.
5. Army Regulation (AR) 385-10, The Army Safety Program, 14 June 2010.
6. Army Regulation (AR) 420-70 Buildings and Structures, 10 October 1997.
7. Army Regulation (AR) 200-1 Environmental Protection and Enhancement, 13 December 2007.
8. Army Regulation (AR) 420-1 Army Facilities Management, 28 March 2009.

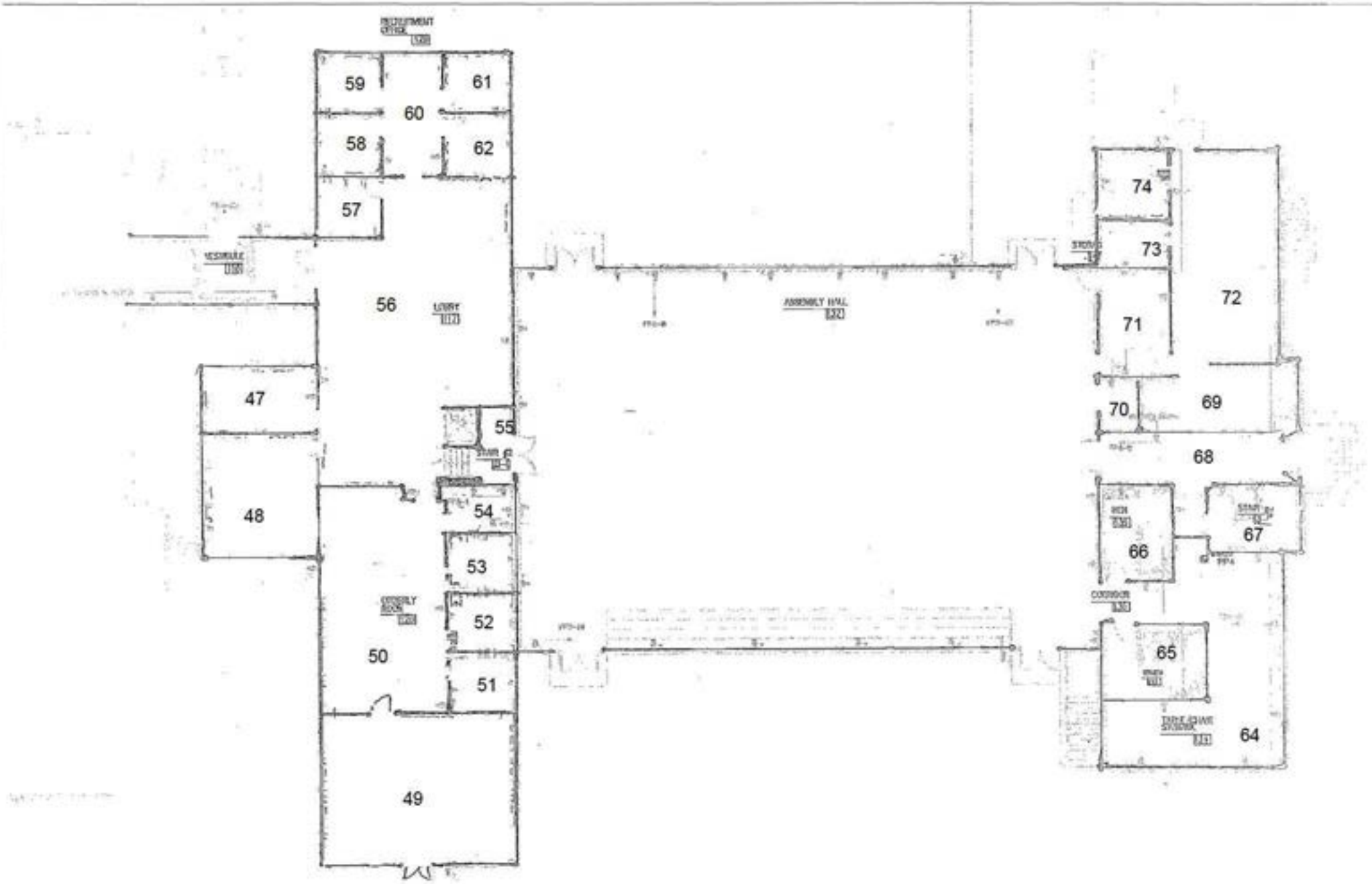
9. Department of the Army Pamphlet (DA PAM) 40-501, Medical Service, Hearing Conservation Program, December 15, 1998.
10. Department of the Army Pamphlet (DA PAM) 40-503, Medical Service, Industrial Hygiene Program, October 30, 2000.
11. Technical Manual (TM) 5-810-1, Mechanical Design, Heating, Ventilation, and Air Conditioning, June 1991.
12. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current edition.
13. RP-1-2004 (Office Lighting) and RP-7-2001 (Industrial Lighting), Illuminating Engineering Society of North America (IESNA)/ANSI.
14. The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), Standard 62.1-2010, "Ventilation for Acceptable Indoor Air Quality" and Standard 55-2010, "Thermal Environmental Conditions for Human Occupancy".
15. NIOSH website: http://www.cdc.gov/niosh/.
16. OSHA website: http://www.osha.gov/.
17. Army Public Health Command website: http://phc.amedd.army.mil/Pages/default.aspx.
18. EPA website: http://www.epa.gov.

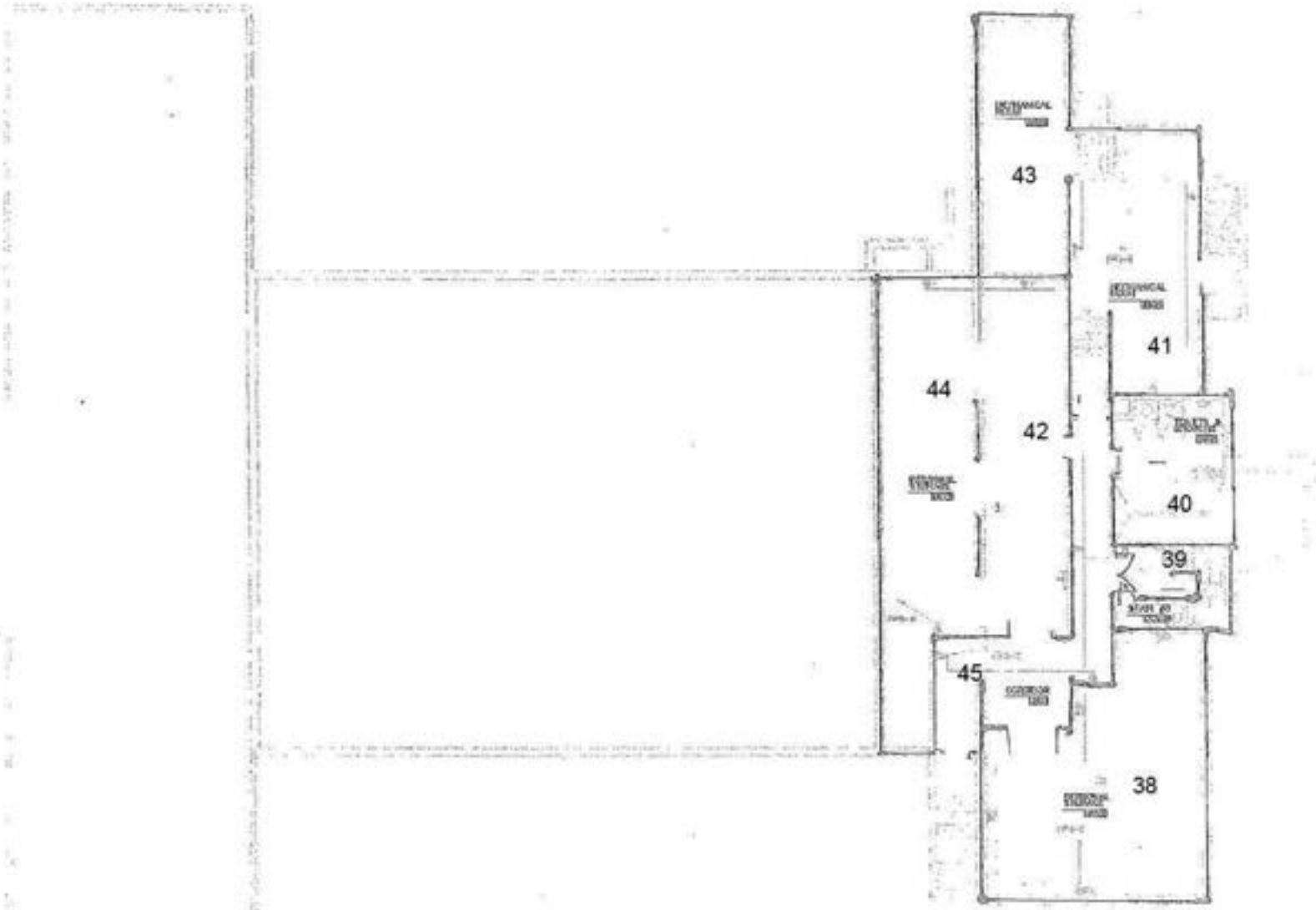
Appendix A
Building Layout

A1

A ENLARGED MECHANICAL ROOM LAYOUT







Appendix B
Certificates of Analysis for Dust Wipe and Bulk Samples

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE, ENVIRONMENTAL LEAD & ENVIRONMENTAL MICROBIOLOGY
ISO/IEC 17025:2005
www.aihaaccreditation.org
LAB #100470

Client:	National Guard Bureau	**Job Name:**	Lewistown Readiness Center	**Chain Of Custody:**	511427
Address:	301-III Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation	**Job Location:**	Lewistown, PA	**Date Submitted:**	9/23/2011
	Havre de Grace, Maryland 21078	**Job Number:**	Not Provided	**Person Submitting:**	Non-Responsive
		P.O. Number:	W912K6-09-A-0003	**Date Analyzed:**	10/10/2011 **Report Date:** 10/10/2011

Attention: Non-Responsive

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft^2)	Reporting Limit		Total ug	Final Result		Comments
12002633	LRC-1	Flame	Wipe	****	0.108	110	ug/ft^2	<12	<110	ug/ft^2	
12002634	LRC-2	Flame	Wipe	****	0.108	110	ug/ft^2	<12	<110	ug/ft^2	
12002635	LRC-3	Flame	Wipe	****	0.108	110	ug/ft^2	<12	<110	ug/ft^2	
12002636	LRC-4	Flame	Wipe	****	1.000	12	ug/ft^2	<12	<12	ug/ft^2	
12002637	LRC-5	Flame	Wipe	****	0.108	110	ug/ft^2	<12	<110	ug/ft^2	
12002638	LRC-6	Flame	Wipe	****	0.108	110	ug/ft^2	<12	<110	ug/ft^2	
12002639	LRC-7	Flame	Wipe	****	0.108	110	ug/ft^2	<12	<110	ug/ft^2	
12002640	LRC-8	Flame	Wipe	****	0.108	110	ug/ft^2	<12	<110	ug/ft^2	
12002641	LRC-9	Flame	Wipe	****	0.108	110	ug/ft^2	52	480	ug/ft^2	
12002642	LRC-10	Flame	Wipe	****	0.108	110	ug/ft^2	<12	<110	ug/ft^2	
12002643	LRC-11	Flame	Wipe	****	0.108	110	ug/ft^2	<12	<110	ug/ft^2	
12002644	LRC-12	Flame	Wipe	****	0.108	110	ug/ft^2	<12	<110	ug/ft^2	
12002645	LRC-13	Flame	Wipe	****	0.108	110	ug/ft^2	<12	<110	ug/ft^2	
12002646	LRC-14	Flame	Wipe	****	0.220	55	ug/ft^2	21	95	ug/ft^2	
12002647	LRC-15	Flame	Wipe	****	0.108	110	ug/ft^2	<12	<110	ug/ft^2	
12002648	LRC-16	Flame	Wipe	****	0.108	110	ug/ft^2	<12	<110	ug/ft^2	
12002649	LRC-17	Flame	Wipe	****	0.140	86	ug/ft^2	<12	<86	ug/ft^2	
12002650	LRC-18	Flame	Wipe	****	0.108	110	ug/ft^2	<12	<110	ug/ft^2	
12002651	LRC-19	Flame	Wipe	****	0.108	110	ug/ft^2	<12	<110	ug/ft^2	

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE, ENVIRONMENTAL LEAD & ENVIRONMENTAL MICROBIOLOGY
ISO/IEC 17025:2005
www.aihaccreditedlabs.org
LAP #100470

Client:	National Guard Bureau	**Job Name:**	Lewistown Readiness Center	**Chain Of Custody:**	511427
Address:	301-IH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation	**Job Location:**	Lewistown, PA	**Date Submitted:**	9/23/2011
	Havre de Grace, Maryland 21078	**Job Number:**	Not Provided	**Person Submitting:**	Non-Responsive
		P.O. Number:	W912K6-09-A-0003	**Date Analyzed:**	10/10/2011 **Report Date:** 10/10/2011

Attention: Non-Responsive

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		Total ug	Final Result		Comments
12002652	LRC-20	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
12002653	20110912-01	Flame	Paint Chip	****	N/A	0.0079	%Pb		0.018	%Pb	
12002654	20110912-02	Flame	Paint Chip	****	N/A	0.01	%Pb		0.039	%Pb	

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B

See QC Summary for analytical results of quality control samples associated with these samples.

N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)

%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)

Note: All samples were received in good condition unless otherwise noted.

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results

Final results for air and wipe samples are based on client supplied information nor verified by this laboratory.

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

Analyst: Non-Responsive

Technical Manager: Non-Responsive

OW(410) 247-2024 | 169002 | 210 REV 6.08 | 1 of 7

AMA Analytical Services, Inc.
Focused on Results www.amalab.com
AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)
4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This Number For Inquires) 511427

PY2

Mailing/Billing Information:
1. Client Name: National Guard Bureau
2. Address 1: 301-IH Old Bay Lane
3. Address 2: Attn: NGB-AVN-SI State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:
1. Job Name: Lewistown Readiness Center
2. Job Location: Lewistown, PA
3. Job #:
4. Contact Person: [redacted] PO #: W912K6-09-A-0003
5. Submitted By: [redacted]

Reporting Information (Results will be provided [redacted]

AFTER HOURS (must be pre-scheduled)
☐ Immediate Date Due:
☐ 24 Hours Time Due:
Comments:

NORMAL BUSINESS HOURS
☐ Immediate ☐ 3 Day
☐ Next Day ☒ 5 Day + Date Due: 9/30/11
☐ 2 Day
☐ Results Required By Noon (Every Attempt Will Be Made to Accomodate)

REPORT TO:
[redacted] ...th Report ...ariaenviro.com
...us.army.mil
...us.army.mil

Asbestos Analysis
PCM Air – Please Indicate Filter Type:
☐ NIOSH 7400 ____ (QTY)
☐ Fiberglass ____ (QTY)
TEM Air – Please Indicate Filter Type:
☐ AHERA ____ (QTY)
☐ NIOSH 7402 ____ (QTY)
☐ Other (specify ____) ____ (QTY)
PLM Bulk
☐ EPA 600 – Visual Estimate ____ (QTY)
☐ EPA Point Count ____ (QTY)
☐ NY State Friable 198.1 ____ (QTY)
☐ Grav. Reduction ELAP 198.6 ____ (QTY)
☐ Other (specify ____) ____ (QTY)
MISC
☐ Vermiculite
☐ Asbestos Soil PLM __(Qual) PLM __(Quan) PLM/TEM __(Qual) PLM/TEM __(Quan)

TEM Bulk
☐ ELAP 198.4/Chatfield ____ (QTY)
☐ NY State PLM/TEM ____ (QTY)
☐ Residual Ash ____ (QTY)
TEM Dust
☐ Qual. (pres/abs) Vacuum/Dust ____ (QTY)
☐ Quan. (s/area) Vacuum D5755-95 ____ (QTY)
☐ Quan. (s/area) Dust D6480-99 ____ (QTY)
TEM Water
☐ Qual. (pres/abs) ____ (QTY)
☐ ELAP 198.2/EPA 100.2 ____ (QTY)
☐ EPA 100.1 ____ (QTY)

☒ All samples received in good condition unless otherwise noted. (TEM Water samples ____ °C)

Metals Analysis
☒ Pb Paint Chip 2 (QTY)
☒ Pb Dust Wipe (wipe type Ghost) 20 (QTY)
☐ Pb Air ____ (QTY)
☐ Pb Soil/Solid ____ (QTY)
☐ Pb TCLP ____ (QTY)
☐ Drinking Water ☐ Pb ____ (QTY) ☐ Cu ____ (QTY) ☐ As ____ (QTY)
☐ Waste Water ☐ Pb ____ (QTY) ☐ Cu ____ (QTY) ☐ As ____ (QTY)
☐ Pb Furnace (Media ____) ____ (QTY)

Fungal Analysis
Collection Apparatus for Spore Traps/Air Samples:
Collection Media
☐ Spore-Trap ____ (QTY) ☐ Surface Vacuum Dust ____ (QTY)
☐ Surface Swab ____ (QTY) ☐ Culturable ID Genus (Media ____) ____ (QTY)
☐ Surface Tape ____ (QTY) ☐ Culturable ID Species (Media ____) ____ (QTY)
☐ Other (Specify ____) ____ (QTY)

SAMPLE INFORMATION / ANALYSIS / MATRIX

CLIENT ID NUMBER	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPE AREA	TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	WIPE	PAINT	SOIL	TAPE	SWAB
LRC-1		9-12-11		100cm²				X					X				
LRC-2				100cm²													
3				100cm²													
4				1 SF													
5				100cm²													
6				100cm²													
7				100cm²													
8				100cm²													
9																	
10																	
11																	
12																	

CLIENT CONTACT (LABORATORY STAFF ONLY)
Date/Time: Contact: By:
Date/Time: Contact: By:
Date/Time: Contact: By:
[redacted]

LABORATORY STAFF ONLY: (CUSTODY)
1. Date/Time RCVD: 9/23/11 @ 1000 Via: FedEx By [redacted]
2. Date/Time Analyzed: ___/___/___ @ ____ By (Print): ____ Sign:
3. Results Reported To: ____ Via: ____ Date: ___/___/___ Time: ____ Initials: ____
4. Comments: 4550 7792 0100

OWI (410) 247-2024

1/09/02 210 REV. 6.06

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4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This Number For Inquires) 511427 20f2

Mailing/Billing Information:

1. Client Name: National Guard Bureau
2. Address 1: 301-IH Old Bay Lane
3. Address 2: Attn: NGB-AVN-SI, State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:

1. Job Name:
2. Job Location:
3. Job #: PO #: W912K6-09-A-0003
4. Contact Person [redacted] @ phone # (410) 942-0273
5. Submitted By: [redacted] Signature:

Reporting Information (Results will be provided as soon as technically feasible):

AFTER HOURS (must be pre-scheduled)
☐ Immediate Date Due:
☐ 24 Hours Time Due:
Comments:

NORMAL BUSINESS HOURS
☐ Immediate ☐ 3 Day
☐ Next Day ☐ 5 Day +
☐ 2 Day Date Due:
☐ Results Required By Noon (Every Attempt Will Be Made to Accommodate)

REPORT TO:
☒ Include COC/Field Data Sheets with Report
☒ Email: @
☐ Fax [redacted] @us.army.mil
☐ Verbal @us.army.mil

Asbestos Analysis

PCM Air – Please Indicate Filter Type:
☐ NIOSH 7400 (QTY)
☐ Fiberglass (QTY)

TEM Air – Please Indicate Filter Type:
☐ AHERA (QTY)
☐ NIOSH 7402 (QTY)
☐ Other (specify) (QTY)

PLM Bulk
☐ EPA 600 – Visual Estimate (QTY)
☐ EPA Point Count (QTY)
☐ NY State Friable 198.1 (QTY)
☐ Grav. Reduction ELAP 198.6 (QTY)
☐ Other (specify) (QTY)

MISC
☐ Vermiculite
☐ Asbestos Soil PLM (Qual) PLM (Quant) PLM/TEM (Qual) PLM/TEM (Quant)

TEM Bulk
☐ ELAP 198.4/Chatfield (QTY)
☐ NY State PLM/TEM (QTY)
☐ Residual Ash (QTY)

TEM Dust
☐ Qual. (pres/abs) Vacuum/Dust (QTY)
☐ Quan. (s/area) Vacuum D5755-95 (QTY)
☐ Quan. (s/area) Dust D6480-99 (QTY)

TEM Water
☐ Qual. (pres/abs) (QTY)
☐ ELAP 198.2/EPA 100.2 (QTY)
☐ EPA 100.1 (QTY)

☐ All samples received in good condition unless otherwise noted. (TEM Water samples °C)

Metals Analysis
☐ Pb Paint Chip (QTY)
☐ Pb Dust Wipe (wipe type) (QTY)
☐ Pb Air (QTY)
☐ Pb Soil/Solid (QTY)
☐ Pb TCLP (QTY)
☐ Drinking Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY)
☐ Waste Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY)
☐ Pb Furnace (Media) (QTY)

Fungal Analysis
Collection Apparatus for Spore Traps/Air Samples:
Collection Media
☐ Spore-Trap (QTY) ☐ Surface Vacuum Dust (QTY)
☐ Surface Swab (QTY) ☐ Culturable ID Genus (Media) (QTY)
☐ Surface Tape (QTY) ☐ Culturable ID Species (Media) (QTY)
☐ Other (Specify) (QTY)

SAMPLE INFORMATION / ANALYSIS / MATRIX

CLIENT ID NUMBER	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPE AREA	TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	WIPE	SOIL	TAPE	SWAB
LRC-13		9/12/11		100cm²				X				X				
15				0.225f				↓				X				
16				100cm²				↓				↓				
17				100cm²				↓				↓				
18				0.1438				↓				↓				
19				100cm²				↓				↓				
20				100cm²				↓				↓				
21				100cm²				↓				↓				
20110912-01								↓			X					
20110912-02								↓			X					

CLIENT CONTACT (LABORATORY STAFF ONLY)

Date/Time: Contact: By:

Date/Time: Contact: By:

Date/Time: Contact: By:

[redacted]

LABORATORY STAFF ONLY: (CUSTODY)

1. Date/Time RCVD: / / @ Via: By (Print): Sign: [redacted]
2. Date/Time Analyzed: / / @ By (Print): Sign:
3. Results Reported To: Via: Date: / / Time: Initials:
4. Comments:

Appendix C
Photo Documentation

Lewistown, PA Readiness Center

Exterior

Classroom

Training Bay

Training Bay Flammable Materials Storage

Lewistown, PA Readiness Center

Training Bay Eyewash/Shower

Unit Storage

Unit Storage

Medical Supply Storage

Lewistown, PA Readiness Center

Facilities Maintenance

Facilities Maintenance

Facilities Maintenance

Peeling, Flaking, Chipping Paint in Mechanical Room

Lewistown, PA Readiness Center

Spilled Cleaning Supplies on Floor

Ponded Water inside Entrance to Building with no Drainage

Corridor in Old Armory Adjacent to Former Firing Range

Locker Room Previously used as Indoor Range

Lewistown, PA Readiness Center

Locker Room Previously used as Indoor Range

Arms Vault

Kitchen

Mechanical Room

Appendix D
IAQ and Lighting Survey Log Sheets

National Guard Industrial Hygiene Survey For Indoor Air Quality and Light Level

State	Pennsylvania	City	Lewistown	IAQ								Light		
Date	9/12/2011	Inspector	Non-	Instrument		Q-Track 7565-X						Instrument		Cal-Light 400
Facility Description	Readiness Center			Serial Number		7565X0839020						Serial Number		K070003
Weather Conditions				Last Calibration		Feb-11						Last Calibration		9-Mar-11
Location	Function	No. Occupants	Time	Temp. (°F)	Exceeded	RH (%)	Exceeded	CO_2 (ppm)	Exceeded	CO (ppm)	Exceeded	Illuminance (fc)	Insufficient	Illuminance Reference (fc)
22	Office/Facility Maint.	1	0915	68.4		54.5		601		0.7		13.9	X	30-50
23	Office	1										52.8		30-50
10	Telecon Closet	0	0927									3.5	X	30
9	Electrical Room	0	0928									17.1	X	30
8	Boiler Room	0										4.1	X	30
24	Corridor											28.2		5
27	Confrence Room											28.3	X	30-50
25	Secure Brief		0933									55.8		30-50
26	Secure Brief											17.4	X	30-50
28	Open Office	6										65		30-50
29	Office	1										19.3	X	30-50
30	Office	1										100.4		30-50
31	Office	1										117		30-50
32	Office	1										108.7		30-50
33	Office	1										81.6		30-50
35	Office	2										76.6		30-50
36	Office	1										102.7		30-50
37	Office	1										45.5		30-50
17	Women's Latrine											21		5

National Guard Industrial Hygiene Survey For Indoor Air Quality and Light Level

State	Pennsylvania	City	Lewistown	IAQ								Light		
Date	9/12/2011	Inspector	Non-	Instrument		Q-Track 7565-X						Instrument		Cal-Light 400
Facility Description				Serial Number		7565X0839020						Serial Number		K070003
Weather Conditions	57 degrees F. Light rain. 93% RH.			Last Calibration		Feb-11						Last Calibration		9-Mar-11
Location	Function	No. Occupants	Time	Temp. (°F)	Exceeded	RH (%)	Exceeded	CO_2 (ppm)	Exceeded	CO (ppm)	Exceeded	Illuminance (fc)	Insufficient	Illuminance Reference (fc)
20	Janitor	0										41.2		30
21	Mail Room	0										55.6		30
12	Stg./Temp. Qtrs.	1										36.2		30
11	Storage	0										33.1		30
13	Corridor											60.9		5
15	Men's Latrine											53.3		5
6	Locker Room		0953									60.6		7
14	Corridor											57.3		5
7	Office	1										42.5		30-50
5	Vault											42.7		10
4	Unit Storage											18.5	X	30
16	Stairwell											21.2		10
68	Hall											24.8		5
40	Men's Latrine											65		5
41	Mechanical Room											53.3		30
42	Locker Room		1040	78.6		61.0		450		0.8		42		7
44	Locker Room											0.6	X	7
38	Locker Room											50.7		7
45	Corridor											10.2		5
39	Stairwell											37		10

National Guard Industrial Hygiene Survey For Indoor Air Quality and Light Level

State	Pennsylvania	City	Lewistown	IAQ								Light		
Date	9/12/2011	Inspector	Non-	Instrument		Q-Track 7565-X						Instrument		Cal-Light 400
Facility Description				Serial Number		7565X0839020						Serial Number		K070003
Weather Conditions				Last Calibration		Feb-11						Last Calibration		9-Mar-11
Location	Function	No. Occupants	Time	Temp. (°F)	Exceeded	RH (%)	Exceeded	CO_2 (ppm)	Exceeded	CO (ppm)	Exceeded	Illuminance (fc)	Insufficient	Illuminance Reference (fc)
Assembly Hall		varies	1100	77.5		59.2		457		0.7		10.8	X	30-50
71	Serving Line											63.9		10
72	Kitchen											105.5		50
73	Kitchen Storage											44.4		5
74	Kitchen Office	1										46.5		30-50
69	Dishwash											107.7		30
70	Dish Return											75.6		10
64	Storage											91.9		30
65	Wonen's Latrine											28.3		5
66	Men's Latrine											32.1		5
67	Stairs											55.4		10
49	Orderly Conf Room	4										54.9		30-50
50	Orderly Room											60.9		30-50
51	Office	1										110.1		30-50
52	Office	1										90.8		30-50
53	Office	1										121.0		30-50
54	Electrical Room	0										27.3	X	30
56	Lobby											22.3		10
48	Family Readiness											27.3	X	30
60	Office	0										77.0		30-50
57	Storage Office	1										41.6		30-50
58	Storage Office	1										74.3		30-50
59	Storage Office	0										82.9		30-50
61	Storage Office	0										122.5		30-50
62	Storage Office	1	1155									104.6		30-50
46	Corridor											58.4		5

INDUSTRIAL HYGIENE SURVEY

HHD 728TH SPT BN (MSB)
CO C (Heavy Maintenance) 728TH MSB
CO D (Heavy Maintenance) 728TH SPT BN
LOCK HAVEN, PA

April 28, 2003

OPTECH
OPERATIONAL TECHNOLOGIES
CORPORATION

HHD 728TH SPT BN (MSB)
CO C (Heavy Maintenance) 728TH MSB
CO D (Heavy Maintenance) 728TH SPT BN
LOCK HAVEN, PENNSYLVANIA
INDUSTRIAL HYGIENE SURVEY

1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Armory in Lock Haven, Pennsylvania on April 28, 2003. NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. Non-Respo Non-R from OpTech, completed this survey. Non-R a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the IH Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D.

RECOMMENDATIONS

1. INDOOR AIR QUALITY

1.1. No significant indoor air quality problems were noted.

2. ILLUMINATION

2.1. Illumination levels were below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3. WIPE SAMPLES

3.1. One wipe sample for inorganic lead collected in the former indoor firing range exceeded the 200 micrograms per square foot criteria. Lower levels were detected in the kitchen, assembly hall, S-1 Orderly Room, COMMO room and the Recruiting office. Recommend that these areas be wet-wiped/mopped or cleaned using a high efficiency particulate air (HEPA) vacuum during routine housekeeping duties.

2.0. EXECUTIVE SUMMARY

2.1. No indoor air quality problems were noted.

2.2. Illumination levels were well below recommended minimum standards in most areas of the facility.

2.3. Wipe samples for inorganic lead were collected. A sample collected in the former indoor firing range exceeded recommended levels. Lower levels of lead were detected in other parts of the facility.

2.4. Air sampling for inorganic lead was accomplished. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building.

2.5. A paint chip sample was collected of peeling paint above the stairs leading to the basement, and analyzed for lead content. The sample result was well below the EPA's 0.5 percent by weight standard, and therefore, is not considered lead-contaminated.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	HHD 728TH SPT BN (MSB)		
	CO C (Heavy Maintenance) 728TH MSB		
	CO D (Heavy Maintenance) 728TH SPT BN		
ADDRESS	PO Box 510, Rd. 1, Rt. 664		
	Lock Haven, PA 17745		
CONTACT	MA. Non-Responsive		
PHONE	570-893-2444		
DATE BUILT	1298/63	FACILITY SIZE	5400 sq.ft. + 3792 sq.ft.
INDOOR FIRING RANGE	CLOSED		Partial 2nd floor Partial basement
ASSISTED	MA. Non-R		
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	10		
TRADITIONAL (MIL)	300		
CHILD ACTIVITIES	Facility rented out 2 to 3 times per year for receptions, circus plus tool/parts shows		
ADULT ACTIVITIES			

3.1.1. The exterior of the building is brick and appears to be in good condition. The interior has been kept in good condition. The former indoor firing range has been cleaned and is used for mobilization storage and as a COMMO room.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity (RH) in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 Indoor Air Quality Standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ASHRAE 62-2001, Section 6.1.3, states that concentrations up to 700 ppm CO_2, above outdoor concentrations will achieve an acceptable level of indoor air quality.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ASHRAE 55-1992 recommends that temperature ranges be 73 to 79 degrees Fahrenheit (°F) during the summer and 68 to 74°F during the winter. Relative humidity levels be maintained between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE 1
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO2 (ppm)	Temp. (°F)	RH (%)
0855	Outdoors – Background	0.0	490	53.4	31.3
0940	Classroom	0.0	529	67.2	31.8
0945	C CO Orderly Room (occupied)	0.0	614	67.0	32.8
0950	Recruiting (occupied)	0.0	646	67.2	32.5
0955	BA CMDR (occupied)	0.0	550	68.0	31.5
0958	Mail Room	0.0	620	68.0	31.5
1002	S-4 Office (occupied)	0.0	750	68.8	32.5
1006	HHD Orderly Room (occupied)	0.0	739	70.7	26.7
1010	S-2/S-3	0.0	640	71.8	28.0
1014	S-1 Office	0.0	595	70.8	27.8
1020	Kitchen	0.0	557	69.8	29.8
1025	Assembly Hall	0.0	551	68.5	30.9
1028	A CO Orderly Room (occupied)	0.0	636	69.1	31.7
1034	Boiler Room	0.0	576	69.4	31.4
1037	Male Latrine	0.0	512	68.3	36.6
1042	CO C Supply Office	0.0	595	68.2	32.1
1046	CO C Supply Office - West (occupied)	0.0	622	68.1	31.1
1052	CO A Supply	0.0	507	64.4	33.0

3.2.5. No indoor air quality problems were noted.

3.3. ILLUMINATION

3.3.1. Illumination levels were measured in most areas of the facility. Sunlight was excluded, as much as possible for this survey, by closing doors and blocking windows. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 – 463). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
Classroom	54 – 98	81	75	YES
C CO CMDR's Office	46 – 62	52	70	NO
Desk	42 – 58	50	70	NO
C CO Orderly Room	52 – 78	66	70	NO
Desks	52 – 68	58	70	NO
Recruiting	28 – 50	34	70	NO
Desks	30 – 44	37	70	NO
XO's Office	70 – 88	79	70	YES
Desk	72	72	70	YES
BA Commander's Office	24 – 74	58	70	NO
Desk	50	50	70	NO
Commander's Latrine	32 – 42	37	40	NO
Corridor	20 – 40	35	7.5	YES
Mail Room	36 – 50	43	75	NO
S-4 Office	44 – 52	50	70	NO
Desks	46 – 54	50	70	NO
HHD Orderly Room	38 – 98	66	70	NO
Desks	48 – 64	56	70	NO
S-2/S-3 Front Office	18 – 52	36	70	NO
Desks	22 – 44	33	70	NO
S-2/S-3 Rear Office	48 – 72	61	70	NO
Desk	72	72	70	YES
2nd Floor Corridor	22 – 42	32	7.5	YES
S-1 Office	40 – 100	62	70	NO
Desks	48 – 66	57	70	NO
Entry	18 – 28	24	15	YES

Location	Luminance Range (fc)	Average	Standard	Standard Met
Kitchen	32 – 62	52	75	NO
Range Hood – Supplemental	16 – 24	20	75	NO
Scullery	28 – 86	62	50	YES
Assembly Hall	42 – 82	58	75	NO
A CO Orderly Room	32 – 56	48	70	NO
Desks	40 – 42	41	70	NO
Boiler Room	12 – 34	22	15	YES
Male Latrine	18 – 48	28	40	NO
Showers	8 – 10	9	20	NO
CO C Supply Office	32 – 42	38	70	NO
Desk	34	34	70	NO
CO C Storage	28 – 40	35	30	YES
CO C Supply Office – West	32 – 40	36	70	NO
Desk	22	22	70	NO
CO C – West Storage	22 – 36	28	70	NO
CO A – Storage	8 – 18	13	30	NO
Corridor	26 – 44	37	7.5	YES

3.3.2. Levels were below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3.4. WIPE SAMPLES

3.4.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples were taken at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot ($\mu g/ft^2$) and are listed in Table 3. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
LEAD WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Loc-03118-05	CO C West Supply Room	BDL
PA Loc-03118-06	Kitchen	45
PA Loc-03118-07	Assembly Hall – East End – Top of Locker	69
PA Loc-03118-08	Basement – Center of Former Range Floor	336
PA Loc-03118-09	XO's Office	BDL
PA Loc-03118-10	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.1.1. Additional wipe samples were taken in the former indoor firing range and other areas of the facility. Normally a minimum of five wipe samples are taken in closed ranges; however, due to the former range in this facility being very small, fewer samples were taken. Laboratory analysis for these additional samples are listed below in Table 4.

TABLE 4
ADDITIONAL LEAD WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Loc-03118-11	S-1 Office	25
PA Loc-03118-12	HHD Orderly Room – 2ND Floor	BDL
PA Loc-03118-13	Former Range – Supply Cage Shelf	BDL
PA Loc-03118-14	Former Range – COMMO Room – Floor	75
PA Loc-03118-15	Recruiting Office	29
PA Loc-03118-16	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.2. WIPE SAMPLING RESULTS

3.4.2.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 µg/ft². This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. (See memorandum in Attachment E, Recommendations for Surface Lead Dust in Armories.) All samples were below the 200 µg/ft² criteria except for one sample taken in the former indoor firing range. Lower levels of lead were detected in a few areas in the facility. It is evident that the sample exceeding the recommended criteria is from former range activities. Suspect that other areas with low levels of lead are from dust migrating from the firing range, lead paint plus exhaust from leaded fuel in vehicles driven into the facility prior to 1978.

3.4.3. AIR SAMPLING

3.4.3.1. Air Sampling for inorganic lead was performed during this survey. Table 4 lists the results of these samples, and is reported in milligrams per cubic meter (mg/m³) of air.

TABLE 4.
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
Non-Responsive	PA Loc-03118-01	Lead	<0.002 mg/m³	0.05 mg/m³	YES
Area -- Assembly Hall	PA Loc-03118-02	Lead	<0.002 mg/m³	0.05 mg/m³	YES
Area – Basement	PA Loc-03118-03	Lead	<0.002 mg/m³	0.05 mg/m³	YES
Area – 1st Floor -- HQ	PA Loc-03118-04	Lead	<0.002 mg/m³	0.05 mg/m³	YES

mg/m³ = milligrams per cubic meter < = less than (below detection limits)

3.4.3.2. Air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m³ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this building.

3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION DAMAGE

3.5.1.1. No current water intrusion problems were reported or observed within the building.

3.5.2. LEAD PAINT

3.5.2.1. Chipping paint was noted above the stairs leading to the basement. A sample was taken and analyzed for lead content. The laboratory results are listed below in Table 5.

TABLE 5
PAINT CHIP SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (percent)
PA Loc-03118-21	Stairway Ceiling Paint Chips	0.010

BDL = Below Detection Limits

3.5.2.2. The Environmental Protection Agency (EPA) considers paint with a lead content equal to or greater than 0.5% by weight as contaminated. Therefore, the peeling paint in this area is not considered lead-contaminated.

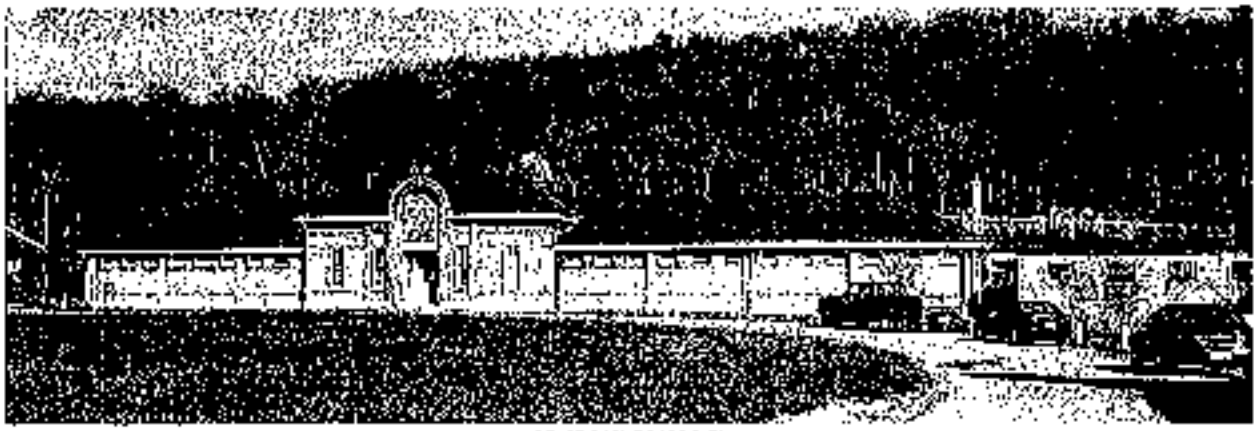
Peeling Paint Under Stairs

3.5.3. PROGRAMS

3.5.3.1. There are no designated confined space areas within this facility. A need has not been established for a HAZCOM program, the need for personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.4. HOUSEKEEPING

3.5.4.1. The facility is impressively clean, orderly and is being kept in very good condition.



WEST WING

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

E – Recommendations for Surface Lead in Armories

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
Lock Haven, PA	PENNSYLVANIA ARNG ARMORY	Lock Haven Armory

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR (initials)
28 April 2003	JSS

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	NA	MAJ. Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
570-893-2444	728TH SPT, CO C/O MSB	3	9

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
10	300			

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	CONROLS 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			
NBC AGENTS		FULL FACE AIR PURIFYING			
OIL		½ FACE AIR PURIFYING			
SOLVENTS		POWERED AIR PURIFYING			
SURGICAL GLOVES		¼ 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 WEATHR 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			

AEHA Form 271-R (Test), 1 Jan 92 (HSHB-MI-I)

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	3	C
124-38-9	Carbon Dioxide	10	A

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

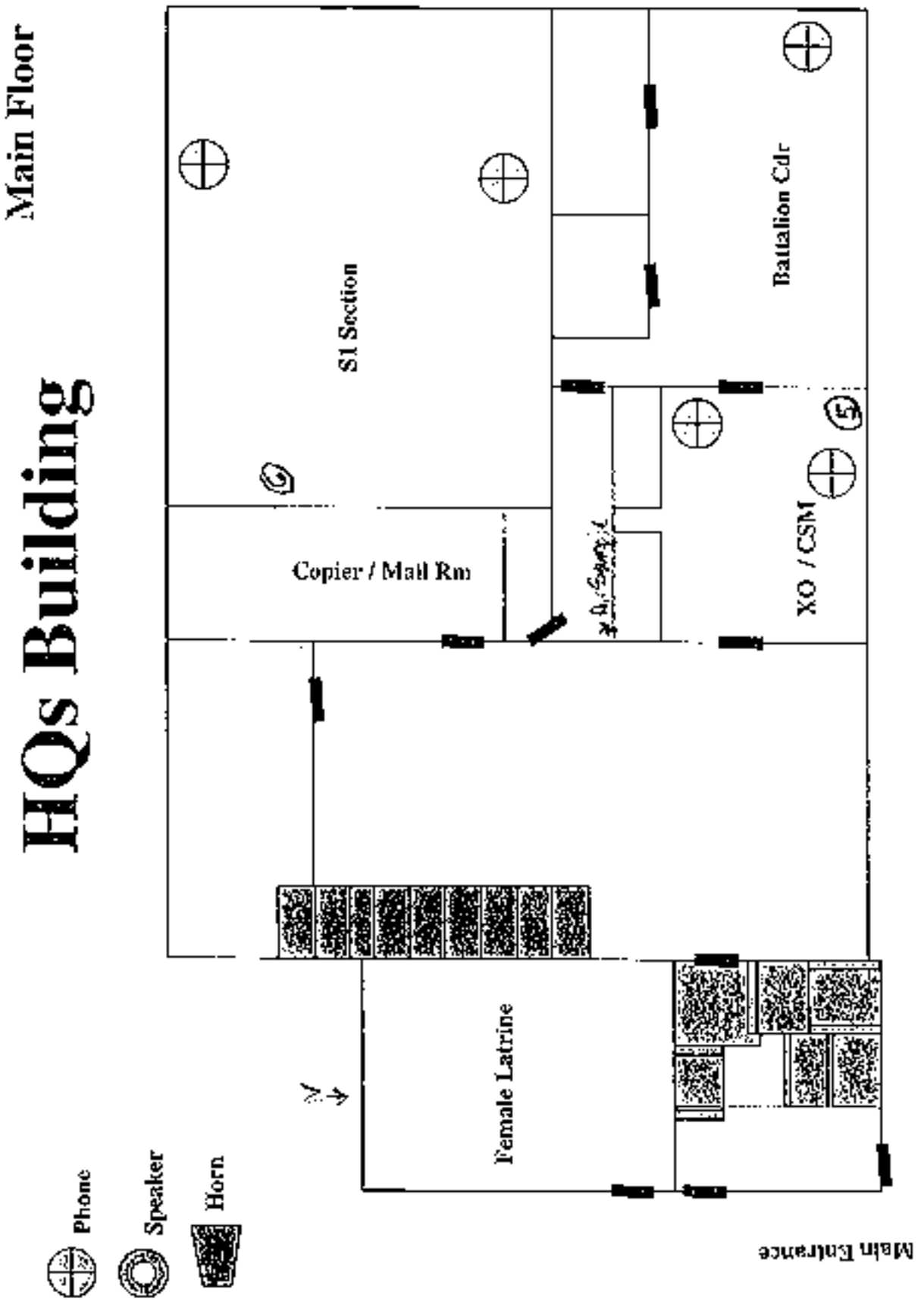
SECTION 6. COMMENTS

☐ No comments ☐ See attached sheet

PRIVACY ACT STATEMENT

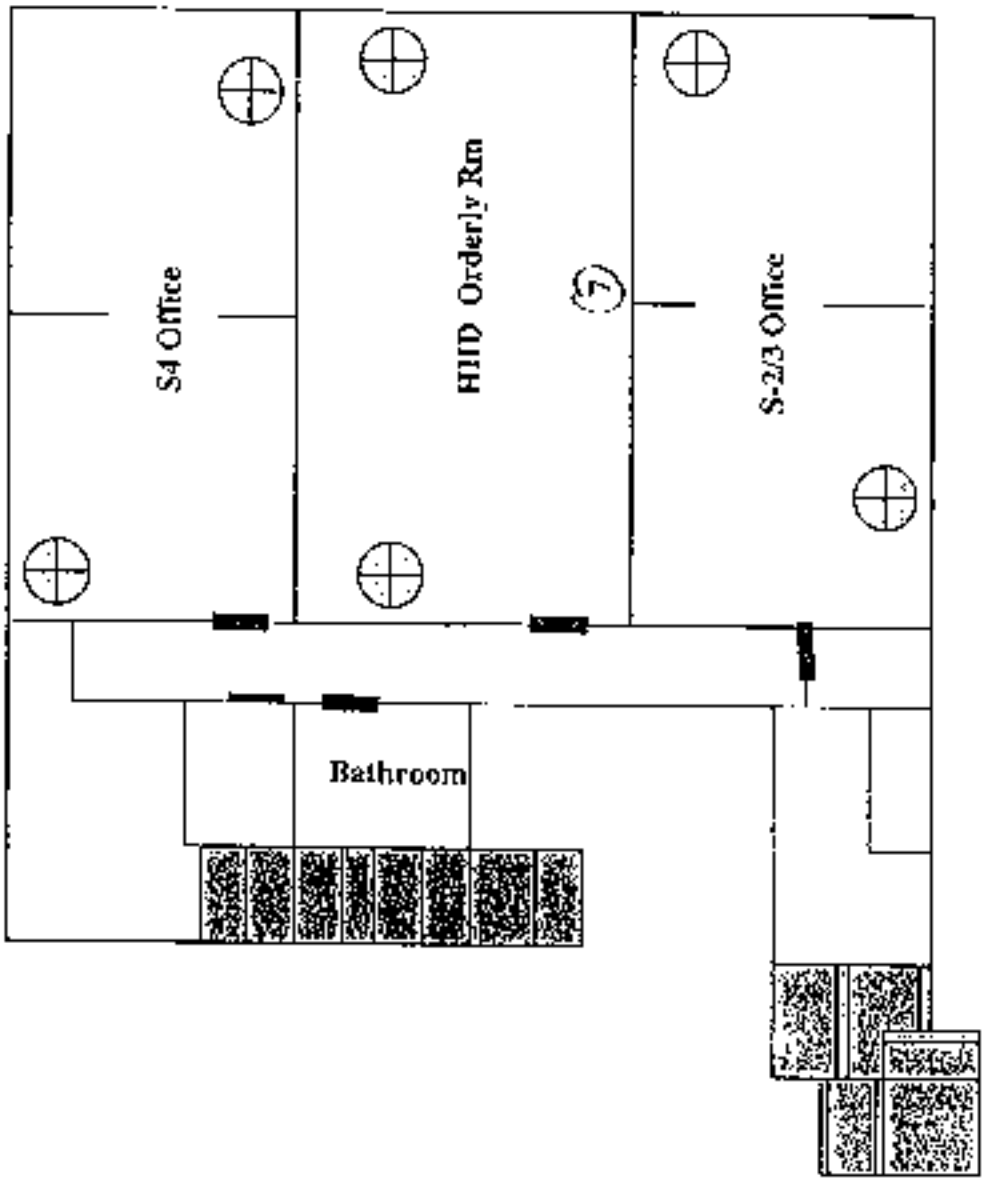
Title 6 US Code, Section 301; Executive Order 9397 authorized the use of your Social Security Number as an identification number. The purpose of this information is to identify and monitor data relating each DA civilian and military employee exposed to a hazardous workplace or operation. The use of this information is to provide histories of exposures for any given worker.

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



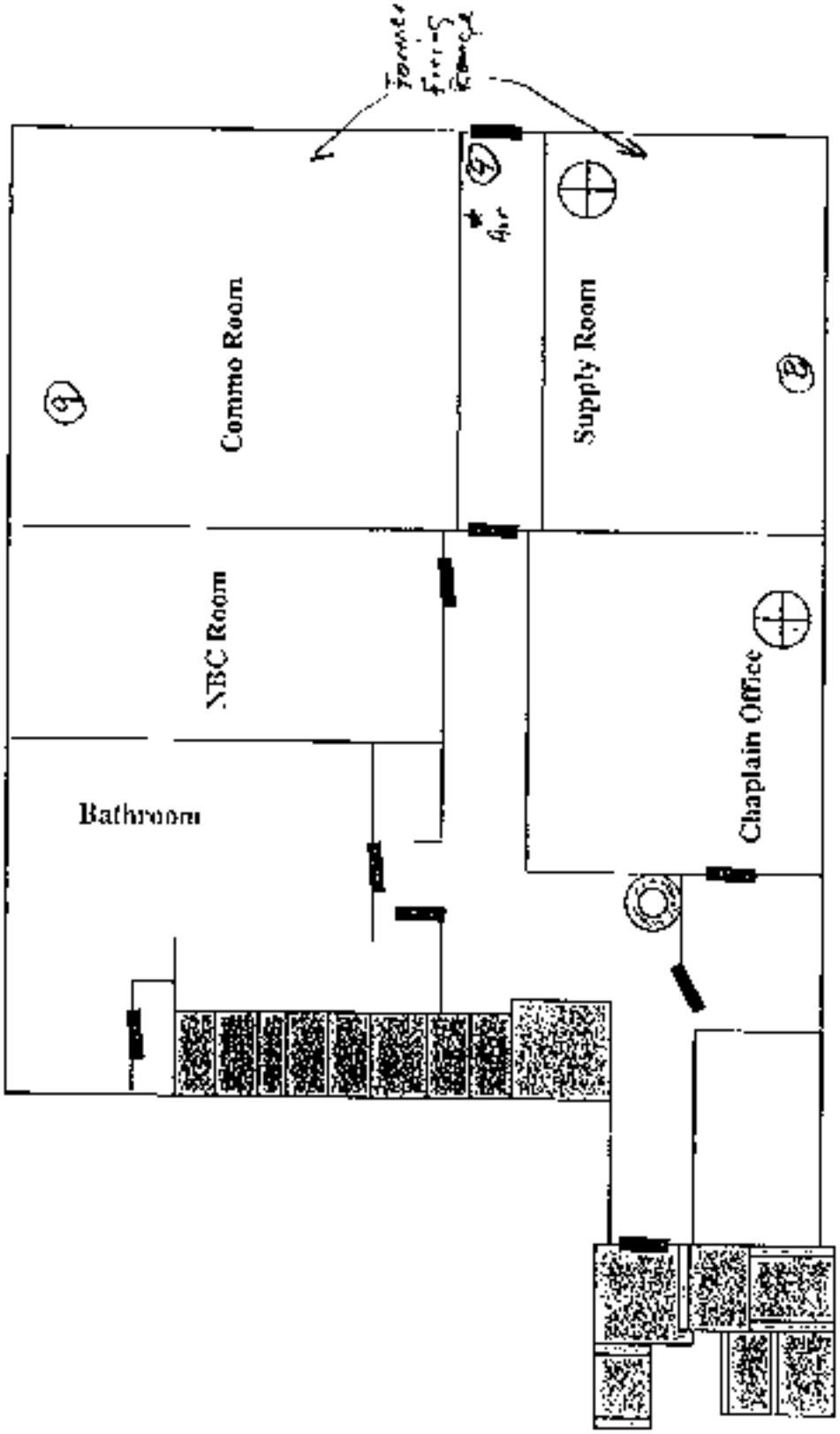
HQs Building

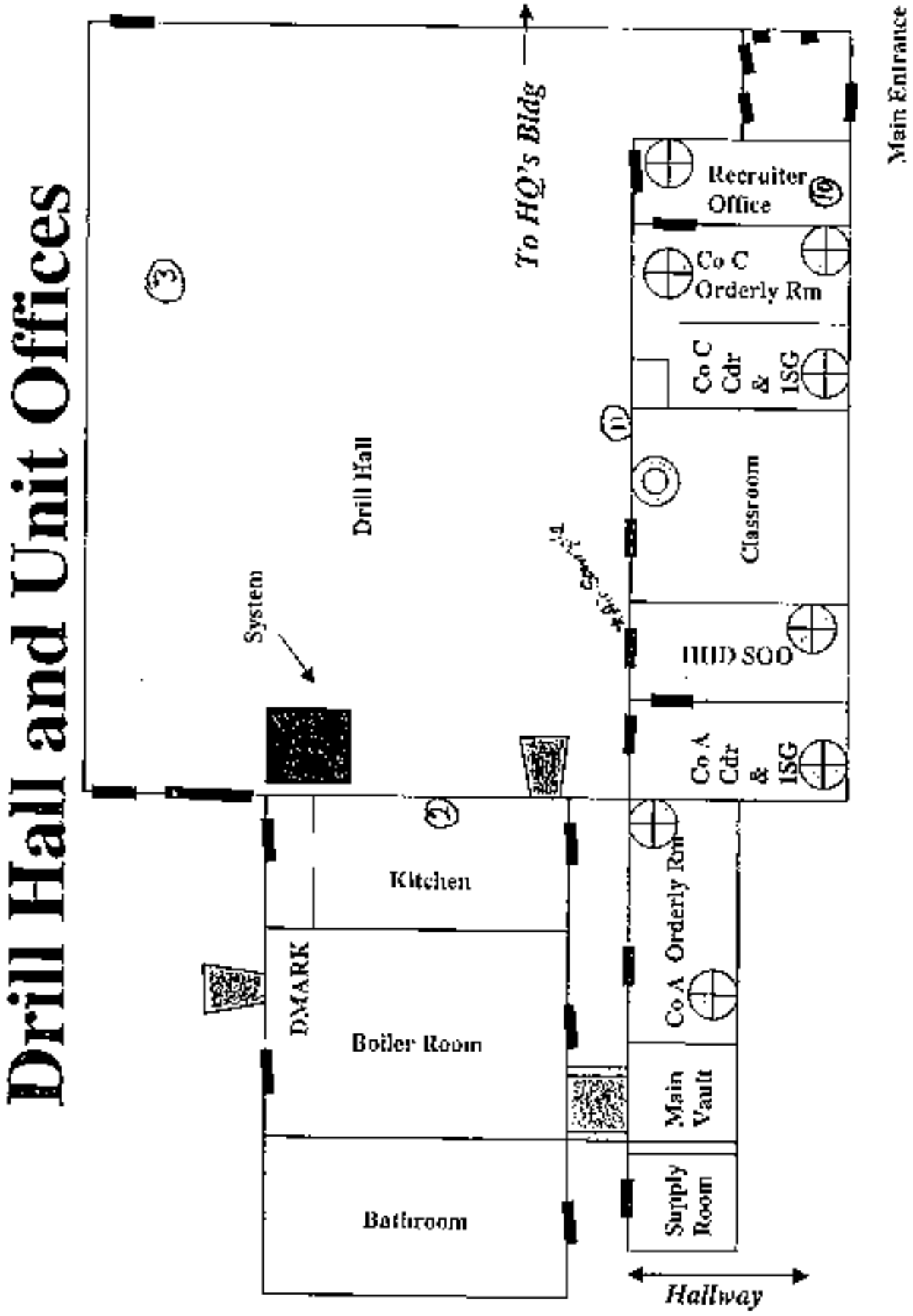
2nd Floor



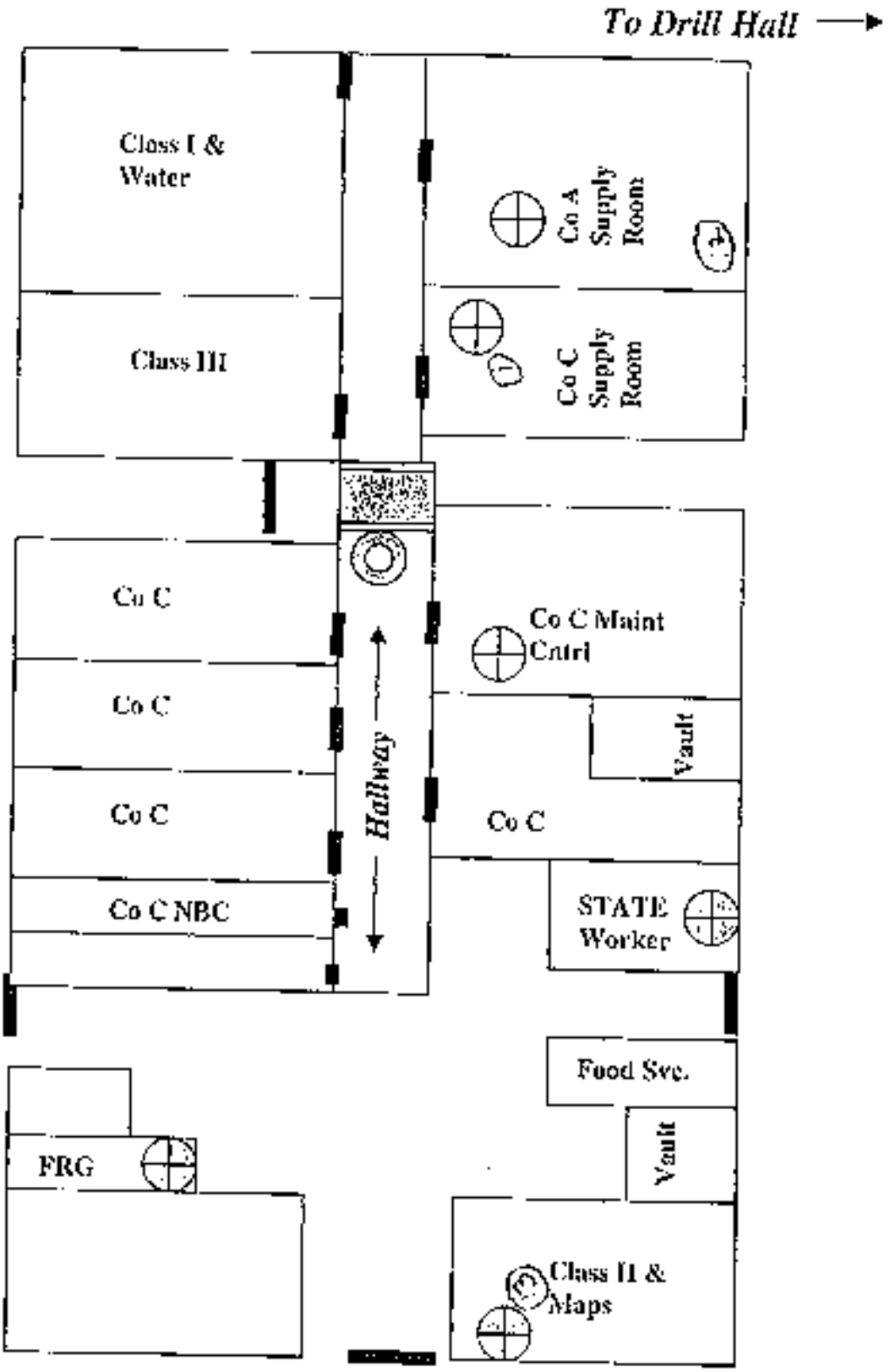
HQs Building

Basement Floor

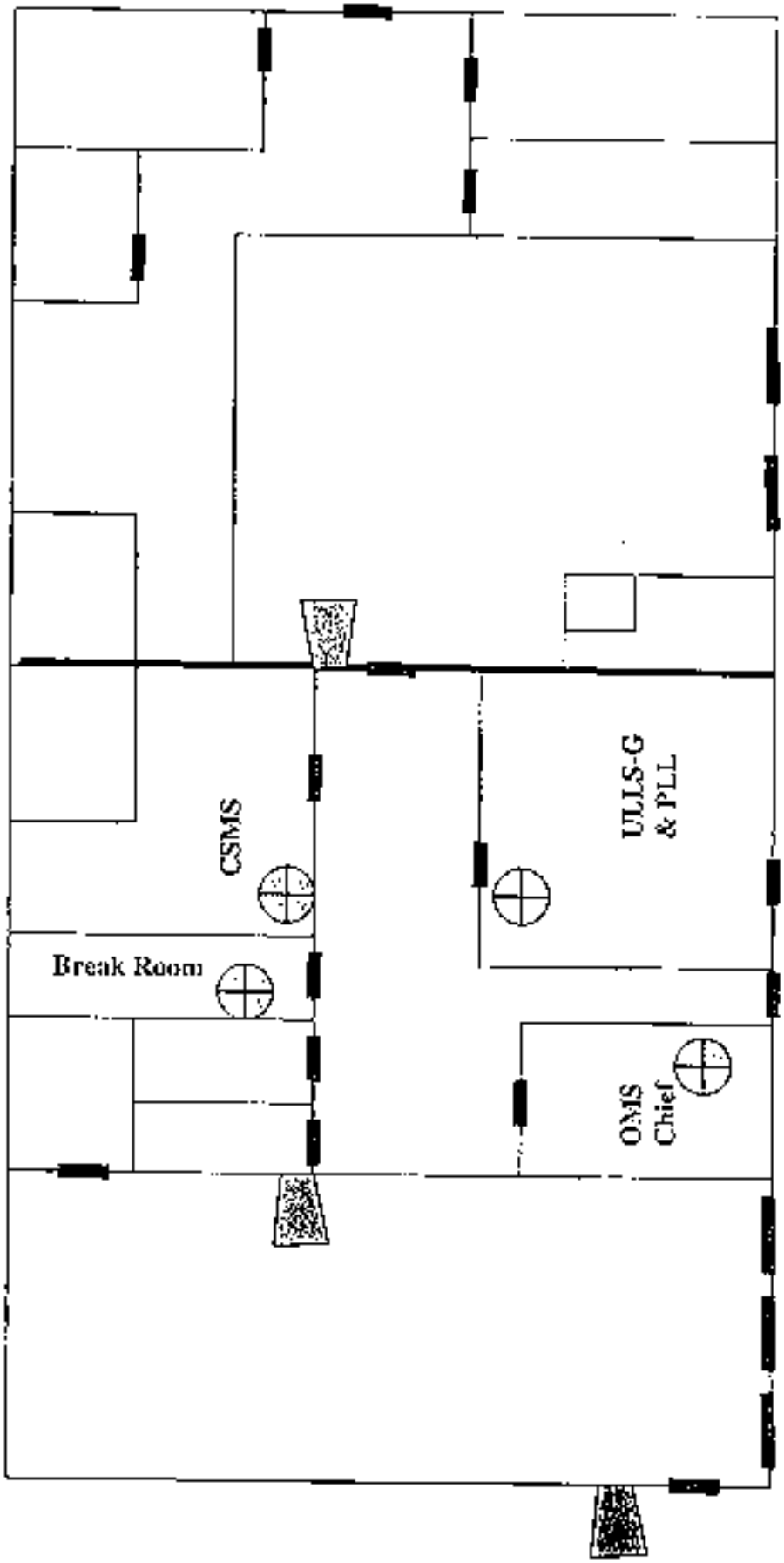




Unit Offices in Stable Bldg



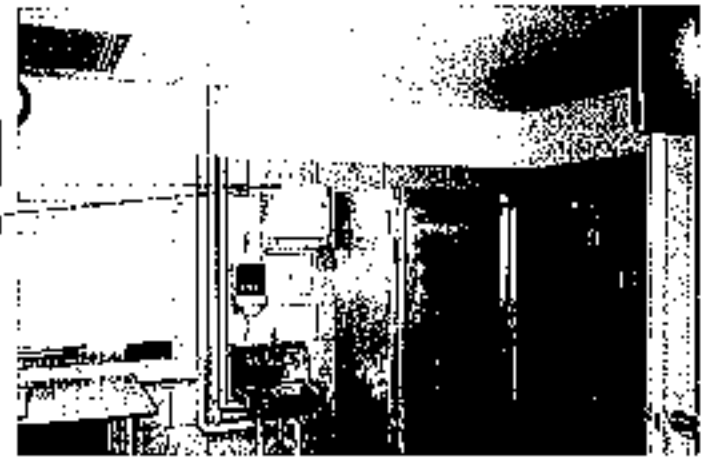
OMS Bldg



HHC 728TH SPT BN (MSB)
CO C (Heavy Maintenance) 728TH MSB
CO D (Heavy Maintenance) 728TH SPT BN
FT. MIFFLIN, PHILADELPHIA, PENNSYLVANIA
WIPE SAMPLING POINTS

(1) PA Loc-03118-05
CO C Supply

(2) PA Loc-03118-06
Kitchen



(3) PA Loc-03118-07
Assembly Hall – East Side

Attachment B

(4) PA Loc-03118-08
Basement – Former Range Floor

(5) PA Loc-03118-09
XO's Office

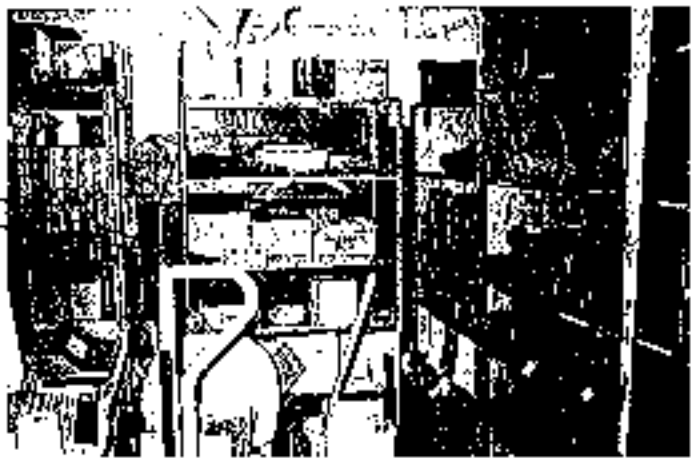
Attachment B

ADDITIONAL SAMPLES

(6) PA Loc-03118-11
S1 Office

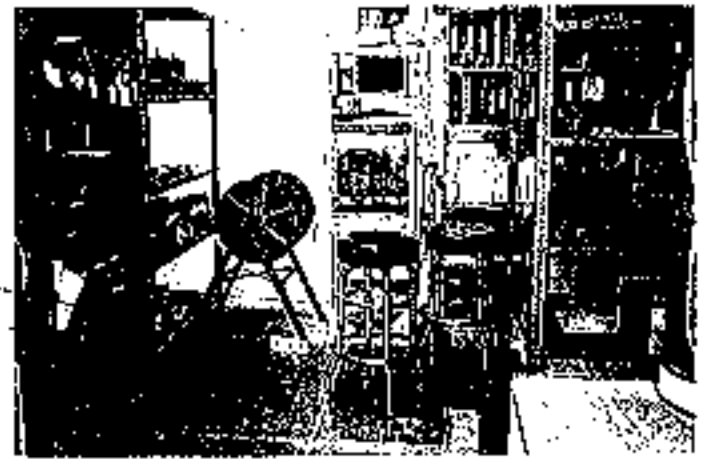
(7) PA Loc-03118-12
HHD Orderly Room

(8) PA Loc-03118-13
Supply Cage – Former Range



Attachment B

(9) PA Loc-03118-14
COMMO Room
Former Range



(10) PA Loc-03118-15
Recruiting

(11) PA Loc-03118-17
Assembly Hall – West Side

Attachment B

(12) PA Loc-03118-18
CO C Supply Room

(13) PA Loc-03118-19
Class II & Maps

Attachment 13

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
AIHA Certificate of Accreditation #480 LAB ID 103533

TABLE I. ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	RES 92699-1
Client:	Operational Technologies, Corp.
Client Project Number / P.O.:	05 01
Client Project Description:	Armories/Pennsylvania
Date Samples Received:	May 8, 2003
Analysis Type:	USEPA SW846 3050B / AA(7420)
Turnaround:	3-5 Day
Date Samples Analyzed:	May 13, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA LOC-03118-05	EM 767335	0.11	BDL	23	BDL
PA LOC-03118-06	EM 767336	0.11	5.0	23	45
PA LOC-03118-07	EM 767337	0.11	7.6	23	69
PA LOC-03118-08	EM 767338	0.11	37.0	23	336
PA LOC-03118-09	EM 767339	0.11	BDL	23	BDL
PA LOC-03118-10	EM 767340	0.11	BDL	23	BDL
PA LOC-03118-11	EM 767341	0.11	2.7	23	25
PA LOC-03118-12	EM 767342	0.11	BDL	23	BDL
PA LOC-03118-13	EM 767343	0.11	BDL	23	BDL
PA LOC-03118-14	EM 767344	0.11	8.3	23	75
PA LOC-03118-15	EM 767345	0.11	3.2	23	29
PA LOC-03118-16	EM 767346	0.11	BDL	23	BDL
PA LEW-03118-24	EM 767347	0.11	BDL	23	BDL
PA LEW-03118-25	EM 767348	0.11	6.3	23	57
PA LEW-03118-26	EM 767349	0.11	8.0	23	73
PA LEW-03118-27	EM 767350	0.11	BDL	23	BDL
PA LEW-03118-28	EM 767351	0.11	10.0	23	91
PA LEW-03118-29	EM 767352	0.11	BDL	23	BDL
PA SUN-03119-03	EM 767353	0.11	4.3	23	39
PA SUN-03119-04	EM 767354	0.11	BDL	23	BDL
PA SUN-03119-05	EM 767355	0.11	BDL	23	BDL
PA SUN-03119-06	EM 767356	0.11	4.1	23	37
PA SUN-03119-07	EM 767357	0.11	16.5	23	150
PA SUN-03119-08	EM 767358	0.11	BDL	23	BDL
PA SUN-03119-09	EM 767359	0.11	191.0	23	1736
PA SUN-03119-10	EM 767360	0.11	24.4	23	222
PA SUN-03119-11	EM 767361	0.11	300.0	23	2727
PA SUN-03119-12	EM 767362	0.11	24.6	23	224
PA SUN-03119-13	EM 767363	0.11	8.4	23	76
PA SUN-03119-14	EM 767364	0.11	BDL	23	BDL

BDL - Below Detection Limit

Data Qa

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m³
PA Eve-03112-02	03-17850	289.3	ND	<0.003
PA Hol-03113-01	03-17851	483.8	ND	<0.002
PA Hol-03113-02	03-17852	568.2	ND	<0.002
PA Hol-03113-03	03-17853	578.9	ND	<0.002
PA Hol-03113-04	03-17854	504.0	ND	<0.002
PA Alt-03113-30	03-17855	417.1	ND	<0.002
PA Alt-03113-31	03-17856	409.0	ND	<0.002
PA Alt-03113-32	03-17857	367.3	ND	<0.003
PA Tyr-03114-01	03-17858	391.2	ND	<0.003
PA Tyr-03114-02	03-17859	350.8	ND	<0.003
PA Tyr-03114-03	03-17860	383.4	ND	<0.003
PA Bel-03114-20	03-17861	265.7	ND	<0.004
PA Bel-03114-33	03-17862	135.0	ND	<0.007
PA Wil-03115-01	03-17863	424.1	ND	<0.002
PA Wil-03115-02	03-17864	427.5	ND	<0.002
PA Wil-03115-03	03-17865	375.2	ND	<0.003
PA Wil-03115-25	03-17866	310.2	ND	<0.003
PA Wil-03115-26	03-17867	282.9	ND	<0.004
PA Wil-03115-27	03-17868	306.7	ND	<0.003
PA Loc-03118-01	03-17869	607.8	ND	<0.002
	Prep Blank 5		ND	
% Recovery	LCS 9		102.	
% Recovery	LCS 10		101.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m³
PA Loc-03118-02	03-17870	599.6	ND	<0.002
PA Loc-03118-03	03-17871	541.0	ND	<0.002
PA Loc-03118-04	03-17872	531.7	ND	<0.002
PA Lew-03118-22	03-17873	295.2	ND	<0.003
PA Lew-03118-23	03-17874	279.7	ND	<0.004
PA Sun-03119-01	03-17875	410.4	ND	<0.002
PA Sun-03119-02	03-17876	411.6	ND	<0.002
PA Lew-03119-19	03-17877	411.6	ND	<0.002
PA Lew-03119-20	03-17878	398.9	ND	<0.003
PA Lew-03119-21	03-17879	373.4	ND	<0.003
PA Hun-03120-01	03-17880	350.2	ND	<0.003
PA Hun-03120-02	03-17881	341.8	ND	<0.003
PA Joh-03134-01	03-17882	395.3	ND	<0.003
PA Joh-03134-02	03-17883	380.9	ND	<0.003
PA Joh-03134-03	03-17884	349.1	ND	<0.003
PA Joh-03135-01	03-17885	450.7	ND	<0.002
PA Joh-03135-02	03-17886	405.0	ND	<0.002
PA Joh-03135-03	03-17887	381.4	ND	<0.003
PA But-03136-01	03-17888	362.5	ND	<0.003
PA But-03136-02	03-17889	348.3	ND	<0.003
	Prep Blank 6		ND	
% Recovery	LCS 11		96.	
% Recovery	LCS 12		98.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer

Results
Lead

Client #	DCL #	mg/Kg (ppm)	% by weight
PALoc-03118-21	03-14056	**100.**	**0.010**
PAHun-03120-13	03-14057	**2300.**	**0.23**
PAHun-03120-14	03-14058	**1100.**	**0.11**
PAHun-03120-15	03-14059	**730.**	**0.073**
PAHun-03120-16	03-14060	**2500.**	**0.25**
	Prep Blank	ND	
% Recovery	LCS	89.	
% Recovery	14058 MS	82.	
% Recovery	14058 MSD	84.	
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
Analyst

Reviewer

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non-Responsive md.ngb.army.mil

Attachment D

1. General Regulations and National Consensus Standards
2. Specific Regulations and Guidance
   a. Abrasive Blasting
   b. Asbestos
   c. Battery Charging Room
   d. Bird and Bat Manure
   e. Bloodborne Pathogens
   f. Chemical Agent Resistant Coating (CARC) Paint
   g. Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE)
   h. Confined Space Entry Program
   i. Design Review
   j. Ergonomics
   k. Flammable Storage Room
   l. Hazard Communication
   m. Hearing Conservation
   n. Indoor Air Quality
   o. Indoor Firing Ranges
   p. Lead
   q. Lighting
   r. Occupational Vision
   s. Paint Spray Booth
   t. Personal Protection
   u. Radiation Protection
   v. Respiratory Protection
   w. Sanitation
   x. Smoking
   y. Vehicle Exhaust
   z. Welding Operation

GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REFERENCE LIST

1. General Regulations and National Consensus Standards
   a. DODI 6055.1, DOD SOH Program, 19 August 1998.
   b. DODI 6055.5, DOD OEH. *[DRAFT]*
   c. DOD 6055.5-M, DOD Occupational Health Surveillance Manual, 13 May 1987.
   d. DODI 6050.5, DOD Hazard Communication, 29 Oct 90. Change 1, 6 May 1996.
   e. AR 40-5, Preventive Medicine, 15 October 1990. [05/2002 Being Updated]
   f. DA PAM 40-5, Preventive Medicine. *[DRAFT]*
   g. AR 385-10, The Army Safety Program, 29 February 2000.
   h. NGR 385-10, ARNG SOH Program, 7 October 1988, Change 1, 29 December 1989.
   i. Title 29, Part 1910, Occupational Safety and Health Standards. [Current Date]
   j. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 2002.
   k. ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th edition, 2001.
   l. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.
   m. TG 141, USACHPPM Industrial Hygiene Sampling Guide, November 1997.
   n. National Safety Council, Fundamentals of Industrial Hygiene, 5th Edition, 2002.
   o. NIOSH, Pocket Guide to Chemical Hazards, 2001.
   p. NFC, A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. [Current date]
   q. ASHRAE Standards. [Current Dates]
   r. ANSI Standards. [Current Dates]

2. Specific Regulations/Guidance
   a. **ABRASIVE BLASTING**
      (1) ANSI Z9.4 1997, Abrasive Blasting Operations - Ventilation and Safe Practices.
      (2) 29 CFR 1910.94 Ventilation
      (3) 42 CFR 84

   b. **ASBESTOS**
      (1) AR 40-5, Preventive Medicine, 15 October 1990. *[05/2002 Being Updated]*
      (2) AR 200-1, Environmental Protection and Enhancement, Chapter 8, 21 February 1997.
      (3) TB MED 513, Guidelines for the Evaluation and Control of Asbestos Exposure, 15 December 1986. *[05/2000 Under Revision as DA PAM 40-513]*
      (4) TG 157, USAEHA, The Installation Asbestos Management Program Assessment Checklists, July 1994.
      (5) 29 CFR 1910.1001
      (6) 29 CFR 1926.58 (prior to 1994 CFR)
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(8) MEMORANDUM SGPS-PSP, OTSG, subject: AMEDD Role Supporting Asbestos Abatement/Asbestos Management Programs, 19 Jan 89.

(9) EPA, Guidance for Controlling Asbestos-Containing Materials in Buildings, June 1985.

(10) DD Form 2493-1 (Asbestos Exposure, Part I--Initial Medical Questionnaire)

(11) DD Form 2493-2 (Asbestos Exposure, Part II--Periodic Medical Questionnaire)

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c. **BATTERY CHARGING ROOM**

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(2) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

d. **BIRD AND BAT MANURE**

(1) TG 142, USAEHA, Managing Health Hazards Associated with Bird and Bat Excrement, Dec 1992.

e. **BLOODBORNE PATHOGENS**

(1) 29 CFR 1910.1030

(2) TG 190, USAEHA, Guide to Managing Occupational Exposure to Bloodborne Pathogens, Jan 94.

f. **CHEMICAL AGENT RESISTANT COATING (CARC) PAINT**

(1) TG 144, USAEHA, Guidelines for Controlling Health Hazards in Painting Operations, 24 August 1987.

(2) DA LTR, USAEHA, HSHB-MI-WR, subject: Respiratory Protection When Spraying CARC, 19 November 1992.

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(4) MEMORANDUM SGPS-PSP, OTSG, subject AMEDD, Occupational Health Requirements in Support of Painting in the Army, 22 February 1985.

(5) AR 750-1, Army Materiel Maintenance Policy and Retail Maintenance Operations (Prohibits welding on CARC paint) 1 July 1996.

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(1) DODI 2000.gg, DOD Installation CBRNE Emergency Response Guidelines.

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(3) ANSI Z117.1-Safety Requirements for Confined Spaces, 1995.
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(5) Letter, US Dept of Labor (DOL) addressed to Vanessa Char, 22 Apr 1994.
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(6) UFGS 15940A, Overhead Vehicle Tailpipe (and welding Fume) Exhaust Removal Systems, December 2001.
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(8) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

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(1) DA PAM 40-21, Medical Services, Ergonomics Program, 15 May 2000.
(2) ANSI Z-365, Management of Work Related Musculoskeletal Disorders, 2000.
(3) 29 CFR 1910. *[PROPOSED STANDARD]*

k. **FLAMMABLE STORAGE ROOM**

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(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

l. **HAZARD COMMUNICATION**

(1) 29 CFR 1910.1200
(2) NGR 385-10, Chapter 6

m. **HEARING CONSERVATION**

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(2) TG 181, USAEHA, Noise Dosimetry and Risk Assessment, May 1999.

(3) TG 175, USAEHA, Readiness thru Hearing Conservation: Guide for Unit Commanders and Supervisors, June 1999.

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n. **INDOOR AIR QUALITY (IAQ)**

(1) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

(2) USACERL Technical Report P-91/42, IAQ Management for Operations and Maintenance Personnel, September 1991.

(3) EPA 400/1-91/003 or DHHS, NIOSH, Publication No. 91-114, Building IAQ, A Guide for Building Owners and Facility Managers, December 1991.

(4) ASHRAE, Standard 62-2002, Ventilation for Acceptable IAQ.

(5) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

(6) NIOSH, IAQ Selected References, Sep 1989.

(7) OSHA Instruction CPL 2-2.20B CH-1, Directorate of Technical Support, 13 Nov 90.

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(9) ASTM, D 5952-96, 10 May 1996.

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(1) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

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(9) Information Paper, Bullet Traps, 26 April 1996.

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(2) 29 CFR 1926.62

(3) 24 CFR 35.61 (HUD, Percentage of Lead in Paint)

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(7) NIOSH, Request for Assistance in Preventing Lead Poisoning in Construction Workers, April 1992.

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(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

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(2) Chemical Protective Clothing, Vol 1 and 2, Johnson, J. and Anderson, K., American Industrial Hygiene Association, 1990.

(3) Guidelines for the Selection of Chemical Protective Clothing, 3rd Edition, ACGIH, Inc., Feb 1987.

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(2) AR 11-9, Army Radiation Safety Program, 28 May 1999.

(3) 29 CFR 1910.96

(4) 29 CFR 1910.97

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(2) 29 CFR 1910.134

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(4) TB MED 502, Respiratory Protection Program, February 1992. *[11/02 Being Updated as DA PAM 40-502]*

(5) ANSI/CGA G-7.1-1997, Commodity Specification for Air.

(6) ANSI Z88.2-1992, Standard for Respiratory Protection.

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(2) 29 CFR 1910.141

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(1) AR 600-63, Army Health Promotion, 28 April 1996.

(2) DODI 1010.15, Smoke-Free DOD Facilities, 2 January 2001.

(3) DODD1010.10, Health Promotion, 11 March 1986.

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(1) ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th Edition, 2001.

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(2) 29 CFR 1910.253

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(4) ANSI/AWS Z49.1-1999, Safety in Welding and Cutting and Allied Processes.

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Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 $\mu g/ft^2$) and windowsills (250 $\mu g/ft^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of 200 $\mu g/ft^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 $\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 $\mu g/ft^2$ on floors and 250 $\mu g/ft^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

Attachment E

Industrial Hygiene Survey

BTRY B 1st BN 109th FA
NANTICOKE, PENNSYLVANIA

June 12, 2003

OPTECH

OPERATIONAL TECHNOLOGIES
CORPORATION

BTRY B 1st BN 109th FA
NANTICOKE, PENNSYLVANIA
INDUSTRIAL HYGIENE SURVEY

1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Armory in Nanticoke, Pennsylvania on June 12, 2003. The NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. Non-Resp [redacted] from OpTech, completed this survey. Non-R [redacted] a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the IH Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D.

2.0. EXECUTIVE SUMMARY

2.1. No significant indoor air quality problems were noted; however, indoor temperatures were slightly higher than recommended comfort ranges. Relative humidity levels were slightly the recommended 60%. Levels above 60% promote mold growth.

2.2. Illumination levels were below recommended minimum standards in most areas of the facility.

2.3. Wipe samples for inorganic lead were collected throughout the facility. Samples in the female latrine, assembly hall, stairway and hallway exceeded the 200 $\mu g/ft^2$ criterion. Two of the five samples taken in the former firing range also exceeded the criterion. Lower levels were detected in other areas of the building. The source of lead contamination is apparently from the inactive indoor firing range activities and possibly from lead paint.

2.4. Air sampling for inorganic lead was taken. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	**BTRY B 1ST BN 109TH FA**		
ADDRESS	**490 East Main Street**		
	Nanticoke, PA 18634		
CONTACT	**1SG** Non-Responsive		
PHONE	**570-735-6890**		
DATE BUILT	**1939**	**FACILITY SIZE**	**26,713 sq. ft.**
INDOOR FIRING RANGE	**CLOSED**		**2-floors plus basement**
ASSISTED			
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	**4**		
TRADITIONAL (MIL)	**100**		
CHILD ACTIVITIES	**Rents to the local community about twice per year.**		
ADULT ACTIVITIES			

3.1.1. The exterior is brick and appears to be in good condition. The interior of the building has been kept in good condition. Heat is provided by a steam boiler. The facility is cooled with in window air conditioning.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity (RH) in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 Indoor Air Quality Standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ASHRAE 62-2001, Section 6.1.3, states that concentrations up to 700 ppm CO_2, above outdoor concentrations will achieve an acceptable level of indoor air quality.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ASHRAE 55-1992 recommends that temperature ranges be 73 to 79 degrees Fahrenheit (°F) during the summer and 68 to 74°F during the winter. Relative humidity levels be maintained between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE 1
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO_2 (ppm)	Temp. (°F)	RH (%)
1308	Hallway	0.0	500	76.9	59.6
1310	Assembly Hall	0.0	508	77.1	59.8
1314	Orderly Room	0.0	511	77.5	58.1
1316	Recruiting Office	0.0	518	78.1	58.0
1319	Male Latrine	0.0	526	76.4	59.2
1324	Hallway	0.0	507	76.2	56.4
1330	Kitchen	0.0	512	78.4	59.2
1332	Showers	0.0	522	76.1	58.4
1334	State Room	0.0	526	77.1	58.3
1338	Classroom	0.0	518	78.6	56.1
1341	Fitness Area	0.0	516	75.9	58.4
1344	Conference Room	0.0	521	76.9	59.6
1346	Supply Room	0.0	526	77.2	58.4
1350	Storage Room 4	0.0	505	77.8	59.1
1354	Storage Room 3	0.0	521	75.6	58.8
1356	Security Area	0.0	518	76.8	56.9
1400	Lobby	0.0	511	77.1	57.2

3.2.5. No significant indoor air quality problems were noted; however, indoor temperatures were slightly higher than recommended comfort ranges. Relative humidity levels were slightly the recommended 60%. Levels above 60% promote mold growth.

3.3. ILLUMINATION

3.3.1. Illumination levels were measured in most areas of the facility. Sunlight was excluded, as much as possible for this survey, by closing doors and blocking windows. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 – 463). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
Drill floor	32 – 40	37	75	NO
Recruiter's office	38 – 72	51	70	NO
Orderly office	32 – 46	39	70	NO
Men's latrine	26 – 40	34	40	NO
Kitchen	36 – 48	42	75	NO
Shower area	36 – 48	41	40	YES
Dining area	38 – 62	50	70	NO
Classroom	32 – 60	47	70	NO
Fitness room	26 – 50	39	50	NO
Conference room	32 – 60	46	70	NO

3.3.2. Levels were below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting may improve some areas.

3.4. WIPE SAMPLES

3.4.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples were taken at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot ($\mu g/ft^2$) and are listed in Table 3. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Nan-0363-24	Basement – Shower Room	68
PA Nan-0363-25	Recruiting	55
PA Nan-0363-26	Female Latrine	**3,182**
PA Nan-0363-27	Kitchen – Pipe	57
PA Nan-0363-28	1st Floor – Hallway	BDL
PA Nan-0363-29	BLANK Sample	BDL

µg/ft² – micrograms per square foot BDL – Below Detection Limits

3.4.2. Additional wipe samples were collected during this survey. These samples were collected to further analyze the extent of contamination should the first five samples indicate a possible hazard. Since the samples collected in female latrine exceeded the 200 µg/ft² criterion (see Section 3.4.4), these additional samples were analyzed. The results are presented in Table 4.

TABLE 4
ADDITIONAL WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Nan-0363-30	Assembly Hall – Window Sill	**440**
PA Nan-0363-31	Stairwell – Window Frame	**210**
PA Nan-0363-32	Classroom – Window Sill	190
PA Nan-0363-33	Weight Room – Window Sill	150
PA Nan-0363-34	Hallway Side Wall	**950**
PA Nan-0363-35	BLANK Sample	BDL

µg/ft² – micrograms per square foot BDL – Below Detection Limits (110 µg/ft²)

3.4.3. CLOSED FIRING RANGE WIPE SAMPLING

3.4.3.1. Additional wipe samples were collected in the former indoor firing range. This area is presently being utilized for storage. The laboratory analysis results are listed in Table 5.

TABLE 5
FORMER FIRING RANGE WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Nan-0363-36	Light Switch	37
PA Nan-0363-37	Cage – Wall	**827**
PA Nan-0363-38	Top of Locker	**213**
PA Nan-0363-39	Floor	95
PA Nan-0363-40	Cage office – Coat Rack	41
PA Nan-0363-41	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.4. WIPE SAMPLING RESULTS

3.4.4.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 µg/ft^2. This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. (See memorandum in Attachment E, Recommendations for Surface Lead Dust in Armories.) Samples in the female latrine, assembly hall, stairway and hallway exceeded the 200 µg/ft^2 criterion. Two of the five samples taken in the former firing range also exceeded the criterion. Lower levels were detected in other areas of the building. The source of lead contamination is apparently from the inactive indoor firing range activities and possibly from lead paint.

3.4.5. AIR SAMPLING

3.4.5.1. Air Sampling for inorganic lead was performed during this survey. Table 6 lists the results of these samples, and is reported in milligrams per cubic meter (mg/m^3) of air.

TABLE 6
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
Non-[redacted]	PA Nan-0363-22	Lead	<0.003 mg/m³	0.05 mg/m³	YES
Area – Kitchen	PA Nan-0363-23	Lead	<0.003 mg/m³	0.05 mg/m³	YES

mg/m³ = milligrams per cubic meter < = less than (below detection limits)

3.4.4.2. Air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this building.

3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION DAMAGE

3.5.1.1. There was no visible water intrusion damage to the facility.

3.5.2. LEAD PAINT

3.5.2.1. No peeling paint was observed and no paint samples were taken.

3.5.3. PROGRAMS

3.5.3.1. There are no designated confined space areas within this facility. There are no exhaust ventilation systems to control a hazard. No chemicals besides normal cleaning materials are present. No weapons or weapons cleaning materials are present. Therefore, a need has not been established for a HAZCOM program, the need for personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.4. HOUSEKEEPING

3.5.4.1. The facility is kept impressively clean and orderly.

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

E – Recommendations for Surface Lead in Armories

F – Field Notes
- Equipment Listing

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
Wanticoke, PA	PENNSYLVANIA ARNG ARMORY	Wanticoke Armory

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR (initials)
12 June 2003	JSS

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	NA	1SGT Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
570-735-6890	BTRY B 1ST BN 109TH FA		

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	CONROLS 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			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	½ FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	¼ 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 WEATHR 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	/		

AEHA Form 271-R (Test), 1 Jan 92 (HSHB-MI-I)

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	3	C

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

SECTION 6. COMMENTS

☐ No comments ☐ See attached sheet

PRIVACY ACT STATEMENT

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

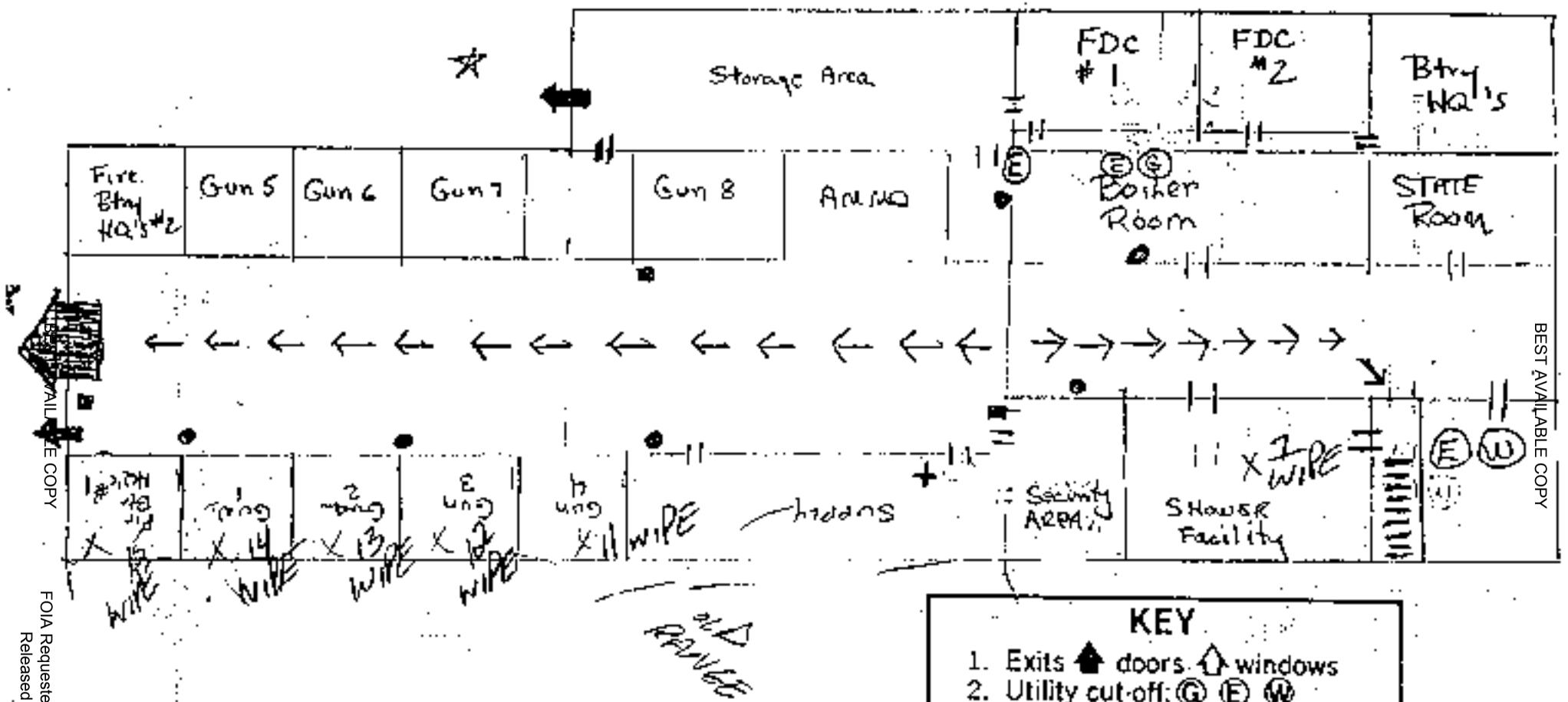
Disclosure of your Social Security Number is not mandatory; however, non-disclosure may result in untimely provision of proper medical monitoring.

BATTERY B 1/109TH FA

Our EMERGENCY Floor Plan

BASEMENT

NANTICOKE ARMORY



KEY

1. Exits ⬟ doors ⌂ windows
2. Utility cut-off: Ⓖ Ⓔ Ⓦ (Gas, Electric, Water)
3. First Aid Kit: ✚
4. FIRE ALARM
5. Fire Extinguisher: ●
6. Reunion Place: ★
7. DIRECTION TO EXIT

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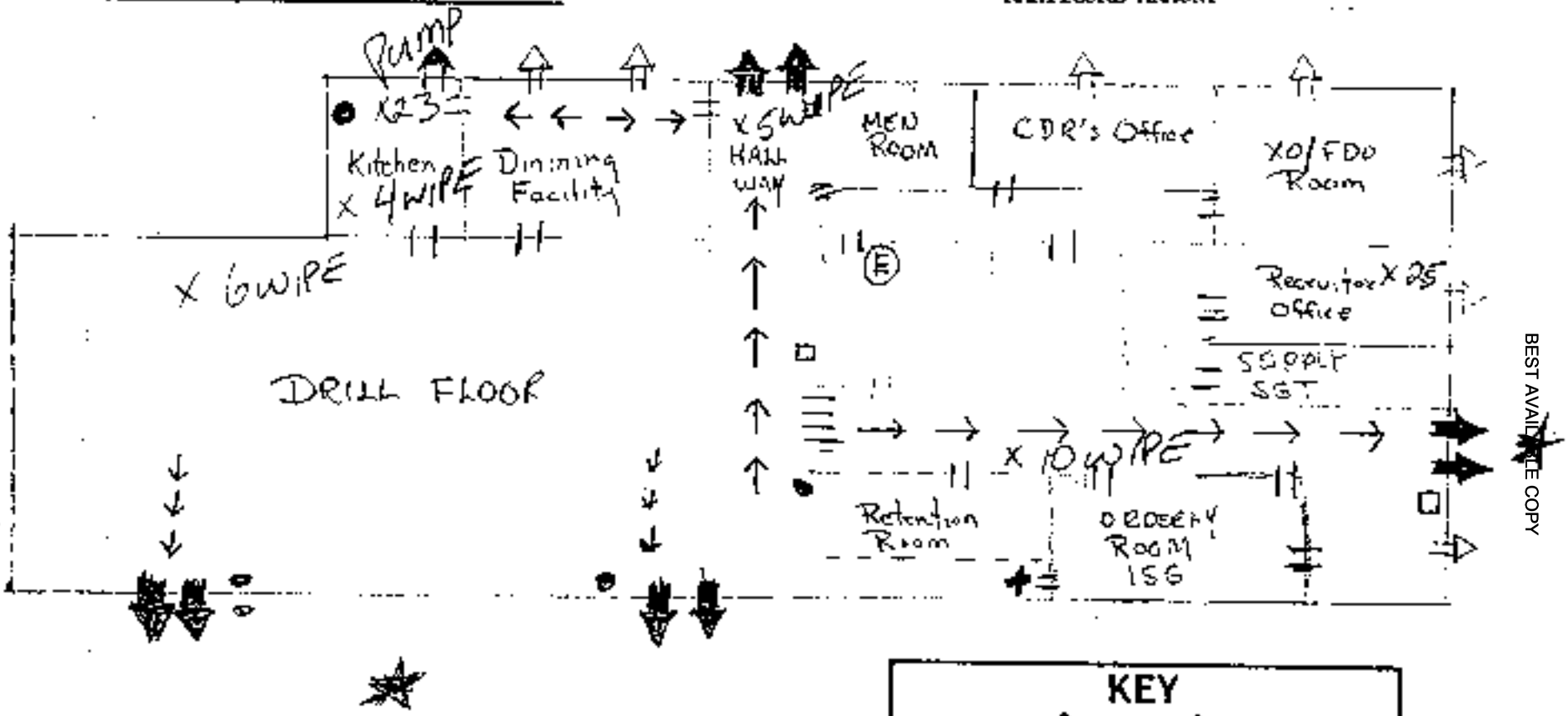
Date: 1 FEBRUARY 1996

Our EMERGENCY Floor Plan (GROUND FLOOR)

NANTICOKE ARMORY



KEY

1. Exits ▲ doors ⇧ windows
2. Utility cut-off: Ⓖ Ⓔ Ⓦ (Gas, Electric, Water)
3. First Aid Kit: ✚
4. FIRE ALARM ✱
5. Fire Extinguisher: ●
6. Reunion Place: ★
7. DIRECTION TO EXIT → → → → → → →

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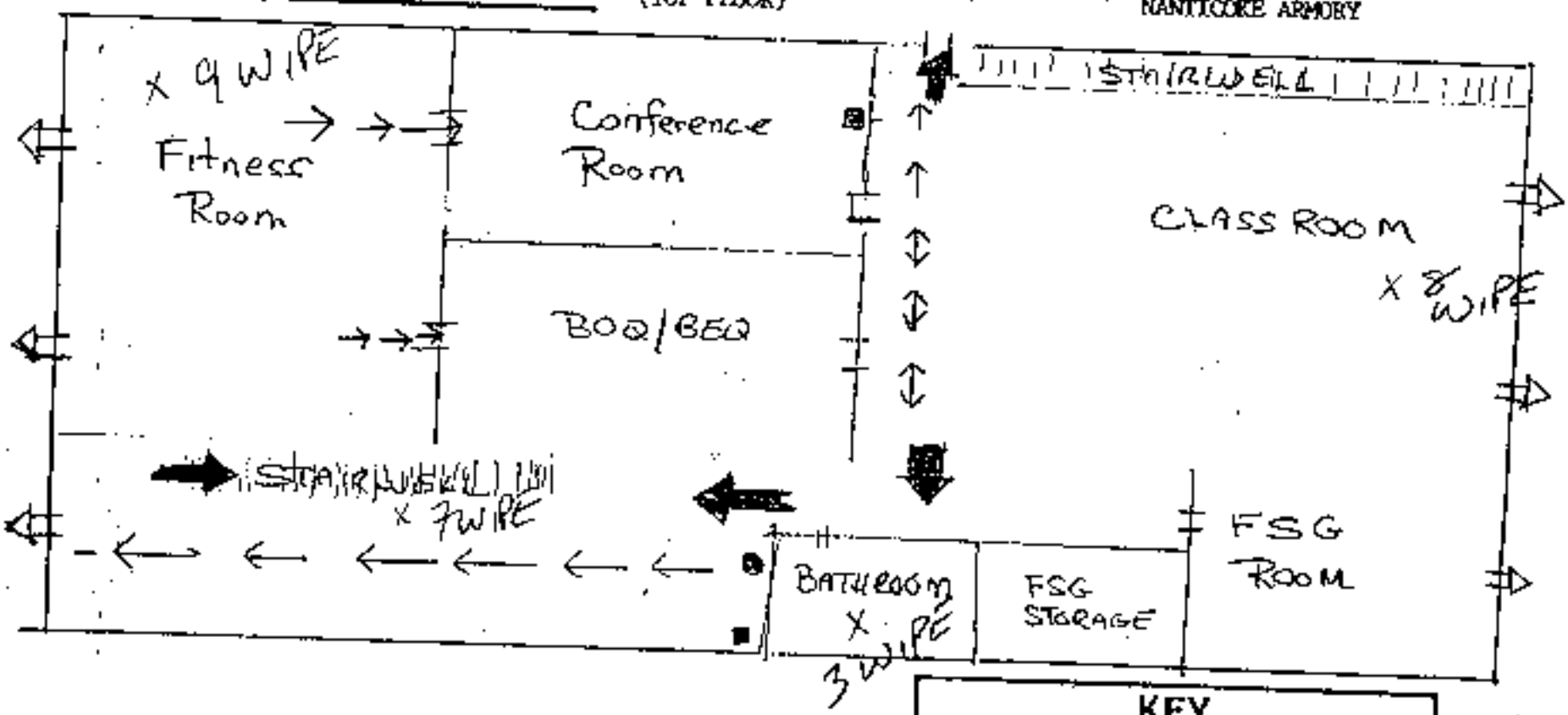
Date: _____

BATTERY B 1/109TH FA

Our EMERGENCY Floor Plan (TOP FLOOR)

NANTICOKE ARMORY



KEY

1. Exits ⬟ doors ⌂ windows
2. Utility cut-off: Ⓖ Ⓔ Ⓦ (Gas, Electric, Water)
3. First Aid Kit: ✚
4. FIRE ALARM ✳
5. Fire Extinguisher: ●
6. Reunion Place: ★
7. DIRECTION TO EXIT →→→→→→

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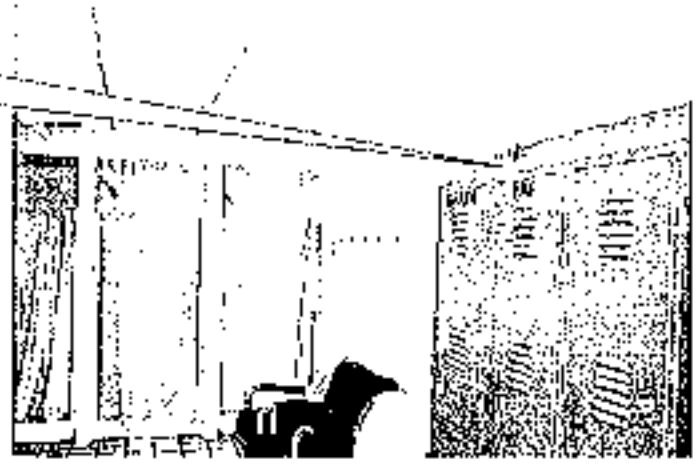
Date: 1 FEBRUARY 1996

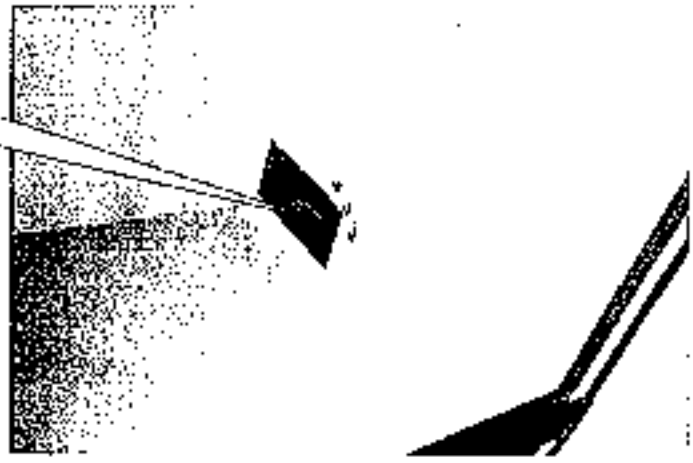
BTRY B 1ST BN 109TH FA
NANTICOKE, PENNSYLVANIA

(1) PA Nan-03163-24
Basement - Shower Room



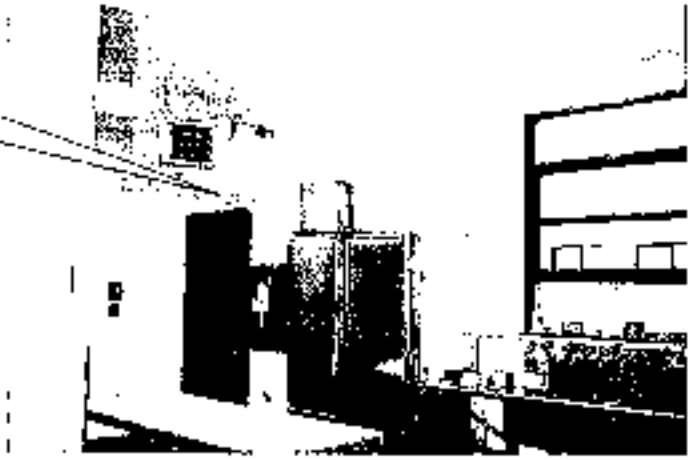
(2) PA Nan-03163-25
Recruiting Office

(3) PA Nan-03163-26
Female Latrine



Attachment B

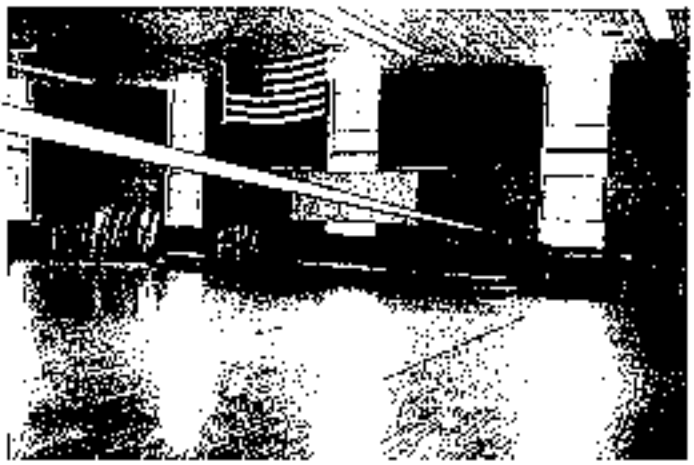
(4) PA Nan-03163-27
Kitchen



(5) PA Nan-03163-28
Hallway

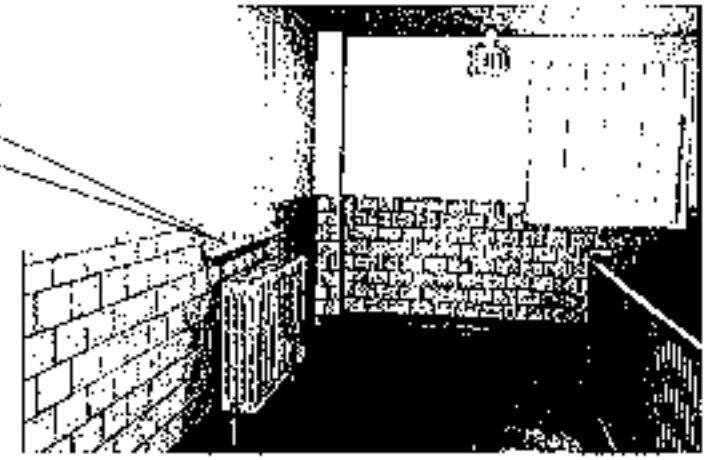
ADDITIONAL SAMPLES

(6) PA Nan-03163-30
Assembly Hall

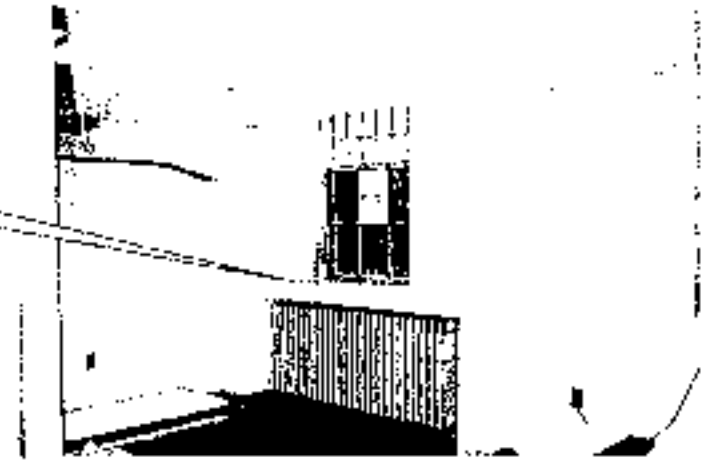


Attachment B

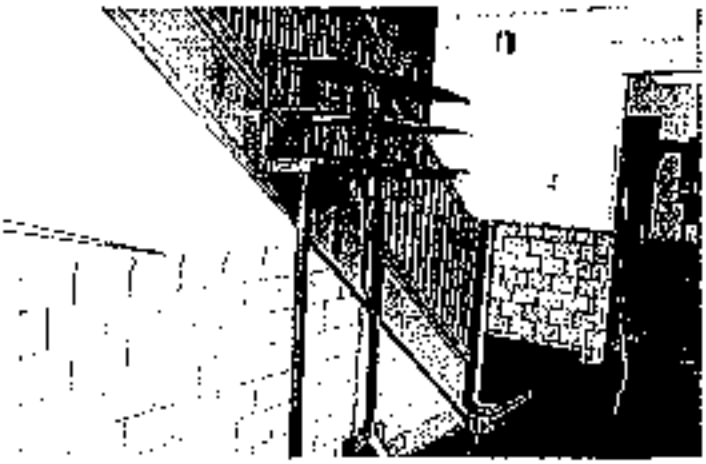
(7) PA Nan-03163-31
Hallway



(9) PA Nan-03163-33
Fitness Center



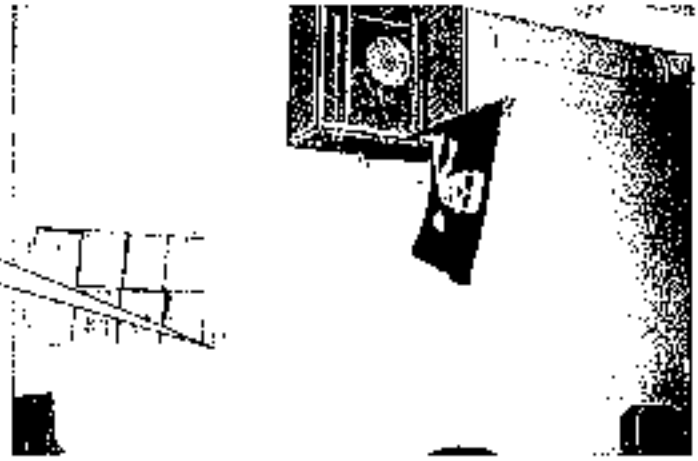
(10) PA Nan-03163-34
Hallway



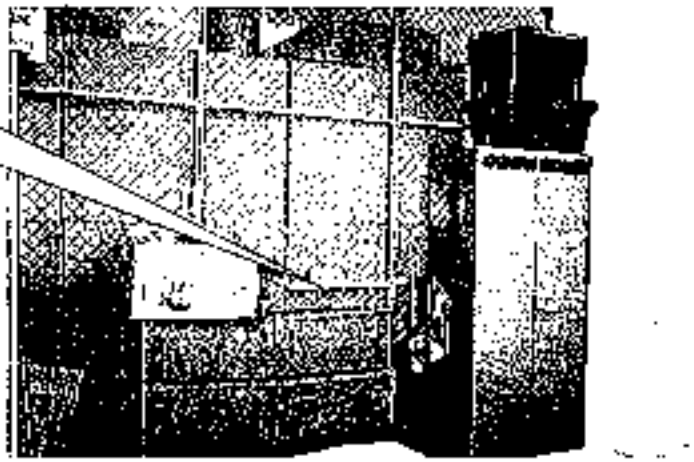
Attachment B

FORMER INDOOR FIRING RANGE SAMPLES

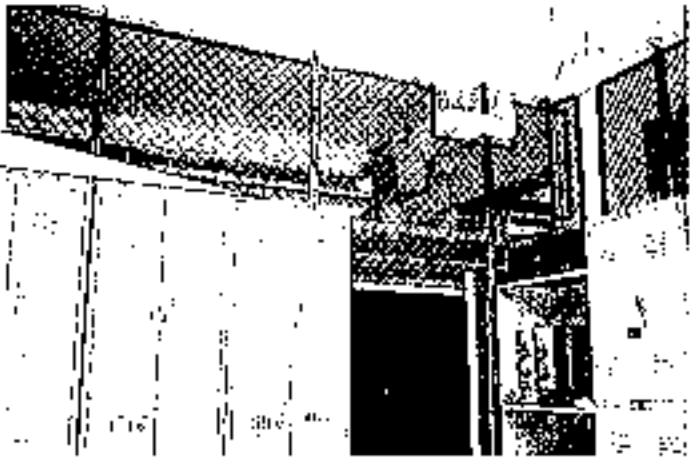
(11) PA Nan-03163-36
Former Range
Gun 4 Office



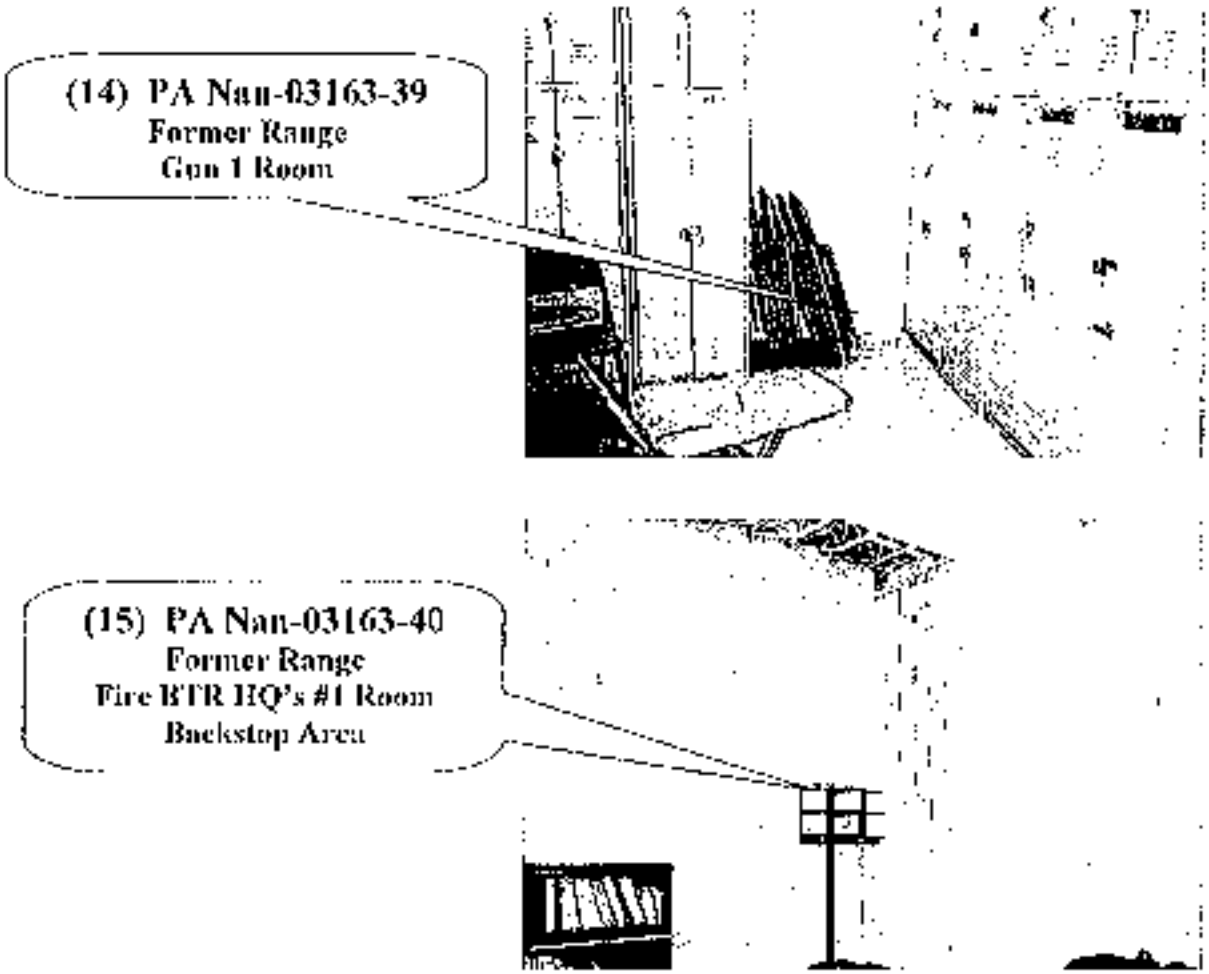
(12) PA Nan-03163-37
Former Range
Gun 3 Room



(13) PA Nan-03163-38
Former Range
Gun 2 Room



Attachment B



Attachment B

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory 6101896
AIHA Certificate of Accreditation #480 LAB ID #01533

TABLE I. ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	RES 94605-1
Client:	Operational Technologies, Corp.
Client Project Number / P.O.:	06 03
Client Project Description:	Armories/ Pennsylvania
Date Samples Received:	June 24, 2003
Analysis Type:	USEPA SW846 3050B / AA(7420)
Turnaround.	3-5 Day
Date Samples Analyzed.	July 8, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA Hon-03162-24	EM 787972	0.11	3.0	23	27
PA Hon-03162-25	EM 787973	0.11	17.0	23	155
PA Hon-03162-26	EM 787974	0.11	43.1	23	392
PA Hon-03162-27	EM 787975	0.11	6.5	23	59
PA Hon-03162-28	EM 787976	0.11	6.0	23	55
PA Hon-03162-29	EM 787977	0.11	BDL	23	BDL
PA Hon-03162-36	EM 787978	0.11	BDL	23	BDL
PA Hon-03162-37	EM 787979	0.11	45.0	23	409
PA Hon-03162-38	EM 787980	0.11	4.0	23	36
PA Hon-03162-39	EM 787981	0.11	9.3	23	85
PA Hon-03162-40	EM 787982	0.11	74.3	23	675
PA Hon-03162-41	EM 787983	0.11	BDL	23	BDL
PA Ply-03163-03	EM 787984	0.11	BDL	23	BDL
PA Ply-03163-04	EM 787985	0.11	25.1	23	228
PA Ply-03163-05	EM 787986	0.11	19.6	23	178
PA Ply-03163-06	EM 787987	0.11	BDL	23	BDL
PA Ply-03163-07	EM 787988	0.11	28.0	23	255
PA Ply-03163-08	EM 787989	0.11	BDL	23	BDL
PA Ply-03163-15	EM 787990	0.11	16.0	23	145
PA Ply-03163-16	EM 787991	0.11	BDL	23	BDL
PA Ply-03163-17	EM 787992	0.11	154.0	23	1400
PA Ply-03163-18	EM 787993	0.11	BDL	23	BDL
PA Ply-03163-19	EM 787994	0.11	BDL	23	BDL
PA Ply-03163-20	EM 787995	0.11	BDL	23	BDL
PA Nan-03163-24	EM 787996	0.11	7.5	23	68
PA Nan-03163-25	EM 787997	0.11	6.0	23	55
PA Nan-03163-26	EM 787998	0.11	350.0	23	3182
PA Nan-03163-27	EM 787999	0.11	6.3	23	57
PA Nan-03163-28	EM 788000	0.11	BDL	23	BDL
PA Nan-03163-29	EM 788001	0.11	BDL	23	BDL

BDL - Below Detection Limit

Data Qa

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
AIHA Certificate of Accreditation #480 LAB ID 101533

TABLE 1. ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	RES 94605-1
Client:	Operational Technologies, Corp.
Client Project Number / P.O.:	06 03
Client Project Description:	Armorlex/ Pennsylvania
Date Samples Received:	June 24, 2003
Analysis Type:	USEPA SW846 3050B / AA(7420)
Turnaround:	3-5 Day
Date Samples Analyzed:	July 8, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA Natl-03163-36	BM 788702	0.11	4.1	23	37
PA Natl-03163-37	BM 788703	0.11	91.0	23	827
PA Natl-03163-38	BM 788704	0.11	23.4	23	213
PA Natl-03163-39	BM 788705	0.11	10.5	23	95
PA Natl-03163-40	BM 788706	0.11	4.5	23	41
PA Natl-03163-41	BM 788707	0.11	BDL	23	BDL

*Calculations Based On A 1 sq.ft. Sample Area Unless Otherwise Noted

BDL - Below Detection Limit

Date Qa

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client:	National Guard Bureau	**Job Name:**	Pennsylvania Armories-Nationwide	**Chain Of Custody:**	117550
Address:	301-IB Old Bay Lane, Attn: NGB-AVN-SI, State Military Reservation	**Job Location:**	Not Provided	**Date Analyzed:**	9/22/2003
	Havre de Grace, Maryland 21078	**Job Number:**	Not Provided	**Person Submitting:**	[redacted]
		P.O. Number:	Not Provided	**Report Date:**	22-Sep-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
0367548	PA-Nan-03163-30	Flame	Wipe	****	0.111	108.01	ug/ft²		440	ug/ft²	
0367549	PA-Nan-03163-31	Flame	Wipe	****	0.111	108.01	ug/ft²		210	ug/ft²	
0367550	PA-Nan-03163-32	Flame	Wipe	****	0.111	108.01	ug/ft²		190	ug/ft²	
0367551	PA-Nan-03163-33	Flame	Wipe	****	0.111	108.01	ug/ft²		150	ug/ft²	
0367552	PA-Nan-03163-34	Flame	Wipe	****	0.111	108.01	ug/ft²		950	ug/ft²	
0367553	PA-Nan-03163-35	Flame	Wipe	****	0.111	108.01	ug/ft²	<	110	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.

Analyst: [redacted]   Technical Manager: [redacted]

An AIHA (#8863), NVLAP (# 101143), & New York ELAP (#10920) Accredited Laboratory

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m³
PA Scr-03162-01	03-20684	260.9	ND	<0.004
PA Scr-03162-02	03-20685	251.7	ND	<0.004
PA Hon-03162-22	03-20686	248.7	ND	<0.004
PA Hon-03162-23	03-20687	237.0	ND	<0.004
PA Ply-03163-01	03-20688	378.1	ND	<0.003
PA Ply-03163-02	03-20689	381.3	ND	<0.003
PA Nan-03163-22	03-20690	351.2	ND	<0.003
PA Nan-03163-23	03-20691	336.9	ND	<0.003
PA All-03168-01	03-20692	503.8	ND	<0.002
PA All-03168-02	03-20693	478.0	ND	<0.002
PA Bet-03168-22	03-20694	276.5	ND	<0.004.
PA Bet-03168-23	03-20695	282.1	ND	<0.004
PA Eas-03169-01	03-20696	297.9	ND	<0.003
PA Eas-03169-02	03-20697	279.3	ND	<0.004
PA Eas-03169-16	03-20698	234.7	ND	<0.004
PA Eas-03169-17	03-20699	226.7	ND	<0.004
PA Tam-03170-01	03-20700	249.6	ND	<0.004
PA Tam-03170-02	03-20701	241.5	ND	<0.004
PA Pot-03170-22	03-20702	420.5	ND	<0.002
PA Pot-03170-23	03-20703	413.6	ND	<0.002
	Prep Blank		ND	
% Recovery	LCS 3		99.	
% Recovery	LCS 4		101.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non- @md.ngb.army.mil

Attachment D

REFERENCE LIST INDEX

1. General Regulations and National Consensus Standards
2. Specific Regulations and Guidance
   a. Abrasive Blasting
   b. Asbestos
   c. Battery Charging Room
   d. Bird and Bat Manure
   e. Bloodborne Pathogens
   f. Chemical Agent Resistant Coating (CARC) Paint
   g. Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE)
   h. Confined Space Entry Program
   i. Design Review
   j. Ergonomics
   k. Flammable Storage Room
   l. Hazard Communication
   m. Hearing Conservation
   n. Indoor Air Quality
   o. Indoor Firing Ranges
   p. Lead
   q. Lighting
   r. Occupational Vision
   s. Paint Spray Booth
   t. Personal Protection
   u. Radiation Protection
   v. Respiratory Protection
   w. Sanitation
   x. Smoking
   y. Vehicle Exhaust
   z. Welding Operation

GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REFERENCE LIST

1. General Regulations and National Consensus Standards
   a. DODI 6055.1, DOD SOH Program, 19 August 1998.
   b. DODI 6055.5, DOD OEH. *[DRAFT]*
   c. DOD 6055.5-M, DOD Occupational Health Surveillance Manual, 13 May 1987.
   d. DODI 6050.5, DOD Hazard Communication, 29 Oct 90. Change 1, 6 May 1996.
   e. AR 40-5, Preventive Medicine, 15 October 1990. [05/2002 Being Updated]
   f. DA PAM 40-5, Preventive Medicine. *[DRAFT]*
   g. AR 385-10, The Army Safety Program, 29 February 2000.
   h. NGR 385-10, ARNG SOH Program, 7 October 1988, Change 1, 29 December 1989.
   i. Title 29, Part 1910, Occupational Safety and Health Standards. [Current Date]
   j. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 2002.
   k. ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th edition, 2001.
   l. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.
   m. TG 141, USACHPPM Industrial Hygiene Sampling Guide, November 1997.
   n. National Safety Council, Fundamentals of Industrial Hygiene, 5th Edition, 2002.
   o. NIOSH, Pocket Guide to Chemical Hazards, 2001.
   p. NFC, A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. [Current date]
   q. ASHRAE Standards. [Current Dates]
   r. ANSI Standards. [Current Dates]

2. Specific Regulations/Guidance
   a. **ABRASIVE BLASTING**
      (1) ANSI Z9.4 1997, Abrasive Blasting Operations - Ventilation and Safe Practices.
      (2) 29 CFR 1910.94 Ventilation
      (3) 42 CFR 84

   b. **ASBESTOS**
      (1) AR 40-5, Preventive Medicine, 15 October 1990. *[05/2002 Being Updated]*
      (2) AR 200-1, Environmental Protection and Enhancement, Chapter 8, 21 February 1997.
      (3) TB MED 513, Guidelines for the Evaluation and Control of Asbestos Exposure, 15 December 1986. *[05/2000 Under Revision as DA PAM 40-513]*
      (4) TG 157, USAEHA, The Installation Asbestos Management Program Assessment Checklists, July 1994.
      (5) 29 CFR 1910.1001
      (6) 29 CFR 1926.58 (prior to 1994 CFR)
      (7) 29 CFR 1926.1101

(8) MEMORANDUM SGPS-PSP, OTSG, subject: AMEDD Role Supporting Asbestos Abatement/Asbestos Management Programs, 19 Jan 89.

(9) EPA. Guidance for Controlling Asbestos-Containing Materials in Buildings, June 1985.

(10) DD Form 2493-1 (Asbestos Exposure, Part I--Initial Medical Questionnaire)

(11) DD Form 2493-2 (Asbestos Exposure, Part II--Periodic Medical Questionnaire)

(12) EPA NESHAPS Asbestos Regulation (40 CFR 61, Subpart M).

c. **BATTERY CHARGING ROOM**

(1) TG 022, USAEHA, page 81, Industrial Hygiene Evaluation Guide, October 1975. *[Out of Print]*

(2) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

d. **BIRD AND BAT MANURE**

(1) TG 142, USAEHA, Managing Health Hazards Associated with Bird and Bat Excrement, Dec 1992.

e. **BLOODBORNE PATHOGENS**

(1) 29 CFR 1910.1030

(2) TG 190, USAEHA, Guide to Managing Occupational Exposure to Bloodborne Pathogens, Jan 94.

f. **CHEMICAL AGENT RESISTANT COATING (CARC) PAINT**

(1) TG 144, USAEHA, Guidelines for Controlling Health Hazards in Painting Operations, 24 August 1987.

(2) DA LTR, USAEHA, HSHB-MI-WR, subject: Respiratory Protection When Spraying CARC, 19 November 1992.

(3) TM 43-0139, Painting Instructions for Army Material, 27 July 1988I Aug 86.

(4) MEMORANDUM SGPS-PSP, OTSG, subject AMEDD, Occupational Health Requirements in Support of Painting in the Army, 22 February 1985.

(5) AR 750-1, Army Materiel Maintenance Policy and Retail Maintenance Operations (Prohibits welding on CARC paint) 1 July 1996.

g. **CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR, EXPLOSIVE (CBRNE)**

(1) DODI 2000.gg, DOD Installation CBRNE Emergency Response Guidelines.

(2) DHHS, NIOSH Pub No. 2002 139, Guidance for Protecting Building Environments from Airborne Chemical, Biological, or Radiological Attacks, May 2002.

(3) TG 275, USACHPPM, Personal Protective Equipment Guide for Medical Treatment Facility Personnel Handling Casualties from Weapons of Mass Destruction and Terrorism Events. *[Draft]*

h. **CONFINED SPACE**

(1) 29 CFR 1910.146 (Confined Space Entry)
(2) 29 CFR 1910.147 (Lockout/Tagout)
(3) ANSI Z117.1-Safety Requirements for Confined Spaces, 1995.
(4) SOP for ARNG Confined Space Entry Program, 25 April 1991.
(5) Letter, US Dept of Labor (DOL) addressed to Vanessa Char, 22 Apr 1994.
(6) OSHA Instruction STD 1-7.3, US DOL, subject: 29 CFR 1910.147, the Control of Hazardous Energy (Lockout/Tagout)--Inspection Procedures and Interpretive Guidance, 11 Sep 90.
(7) DHHS, NIOSH Pub No. 87113, A Guide to Safety in Confined Spaces, July 1987.
(8) Confined Space Entry Program for Helicopters, 2003.

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(2) DG 415-2, Design Guide for Logistics Facilities, current.
(3) DG 415-3, Design Guide for Training Site Facilities, current.
(4) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.
(5) TI-300, 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.
(6) UFGS 15940A, Overhead Vehicle Tailpipe (and welding Fume) Exhaust Removal Systems, December 2001.
(7) ASHRAE, Standard 62-2002, Ventilation for Acceptable Indoor Air Quality.
(8) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

j. **ERGONOMICS**

(1) DA PAM 40-21, Medical Services, Ergonomics Program, 15 May 2000.
(2) ANSI Z-365, Management of Work Related Musculoskeletal Disorders, 2000.
(3) 29 CFR 1910. *[PROPOSED STANDARD]*

k. **FLAMMABLE STORAGE ROOM**

(1) 29 CFR 1910.106
(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

l. **HAZARD COMMUNICATION**

(1) 29 CFR 1910.1200
(2) NGR 385-10, Chapter 6

m. **HEARING CONSERVATION**

(1) DA PAM 40-501, Medical Services, Hearing Conservation Program, 10 December 1998.

(2) TG 181, USAEHA, Noise Dosimetry and Risk Assessment, May 1999.

(3) TG 175, USAEHA, Readiness thru Hearing Conservation: Guide for Unit Commanders and Supervisors, June 1999.

(4) 29 CFR 1910.95

n. **INDOOR AIR QUALITY (IAQ)**

(1) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

(2) USACERL Technical Report P-91/42, IAQ Management for Operations and Maintenance Personnel, September 1991.

(3) EPA 400/1-91/003 or DHHS, NIOSH, Publication No. 91-114, Building IAQ, A Guide for Building Owners and Facility Managers, December 1991.

(4) ASHRAE, Standard 62-2002, Ventilation for Acceptable IAQ.

(5) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

(6) NIOSH, IAQ Selected References, Sep 1989.

(7) OSHA Instruction CPL 2-2.20B CH-1, Directorate of Technical Support, 13 Nov 90.

(8) DA PAM 25-52, Mail Facility Security and Handling Suspicious Mail, 6 November 2001.

(9) ASTM, D 5952-96, 10 May 1996.

o. **INDOOR FIRING RANGES**

(1) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(2) NGR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges, 30 March 1990. *[11/02 Under Revision]*

(3) CEHND 1110-1-18, USACE Design Manual for Indoor Firing Range, June 1990.

(4) HQDA LTR, Office of the Adjutant General, DACS-SF, subject: Inspection and Evaluation of US Army Indoor Firing Ranges, 26 March 1993.

(5) Departments of the Army and Air Force, NGB-ADE-OM, subject: All State Log Number (I920323) Indoor Range Clean-up at State Owned Armories, 28 July 1992.

(6) NIOSH, Technical Information, December 1975, subject: Lead Exposure and Design Considerations for Indoor Firing Ranges.

(7) All-States Ltr P01-0075, 5 December 2001.

(8) Information Paper, Alternative Ammunition, 15 March 1996.

(9) Information Paper, Bullet Traps, 26 April 1996.

(10) Information Paper, ARNG IFR Action Plan, 28 January 2002.

p. **LEAD**

(1) 29 CFR 1910.1025

(2) 29 CFR 1926.62

(3) 24 CFR 35.61 (HUD, Percentage of Lead in Paint)

(4) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(5) OSHA Instruction CPL 2-2.58, Office of Health Compliance Assistance, 13 December 1993.

(6) Federal Register, 18 April 1990, Vol. 55, No. 75, HUD, Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing, as amended, September 1990, Office of Public and Indian Housing, Department of Housing and Urban Development, 451 Seventh Street, SW, Washington, DC 20410.

(7) NIOSH, Request for Assistance in Preventing Lead Poisoning in Construction Workers, April 1992.

(8) EPA, Strategy for Reducing Lead Exposures, 21 Feb 91.

q. **LIGHTING**

(1) RP-1-1993, Office Lighting, ANSI/IESNA.

(2) RP-7-2001, Industrial Lighting, IES.

r. **OCCUPATIONAL VISION**

(1) DA PAM 40-506, Medical Services, The Army Vision Conservation and Readiness Program, 20 July 2001.

(2) ANSI Z87.1, Practice for Occupational and Educational Eye and Face Protection, 1989, Change A, REAF 1998.

(3) ANSI Z358.1 for Emergency Eyewash and Shower Equipment, 1998.

(4) OTSG Memorandum SGPS-PSP, subject: Acanthameoba Keratitis and Eyewash Stations, 8 May 89.

(4) 29 CFR 1910.133

s. **PAINT SPRAY BOOTH**

(1) NFPA No. 33, Standard for Spray Application Using Flammable and Combustible Materials, 1995.

(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

(3) 29 CFR 1910.94

(4) 29 CFR 1910.107

(5) ANSI Z9.3-1995 for Exhaust Systems - Spray Finishing Operations - Safety Code for Design, Construction, and Ventilation.

(6) ANSI Z9.2-2001, Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems.

t. **PERSONAL PROTECTIVE EQUIPMENT**

(1) Quick Selection Guide to Chemical Protective Clothing, 2nd edition, Forsberg, K and Mansdorf, S., 1993.

(2) Chemical Protective Clothing, Vol 1 and 2, Johnson, J. and Anderson, K., American Industrial Hygiene Association, 1990.

(3) Guidelines for the Selection of Chemical Protective Clothing, 3rd Edition, ACGIH, Inc., Feb 1987.

u. **RADIATION PROTECTION PROGRAM**

(1) NGR 385-11, Safety, Ionizing and Nonionizing Radiation Protection, 18 February 1999.

(2) AR 11-9, Army Radiation Safety Program, 28 May 1999.

(3) 29 CFR 1910.96

(4) 29 CFR 1910.97

v. **RESPIRATORY PROTECTION**

(1) AR 11-34, The Army Respiratory Protection Program, 15 February 1990. *[11/02 Being Updated]*

(2) 29 CFR 1910.134

(3) 42 CFR 84

(4) TB MED 502, Respiratory Protection Program, February 1992. *[11/02 Being Updated as DA PAM 40-502]*

(5) ANSI/CGA G-7.1-1997, Commodity Specification for Air.

(6) ANSI Z88.2-1992. Standard for Respiratory Protection.

w. **SANITATION**

(1) ANSI Z4.1-1986, Change REAF 1995, Sanitation in Places of Employment-Minimum Requirements.

(2) 29 CFR 1910.141

x. **SMOKING**

(1) AR 600-63, Army Health Promotion, 28 April 1996.

(2) DODI 1010.15, Smoke-Free DOD Facilities, 2 January 2001.

(3) DODD1010.10, Health Promotion, 11 March 1986.

y. **VEHICLE EXHAUST**

(1) ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th Edition, 2001.

(2) TI-300f 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

z. **WELDING OPERATION**

(1) 29 CFR 1910.252

(2) 29 CFR 1910.253

(3) 29 CFR 1910.254

(4) ANSI/AWS Z49.1-1999, Safety in Welding and Cutting and Allied Processes.

(5) TM 5-805-7, Welding Design, Procedures and Inspection, 20 May 85.

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 $\mu g/ft^2$) and windowsills (250 $\mu g/ft^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of 200 $\mu g/ft^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 $\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 $\mu g/ft^2$ on floors and 250 $\mu g/ft^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facilty, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

PA 420

INDUSTRIAL HYGIENE SURVEY
PENNSYLVANIA

SURVEY DATE	6-12-03

FACILITY	BTRY B 1ST BN 109TH FA		
ADDRESS	490 East Main Street		
	Nanticoke, PA 18634		
CONTACT	1SG Non-Responsive		
PHONE	570-735-6890		
DATE BUILT	1939	FACILITY SIZE	26,713 SqFt
RANGE	Inactive		
ASSISTED			

DRILL - 90-100 2-A-YEAR
STAFF - 4

PAINT CONDITION:		
INDOORS	BRICK	Sample?
OUTDOORS	BRICK	Sample?

ASBESTOS		
Area/condition	NO	
Area/condition	NO	

WATER DAMAGE		
Area/condition	NO	
Area/condition	NO	

HOUSEKEEPING	GOOD

TIME	AREA	CO	CO_2	TEMP	RH
1308	HALLWAY	0.0	500	76.9°F	59.6%
1310	DRILL FLR	0.0	509	77.1°F	59.8%
1314	ORDERLY	0.0	511	77.5°F	58.1%
1316	RECRUITERS OFF	0.0	518	78.1°F	58.0%
1319	MEN RM	0.0	526	76.4°F	59.2%
1324	HALL WAY	0.0	507	76.2°F	56.4%
1330	KITCHEN	0.0	512	78.4°F	59.2%
1332	SHOWER FACILITY	0.0	522	76.1°F	58.4%
1334	STATE RM	0.0	526	77.1°F	58.3%
1338	CLASS RM	0.0	518	78.6°F	56.1%
1341	FITNESS RM	0.0	516	75.9°F	58.4%
1344	CONFERENCE RM	0.0	521	76.9°F	59.6%
1346	SUPPLY RM	0.0	526	77.2°F	58.4%
1350	GUN 4	0.0	505	77.8°F	59.1%
1354	GUN 3	0.0	521	75.6°F	58.8%
1356	SECURITY AREA	0.0	518	76.8°F	56.9%
1400	LOBBY	0.0	511	77.1°F	57.2%

BEST AVAILABLE COPY

INDUSTRIAL HYGIENE SURVEY
PENNSYLVANIA

WIPE SAMPLES		ARMORY	Picture #	
PA Nan-03 163	24	~~HVAC supply side of filter~~ BASEMENT SHOWER RM	1	68
PA Nan-03 " "	25	~~HVAC on fan side of filter~~ RECRUITER	2	55
PA Nan-03 " "	26	~~Assembly Hall~~ WOMENS LATRINE	3	318
PA Nan-03 " "	27	~~Kitchen~~ PIPE KITCHEN	4	5
PA Nan-03 " "	28	~~Supply air grille in occupied office~~ HALLWAY 1st	5	SIDEWALL
PA Nan-03 " "	29	BLANK	—	BDL
PA Nan-03 " "	30	DRILL FLR WINDOWSILL	6	440
PA Nan-03 " "	31	STAIRWELL WINDOW FRAME	7	210
PA Nan-03 " "	32	~~CAF~~ CLASS RM WINDOW SILL	8	190
PA Nan-03 " "	33	WEIGHT RM WINDOW SILL	9	150
PA Nan-03 " "	34	HALLWAY SIDE WALL	10	950
PA Nan-03 " "	35	BLANK	—	BDL
PA Nan-03				
PA Nan-03				
PA Nan-03				
PA Nan-03				
PA Nan-03				
PA Nan-03		BLANK		

AIR SAMPLING

Sample #	Pump #	Person/Area	Precal lpm	Postcal lpm	Time On	Time Off	Run Time	Volume (Liters)
PA Nan-03 163 22	698373	Person	3.135	3.108	1303	1456	113	351.2
PA Nan-03 163 23	697654	KITCHEN	3.035	3.035	1304	1455	111	336.9
PA Nan-03								

INDUSTRIAL HYGIENE SURVEY
PENNSYLVANIA

CONVERTED INDOOR FIRING RANGE WIPE SAMPLES			
PA Nan-03 163 136	~~Inside any remaining ventilation ductwork~~ LIGHT SWITCH	11	0.ST
PA Nan-03 " 137	~~Exhaust ventilation system~~ CAGE (WALL	12	827
PA Nan-03 " 138	~~Bullet trap~~ TOP OF LOCKER	13	213
PA Nan-03 " 139	~~Light fixtures~~ FLR	14	95
PA Nan-03 " 140	~~Overhead heaters~~	15	41
PA Nan-03 " 141	~~Stored items~~ BLANK	—	BDL
PA Nan-03	Floor		
PA Nan-03	Outside the range		
PA Nan-03	**Blank**		

HVAC SYSTEM: evaluate maintenance schedule and quality of maintenance for HVAC syst.

PROGRAMS	
CONFINED SPACES?	Y – N
HEARING CONSERVATION?	Y – N
RESPIRATORY PROTECTION?	Y – N
HAZCOM?	Y – N
PPE?	Y – N
TRAINING?	Y – N

VENTILATION:

NOISE:

DRILL FLR

36, 40, 36, 40, 32, 40 - 37.7 Se Hug

RECRUITERS OFF

46, 72, 60, 42, 38 - 51.6

ORDERLY RM

40, 32, 38 42, 46 39.6

MEN'S RM

26, 40, 38, 28, 40 34.4

KITCHEN

36, 42, 48, 40, 46 42.4

SHOWER AREA

38, 40, 36, 44, 48 41.2

DINNING FACILITY

44, 38, 52 46, 60, 62 50.3

CLASS RM.

36, 58, 48, 60, 32 46.8

FITNESS RM

44, 40, 38, 26, 50 39.6

CONFERENCE RM

52, 48, 60, 32, 40 46.4

PENNSYLVANIA ARMORY
INDUSTRIAL HYGIENE SURVEY
EQUIPMENT LISTING

Air Sampling Pumps
SKC Aircheck Samplers 224-44XR
S/N: 647609, 647610, 647626, 647627, 647654, 648324, 648349, 648393

Air Pump Calibrator
DryCal Base m: DC-1B Rev 2.06F S/N B 1827
DryCal Med Cell: m: DC-MC-1 Rev E S/N 1745

Indoor Air Quality
TSI Q-Trak m: 8550 S/N 11050
Metrosonics Carbon Monoxide Logger m: pm7700 S/N 1129
Metrosonics CO Sensor m: ps 7701 S/N 5073

Noise
Quest Sound Level Meter m: 2800 S/N HS4090023
Quest Octave Filter Set m: OB-300 S/N HV4070020
Quest Acoustic Calibrator m: QC-10 S/N QE4090140
Metrosonics db-3080 Noise Dosimeters S/N 4667, 4685
Microphones

ATTACHMENT E

Industrial Hygiene Survey

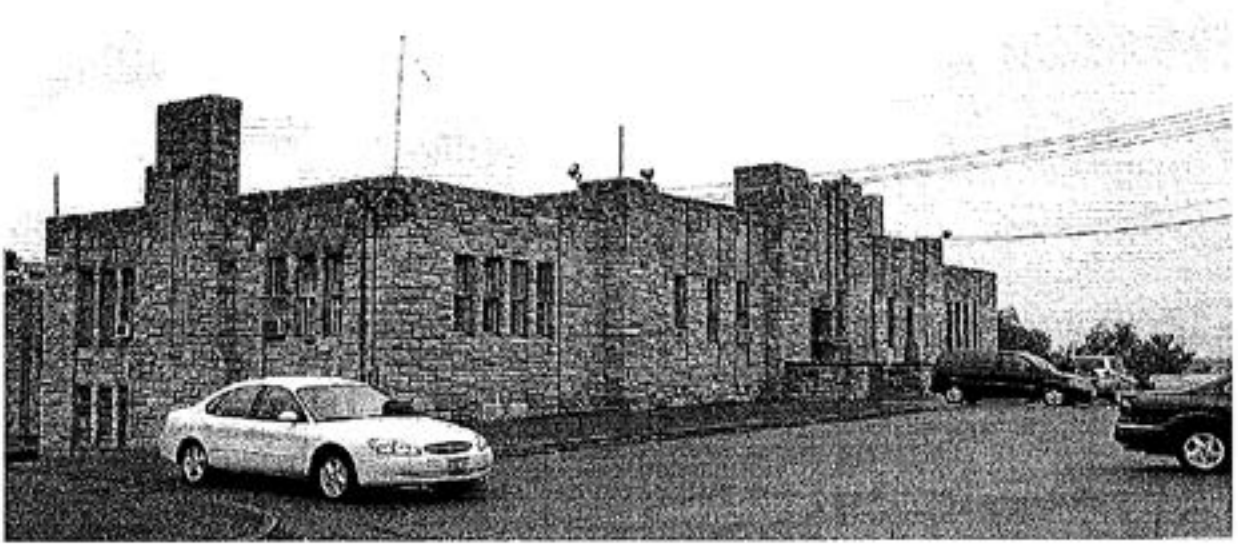
HHB 1ST BN 107th FA
NEW CASTLE, PENNSYLVANIA

June 3, 2003

OPTECH

OPERATIONAL TECHNOLOGIES
CORPORATION

HHB(-) 1ST BN 107th FA
NEW CASTLE, PENNSYLVANIA
INDUSTRIAL HYGIENE SURVEY



1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Armory in New Castle, Pennsylvania on June 03, 2003. The NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. Non-R Non-Response from OpTech, completed this survey. Non-R a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the IH Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D.

2.0. EXECUTIVE SUMMARY

2.1. No significant indoor air quality problems were noted. Indoor temperatures were below recommended comfort standards in most areas.

2.2. Illumination levels were below recommended minimum standards in many areas of the facility.

2.3. Wipe samples for inorganic lead were collected. Two of the five samples taken in the former firing range exceeded the criterion. The source of lead contamination was apparently from the inactive indoor firing range and possibly from lead paint.

2.4. Air sampling for inorganic lead was taken. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	**HHB (-) 1ST BN 107TH FA**		
ADDRESS	**820 Frank Ave.**		
	New Castle, PA 16101		
CONTACT	**MAJ** [redacted]		
PHONE	**724- 654-7841**		
DATE BUILT	**1938**	**FACILITY SIZE**	**22,953 sq. ft.**
INDOOR FIRING RANGE	**CLOSED**		**2-floors**
ASSISTED			
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	**9**		
TRADITIONAL (MIL)	**170**		
CHILD ACTIVITIES	**NA**		
ADULT ACTIVITIES	**NA**		

3.1.1. The exterior is constructed of stone and appears to be in good condition. The interior has also been well maintained. The facility is heated by a gas furnace and there is no known asbestos in the building.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity (RH) in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 Indoor Air Quality Standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ASHRAE 62-2001, Section 6.1.3, states that concentrations up to 700 ppm CO_2, above outdoor concentrations will achieve an acceptable level of indoor air quality.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ASHRAE 55-1992 recommends that temperature ranges be 73 to 79 degrees Fahrenheit (°F) during the summer and 68 to 74°F during the winter. Relative humidity levels be maintained between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE 1
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO_2 (ppm)	Temp. (°F)	RH (%)
1342	Outside air	0.0	501	74.2	52.1
1401	Hallway	0.0	543	68.6	50.1
1403	Drill floor	0.0	524	68.4	49.9
1407	Fitness room	0.0	572	68.6	50.0
1410	Kitchen	0.0	543	68.5	51.0
1415	Locker room	0.0	535	68.4	50.1
1418	Break room	0.0	532	67.4	51.2
1422	Recruiter's office	0.0	540	68.6	50.3
1426	Officers room	0.0	536	68.4	49.7
1429	Officer's room	0.0	526	66.9	51.1
1432	Orderly room	0.0	540	67.4	50.9
1436	Classroom	0.0	538	65.6	51.2
1440	Supply room	0.0	552	68.1	50.6
1443	Men's latrine	0.0	531	68.4	50.2
1446	Women's latrine	0.0	540	67.2	49.9
1450	Hallway	0.0	538	68.3	51.1
1454	Lobby	0.0	541	68.0	51.3

3.2.5. Carbon monoxide and carbon dioxide levels were within recommended levels. The temperature indoors was below the recommended temperature ranges.

3.3. ILLUMINATION

3.3.1. Illumination levels were measured in most areas of the facility. Sunlight was excluded, as much as possible for this survey, by closing doors and blocking windows. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 – 463). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
Recruiter's room	38 – 60	46	70	NO
Officer room	38 – 50	44	70	NO
Drill floor	36 – 44	41	75	NO
Locker room	40 – 44	42	40	YES
Men's room	38 – 42	42	40	YES
Breakroom	40 – 58	49	30	YES
Kitchen	44 – 66	56	75	NO
Classroom	42 – 60	52	70	NO
NBC room	42 – 58	51	70	NO
Hallway	38 – 44	42	7.5	YES
Orderly room	44 – 60	52	70	NO

3.3.2. Levels were below recommended minimum standards in many areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3.4. WIPE SAMPLES

3.4.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples were taken at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot ($\mu g/ft^2$) and are listed in Table 3. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA New-03154-24	Recruiting -- Floor	BDL
PA New-03154-25	Copy room – Window Sill	BDL
PA New-03154-26	Office -- Desk	32
PA New-03154-27	Assembly Hall	45
PA New-03154-28	Kitchen -- Stove Top	BDL
PA New-03154-29	BLANK Sample	BDL

µg/ft² -- microgram s per square foot BDL -- Below Detection Limits

3.4.2. CLOSED FIRING RANGE WIPE SAMPLING

3.4.2.1. Additional wipe samples were collected in the former indoor firing range. This area is presently being utilized for storage. The laboratory analysis results are listed in Table 4.

TABLE 4
FORMER FIRING RANGE WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA New-03154-36	Back Stop Area	238
PA New-03154-37	Light Fixture	819
PA New-03154-38	Electric Conduit	101
PA New-03154-39	Floor	24
PA New-03154-40	Top of Locker	64
PA New-03154-41	BLANK Sample	BDL

µg/ft² -- microgram s per square foot BDL -- Below Detection Limits

3.4.3. Additional wipe samples were collected during this survey. These samples were collected to further analyze the extent of contamination should the first five samples indicate a possible hazard. Although none of the first set of five samples exceeded the 200 µg/ft² criterion (see Section 3.4.4 below), samples taken in the former indoor firing range did exceed the criteria. Therefore, these additional samples were analyzed. The results are presented in Table 5.

TABLE 5
ADDITIONAL WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA New-03154-30	Break Room	150
PA New-03154-31	Top of Locker	**260**
PA New-03154-32	Drill Floor Classroom	BDL
PA New-03154-33	NBC Room – Water Heater	**510**
PA New-03154-34	Classroom – Away from Kitchen	**550**
PA New-03154-35	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits (110 µg/ft²)

3.4.4. WIPE SAMPLING RESULTS

3.4.4.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 µg/ft². This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. (See memorandum in Attachment E, Recommendations for Surface Lead Dust in Armories.) Samples in the locker room, NBC Room and classroom exceeded the 200 µg/ft² criterion. Two of the five samples collected in the former firing range also exceeded the criterion. The source of lead contamination was apparently from former indoor firing range activities and possibly from lead paint.

3.4.5. AIR SAMPLING

3.4.5.1. Air Sampling for inorganic lead was performed during this survey. Table 6 lists the results of these samples, and is reported in milligrams per cubic meter (mg/m³) of air.

TABLE 6
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
Non-Responsive	PA New-03154-22	Lead	<0.002 mg/m³	0.05 mg/m³	YES
Area – Kitchen	PA New-03154-23	Lead	<0.002 mg/m³	0.05 mg/m³	YES

mg/m³ = milligrams per cubic meter < = less than (below detection limits)

3.4.5.2. Air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m³ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this building.

3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION DAMAGE

3.5.1.1. There was no water intrusion problems reported or observed in the facility.

3.5.2. ASBESTOS

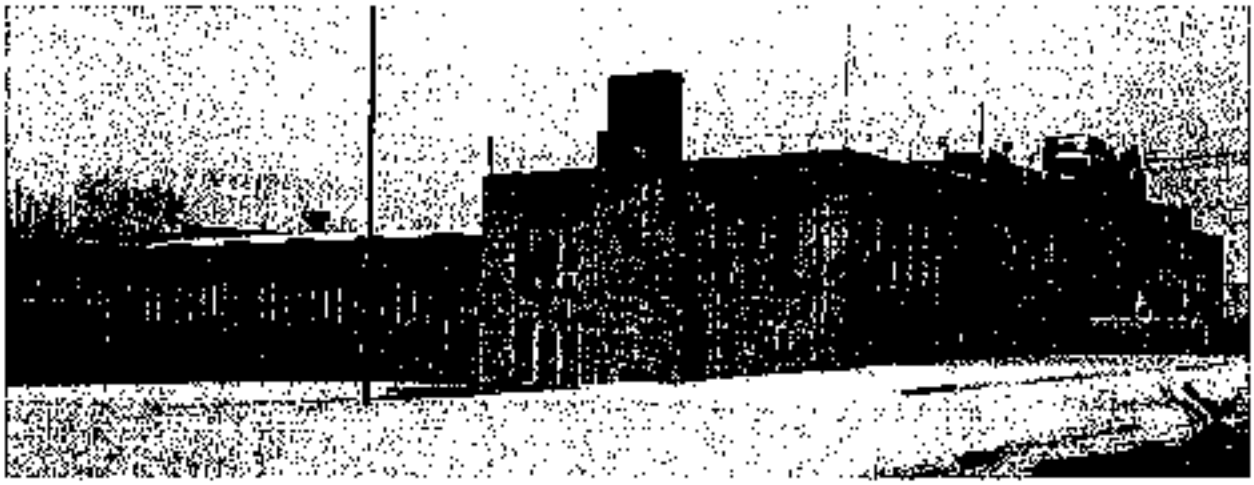
3.5.2.1. No asbestos containing material was observed in the facility and no samples were taken.

3.5.3. PROGRAMS

3.5.3.1. There are no designated confined space areas within this facility. There are no exhaust ventilation systems to control a hazard. No chemicals besides normal cleaning materials are present. Therefore, a need has not been established for a HAZCOM program, the need for personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.4. HOUSEKEEPING

3.5.4.1. The facility has been kept up in a clean orderly fashion. The drill floor/locker area was somewhat weathered but still clean.



ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

E – Recommendations for Surface Lead in Armories

F – Field Notes
- Equipment Listing

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
New Castle, PA	PENNSYLVANIA ARNG ARMORY	New Castle Armory

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR (initials)
3 June 2003	JSS

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	NA	MAJ Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
724-654-7841	HHB(-) 1ST BN 107TH FA	3	9

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
9	170			

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	CONROLS 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			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	½ FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	¾ 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 WEATHR BOOTS/HATS	/
FULL FACE SHIELD	/	EARPLUGS	/	COLD WEATHR 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	/		

AEHA Form 271-R (Test), 1 Jan 92 (HSHB-MI-I)

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	3	C

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

SECTION 6. COMMENTS

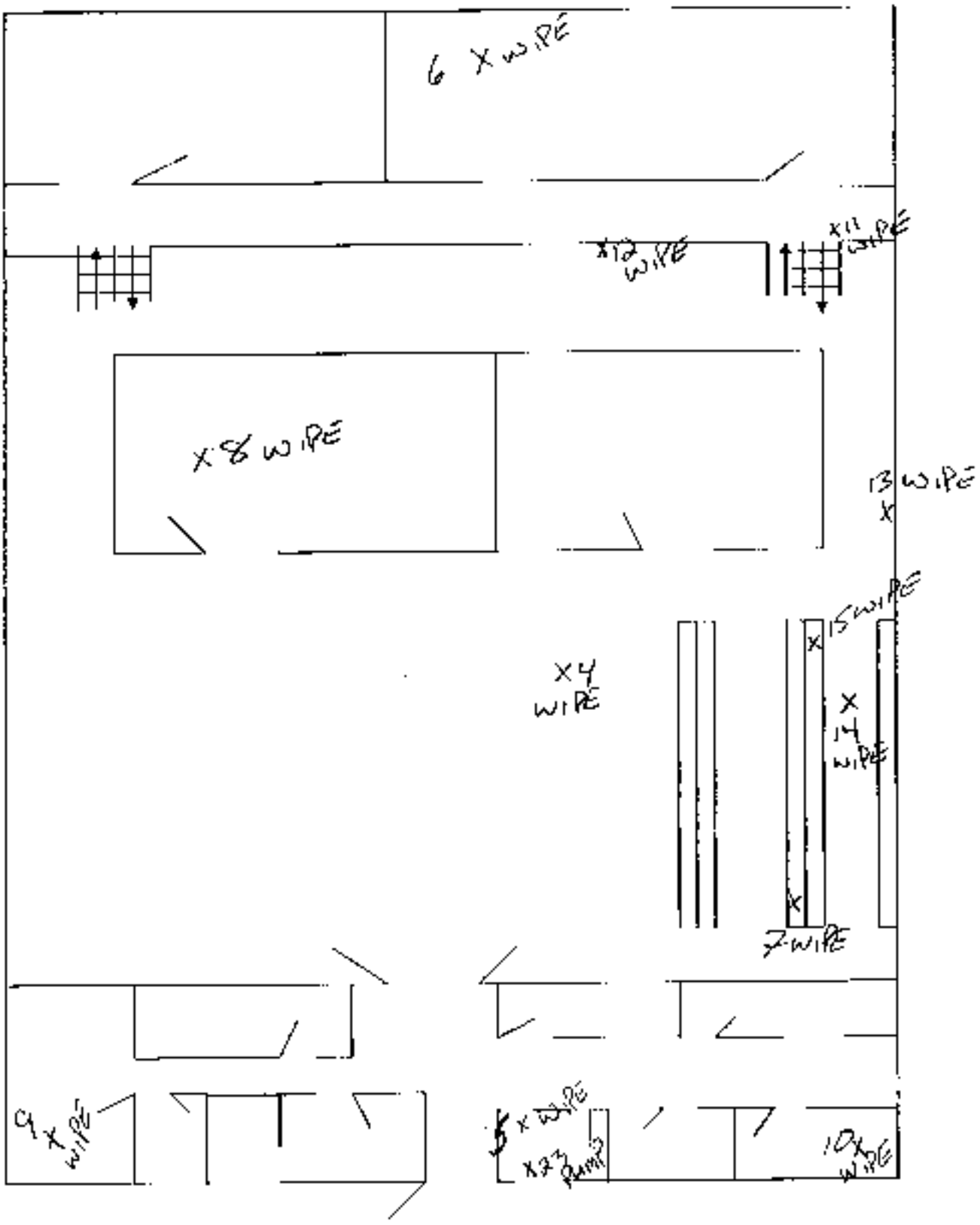
☐ No comments ☐ See attached sheet

PRIVACY ACT STATEMENT

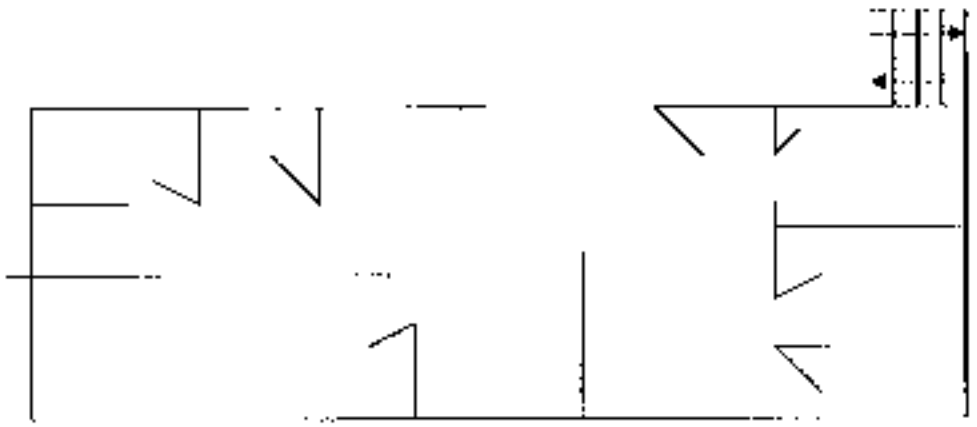
Title 5 US Code, Section 301; Executive Order 9397 authorized the use of your Social Security Number as an identification number. The purpose of this information is to identify and monitor data relating each DA civilian and military employee exposed to a hazardous workplace or operation. The use of this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

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

Mid-floor/drill floor



SECOND FLOOR



HHB 1ST BN 107TH FA
NEW CASTLE, PENNSYLVANIA

(1) PA New-03154-24
Recruiting Office

(2) PA New-03154-25
Copy Room

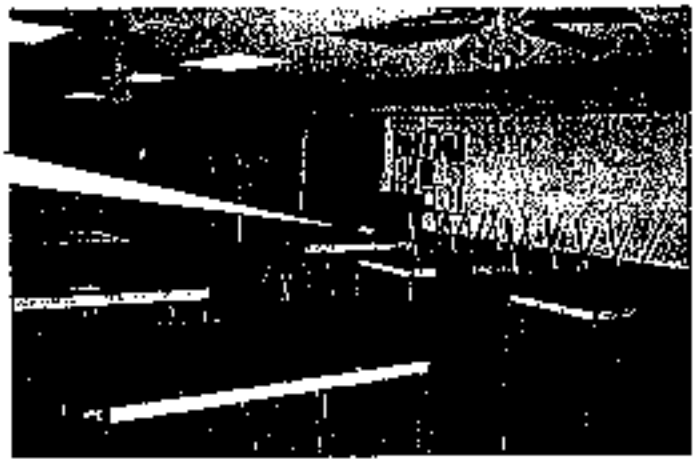
(3) PA New-03154-26
Office

Attachment B

(4) PA New-03154-27
Assembly Hall

(5) PA New-03154-28
Kitchen

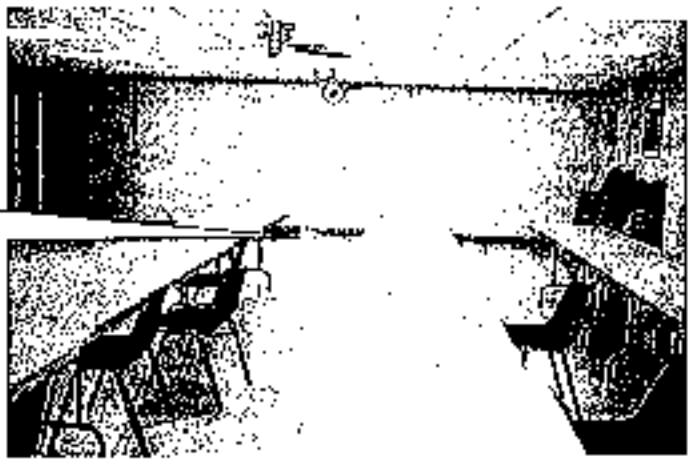
(6) PA New-03154-30
Break Room



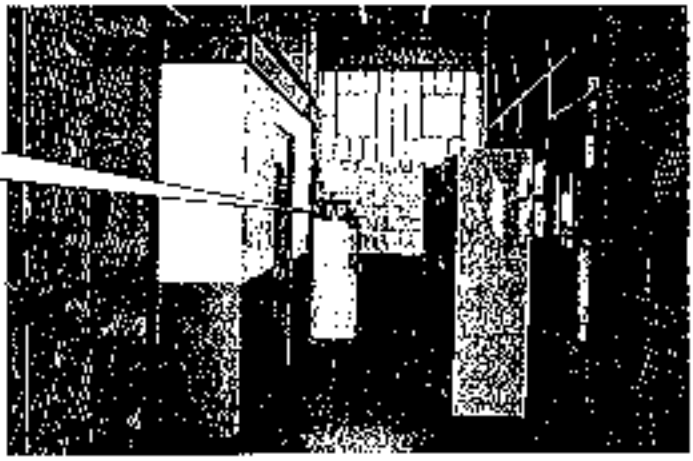
Attachment B

(7) PA New-03154-31
Locker Room

(8) PA New-03154-32
Drill Floor Classroom



(9) PA New-03154-33
NBC Area – Water Heater

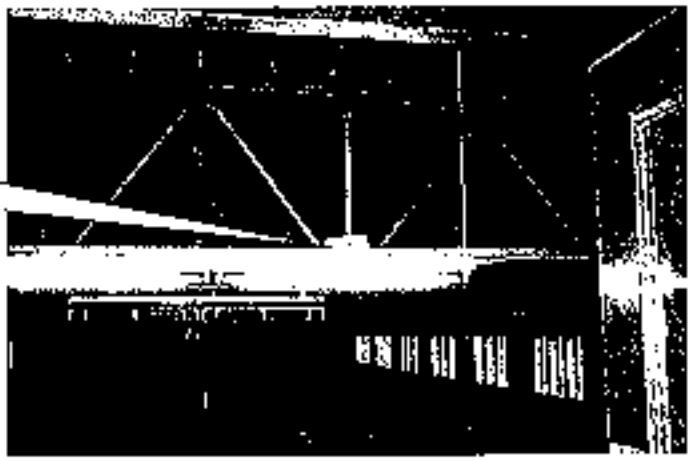


Attachment B

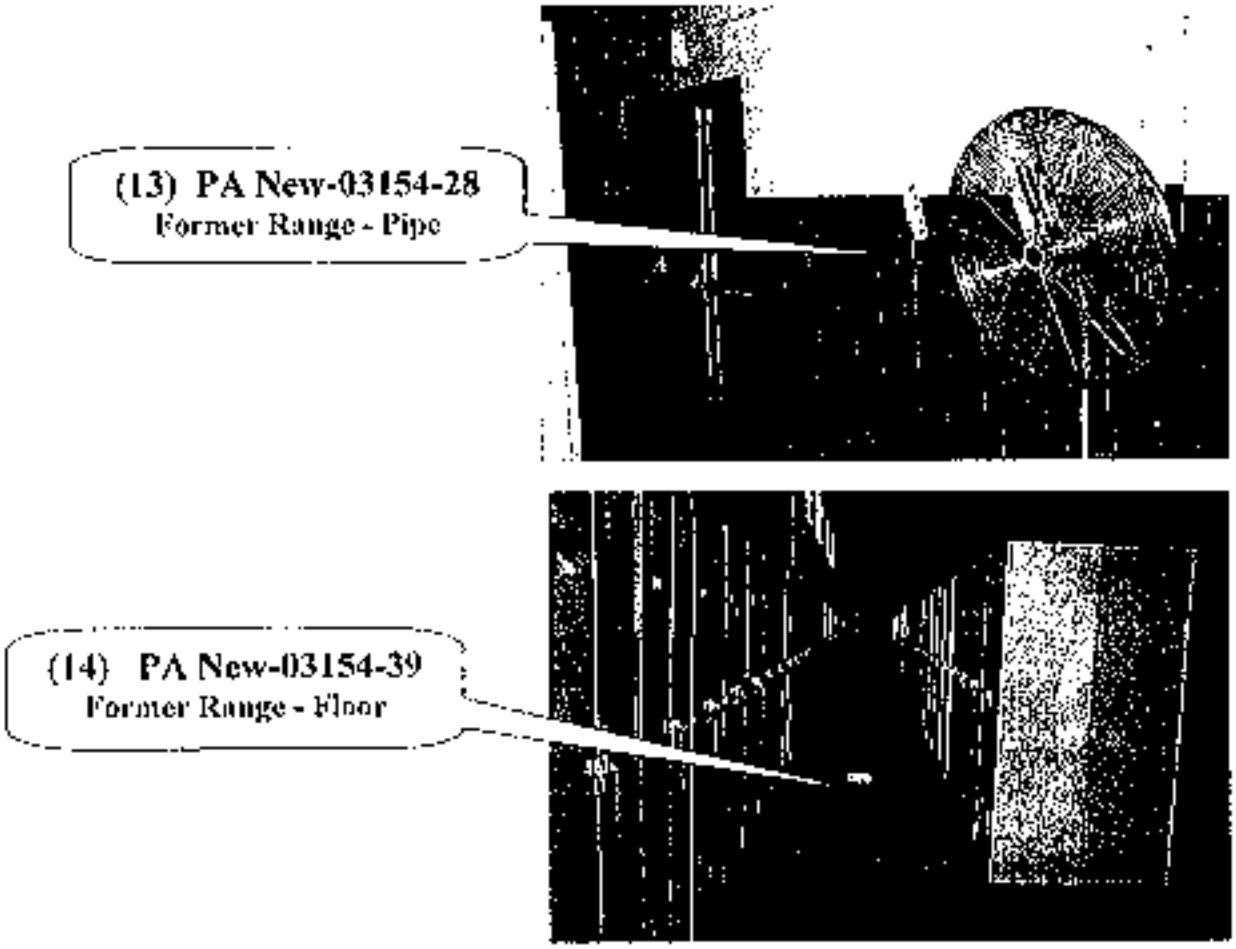
(10) PA New-03154-34
Classroom

(11) PA New-03154-36
Former Range - Steps

(12) PA New-03154-37
Former Range – Lighting Fixture



Attachment B



Attachment 1

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
AIHA Certificate of Accreditation #480 LAB ID 101533

TABLE I. ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	RES 94604-1
Client:	Operational Technologies, Corp.
Client Project Number / P.O.:	06 03
Client Project Description:	Annapolis/Pennsylvania
Date Samples Received:	June 24, 2003
Analysis Type	USEPA SW846 3050B / AA(7420)
Turnaround:	3-5 Day
Date Samples Analyzed:	July 1, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA Her-03154-03	EM 787873	0.11	BDL	23	BDL
PA Her-03154-04	EM 787874	0.11	6.7	23	61
PA Her-03154-05	EM 787875	0.11	6.2	23	56
PA Her-03154-06	EM 787876	0.11	BDL	23	BDL
PA Her-03154-07	EM 787877	0.11	3.0	23	27
PA Her-03154-08	EM 787878	0.11	BDL	23	BDL
PA Her-03154-15	EM 787879	0.11	3.0	23	27
PA Her-03154-16	EM 787880	0.11	28.5	23	259
PA Her-03154-17	EM 787881	0.11	23.4	23	213
PA Her-03154-18	EM 787882	0.11	10.4	23	95
PA Her-03154-19	EM 787883	0.11	31.0	23	282
PA Her-03154-20	EM 787884	0.11	BDL	23	BDL
PA New-03154-24	EM 787885	0.11	BDL	23	BDL
PA New-03154-25	EM 787886	0.11	BDL	23	BDL
PA New-03154-26	EM 787887	0.12	3.5	23	32
PA New-03154-27	EM 787888	0.11	5.0	23	45
PA New-03154-28	EM 787889	0.11	BDL	23	BDL
PA New-03154-29	EM 787890	0.11	BDL	23	BDL
PA New-03154-36	EM 787891	0.11	26.2	23	238
PA New-03154-37	EM 787892	0.11	90.1	23	819
PA New-03154-38	EM 787893	0.11	11.1	23	101
PA New-03154-39	EM 787894	0.11	2.6	23	24
PA New-03154-40	EM 787895	0.11	7.0	23	64
PA New-03154-41	EM 787896	0.11	BDL	23	BDL
PA Cor-03155-03	EM 787897	0.11	430.0	23	3909
PA Cor-03155-04	EM 787898	0.11	970.0	23	8818
PA Cor-03155-05	EM 787899	0.11	1900.0	23	17273
PA Cor-03155-06	EM 787900	0.11	10.5	23	95
PA Cor-03155-07	EM 787901	0.11	5.6	23	51
PA Cor-03155-08	EM 787902	0.11	BDL	23	BDL

BDL = Below Detection Limit

Data Qa

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client:	National Guard Bureau	**Job Name:**	Pennsylvania Armories-New Castle	**Chain Of Custody:**	117543
Address:	301-III Old Bay Lane, Attn: NGB-AVN-SL State Military Reservation	**Job Location:**	Not Provided	**Date Analyzed:**	9/22/2003
	Havre de Grace, Maryland 21078	**Job Number:**	Not Provided	**Person Submitting:**	[redacted]
		P.O. Number:	Not Provided	**Report Date:**	22-Sep-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
0367500	PA-New-03154-30	Flame	Wipe	****	0.111	108.01	ug/ft²		150	ug/ft²	
0367501	PA-New-03154-31	Flame	Wipe	****	0.111	108.01	ug/ft²		260	ug/ft²	
0367502	PA-New-03154-32	Flame	Wipe	****	0.111	108.01	ug/ft²	<	110	ug/ft²	
0367503	PA-New-03154-33	Flame	Wipe	****	0.111	108.01	ug/ft²		510	ug/ft²	
0367504	PA-New-03154-34	Flame	Wipe	****	0.111	108.01	ug/ft²		550	ug/ft²	
0367505	PA-New-03154-35	Flame	Wipe	****	0.111	108.01	ug/ft²	<	110	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.

Analyst: [redacted]   Technical Manager: [redacted]

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m³
PA Her-03154-01	03-20664	370.5	ND	<0.003
PA Her-03154-02	03-20665	382.4	ND	<0.003
PA New-03154-22	03-20666	465.6	ND	<0.002
PA New-03154-23	03-20667	450.1	ND	<0.002
PA Cor 03155-01	03-20668	305.5	ND	<0.003
PA Cor 03155-02	03-20669	292.0	ND	<0.003
PA Bea-03156-01	03-20670	312.3	ND	<0.003
PA Bea-03156-02	03-20671	294.7	ND	<0.003
PA Pit-03156-22	03-20672	263.9	ND	<0.004
PA Pit-03156-23	03-20673	247.1	ND	<0.004
PA Pit-03157-01	03-20674	384.5	ND	<0.003
PA Pit-03157-02	03-20675	380.9	ND	<0.003
PA Pit-03157-22	03-20676	421.3	ND	<0.002
PA Pit-03157-23	03-20677	404.6	ND	<0.002
PA Wil-03161-01	03-20678	445.6	ND	<0.002
PA Wil-03161-02	03-20679	437.2	ND	<0.002
PA New-03161-22	03-20680	148.1	ND	<0.007
PA New-03161-23	03-20681	139.1	ND	<0.007
PA Car-03161-37	03-20682	248.3	ND	<0.004
PA Car-03161-38	03-20683	240.0	ND	<0.004
	Prep Blank		ND	
% Recovery	LCS 1		97.	
% Recovery	LCS 2		99.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non-[redacted]@md.ngb.army.mil

Attachment D

REFERENCE LIST INDEX

1. General Regulations and National Consensus Standards
2. Specific Regulations and Guidance
   a. Abrasive Blasting
   b. Asbestos
   c. Battery Charging Room
   d. Bird and Bat Manure
   e. Bloodborne Pathogens
   f. Chemical Agent Resistant Coating (CARC) Paint
   g. Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE)
   h. Confined Space Entry Program
   i. Design Review
   j. Ergonomics
   k. Flammable Storage Room
   l. Hazard Communication
   m. Hearing Conservation
   n. Indoor Air Quality
   o. Indoor Firing Ranges
   p. Lead
   q. Lighting
   r. Occupational Vision
   s. Paint Spray Booth
   t. Personal Protection
   u. Radiation Protection
   v. Respiratory Protection
   w. Sanitation
   x. Smoking
   y. Vehicle Exhaust
   z. Welding Operation

GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REFERENCE LIST

1. General Regulations and National Consensus Standards
   a. DODI 6055.1, DOD SOH Program, 19 August 1998.
   b. DODI 6055.5, DOD OEH. *[DRAFT]*
   c. DOD 6055.5-M, DOD Occupational Health Surveillance Manual, 13 May 1987.
   d. DODI 6050.5, DOD Hazard Communication, 29 Oct 90. Change 1, 6 May 1996.
   e. AR 40-5, Preventive Medicine, 15 October 1990. [05/2002 Being Updated]
   f. DA PAM 40-5, Preventive Medicine. *[DRAFT]*
   g. AR 385-10, The Army Safety Program, 29 February 2000.
   h. NGR 385-10, ARNG SOH Program, 7 October 1988, Change 1, 29 December 1989.
   i. Title 29, Part 1910, Occupational Safety and Health Standards. [Current Date]
   j. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 2002.
   k. ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th edition, 2001.
   l. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.
   m. TG 141, USACHPPM Industrial Hygiene Sampling Guide, November 1997.
   n. National Safety Council, Fundamentals of Industrial Hygiene, 5th Edition, 2002.
   o. NIOSH, Pocket Guide to Chemical Hazards, 2001.
   p. NFC, A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. [Current date]
   q. ASHRAE Standards. [Current Dates]
   r. ANSI Standards. [Current Dates]

2. Specific Regulations/Guidance
   a. **ABRASIVE BLASTING**
      (1) ANSI Z9.4 1997, Abrasive Blasting Operations - Ventilation and Safe Practices.
      (2) 29 CFR 1910.94 Ventilation
      (3) 42 CFR 84

   b. **ASBESTOS**
      (1) AR 40-5, Preventive Medicine, 15 October 1990. *[05/2002 Being Updated]*
      (2) AR 200-1, Environmental Protection and Enhancement, Chapter 8, 21 February 1997.
      (3) TB MED 513, Guidelines for the Evaluation and Control of Asbestos Exposure, 15 December 1986. *[05/2000 Under Revision as DA PAM 40-513]*
      (4) TG 157, USAEHA, The Installation Asbestos Management Program Assessment Checklists, July 1994.
      (5) 29 CFR 1910.1001
      (6) 29 CFR 1926.58 (prior to 1994 CFR)
      (7) 29 CFR 1926.1101

(8) MEMORANDUM SGPS-PSP, OTSG, subject: AMEDD Role Supporting Asbestos Abatement/Asbestos Management Programs, 19 Jan 89.

(9) EPA, Guidance for Controlling Asbestos-Containing Materials in Buildings, June 1985.

(10) DD Form 2493-1 (Asbestos Exposure, Part I--Initial Medical Questionnaire)

(11) DD Form 2493-2 (Asbestos Exposure, Part II--Periodic Medical Questionnaire)

(12) EPA NESHAPS Asbestos Regulation (40 CFR 61, Subpart M).

c. BATTERY CHARGING ROOM

(1) TG 022, USAEHA, page 81, Industrial Hygiene Evaluation Guide, October 1975. *[Out of Print]*

(2) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

d. BIRD AND BAT MANURE

(1) TG 142, USAEHA, Managing Health Hazards Associated with Bird and Bat Excrement, Dec 1992.

e. BLOODBORNE PATHOGENS

(1) 29 CFR 1910.1030

(2) TG 190, USAEHA, Guide to Managing Occupational Exposure to Bloodborne Pathogens, Jan 94.

f. CHEMICAL AGENT RESISTANT COATING (CARC) PAINT

(1) TG 144, USAEHA, Guidelines for Controlling Health Hazards in Painting Operations, 24 August 1987.

(2) DA LTR, USAEHA, HSHB-MI-WR, subject: Respiratory Protection When Spraying CARC, 19 November 1992.

(3) TM 43-0139, Painting Instructions for Army Material, 27 July 19881 Aug 86.

(4) MEMORANDUM SGPS-PSP, OTSG, subject AMEDD, Occupational Health Requirements in Support of Painting in the Army, 22 February 1985.

(5) AR 750-1, Army Materiel Maintenance Policy and Retail Maintenance Operations (Prohibits welding on CARC paint) 1 July 1996.

g. CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR, EXPLOSIVE (CBRNE)

(1) DODI 2000.gg, DOD Installation CBRNE Emergency Response Guidelines.

(2) DHHS, NIOSH Pub No. 2002 139, Guidance for Protecting Building Environments from Airborne Chemical, Biological, or Radiological Attacks, May 2002.

(3) TG 275, USACHPPM, Personal Protective Equipment Guide for Medical Treatment Facility Personnel Handling Casualties from Weapons of Mass Destruction and Terrorism Events. *[Draft]*

h. **CONFINED SPACE**

(1) 29 CFR 1910.146 (Confined Space Entry)
(2) 29 CFR 1910.147 (Lockout/Tagout)
(3) ANSI Z117.1-Safety Requirements for Confined Spaces, 1995.
(4) SOP for ARNG Confined Space Entry Program, 25 April 1991.
(5) Letter, US Dept of Labor (DOL) addressed to Vanessa Char, 22 Apr 1994.
(6) OSHA Instruction STD 1-7.3, US DOL, subject: 29 CFR 1910.147, the Control of Hazardous Energy (Lockout/Tagout)--Inspection Procedures and Interpretive Guidance, 11 Sep 90.
(7) DHHS, NIOSH Pub No. 87113, A Guide to Safety in Confined Spaces, July 1987.
(8) Confined Space Entry Program for Helicopters, 2003.

i. **DESIGN REVIEW**

(1) DG 415-1, Design Guide for Armories, current.
(2) DG 415-2, Design Guide for Logistics Facilities, current.
(3) DG 415-3, Design Guide for Training Site Facilities, current.
(4) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.
(5) TI-300, 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.
(6) UFGS 15940A, Overhead Vehicle Tailpipe (and welding Fume) Exhaust Removal Systems, December 2001.
(7) ASHRAE, Standard 62-2002, Ventilation for Acceptable Indoor Air Quality.
(8) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

j. **ERGONOMICS**

(1) DA PAM 40-21, Medical Services, Ergonomics Program, 15 May 2000.
(2) ANSI Z-365, Management of Work Related Musculoskeletal Disorders, 2000.
(3) 29 CFR 1910. *[PROPOSED STANDARD]*

k. **FLAMMABLE STORAGE ROOM**

(1) 29 CFR 1910.106
(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

l. **HAZARD COMMUNICATION**

(1) 29 CFR 1910.1200
(2) NGR 385-10, Chapter 6

m. **HEARING CONSERVATION**

(1) DA PAM 40-501, Medical Services, Hearing Conservation Program, 10 December 1998.

(2) TG 181, USAEHA, Noise Dosimetry and Risk Assessment, May 1999.

(3) TG 175, USAEHA, Readiness thru Hearing Conservation: Guide for Unit Commanders and Supervisors, June 1999.

(4) 29 CFR 1910.95

n. **INDOOR AIR QUALITY (IAQ)**

(1) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

(2) USACERL Technical Report P-91/42, IAQ Management for Operations and Maintenance Personnel, September 1991.

(3) EPA 400/1-91/003 or DHHS, NIOSH, Publication No. 91-114, Building IAQ, A Guide for Building Owners and Facility Managers, December 1991.

(4) ASHRAE, Standard 62-2002, Ventilation for Acceptable IAQ.

(5) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

(6) NIOSH, IAQ Selected References, Sep 1989.

(7) OSHA Instruction CPL 2-2.20B CH-1, Directorate of Technical Support, 13 Nov 90.

(8) DA PAM 25-52, Mail Facility Security and Handling Suspicious Mail, 6 November 2001.

(9) ASTM, D 5952-96, 10 May 1996.

o. **INDOOR FIRING RANGES**

(1) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(2) NGR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges, 30 March 1990. *[11/02 Under Revision]*

(3) CEHND 1110-1-18, USACE Design Manual for Indoor Firing Range, June 1990.

(4) HQDA LTR, Office of the Adjutant General, DACS-SF, subject: Inspection and Evaluation of US Army Indoor Firing Ranges, 26 March 1993.

(5) Departments of the Army and Air Force, NGB-ADE-OM, subject: All State Log Number (I920323) Indoor Range Clean-up at State Owned Armories, 28 July 1992.

(6) NIOSH, Technical Information, December 1975, subject: Lead Exposure and Design Considerations for Indoor Firing Ranges.

(7) All-States Ltr P01-0075, 5 December 2001.

(8) Information Paper, Alternative Ammunition, 15 March 1996.

(9) Information Paper, Bullet Traps, 26 April 1996.

(10) Information Paper, ARNG IFR Action Plan, 28 January 2002.

p. **LEAD**

(1) 29 CFR 1910.1025

(2) 29 CFR 1926.62

(3) 24 CFR 35.61 (HUD, Percentage of Lead in Paint)

(4) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(5) OSHA Instruction CPL 2-2.58, Office of Health Compliance Assistance, 13 December 1993.

(6) Federal Register, 18 April 1990, Vol. 55, No. 75, HUD, Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing, as amended, September 1990, Office of Public and Indian Housing, Department of Housing and Urban Development, 451 Seventh Street, SW, Washington, DC 20410.

(7) NIOSH, Request for Assistance in Preventing Lead Poisoning in Construction Workers, April 1992.

(8) EPA, Strategy for Reducing Lead Exposures, 21 Feb 91.

q. **LIGHTING**

(1) RP-1-1993, Office Lighting, ANSI/IESNA.

(2) RP-7-2001, Industrial Lighting, IES.

r. **OCCUPATIONAL VISION**

(1) DA PAM 40-506, Medical Services, The Army Vision Conservation and Readiness Program, 20 July 2001.

(2) ANSI Z87.1, Practice for Occupational and Educational Eye and Face Protection, 1989, Change A, REAF 1998.

(3) ANSI Z358.1 for Emergency Eyewash and Shower Equipment, 1998.

(4) OTSG Memorandum SGPS-PSP, subject: Acanthamoeba Keratitis and Eyewash Stations, 8 May 89.

(4) 29 CFR 1910.133

s. **PAINT SPRAY BOOTH**

(1) NFPA No. 33, Standard for Spray Application Using Flammable and Combustible Materials, 1995.

(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

(3) 29 CFR 1910.94

(4) 29 CFR 1910.107

(5) ANSI Z9.3-1995 for Exhaust Systems - Spray Finishing Operations - Safety Code for Design, Construction, and Ventilation.

(6) ANSI Z9.2-2001, Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems.

t. **PERSONAL PROTECTIVE EQUIPMENT**

(1) Quick Selection Guide to Chemical Protective Clothing, 2nd edition, Forsberg, K and Mansdorf, S., 1993.

(2) Chemical Protective Clothing, Vol 1 and 2, Johnson, J. and Anderson, K., American Industrial Hygiene Association, 1990.

(3) Guidelines for the Selection of Chemical Protective Clothing, 3rd Edition, ACGIH, Inc., Feb 1987.

u. **RADIATION PROTECTION PROGRAM**

(1) NGR 385-11, Safety, Ionizing and Nonionizing Radiation Protection, 18 February 1999.

(2) AR 11-9, Army Radiation Safety Program, 28 May 1999.

(3) 29 CFR 1910.96

(4) 29 CFR 1910.97

v. **RESPIRATORY PROTECTION**

(1) AR 11-34, The Army Respiratory Protection Program, 15 February 1990. *[11/02 Being Updated]*

(2) 29 CFR 1910.134

(3) 42 CFR 84

(4) TB MED 502, Respiratory Protection Program, February 1992. *[11/02 Being Updated as DA PAM 40-502]*

(5) ANSI/CGA G-7.1-1997, Commodity Specification for Air.

(6) ANSI Z88.2-1992, Standard for Respiratory Protection.

w. **SANITATION**

(1) ANSI Z4.1-1986, Change REAF 1995, Sanitation in Places of Employment-Minimum Requirements.

(2) 29 CFR 1910.141

x. **SMOKING**

(1) AR 600-63, Army Health Promotion, 28 April 1996.

(2) DODI 1010.15, Smoke-Free DOD Facilities, 2 January 2001.

(3) DODD1010.10, Health Promotion, 11 March 1986.

y. **VEHICLE EXHAUST**

(1) ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th Edition, 2001.

(2) TI-300f 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

z. **WELDING OPERATION**

(1) 29 CFR 1910.252

(2) 29 CFR 1910.253

(3) 29 CFR 1910.254

(4) ANSI/AWS Z49.1-1999, Safety in Welding and Cutting and Allied Processes.

(5) TM 5-805-7, Welding Design, Procedures and Inspection, 20 May 85.

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 $\mu g/ft^2$) and windowsills (250 $\mu g/ft^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of 200 $\mu g/ft^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 $\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 $\mu g/ft^2$ on floors and 250 $\mu g/ft^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

PA 270

INDUSTRIAL HYGIENE SURVEY
PENNSYLVANIA

SURVEY DATE	6-03-03

FACILITY	HHB (-) 1ST BN 107TH FA		
ADDRESS	820 Frank Ave.		
	New Castle, PA 16101		
CONTACT	MAJ [redacted] Non-PII		
PHONE	724-654-7841		
DATE BUILT	1938	FACILITY SIZE	12,953 SqFt
RANGE	Inactive		
ASSISTED			

STAFF-9 DRILL 170

PAINT CONDITION:		
INDOORS	PAINT	Sample?
OUTDOORS	STONE	Sample?

ASBESTOS		
Area/condition	NO	
Area/condition	NO	

WATER DAMAGE		
Area/condition	NO	
Area/condition	NO	

HOUSEKEEPING	

TIME	AREA	CO	CO_2	TEMP	RH
1342	OUTSIDE AIR	0.0	501	71.2°F	52.1%
1401	HALL WAY	0.0	543	68.6°F	50.1%
1403	DRILL FLR	0.0	574	68.4°F	49.9%
1407	FITNESS RM	0.0	572	68.6°F	50.0%
1410	KITCHEN	0.0	543	68.5°F	50.0%
1415	LOCKER RM	0.0	535	68.4°F	56.1%
1418	BREAK RM	0.0	532	67.4°F	51.2%
1422	RECRUITERS OFF	0.0	540	68.6°F	50.3%
1426	OFFICERS RM 2	0.0	536	68.4°F	49.7%
1429	OFFICERS RM 4	0.0	526	66.9°F	51.1%
1432	ORERLY RM	0.0	540	67.4°F	50.9%
1436	CLASS RM	0.0	538	65.6°F	51.2%
1440	SUPPLY RM	0.0	552	68.1°F	50.6%
1443	MENS LATRINE	0.0	531	68.4°F	50.2%
1446	WOMENS LATRINE	0.0	540	67.2°F	49.9%
1450	HALLWAY	0.0	538	68.3°F	51.1%
1454	LOBBY	0.0	541	68.0°F	51.3%

INDUSTRIAL HYGIENE SURVEY
PENNSYLVANIA

WIPE SAMPLES			ARMORY	Picture #
PA New-03	154	24	~~HVAC supply side of filter~~ RECRUITING RM FLR	1
PA New-03	"	25	~~HVAC on far side of filter~~ COPYING RM WINDOW SILL	2
PA New-03	"	26	~~Assembly right~~ OFFICE DESK FOOT	3
PA New-03	"	27	~~Kitchen~~ DRILL FLR	4
PA New-03	"	28	~~Supply air grille in occupied office~~ KITCHEN SINK	5
PA New-03	"	29	BLANK	—
PA New-03	"	30	BREAK RM	6
PA New-03	"	31	LOCKER TOP	7
PA New-03	"	32	DRILL FLR CLASS RM	8
PA New-03	"	33	NBC RM WATER HEATER	9
PA New-03	"	34	CLASS RM FAR FROM KITCHEN	10
PA New-03	"	35	BLANK	—
PA New-03				
PA New-03				
PA New-03				
PA New-03				
PA New-03				
PA New-03			BLANK	

AIR SAMPLING

Sample #	Pump #	Person/Area	Precal lpm	Postcal lpm	Time On	Time Off	Run Time	Volume (Liters)
PA New-03	64[illegible]64B393	PERSON	3.094	3.043	1352	1625	153	465.6
PA New-03	64[illegible]654	KITCHEN	3.015	2.981	1352	1623	151	450.1
PA New-03								

INDUSTRIAL HYGIENE SURVEY
PENNSYLVANIA

CONVERTED INDOOR FIRING RANGE WIPE SAMPLES			
PA New-03	36	~~Inside any remaining ventilation ductwork~~ BACK STOP ARM	11
PA New-03	37	~~Exhaust ventilation system~~ LIGHT FIXTURE	12
PA New-03	38	~~Bullet trap~~ ELECTRICAL CONDUIT	13
PA New-03	39	~~Light fixtures~~ FLR	14
PA New-03	40	~~Overhead Heaters~~ TOP LOCKER	15
PA New-03	41	~~Stored Items~~ BLANK	
PA New-03		Floor	
PA New-03		Outside the range	
PA New-03		Blank	

HVAC SYSTEM: evaluate maintenance schedule and quality of maintenance for HVAC syst.

PROGRAMS		
CONFINED SPACES?	Y – N	
HEARING CONSERVATION?	Y – N	
RESPIRATORY PROTECTION?	Y – N	
HAZCOM?	Y – N	
PPE?	Y – N	
TRAINING?	Y – N	

NOTES:

~~VENTILATION:~~

FACILTY CLEANED LEAD SAMPLE FOUND ON CEILING OF DRILL HALL AREA. SUPPOSED TO CLEANED AND PAINTED BY ANOTHER IH. GROUP.

NOISE:

RECRUITER RM
42, 38, 60, 42 — ~~45~~ 182/4 = 45.5 SF Req

OFFICER RM
46, 42, 50, 38 44 176/4 = 44.0

DRILL FLR
40, 42, 36, 44, 42 ~~45~~ 204/5 = 40.8

LOCKER RM
42, 40, 42, 44 ~~42~~ 168/4 = 42.0

MENS LATRINE
46, 40, 42, 38, 42 ~~42~~ 208/5 = 41.6

BREAK RM
44, 52, 40, 58, 52 ~~49~~ 246/5 = 49.2

KITCHEN
60, 62, 50, 66, 44 56 282/5 = 56.4

CLASS RM
48, 52, 42, 58, 60 ~~52~~ 260/5 = 52.0

NBC RM
50, 42, 58, 52 ~~50~~ 202/4 = 50.5

HALLWAY
44, 42, 38, 42 ~~41~~ 166/4 = 41.5

ORDERLY RM
56, 42, 60 58, 44 ~~52~~ 260/5 = 52.0

PENNSYLVANIA ARMORY
INDUSTRIAL HYGIENE SURVEY
EQUIPMENT LISTING

Air Sampling Pumps
SKC Aircheck Samplers 224-44XR
S/N: 647609, 647610, 647626, 647627, 647654, 648324, 648349, 648393

Air Pump Calibrator
DryCal Base m: DC-1B Rev 2.06F S/N B 1827
DryCal Med Cell: m: DC-MC-1 Rev E S/N 1745

Indoor Air Quality
TSI Q-Trak m: 8550 S/N 11050
Metrosonics Carbon Monoxide Logger m: pm7700 S/N 1129
Metrosonics CO Sensor m: gs 7701 S/N 5073

Noise
Quest Sound Level Meter m: 2800 S/N HS4090023
Quest Octave Filter Set m: OB-300 S/N HV4070020
Quest Acoustic Calibrator m: QC-10 S/N QE4090140
Metrosonics db-3080 Noise Dosimeters S/N 4667, 4685
Microphones

ATTACHMENT E

Industrial Hygiene Survey

Pennsylvania Army National Guard (PA ARNG)

Prepared For: NGB ARNG– Region North IH Office

Survey Location:

New Castle Readiness Center
820 Frank Avenue
New Castle, PA 16101

Prepared By: Aria Environmental, Inc. (AEI)
PO Box 286
Woodbine, MD 21797

Survey Date: August 30, 2011

AEI Project #: J10-586 3k PA New Castle RC

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Non-[redacted]

Industrial Hygienist

Table of Contents

List of Tables and Appendices

Executive Summary

Aria Environmental, Inc. (AEI) was contracted to perform an industrial hygiene evaluation for the Pennsylvania Army National Guard (PA ARNG) New Castle Readiness Center located at 820 Frank Road, New Castle PA 16101. Non- performed the evaluation on August 30, 2011. The point of contact for the facility was Sergeant First Class Non-. The purpose of the evaluation was to identify and measure the existence and extent of potentially hazardous operations or conditions at Army National Guard (ARNG) facilities. The survey included: (1) evaluations of operations including operation description, ventilation system evaluations, noise dosimetry if appropriate, lighting surveys, hazard control evaluations and any additional information pertinent to the operations; (2) an evaluation of the physical condition of the facility and personnel concerns including visual inspections for peeling potentially lead-based paint, damaged suspect asbestos-containing materials, water damage or mold problems; indoor air quality concerns; and housekeeping practices; and (3) photographs of the exterior and interior of the readiness center. The results of the evaluation indicated the following:

Paint Chip and Wipe Samples for Lead Contamination: A visual inspection was performed to determine if there were any areas of peeling paint at the facility that could pose a lead exposure hazard. Minor peeling paint posing no potential for lead exposure was observed in the facility. Results of dust wipe samples taken throughout the facility were below the maximum recommended criterion for lead contamination (200 µg/ft^2).

Visual Inspection for Damaged Asbestos-Containing Materials: A visual inspection was performed to determine if there were any suspect asbestos-containing material and its condition. No suspect asbestos-containing materials were observed in the facility.

Visual Inspection for Water Damage and Mold Growth: A visual inspection was performed to determine if there was any water damage or visible mold growth at the facility. Minor water leaks from an unknown source and minor mold growth in the showers was observed.

Visual Inspection for Housekeeping Concerns: A visual inspection was performed to assess the state of housekeeping in the facility. The housekeeping was good. All areas were clean and tidy except where mold growth was observed.

Lighting: A lighting survey was performed in all areas within the readiness center. The evaluation indicated illumination deficiencies in the maintenance bay, the drill hall, a computer room and the boiler room. The illumination measurements indoors ranged from a low of 6.3 foot candles (fc) to a high of 183.9 fc.

Indoor Air Quality: Indoor temperature and relative humidity (Rh) measurements in the facility ranged from 74.6 to 78.9° F and 37.0 to 53.1% Rh. Temperatures and relative humidity measurements were acceptable in all areas. Indoor concentrations of carbon dioxide (CO_2) and carbon monoxide (CO) were below the guidelines in all areas.

Overall, the New Castle Readiness Center has few industrial hygiene issues, and programs are in place to protect, inform and train employees and maintain the facility.

1 Introduction

Aria Environmental, Inc. (AEI) was contracted to perform an industrial hygiene evaluation for the Pennsylvania Army National Guard (PA ARNG) New Castle Readiness Center located at 820 Frank Road, New Castle PA 16101. Non- performed the evaluation on August 30, 2011. The point of contact for the facility was Sergeant First Class Non-. The purpose of the evaluation was to identify and measure the existence and extent of potentially hazardous operations or conditions at Army National Guard (ARNG) facilities.

The New Castle Readiness Center is staffed with 20 administrative personnel. The operations conducted at the facility include supply and administrative duties. A diagram of the building layout is provided in Appendix A. All sampling sheets and laboratory certificates of analysis are provided in Appendix B. Selected photographs taken during the evaluation are provided in Appendix C. Indoor air quality and lighting survey measurement log sheets are provided in Appendix D. Lists of all references used during the evaluation are included in the main body of the report.

2 Evaluation Methods

The industrial hygiene survey of the New Castle Readiness Center consisted of visual inspections, interviews with employees, and sampling plan development in order to achieve the following: (1) evaluations of operations including operation description, sampling for lead in air or on surfaces if appropriate, ventilation system evaluations, noise measurements if appropriate, lighting surveys, hazard control evaluations and any additional information pertinent to the operations; (2) an evaluation of the physical condition of the facility and personnel concerns including visual inspections for peeling potentially lead-based paint, damaged suspect asbestos-containing materials, water damage or mold problems; indoor air quality concerns; and housekeeping practices; and (3) a building layout and photographic documentation of the interior of the facility.

The National Guard Bureau (NGB) Region North IH Office provided all industrial hygiene equipment for air sampling (equipment and media), ventilation, lighting, noise and IAQ survey instruments and paid for laboratory analytical fees. Laboratories were chosen or approved by the NGB IH office.

3 Operations

Operations conducted at the New Castle facility consists exclusively of supply and administrative duties. No maintenance of vehicles, painting of equipment or other physical tasks are performed at the facility. Ground maintenance and upkeep of the building are the responsibility of the state employed Armorer and not part of the duties of National Guard personnel.

4 Noise Hazards

No noise-generating activities were taking place on the day of the survey. Due to the nature of the tasks performed onsite, no activities requiring noise monitoring are anticipated to occur at the RC.

5 Hazard Controls

Ventilation Systems

Heat is supplied to the facility through a boiler located in the boiler room and overhead heaters in the drill hall. Any air conditioning provided to the building is through window air conditioning units. No local ventilation systems were present at the facility.

6 Physical Condition of the Facility and Personnel Concerns

An evaluation of the physical condition of the facility and personnel concerns was performed including visual inspections for water damage or mold problems; potential ergonomic problems; and housekeeping practices. Lighting and indoor air quality measurements were taken in all areas of the facility as well.

Lead in Air Samples

Lead in air samples to determine if any airborne contamination of lead existed in the facility were not collected at the New Castle Readiness Center.

Paint Chip and Dust Wipe Samples for Lead Contamination

A visual inspection was performed to determine if there were any areas of peeling paint at the facility that could pose a lead exposure hazard. Minor peeling paint posing no threat of lead exposure was observed in the facility.

To determine if any cross contamination of lead from any source into areas of the facility existed, wipe samples were collected using ghost wipes and 10cm x 10cm templets. The Environmental Protection Agency (EPA) and the Commonwealth of Pennsylvania limits for lead in dust are 40 micrograms per square foot (µg/ft^2) on floors, 250 µg/ft^2 on window sills, and 400 µg/ft^2 in window troughs. These limits apply to pre-1978 Army facilities only if children under 6 years of age occupy them for 60 or more hours per year. The NGB Region North Industrial Hygiene Office concurs with the US Army Public Health Command recommended maximum level for adult exposures of 200 µg/ft^2 on floors and frequently contacted surfaces, which is more stringent for window sills than the EPA/State standards. Dust wipe samples were submitted to Aerosol Monitoring and Analysis Analytical Services, Inc. (AMA) for atomic absorption spectrophotometry (AAS) following the analytical method ASTM D3335-85A. All wipe samples collected from the facility were below maximum recommended criterion (200 µg/ft^2). Results are given in Table 1 and certificates of analysis are included in Appendix B.

Table 1 – Results of Dust Wipe Sampling for PA ARNG
New Castle Readiness Center on August 30, 2011.

Wipe Sample #	Sample Location	Result (µg/ft^2)*
NEW-LBP-01	Room 34, Supply Vent	<110
NEW-LBP-02	Room 37, Top of File Cabinet	<110
NEW-LBP-03	Hallway 30, At Entry to Drill Floor	<110
NEW-LBP-04	Room 26, Window Sill	<110
NEW-LBP-05	Room 29, At Work Station	<110
NEW-LBP-06	Drill Hall, Middle of Floor	<110

NEW-LBP-07	Drill Hall, From Table	<110
NEW-LBP-08	Drill Hall, Top of Locker	<110
NEW-LBP-09	Kitchen, Prep Table	<110
NEW-LBP-10	Room 18, Middle of Floor	<110
NEW-LBP-11	Room 18, Stored Tote	<110
NEW-LBP-12	Hall 13 , From Floor	<110
NEW-LBP-13	Room 6, Top of File Cabinet	<110
NEW-LBP-14	Room 22, From Desk	<110
NEW-LBP-15	Room 23, From Top of Bar	<110

*The recommended maximum level for adult exposures is 200 µg/ft^2 lead on surfaces.

Visual Inspection for Damaged Asbestos-Containing Materials

A visual inspection was performed to determine if there were any suspect asbestos-containing material and its condition. No suspect asbestos-containing materials were observed in the facility.

Visual Inspection for Water Damage and Mold Growth

A visual inspection was performed to determine if there was any water damage or visible mold growth at the facility. Minor water leaks from an unknown source and minor mold growth in the showers was observed.

Visual Inspection for Housekeeping Concerns

A visual inspection was performed to assess the state of housekeeping in the facility. The housekeeping was good. All areas were clean and tidy.

Lighting

Illumination levels were measured using a Cal-Light 400L, calibrated on March 9, 2011, and compared to minimum lighting requirements for various facilities and functions based on the following references: American National Standards Institute/Illumination Engineering Society of North America (ANSI/IESNA) Standard RP-1-04 (Office Lighting) and ANSI/IESNA Standard RP-7-01 (Lighting Industrial Facilities).

A lighting survey was performed in all areas within the readiness center. The evaluation indicated illumination deficiencies in bay, drill hall, computer room and the boiler room. The illumination measurements indoors ranged from a low of 6.1 foot candles (fc) to a high of 183.9 fc. The complete results of the evaluation are presented in Appendix D, including whether the results met minimum requirements for illumination.

Indoor Air Quality (IAQ)

Indoor air quality measurements (i.e., temperature, relative humidity, carbon dioxide and carbon monoxide) were taken using a TSI Q-Trak Plus Model 8554, factory calibrated in February, 2011. Temperature, relative humidity and carbon dioxide (CO_2) measurements were compared

to the recommended levels established by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE). Carbon monoxide (CO) concentrations were compared to the ACGIH Threshold Limit Value (TLV) for CO and the Environmental Protection Agency's (EPA's) National Ambient Air Quality Standard (NAAQS) for CO.

Industry guidelines or standards for seasonal temperature and humidity ranges for thermal comfort are established by ASHRAE standard 55-2010. These ranges are presented in Table 2. The U.S. EPA also recommends maintaining relative humidity below 60% and ideally between 30 and 50% to prevent mold growth. Complete results are provided in Appendix D with the lighting survey measurements.

Table 2 - Acceptable Ranges of Temperature and Relative Humidity in Summer and Winter[a]

Relative Humidity	Winter Temperature	Summer Temperature
30%	68.5°F – 76.0°F	74.0°F – 80°F
40%	68.5°F – 75.5°F	73.5°F – 79.5°F
50%	68.5°F – 74.5°F	73.0°F – 79.0°F
60%	68.0°F – 74.0°F	72.5°F – 78.0°F

[a]adapted from ASHRAE Standard 55-2010

Temperature and Relative Humidity
Indoor temperature and relative humidity (Rh) measurements in the facility ranged from 74.6 to 78.9° F and 37.0 to 53.1% Rh. Outdoor temperature and humidity measurements were 74.8° F and 43.4% on the day of monitoring. Temperatures and relative humidity measurements were within the acceptable range in the entire facility.

Carbon Dioxide (CO_2) and Carbon Monoxide (CO)
Carbon dioxide and carbon monoxide measurements are used to assess ventilation system performance. The exhaled breath of building occupants is the main indoor source of carbon dioxide; therefore, the build up of CO_2 indicates inadequate ventilation. The concentration of concern for carbon dioxide is set by ASHRAE standard 62.1–2010 as 700 ppm above outdoor concentrations. Indoor levels of CO_2 ranged from 419 to 1,057 parts per million (ppm) and outdoor CO_2 levels were approximately 522 ppm during the monitored period. CO_2 measurements were below the guideline in all areas, indicating adequate fresh air exchange.

Carbon monoxide is a byproduct of incomplete combustion. Indoor concentrations indicate contamination caused by improperly vented or malfunctioning boilers, furnaces or stoves or from vehicle exhaust entering the building from garages, loading docks, nearby roads or parking lots. The concentration of interest set by ASHRAE standard 62.1-2010 and the National Ambient Air Quality Standards (NAAQS) for carbon monoxide is an 8 hour average of 9 ppm. The ACGIH TLV for CO is 25 ppm. Indoor levels of CO ranged from 0.2 to 4.2 ppm; therefore, concentrations are below occupational exposure limits, ASHRAE and the NAAQS-recommended CO concentrations.

7 Conclusions

The results of the evaluation indicated no concerns with the following at the facility: contamination of clean air sources, peeling potentially lead-based paints, noise hazards, cross contamination from the former firing range and the presence of damaged suspect asbestos-containing materials, indoor air quality and housekeeping. The results of the evaluation

indicated industrial hygiene concerns in the following areas: lighting, water intrusion, and visible mold. Overall, New Castle Readiness Center has few industrial hygiene issues, and programs are in place to protect, inform and train employees.

8 Limitations

This report has been prepared for the exclusive use of the U.S. Army National Guard (USARNG) and/or their agents. This service has been performed in accordance with generally accepted industrial hygiene and environmental practices. No other warranty, expressed or implied, is made. Our conclusions and recommendations are based, in part, upon information provided to us by others and our site observations. We have not verified the completeness or accuracy of the information provided to us by others, unless otherwise noted. Our observations and recommendations are based upon conditions readily visible at the site at the time of our site visit, and upon current industry standards.

By virtue of providing the services described in this report, the preparer does not assume the responsibility of the person(s) in charge of the site, or otherwise undertake responsibility for reporting to any local, state, or federal public agencies any conditions at the site that my present a potential danger to public health, safety, or the environment. It is the Client's responsibility to notify the appropriate local, state, or federal public agencies as required by law, or otherwise to disclose, in a timely manner, any information that may be necessary to prevent any danger to public health, safety, or the environment. Under this scope of services, the preparer assumes no responsibility regarding response actions initiated as a result of these findings. Response actions are the sole responsibility of the Client and should be conducted in accordance with local, state, and/or federal requirements, and should be performed by appropriately licensed personnel as warranted.

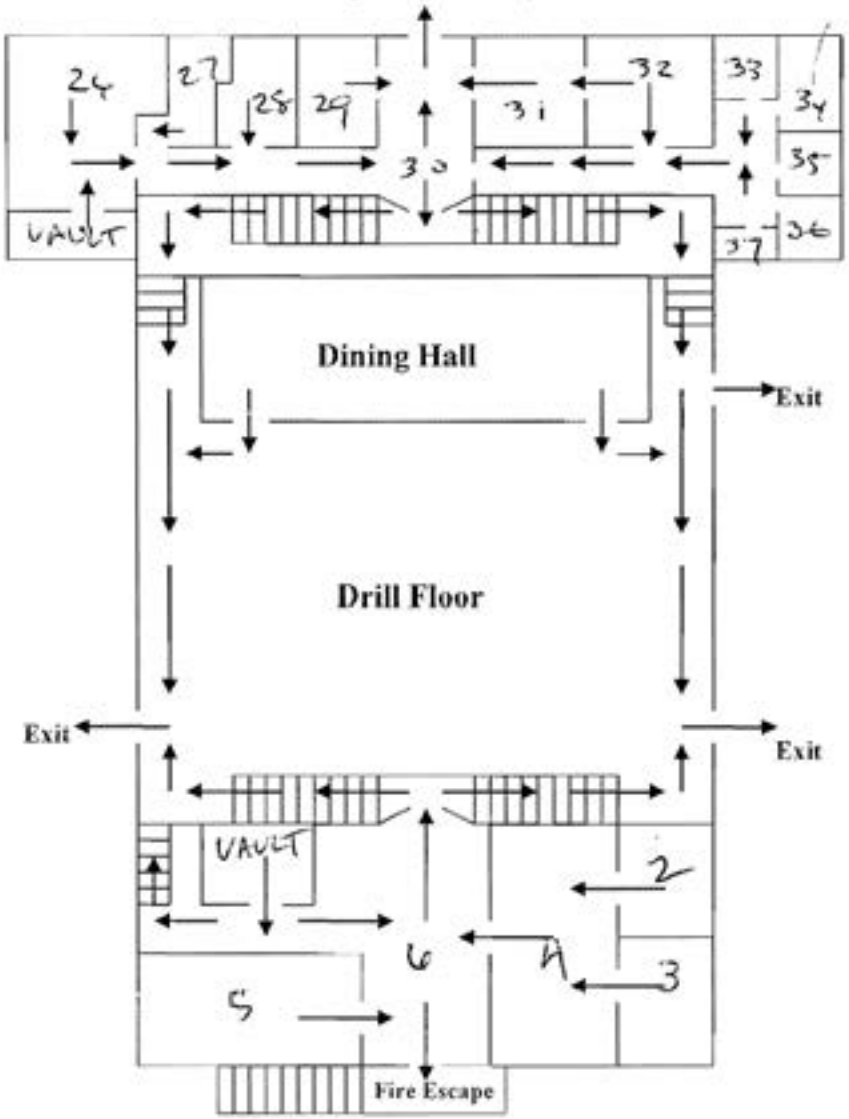
9 References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current edition.
2. Title 24, Code of Federal Regulations (CFR), Part 35, Subpart B, Sections 35.110, Definitions of Lead-Based Paint, Housing and Urban Development, U.S. Department of Housing.
3. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998.
4. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, May 25, 2007.
5. Army Regulation (AR) 385-10, The Army Safety Program, August 23, 2007.
6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Service, Hearing Conservation Program, December 15, 1998.
7. Department of the Army Pamphlet (DA PAM) 40-503, Medical Service, Industrial Hygiene Program, October 30, 2000.
8. Technical Manual (TM) 5-810-1, Mechanical Design, Heating, Ventilation, and Air Conditioning, June 1991.
9. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current edition.

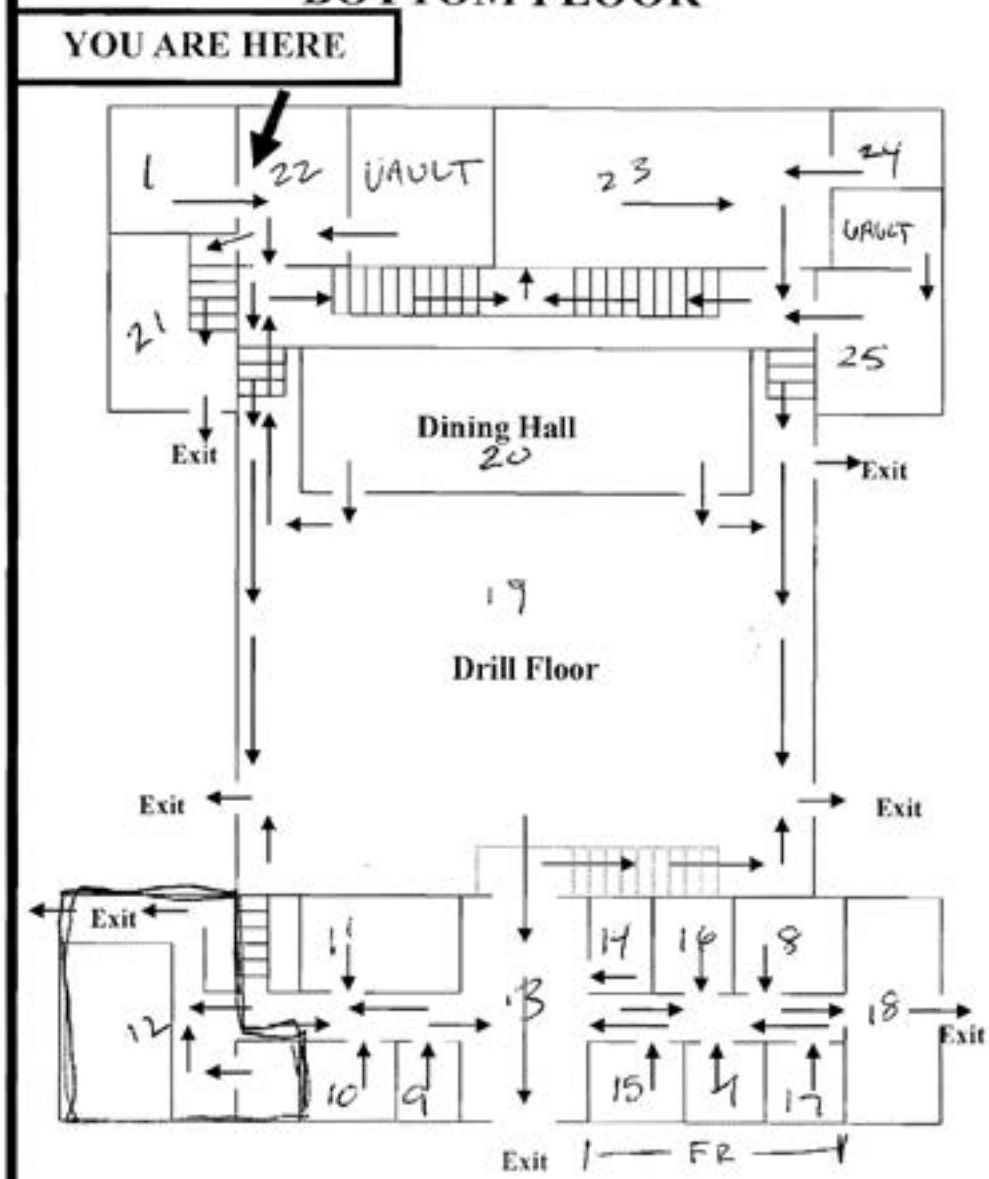
10. RP-1-2004 (Office Lighting) and RP-7-2001 (Industrial Lighting), Illuminating Engineering Society of North America (IESNA)/ANSI.
11. The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), Standard 62.1-2010, "Ventilation for Acceptable Indoor Air Quality" and Standard 55-2010, "Thermal Environmental Conditions for Human Occupancy".
12. NIOSH website: http://www.cdc.gov/niosh/
13. OSHA website: http://www.osha.gov/.
14. Army Public Health Command website: http://phc.amedd.army.mil/Pages/default.aspx.
15. EPA website: http://www.epa.gov.

Appendix A
Building Layout

TOP FLOOR



BOTTOM FLOOR



Appendix B
Certificates of Analysis for Dust Wipe and Bulk Samples

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE, ENVIRONMENTAL LEAD & ENVIRONMENTAL MICROBIOLOGY
ISO/IEC 17025:2005
www.aihaaccreditedlabs.org
LAB #101470

Client:	National Guard Bureau	**Job Name:**	New Castle RC	**Chain Of Custody:**	511261
Address:	301-HI Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation	**Job Location:**	New Castle, PA	**Date Submitted:**	9/1/2011
	Havre de Grace, Maryland 21078	**Job Number:**	Not Provided	**Person Submitting:**	Non-Responsive
		P.O. Number:	W912K6-09-A-0003	**Date Analyzed:**	9/8/2011
Attention:	Non-Responsive			**Report Date:**	9/8/2011

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		Total ug	Final Result		Comments
1196394	NEW-LBP-01	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1196395	NEW-LBP-02	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1196396	NEW-LBP-03	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1196397	NEW-LBP-04	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1196398	NEW-LBP-05	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1196399	NEW-LBP-06	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1196400	NEW-LBP-07	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1196401	NEW-LBP-08	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1196402	NEW-LBP-09	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1196403	NEW-LBP-10	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1196404	NEW-LBP-11	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1196405	NEW-LBP-12	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1196406	NEW-LBP-13	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1196407	NEW-LBP-14	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1196408	NEW-LBP-15	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC
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ISO/IEC 17025:2005
www.aihaaccreditedlabs.org
LAB #100470

Client:	National Guard Bureau	**Job Name:**	New Castle RC	**Chain Of Custody:**	511261		
Address:	301-IH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation	**Job Location:**	New Castle, PA	**Date Submitted:**	9/1/2011		
	Havre de Grace, Maryland 21078	**Job Number:**	Not Provided	**Person Submitting:**	Non-Responsive		
		P.O. Number:	W912K6-09-A-0003	**Date Analyzed:**	9/8/2011	**Report Date:**	9/8/2011

Attention: Non-Responsive

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	Total ug	Final Result	Comments

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B
Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B
N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)
%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)
Note: All samples were received in good condition unless otherwise noted.
Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.
Air and Wipe results are not corrected for any blank results
Final results for air and wipe samples are based on client supplied information nor verified by this laboratory.
All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

See QC Summary for analytical results of quality control samples associated with these samples.

Analyst: Non-Responsive

Technical Manager: Non-Responsive

AMA Analytical Services, Inc.
Focused on Results www.amalab.com
AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)
4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

GW 6450 247-2004 159202 210 REV 6.08

CHAIN OF CUSTODY

(Please Refer To This Number For Inquires) **511261**

page 1 of 2

Mailing/Billing Information:
1. Client Name: National Guard Bureau
2. Address 1: 301-IH Old Bay Lane
3. Address 2: Attn: NGB-AVN-SI, State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:
1. Job Name: NEW CASTLE RC
2. Job Location: NEW CASTLE PA
3. Job #:
4. Contact Pers: Non-Responsive
5. Submitted by: Non-Responsive

PO #: W912K8-09-A-0003

Reporting Information (Results will be provided as soon as technically feasible):

AFTER HOURS (must be pre-scheduled)
☐ Immediate Date Due:
☐ 24 Hours Time Due:
Comments:

NORMAL BUSINESS HOURS
☐ Immediate ☐ Next Day ☐ 2 Day ☐ 3 Day ☒ 5 Day + Date Due: 9/8/11
☐ Results Required By Noon (Every Attempt Will Be Made to Accomodate)

REPORT TO:
☒ Incl Non-Responsive Report
☒ Em Non-Responsive @us.army.mil
☐ Fax:
☐ Ver @us.army.mil

Asbestos Analysis
PCM Air – Please Indicate Filter Type:
☐ NIOSH 7400 (QTY)
☐ Fiberglass (QTY)
TEM Air – Please Indicate Filter Type:
☐ AHERA (QTY)
☐ NIOSH 7402 (QTY)
☐ Other (specify) (QTY)
PLM Bulk
☐ EPA 600 – Visual Estimate (QTY)
☐ EPA Point Count (QTY)
☐ NY State Friable 198.1 (QTY)
☐ Grav. Reduction ELAP 198.6 (QTY)
☐ Other (specify) (QTY)
MISC
☐ Vermiculite
☐ Asbestos Soil PLM (Qual) PLM (Qual) PLMTEM (Qual) PLMTEM (Qual)

TEM Bulk
☐ ELAP 198.4/Chatfield (QTY)
☐ NY State PLM/TEM (QTY)
☐ Residual Ash (QTY)
TEM Dust
☐ Qual. (prep/abs) Vacuum/Dust (QTY)
☐ Quan. (/area) Vacuum D5755-95 (QTY)
☐ Quan. (/area)/Dust D6480-99 (QTY)
TEM Water
☐ Qual. (prep/abs) (QTY)
☐ ELAP 198.2/EPA 100.2 (QTY)
☐ EPA 100.1 (QTY)
☒ All samples received in good condition unless otherwise noted. (TEM Water samples °C)

Metals Analysis
☐ Pb Paint Chip (QTY)
☒ Pb Dust Wipe (wipe type: GHOST) 15 (QTY)
☐ Pb Air (QTY)
☐ Pb Soil/Solid (QTY)
☐ Pb TCLP (QTY)
☐ Drinking Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY)
☐ Waste Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY)
☐ Pb Furnace (Media) (QTY)

Fungal Analysis
Collection Apparatus for Spore Trap/Air Samples:
Collection Media:
☐ Spore-Trap (QTY) ☐ Surface Vacuum Dust (QTY)
☐ Surface Swab (QTY) ☐ Culturable ID Genus (Media) (QTY)
☐ Surface Tape (QTY) ☐ Culturable ID Species (Media) (QTY)
☐ Other (Specify) (QTY)

CLIENT ID NUMBER	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPE AREA	ANALYSIS: TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	MATRIX: WIPE	SOIL/ BULK	SPORE TRAP	TAPE	SWAB
NEW-LBP-01		8/30/11		10"x10"				X				X					
NEW-LBP-02																	
NEW-LBP-03																	
NEW-LBP-04																	
NEW-LBP-05																	
NEW-LBP-06																	
NEW-LBP-07																	
NEW-LBP-08																	
NEW-LBP-09																	
NEW-LBP-10																	
NEW-LBP-11																	
NEW-LBP-12																	

CLIENT CONTACT
(LABORATORY STAFF ONLY)

Date/Time:	Contact:	By:
Date/Time:	Contact:	By:
Date/Time:	Contact:	By:

LABORATORY STAFF ONLY: (CUSTODY)
1. Date/Time RCVD: 9/1/11 @1030 Via: Fedex By (Print): Non-Responsive Sign:
2. Date/Time Analyzed: / / @ By (Print): Sign:
3. Results Reported To: By: Date: / / Time:
4. Comments: 7974 4519 0303

BEST AVAILABLE COPY

CW (410) 247-2024

AMA Analytical Services, Inc.
Focused on Results www.amalab.com
AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)
4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

159262 210 REV 6.06

(Please Refer To This Number For Inquires) 511261 page 2 of 2

Mailing/Billing Information:
1. Client Name: National Guard Bureau
2. Address 1: 301-IH Old Bay Lane
3. Address 2: Attn: NGB-AVN-SI, State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:
1. Job Name: NEW CASTLE RC
2. Job Location: NEW CASTLE PA
3. Job #:
4. Contact Person: [redacted] P.O. #: W912K6-09-A-0003
5. Submitted by: [redacted] @ phone # (410) 942-0273
Signature:

Reporting Information (Results will be provided as soon as technically feasible):

AFTER HOURS (must be pre-scheduled)
- ☐ Immediate Date Due:
- ☐ 24 Hours Time Due:
Comments:

NORMAL BUSINESS HOURS
- ☐ Immediate ☐ 3 Day
- ☐ Next Day ☐ 5 Day +
- ☐ 2 Day Date Due:
- ☐ Results Required By Noon (Every Attempt Will Be Made to Accomodate)

REPORT TO:
- ☒ Include COC/Field Data Sheets with Report
- ☒ Email: [redacted] .army.mil
- ☐ Fax:
- ☐ Verbal [redacted] .army.mil

Asbestos Analysis

PCM Air – Please Indicate Filter Type:
- ☐ NIOSH 7400 ____ (QTY)
- ☐ Fiberglass ____ (QTY)

TEM Air – Please Indicate Filter Type:
- ☐ AHERA ____ (QTY)
- ☐ NIOSH 7402 ____ (QTY)
- ☐ Other (specify ____) ____ (QTY)

PLM Bulk
- ☐ EPA 600 – Visual Estimate ____ (QTY)
- ☐ EPA Point Count ____ (QTY)
- ☐ NY State Friable 198.1 ____ (QTY)
- ☐ Grav. Reduction ELAP 198.6 ____ (QTY)
- ☐ Other (specify ____) ____ (QTY)

MISC
- ☐ Vermiculite
- ☐ Asbestos Soil PLM__ (Qual) PLM__ (Quan) PLM/TEM__ (Qual) PLM/TEM__ (Quan)

TEM Bulk
- ☐ ELAP 198.4/Chatfield ____ (QTY)
- ☐ NY State PLM/TEM ____ (QTY)
- ☐ Residual Ash ____ (QTY)

TEM Dust
- ☐ Qual. (pres/abs) Vacuum/Dust ____ (QTY)
- ☐ Quan. (s/area) Vacuum D5755-95 ____ (QTY)
- ☐ Quan. (s/area) Dust D6480-99 ____ (QTY)

TEM Water
- ☐ Qual. (pres/abs) ____ (QTY)
- ☐ ELAP 198.2/EPA 100.2 ____ (QTY)
- ☐ EPA 100.1 ____ (QTY)

☐ All samples received in good condition unless otherwise noted. (TEM Water samples ____ °C)

Metals Analysis
- ☐ Pb Paint Chip ____ (QTY)
- ☐ Pb Dust Wipe (wipe type ____) ____ (QTY)
- ☐ Pb Air ____ (QTY)
- ☐ Pb Soil/Solid ____ (QTY)
- ☐ Pb TCLP ____ (QTY)
- ☐ Drinking Water ☐ Pb ____ (QTY) ☐ Cu ____ (QTY) ☐ As ____ (QTY)
- ☐ Waste Water ☐ Pb ____ (QTY) ☐ Cu ____ (QTY) ☐ As ____ (QTY)
- ☐ Pb Furnace (Media ____) ____ (QTY)

Fungal Analysis
Collection Apparatus for Spore Traps/Air Samples:
Collection Media
- ☐ Spore-Trap ____ (QTY)
- ☐ Surface Swab ____ (QTY)
- ☐ Surface Tape ____ (QTY)
- ☐ Other (Specify ____) ____ (QTY)
- ☐ Surface Vacuum Dust ____ (QTY)
- ☐ Culturable ID Genus (Media ____) ____ (QTY)
- ☐ Culturable ID Species (Media ____) ____ (QTY)

SAMPLE INFORMATION

CLIENT ID NUMBER	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPE AREA	TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	WATER AND LIQUIDS	SPORE TRAP	TAPE	SWAB
NEW-LBP-13		6/3/14		ADHOC				X				X				
NEW-LBP-14		↓		↓				X				X				
NEW-LBP-15								X				X				

CLIENT CONTACT (LABORATORY STAFF ONLY)

Date/Time:	Contact:	By:
Date/Time:	Contact:	By:
Date/Time:	Contact:	By:

LABORATORY STAFF ONLY: (CUSTODY)
1. Date/Time RCVD: ___/___/___ @ ___ Via: ___ By (Print): ___
2. Date/Time Analyzed: ___/___/___ @ ___ By (Print): ___
3. Results Reported To: ___ Sign: ___
4. Comments: ___ Via: ___ Date: ___/___/___ Time: ___

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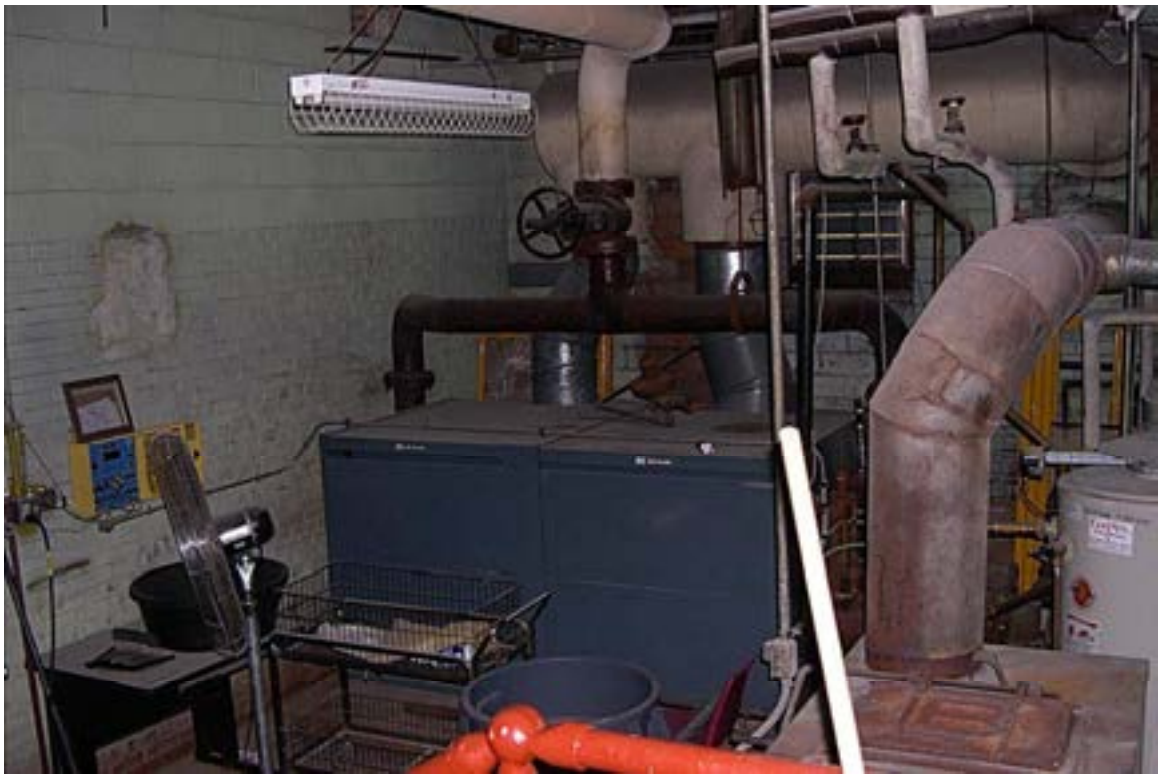
FOIA Re[redacted]

Appendix C
Photo Documentation



Appendix D
IAQ and Lighting Survey Log Sheets

National Guard Industrial Hygiene Survey For Indoor Air Quality and Light Level

State	PA	City	New Castle	IAQ							Light		
Date	8/30/2011	Inspector	Non-	Instrument		TSI Q-Trak Plus Model 7565-X					Instrument		CAL-LIGHT 400
Facility Description	**Readiness Center**			Serial Number		7565-X0839020					Serial Number		k070003
Weather Conditions				Last Calibration		Feb-11					Last Calibration		9-Mar-11
Location	Function	No. Occupants	Time	Temp. (°F)	Exceeded	RH (%)	Exceeded	CO_2 (ppm)	Exceeded	CO (ppm)	Exceeded	Illuminance (fc)	Insufficient	Illuminance Reference Value (fc)
1	Office			75.1		53.1		551		1.0		100.5		30-50
2	Storage			77.1		49.3		703		2.2		99.6		5-30
3	Office			76.1		37.4		1057		2.0		183.9		30-50
4	Gym			76.6		46.7		738		1.9		68.3		30
5	Gym			77.5		48.3		769		1.6		53.7		30
6	Hallway			78.1		48.4		717		1.1		48.9		5
7	Computer Room			75.6		37.0		672		5.5		31.0		30-50
8	Office			74.7		51.2		692		3.8		53.4		30-50
9	Office			74.6		44.2		570		2.0		51.9		30-50
10	Medical Room			75.7		52.5		651		1.4		55.2		30-50
11	Bathroom			76.9		49.2		576		1.4		24.4		5
12	Bay			76.2		49.1		552		2.0		25.1	**X**	30-50
13	Hallway			76.5		48.2		547		1.0		32.7		5
14	Office			77.1		46.9		630		2.3		38.4		30-50
15	Kitchen			78.4		45.7		634		2.4		80.4		50
16	Cold Storage			78.9		44.3		636		3.3		19.5		5-30
17	Office			78.4		45.0		689		4.2		61.2		30-50
18	Storage			77.9		45.5		611		3.0		56.1		5-30

Relative Humidity	Winter Temp.	Summer Temp.
30%	68.5°F-76.0°F	74.0°F-80.0°F
40%	68.5°F-75.5°F	73.5°F-79.5°F
50%	68.5°F-74.5°F	73.0°F-79.0°F
60%	68.0°F-74.0°F	72.5°F-78.0°F

National Guard Industrial Hygiene Survey For Indoor Air Quality and Light Level

State	PA	City	New Castle	IAQ								Light		
Date	8/30/2011	Inspector	Non-	Instrument		TSI Q-Trak Plus Model 7565-X						Instrument		CAL-LIGHT 400
Facility Description	**Readiness Center**			Serial Number		7565-X0839020						Serial Number		k070003
Weather Conditions				Last Calibration		Feb-11						Last Calibration		9-Mar-11
Location	Function	Boiler Room	Time	Temp. (°F)	Exceeded	RH (%)	Exceeded	CO_2 (ppm)	Exceeded	CO (ppm)	Exceeded	Illuminance (fc)	Insufficient	Illuminance Reference Value (fc)
19	Drill Hall			78.5		46.6		561		0.4		19.4	X	30-50
20	Dining Hall			78.0		46.2		533		0.8		81.7		10
21	Boiler Room			77.4		44.1		434		0.5		6.1	X	30
22	Office/Storage			77.3		45.7		459		0.4		41.9		30-50
23	Conference Room			76.7		48.4		499		0.4		71.3		30-50
24	Computer Room			74.8		48.8		419		0.3		10.0	X	30-50
25	Office			75.6		48.7		461		0.4		44.6		30-50
26	Office			76.1		49.0		695		0.4		83.4		30-50
27	Bathroom			76.2		48.4		622		0.7		68.8		5
28	Bathroom			76.0		50.0		609		0.5		22.4		5
29	Office			77.3		44.9		632		1.7		84.6		30-50
30	Hallway			77.2		44.1		571		0.4		47.3		5
31	Office			76.4		44.1		561		0.6		102.3		30-50
32	Office			75.1		44.8		568		0.8		80.4		30-50
33	Office			75.2		46.9		701		0.7		90.8		30-50
34	Office			75.0		46.3		849		0.7		96.9		30-50
35	Office			75.2		46.6		755		0.3		65.3		30-50
36	Office			75.5		46.0		679		0.7		134.7		30-50
37	Office			75.7		48.3		891		0.2		89.0		30-50

Outside: 74.8F, 48.4%, 0.1, 522

Relative Humidity	Winter Temp.	Summer Temp.
30%	68.5°F-76.0°F	74.0°F-80.0°F
40%	68.5°F-75.5°F	73.5°F-79.5°F
50%	68.5°F-74.5°F	73.0°F-79.0°F
60%	68.0°F-74.0°F	72.5°F-78.0°F

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland




Industrial Hygiene Survey
for PAARNG – New Castle Readiness Center
820 Frank Avenue
New Castle, Pennsylvania

AECOM
January 2013
Document No.: 60276421.1/New Castle Readiness Center

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland

Industrial Hygiene Survey
for PAARNG – New Castle Readiness Center
820 Frank Avenue
New Castle, Pennsylvania

Non-Responsive
Industrial Hygienist

Non-Responsive
Project Manager

Non-Responsive
Northeast District Health & Safety Manager

AECOM
January 2013
Document No.: 60276421.1/New Castle Readiness Center

AECOM

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Executive Summary

On November 6, 2012, AECOM conducted an Industrial Hygiene (IH) survey of the New Castle Readiness Center facility located at 820 Frank Avenue in New Castle, Pennsylvania. Non-Responsive, SFC was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the New Castle Readiness Center operations.

The industrial hygiene survey was generally conducted in accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings", dated January 2012.

The New Castle Readiness Center is currently staffed by sixteen personnel. Some of the personnel were not present at the time of the survey due to active duty assignments or other off-site responsibilities. The facility is configured as an administrative area and a Drill/Assembly Hall.

Personnel at the facility were undertaking normal daily activities, which are primarily administrative in nature, at the time of the survey.

The activities undertaken during the Industrial Hygiene survey included facility descriptions, lead wipe/air sampling, evaluation of housekeeping, illumination studies, ventilation system evaluation, and a review of the physical building condition.

The New Castle Readiness Center is housed in a one-story masonry building, and consists of approximately 700% administrative space and 30% Assembly Hall.

Lighting levels measured throughout the facility were generally inadequate as per ANSI/IESNA RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

Wipe samples collected for lead-containing dust throughout the facility did not indicate lead levels above the ARNG action level.

Peeling lead-based paint was observed at the New Castle Readiness Center during this survey. The peeling paint was observed in the lower floor supply office and the rear exterior fire escape stairs. A bulk sample of the peeling paint from the supply office was collected for analysis.

No visible damaged suspect friable asbestos-containing material (ACM) was observed.

Water damaged was observed in the lower floor supply office area and the upper floor orderly office area. No visible mold growth was observed.

The Heating Ventilation & Air Conditioning (HVAC) system in the building consists of a boiler room that feeds radiant heaters throughout the building. There is no Heating, Ventilation & Air Conditioning (HVAC) system that provides fresh air from the building exterior in administrative areas.

1.0 Facility Description and Operations

The New Castle Readiness Center, constructed in 1936, is a two-story administrative facility. The building is constructed primarily of exterior stone block walls. Historically, the building supported a cavalry unit. The assembly hall was formerly the horse stable area. Administrative offices are located in the front and rear of the building on both the upper and lower floors. The administrative area consists primarily of offices, training rooms, classroom, locker/shower rooms, storage and other administrative support areas, and is finished with sheetrock walls; lay-in ceiling tiles and floor tile. The two-story Assembly/Drill Hall area, located in the center of the building, is finished with painted block walls and a concrete floor. According to site personnel there is no fire range at the facility.

The primary activity at the New Castle Readiness Center is routine administrative duties and occasional use by units for support and training of soldiers. The Assembly Hall is not rented out for civic activities. The New Castle Readiness Center is currently staffed by sixteen personnel. No vehicle maintenance activities are undertaken at the facility.

2.0 Sampling in Readiness Centers

2.1.1 Wipe Sampling

Wipe sampling for lead was conducted in the Assembly Hall and administrative areas following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost wipes. Samples were collected in areas that are not frequently cleaned and showed signs of dust whenever possible.

The following table presents the results of the lead wipe sampling conducted at the facility.

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
PBW – 001	Assembly Hall - table	<110 ug/ft^2
PBW – 002	Kitchen - counter	<110 ug/ft^2
PBW – 003	Office - desk top	<110 ug/ft^2
PBW – 004	Office - shelf	<110 ug/ft^2
PBW – 005	Foyer - floor	<110 ug/ft^2

ug/ft^2 = Micrograms per square foot.

Wipe samples collected in association with the administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft^2 for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

The wipe samples collected throughout the facility did not detect levels of lead in excess of the ARNG action level of 200 micrograms per square foot (ug/ft^2). Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

Per Non-Responsive of NGB-IH, the requirement for Lead air sampling has been removed from the Statement of Work. It was reported that historically, air samples collected at administrative facilities are typically below the limit of detection.

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls appeared to be generally in good condition. Concrete flooring was generally tiled or unpainted. AECOM observed peeling paint in a lower floor office and an exterior staircase in the rear of the building. Samples of paint chips were collected and analyzed from the lower floor supply office. The sample results indicate that the damaged/peeling paint was lead-containing. Approximately 300 square feet of damaged lead-based paint is present in the supply office. The entire exterior stairway exhibited peeling paint. Analytical results are presented in Appendix C.

3.1.2 Suspect Asbestos Containing Materials

AECOM did not observe damaged, friable suspect asbestos containing materials (ACM) in readily accessible areas of the New Castle Readiness Center during this survey. Thermal system piping is typically covered in typical fiberglass insulation with associated fittings and appeared in good condition.

Other typical miscellaneous building materials observed but not sampled include floor tiles and associated mastic, cove base and associated mastic, ceiling tiles, and window glazing compound and caulks.

3.1.3 Water Damage/Mold

AECOM observed evidence of water intrusion in a lower floor supply office and upper floor orderly office area during this survey. According to site personnel the interior water leaks are due to a leaking roof system. Site personnel indicated that the roof system was repaired several years ago, however, water intrusion issues still persist. Water intrusion is a mold growth risk factor.

3.1.4 Housekeeping

The New Castle Readiness Center was observed to be generally clean and orderly during this assessment. AECOM did not observe dust accumulation on readily accessible horizontal surfaces within areas commonly used in the facility.

3.1.5 Indoor Air Quality/ Ergonomics

The administration section of the building contains general office space. The administration section is generally utilized by all of the New Castle Readiness Center staff members. There is no recruiter at the New Castle Readiness center. No Indoor Air Quality concerns were noted by the New Castle Readiness Center personnel.

New Castle Readiness Center personnel did not report any ergonomics issues or concerns. Office furniture and accessories designed to promote ergonomically correct behaviors were observed.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (^{o} Fahrenheit), and relative humidity (as percentage) are presented in the following table.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (^{o}F)	Relative Humidity (%)
Outside	0.1	224	71.2	22.1
Administrative Offices	0.1	406	70.4	21.6

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (^{o}F)	Relative Humidity (%)
Foyer	0.1	419	70.8	24.7
Battalion HQ Office	0.1	423	71.2	22.8
CO Office	0.1	401	71.8	23.9
Corridor	0.0	434	70.3	21.2
Classroom	0.1	426	70.1	21.8
Men's Restroom	0.1	413	71.4	23.7
Supply Room	0.0	407	71.9	23.3
Supply Office	0.0	430	70.6	24.0
Boiler Room	0.3	432	73.8	25.9
Maintenance Storage	0.1	398	72.5	21.3
Assembly Hall	0.0	361	70.3	21.9
Conference Room	0.0	412	71.2	22.4
Kitchen	0.1	469	70.9	22.7
Lower Floor Office	0.0	418	70.6	23.8
Lower Floor Office	0.0	420	70.9	24.5
Lower Floor Corridor	0.0	428	71.4	24.1
Cage supply Area	0.0	432	70.8	23.2
Medical Office	0.0	437	70.9	23.6
First Aid Room	0.0	368	71.5	24.0
NBC Cage Storage	0.0	360	70.7	22.3
Physical Fitness Room	0.3	474	69.5	22.1
Corridor	0.1	437	70.4	24.2
Orderly Office Area	0.0	422	71.5	24.6

Table 3-1 Guidelines:
Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard. OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.
Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.
Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 5.10.1).
Temperature: Winter (clothing insulation = 1.0 clo) Relative humidity 30-60% - Temp - 68 – 75°F
Summer Temp - 73 – 79°F. (Derived from ASHRAE Standard 55-2010)

4.0 Ventilation and HVAC System

4.1.1 Ventilation Systems and Potential for Contamination of Clean Air Sources

There is a Field Maintenance Shop (FMS) facility located to the north of the New Castle Readiness Center. However, as the Readiness Center does not have an air handling system, potential for contamination of clean air sources was not observed in the facility.

The New Castle Readiness Center is heated by a radiant heating system fed by a natural gas boiler located in the lower floor in the mechanical room. Supply and return air is not provided by mechanical means. Outdoor air is provided in the building through open windows and doors. As such, no potential for contamination of clean air sources was observed at the facility.

4.1.2 HVAC Maintenance

There is no HVAC system at the New Castle Readiness Center.

5.0 Lighting

Lighting levels in all areas were measured utilizing a Cal-Light 400 light meter that displays lighting levels in foot-candles. Lighting levels were generally inadequate.

Table 5-1: Light Survey

Location	Results – (Foot candles)	Met Standard (Y/N)	Standard*
Administrative Offices	63.4	Y	50
Foyer	27.5	Y	5
Battalion HQ Office	18.2	N	50
CO Office	26.2	N	50
Corridor	12.5	Y	5
Classroom	48.3	Y	30
Men's Restroom	15.0	Y	5
Supply Room	19.2	Y	10
Supply Office	42.4	N	50
Boiler Room	19.5	N	30
Maintenance Storage	9.3	N	10
Assembly Hall	16.8	Y	10
Conference Room	65.3	Y	50
Kitchen	77.2	Y	50
Lower Floor Office	23.6	N	50
Lower Floor Office	11.0	N	50
Lower Floor Corridor	27.7	N	50
Cage supply Area	23.4	Y	10
Medical Office	22.6	N	50
First Aid Room	87.2	Y	50
NBC Cage Storage	22.3	Y	10
Physical Fitness Room	47.6	Y	30
Corridor	27.3	Y	5
Orderly Office Area	51.6	Y	50
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI RP-7-01)			

6.0 Evaluation of Attached Garage

There is no attached garage associated with the New Castle Readiness Center.

7.0 Conclusions and Limitations

AECOM has conducted this survey in accordance with applicable OSHA methods and standard industrial hygiene practice. The following conclusions were based on the observations and assessments of activities that occurred during the on-site evaluation:

Housekeeping is performed regularly at the New Castle Readiness Center.

AECOM did not observe any damaged, suspect asbestos-containing materials at the New Castle Readiness Center.

AECOM observed approximately 300 square feet of peeling lead-based paint in a lower floor supply office. The entire exterior paint on the rear fire escape stairway was peeling.

Evidence of water intrusion was observed in the lower floor supply office and the upper floor orderly office area. Water intrusion is a mold growth risk factor.

Lighting levels measured throughout the facility were generally inadequate as per ANSI/IESNA RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

Wipe samples collected in association with the administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft^2 for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

AECOM provided these services consistent with the level and skill ordinarily exercised by members of the profession currently providing similar services under similar circumstances at the time the services were provided. This statement is in lieu of other statements either expressed or implied. This report is intended for the sole use of National Guard Bureau – Army National Guard. The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, and use or re-use of this document, the findings, conclusions, or recommendations is at the risk of said user.

As with all such surveys, the results of the sampling represent conditions found on the date of the survey and may not represent conditions found at other times. Additionally, this survey was limited with respect to the specific parameters indicated above and should not be construed to be a comprehensive evaluation or a definitive representation of conditions within the facility. The information presented in this report is intended to be used as a guide to evaluate the need for further investigation or the need for modifications to the processes or procedures surveyed.

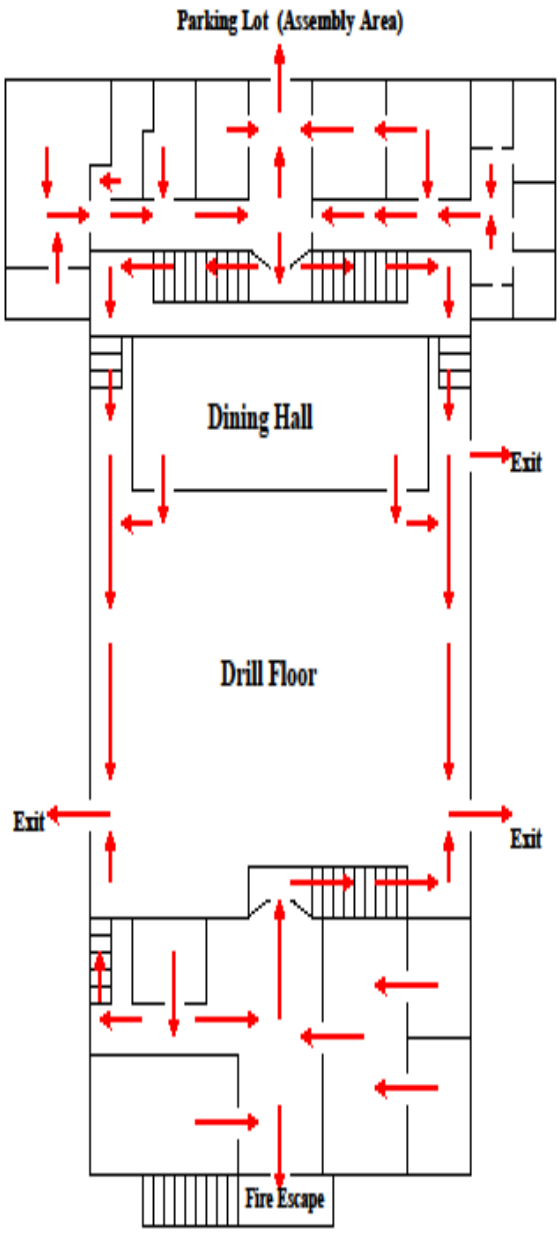
The Client recognizes and agrees that all testing and remediation methods have reliability limitations, no method nor number of sampling locations can guarantee that a condition will be discovered within the performance of the services as authorized by the Client. Additionally, the passage of time may result in a change in the environmental characteristics at this site. This report does not warrant against future operations or conditions that could affect the recommendations made. The results, findings, conclusions, and recommendations expressed in this report are based only on conditions that were observed during AECOM's inspection of the site.

Appendix A

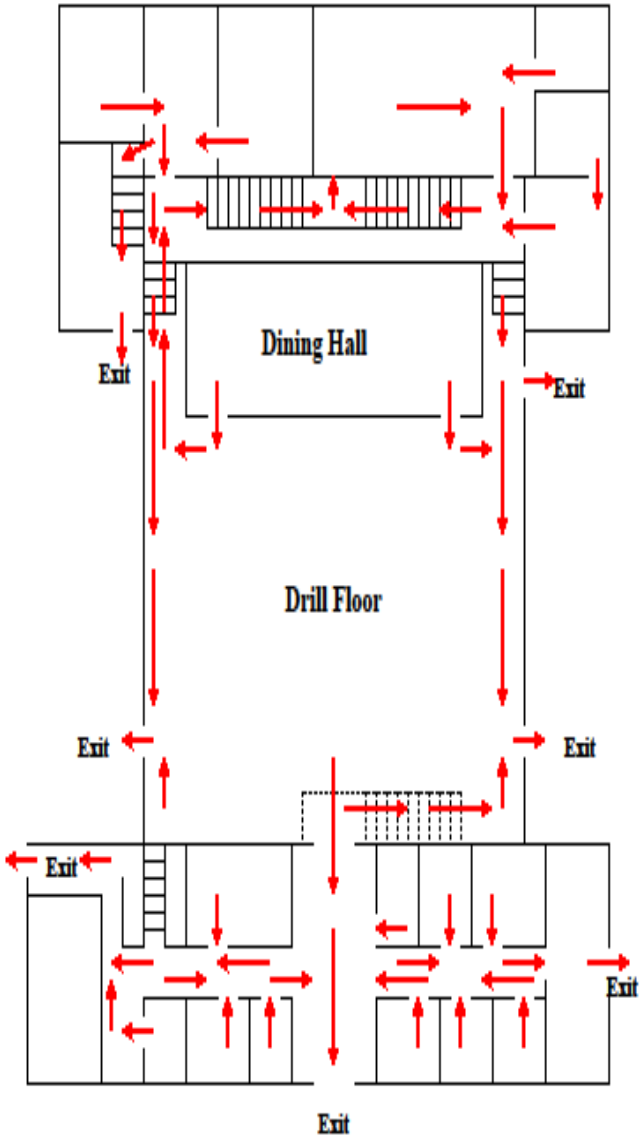
New Castle Readiness Center Facility Layout

AECOM

TOP FLOOR



BOTTOM FLOOR



Appendix B

New Castle Readiness Center Photographs

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Photograph 1

View of Building Exterior

Photograph 2

View of Rear of Site Building

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Photograph 3

View of Foyer

Photograph 4

View of Assembly Hall

AECOM

Photograph 5

View of Cage Storage and Locker Areas in the Assembly Hall

Photograph 6

View of Kitchen

Photograph 7

View of Classroom

Photograph 8

View of Conference Room

Photograph 9

View of Physical Fitness Room

Photograph 10

View of Typical Office Area

AECOM

Photograph 11

View of Medical Room

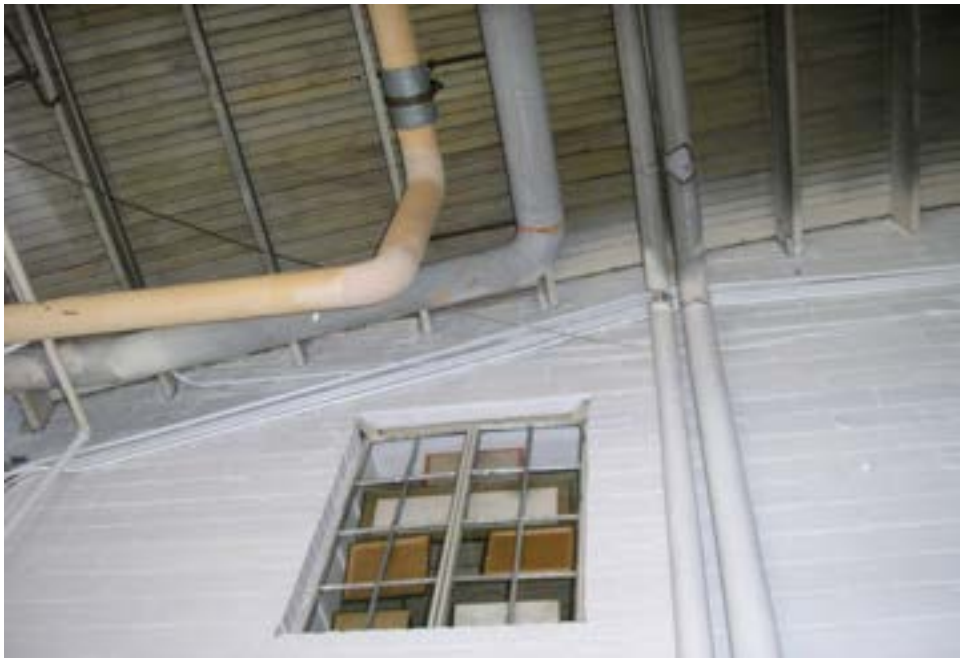
Photograph 12

View of Flammable Storage Cabinets in Assembly Hall

Photograph 13

View of Peeling Paint and Water Damage in Lower Floor Office

Photograph 14



View of Suspect Asbestos Insulated Pipes in Assembly Hall

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Photograph 15

View of Water Damage in Upper Floor Office

Photograph 16

View of Boiler Room

Appendix C

Analytical Results

AECOM

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	New Castle PA	Chain Of Custody:	514616
Address:	201-81 Old Bay Lane, Attn: ARNG-CIG-F, State Military Reservation	Job Location:	Not Provided	Date Submitted:	11/30/2012
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM
		P.O. Number:	W912K6-09-A-3033	Date Analyzed:	12/5/2012 Report Date: 12/5/2012

Attention: Non-Responsive

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		Total ug	Final Result		Comments
130103B9	W-001	Flame	Wipe	****	0.111	180	ug/ft²	<12	<180	ug/ft²	
130103B90	W-002	Flame	Wipe	****	0.111	180	ug/ft²	<12	<180	ug/ft²	
130103B91	W-003	Flame	Wipe	****	0.111	180	ug/ft²	<12	<180	ug/ft²	
130103B92	W-004	Flame	Wipe	****	0.111	180	ug/ft²	<12	<180	ug/ft²	
130103B93	W-005	Flame	Wipe	****	0.111	180	ug/ft²	<12	<180	ug/ft²	
130103B94	PaintChip-001	Flame	Paint Chip	****	N/A	0.037B	%Pb		<0.037B	%Pb	

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B

See QC Summary for analytical results of quality control samples associated with these samples.

N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)

%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)

Note: All samples were received in good condition unless otherwise noted.

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results

Final results for air and wipe samples are based on client supplied information not verified by this laboratory.

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy

Analyst: Non-Responsive

Technical Manager: Non-Responsive

An AIHA (#100478) and NVLAP (#101920) Accredited Laboratory

4475 Forbes Blvd. · Lanham, MD, 20706 · (301) 459-2640 · Toll Free (800) 346-0961 · Fax (301) 459-2643

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Focused on Results www.amalab.com
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(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This Number For Inquiries) 514616

Mailing/Billing Information:

1. Client Name: National Guard Bureau
2. Address 1: 301-IH Old Bay Lane
3. Address 2: Attn: NGB-AVN-SL State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:

(1) Job Name: New Castle PA
(2) Job Location:
3. Job #: P.O. #: W912QR-09-A-0003
4. Contact Person: [redacted] @ phone #:
5. Submitted by: AECOM (Signature)

Reporting Info (Results provided as soon as technically feasible). If no TAT/Reporting Info is provided, AMA will assign defaults of 5-Day and email/fax to contacts on file.

AFTER HOURS (must be pre-scheduled)	NORMAL BUSINESS HOURS	REPORT TO:
☐ Immediate Date Due: ____ ☐ 3-Hours Time Due: ____ Contact: ____	☐ Immediate ☐ Next Day ☐ 2 Day ☐ 3 Day ☒ 5 Day+ Date Due: 12/12 ☐ Results Reported By Noon	☒ Include COC/Field Data Sheets with Report ☒ E[redacted]aecom.com ☐ F[redacted]s.army.mil ☐ Ve[redacted]s.army.mil

Asbestos Analysis

*PCM Air – Please Indicate Filter Type:
☐ NIOSH 7400 ____ (QTY)
☐ Fiberglass ____ (QTY)
TEM Air* – Please Indicate Filter Type:
☐ AHERA ____ (QTY)
☐ NIOSH 7402 ____ (QTY)
☐ Other (specify ____) ____ (QTY)
PLM Bulk
☐ EPA 600 – Visual Estimate ____ (QTY)
☐ EPA Point Count ____ (QTY)
☐ NY State Friable 198.1 ____ (QTY)
☐ Grav. Reduction ELAP 198.6 ____ (QTY)
☐ Other (specify ____) ____ (QTY)
MISC
☐ Vermiculite
☐ Asbestos Soil PLM__(Qul) PLM__(Qua) PLM/TEM__(Qul) TEM/TEM__(Qua)
*It is recommended that a blank sample be submitted with all air and surface samples

TEM Bulk
☐ ELAP 198.4/Chatfield ____ (QTY)
☐ NY State PLM/TEM ____ (QTY)
☐ Residual Ash ____ (QTY)
TEM Dust*
☐ Qual. (presence) Vacuum/Dust ____ (QTY)
☐ Quan. (s/area) Vacuum D5755-95 ____ (QTY)
☐ Quan. (s/area) Dust D6480-99 ____ (QTY)
TEM Water
☐ Qual. (presence) ____ (QTY)
☐ ELAP 198.2/EPA 100.2 ____ (QTY)
☐ EPA 100.1 ____ (QTY)

☒ All samples received in good condition unless otherwise noted. (TEM Water samples ____ °C)

If field data sheets are submitted, there is no need to complete bottom section.

Metals Analysis
☒ *Pb Paint Chip 1 (QTY)
☒ *Pb Dust Wipe (wipe type: Ghost wipe) 5 (QTY)
☐ *Pb Air ____ (QTY)
☐ Pb Soil/Solid ____ (QTY)
☐ Pb TCLP ____ (QTY)
☐ Drinking Water ☐ Pb ____ (QTY) ☐ Cu ____ (QTY) ☐ As ____ (QTY)
☐ Waste Water ☐ Pb ____ (QTY) ☐ Cu ____ (QTY) ☐ As ____ (QTY)
☐ Pb Furnace (Media ____) ____ (QTY)

Fungal Analysis
Collection Apparatus for Spore Trap/Air Samples: ____
Collection Media: ____
☐ *Spore-Trap ____ (QTY) ☐ Surface Vacuum Dust ____ (QTY)
☐ *Surface Swab ____ (QTY) ☐ Culturable ☐ Genus (Media ____) ____ (QTY)
☐ *Surface Tape ____ (QTY) ☐ Culturable ☐ Species (Media ____) ____ (QTY)
☐ Other (Specify ____) ____ (QTY)

CLIENT ID #	SAMPLE INFORMATION / SAMPLE LOCATION/ID	DATE / TIME	VOL/AREA / Wipe Area	ANALYSIS	MATRIX	CLIENT CONTACT (LABORATORY STAFF ONLY)
W-001	D. Hall table	11/6	16sq in	X	X	Date/Time: Contact: By:
W-002	Kitchen counter	↓	↓	↓	↓	
W-003	office desk					
	SEE ATTACHED FIELD DATA SHEETS					
W-004	office cabinet					Date/Time: Contact: By:
W-005	Corridor floor	↓	↓	↓	↓	
Paint chip-001	Supply office	11/6		X	X	
						Date/Time: Contact: By:

LABORATORY STAFF ONLY (CUSTODY)
1. Date/Time RCVD: 11 / 30 / 12 0930 Via FEDEX By: [redacted]
2. Date/Time Analyzed: ____ / ____ / ____ @ ____ By (Print) ____ Sign ____
3. Results Reported To: ____ Via ____ Date ____ / ____ / ____ Time ____ Initials ____
4. Comments: 7941 7694 5331

Appendix D

References

References

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16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.

17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.

18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.

19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf

Industrial Hygiene Survey

CO E 1/111th INF (MECH)
PHOENIXVILLE, PENNSYLVANIA

June 26, 2003

OPTECH

OPERATIONAL TECHNOLOGIES
CORPORATION

CO E 1/111th INF (MECH)
PHOENIXVILLE, PENNSYLVANIA
INDUSTRIAL HYGIENE SURVEY

1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Armory in Phoenixville, Pennsylvania on June 26, 2003. The NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. [redacted] from OpTech, completed this survey. [redacted] a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the IH Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D.

RECOMMENDATIONS

1. INDOOR AIR QUALITY

1.1. Carbon monoxide and carbon dioxide levels were within recommended ranges. Indoor temperature readings were higher than recommended comfort ranges in most areas of the facility. Relative humidity levels were above the acceptable range in all areas of the facility. Humidity should be maintained below 60% relative humidity for occupant comfort and controlling mold growth. No mold was observed during the survey.

2. ILLUMINATION

2.1. Illumination levels were below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3. LEAD WIPE SAMPLES

3.1. Wipe samples for inorganic lead were collected throughout the facility. Levels exceeded the 200 $\mu g/ft^2$ criterion in the lunch room, office 2, office 3, male latrine and a vent in the former indoor firing range. Lower levels of lead were detected in other areas of the facility. Suspect contamination is from former firing range activities and possibly from lead-contaminated paint. Recommend that elevated areas be wet-wiped/mopped and/or cleaned using a high efficiency particulate air (HEPA) vacuum. This method of cleaning should be repeated throughout the facility during routine housekeeping duties, to further reduce lead dust levels.

2.0. EXECUTIVE SUMMARY

2.1. Carbon monoxide and carbon dioxide levels were within recommended ranges. Indoor temperature readings were higher than recommended comfort ranges in most areas of the facility. Relative humidity levels were above the acceptable range in all areas of the facility. Humidity should be maintained below 60% relative humidity for occupant comfort and controlling mold growth. No mold was observed during the survey.

2.2. Illumination levels were below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting would improve some areas.

2.3. Wipe samples for inorganic lead were collected throughout the facility. Levels exceeded the 200 $\mu g/ft^2$ criterion in the lunch room, office 2, office 3, male latrine and a vent in the former indoor firing range. Lower levels of lead were detected in other areas of the facility. Suspect contamination is from former firing range activities and possibly from lead-contaminated paint.

2.4. Air sampling for inorganic lead was taken. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	CO E 1/111th INF (MECH)		
ADDRESS	1159 Rapps Dam Road		
	Phoenixville, PA		
CONTACT	Non-Responsive		
PHONE	610-935-6062		
DATE BUILT	1963	FACILITY SIZE	16,919 sq. ft.
INDOOR FIRING RANGE	CLOSED		1-floor plus basement
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	4		
TRADITIONAL (MIL)	70		
CHILD ACTIVITIES	None		
ADULT ACTIVITIES	None		

3.1.1. The exterior of the building is brick and appears to be in good condition. The interior of the facility has been kept in good condition. The facility is heated with a natural gas steam furnace and is cooled with window air conditioners.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity (RH) in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 Indoor Air Quality Standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ASHRAE 62-2001, Section 6.1.3, states that concentrations up to 700 ppm CO_2, above outdoor concentrations will achieve an acceptable level of indoor air quality.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ASHRAE 55-1992 recommends that temperature ranges be 73 to 79 degrees Fahrenheit (°F) during the summer and 68 to 74°F during the winter. Relative humidity levels be maintained between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE 1
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO2 (ppm)	Temp. (°F)	RH (%)
1337	Outdoors Background	0.0	516	87.3	72.5
1358	Dinning Area	0.0	540	86.5	71.8
1404	Assembly Hall	0.0	530	84.3	68.1
1408	Room 3	0.0	528	83.1	68.0
1411	Room 2	0.0	520	74.4	67.5
1415	Lobby	0.0	524	82.1	67.3
1420	Room 22	0.0	521	76.4	62.1
1424	Room 7	0.0	518	80.1	64.4
1430	Hallway	0.0	522	81.2	65.4
1435	Male Latrine	0.0	523	79.9	65.3
1440	Kitchen	0.0	520	80.1	65.2
1445	Former Range Area	0.0	518	81.1	64.3

3.2.5. Carbon monoxide and carbon dioxide levels were within recommended ranges. Indoor temperature readings were higher than recommended comfort ranges in most areas of the facility. Relative humidity levels were above the acceptable range in all areas of the facility. Humidity should be maintained below 60% relative humidity for occupant comfort and controlling mold growth. No mold was observed during the survey.

3.3. ILLUMINATION

3.3.1. Illumination levels were measured in most areas of the facility. Sunlight was excluded, as much as possible for this survey, by closing doors and blocking windows. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 – 463). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
Room 2	40 – 48	43	70	NO
Room 3	38 – 48	50	70	NO
Kitchen	38 – 46	41	75	NO
Assembly Hall	28 – 40	34	75	NO
Classroom 7	38 – 60	46	70	NO
Male Latrine	38 – 40	41	40	YES
Hallway	34 – 46	40	40	YES
Former Range	28 – 36	30	40	NO

3.3.2. Illumination levels were below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3.4. WIPE SAMPLES

3.4.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples were taken at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot ($\mu g/ft^2$) and are listed in Table 3. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead ($\mu g/ft^2$)
PA Pho-03177-18	Lunch Room – Heater Vent	858
PA Pho-03177-19	Kitchen- Heater Vent	173
PA Pho-03177-20	Assembly Hall	192
PA Pho-03177-21	Classroom	164
PA Pho-03177-22	End of Hallway – Water Heater	36
PA Pho-03177-23	BLANK Sample	BDL

$\mu g/ft^2$ – micrograms per square foot BDL – Below Detection Limits

3.4.2. Additional wipe samples were collected during this survey. These samples were collected to further analyze the extent of contamination should the first five samples indicate a possible hazard. Since the sample collected in the lunch room exceeded the

200 µg/ft^2 criterion (see Section 3.4.4), these additional samples were analyzed. The results are presented below in Table 4.

TABLE 4
ADDITIONAL WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft^2)
PA Pho-03177-24	Female Latrine – Towel Dispenser	BDL
PA Pho-03177-25	Lobby Display Rack	BDL
PA Pho-03177-26	Office # 2	450
PA Pho-03177-27	Office # 3	630
PA Pho-03177-28	Male Latrine – Heater Vent	690
PA Pho-03177-29	BLANK Sample	BDL

µg/ft^2 = micrograms per square foot BDL = Below Detection Limits (110 µg/ft^2)

3.4.3. CLOSED FIRING RANGE WIPE SAMPLING

3.4.3.1. Additional wipe samples were collected in the former indoor firing range. The laboratory analysis results are listed below in Table 5.

TABLE 5
FORMER FIRING RANGE WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft^2)
PA Pho-03177-30	Wall	BDL
PA Pho-03177-31	Vent	637
PA Pho-03177-32	Floor	94
PA Pho-03177-33	Floor	BDL
PA Pho-03177-34	Backstop Floor	65
PA Pho-03177-35	BLANK Sample	BDL

µg/ft^2 = micrograms per square foot BDL = Below Detection Limits

3.4.4. WIPE SAMPLING RESULTS

3.4.4.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 µg/ft^2. This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. (See memorandum in Attachment E, Recommendations for Surface Lead Dust in Armories.) Levels exceeded the 200 µg/ft^2 criterion in the lunch room, office 2, office 3, male latrine and a vent in the former indoor firing range. Lower levels of lead were detected in other areas of the facility. Suspect contamination is from former firing range activities and possibly from lead-contaminated paint.

3.4.4. AIR SAMPLING

3.4.4.1. Air Sampling for inorganic lead was performed during this survey. Table 6 lists the results of these samples, and is reported in milligrams per cubic meter (mg/m^3) of air.

TABLE 6
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
Non-Responsive	PA Pho-03177-16	Lead	<0.003 mg/m^3	0.05 mg/m^3	YES
Area – Kitchen	PA Pho-03177-17	Lead	<0.003 mg/m^3	0.05 mg/m^3	YES

mg/m^3 = milligrams per cubic meter < = less than (below detection limits)

3.4.4.2. Air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this building.

3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION DAMAGE

3.5.1.1. There was no visible water intrusion damage in the facility.

3.5.2. LEAD PAINT

3.5.2.1. No peeling paint was observed and no samples were taken.

3.5.3. ASBESTOS

3.5.3.1. No suspect asbestos material was observed or sampled.

3.5.4 PROGRAMS

3.5.4.1. There are no designated confined space areas within this facility. There are no exhaust ventilation systems to control a hazard. No chemicals besides normal cleaning materials are present. Therefore, a need has not been established for a HAZCOM program, the need for personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.5. HOUSEKEEPING

3.5.5.1. The facility is kept impressively clean and orderly.

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

E – Recommendations for Surface Lead in Armories

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
Phoenixville, PA	PENNSYLVANIA ARNG ARMORY	Phoenixville Armory

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR (initials)
26 June 2003	JSS

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	NA	Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
610-935-6062	CoE 1-111th INF (MECH)	3	9

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
4	70			

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	CONROLS 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			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	½ FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	¾ 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/MATS	/
FULL FACE SHIELD	/	EARPLUGS	/	COLD WEATHR 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	/		

AEHA Form 271-R (Test), 1 Jan 92 (HSHB-MI-I)

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	3	C

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

SECTION 6. COMMENTS

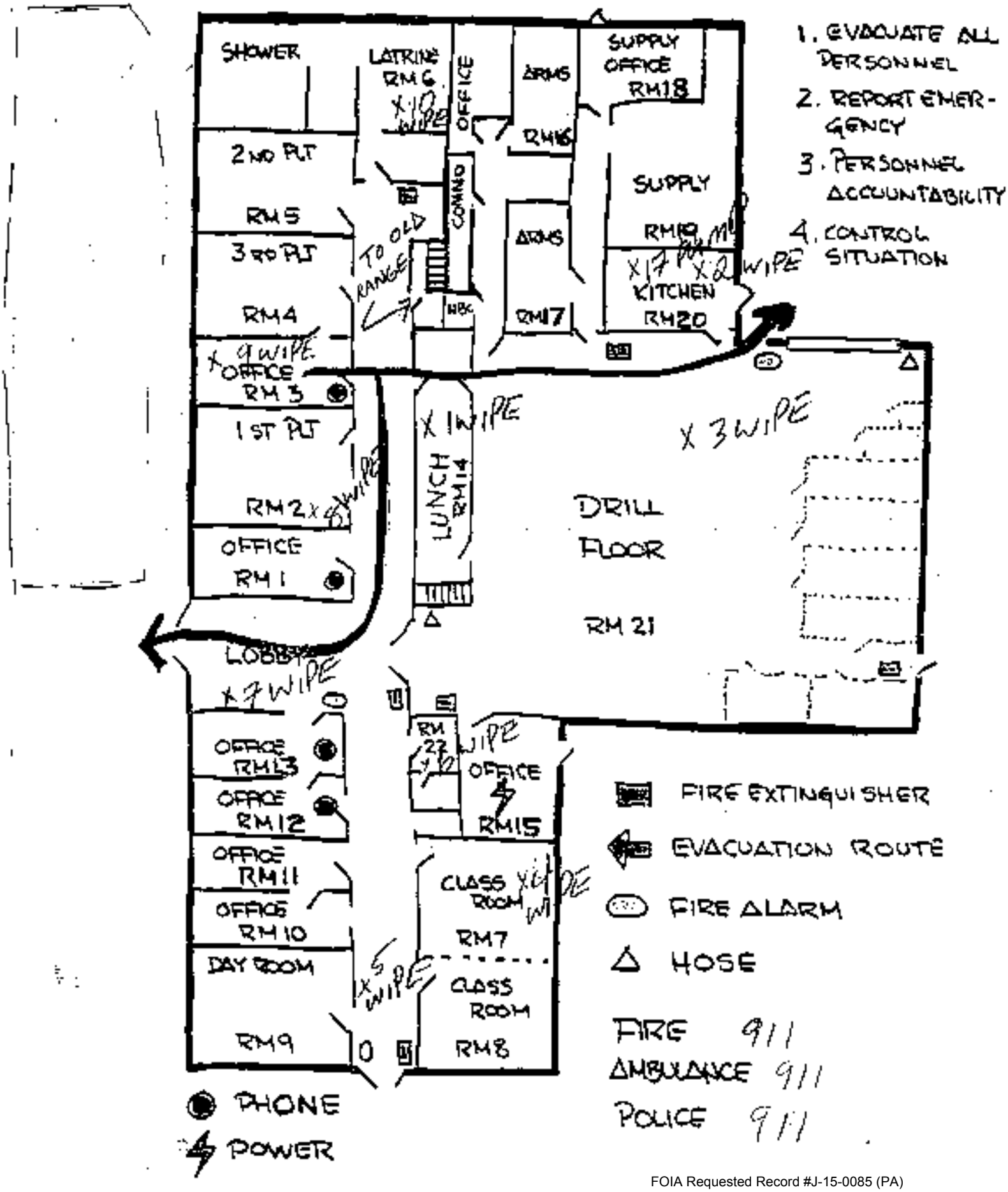
☐ No comments ☐ See attached sheet

PRIVACY ACT STATEMENT

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

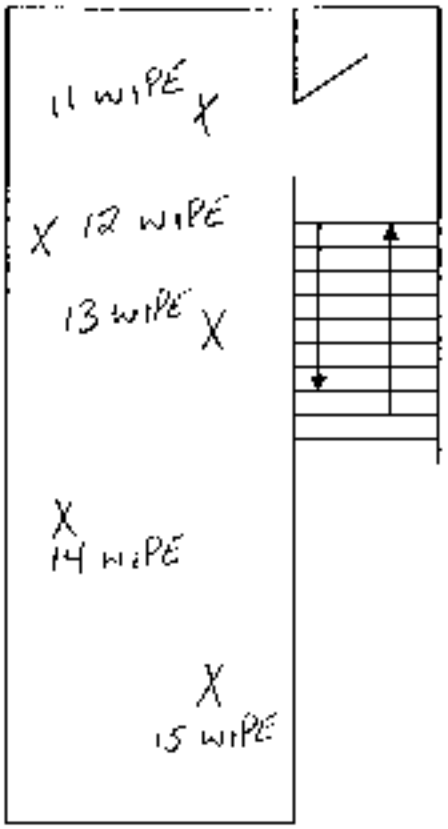
Disclosure of your Social Security Number is not mandatory; however, nondisclosures may result in untimely provision of proper medical monitoring.

EVACUATION PLAN AND FIRE ALARM, FIRE HOSE AND FIRE EXTINGUISHER LOCATION PLAN.



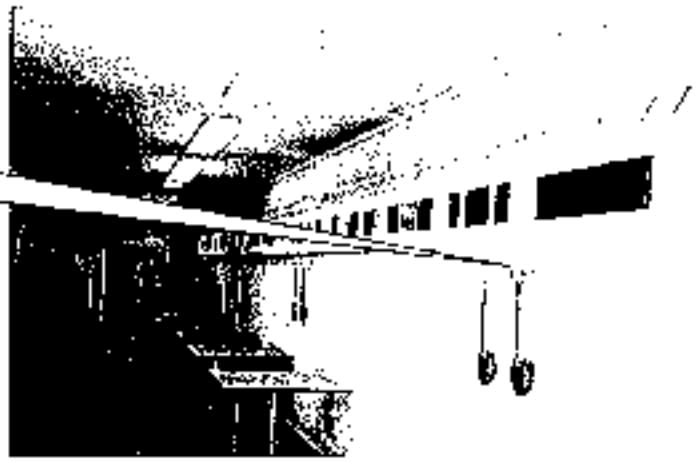
1. EVACUATE ALL PERSONNEL
2. REPORT EMERGENCY
3. PERSONNEL ACCOUNTABILITY
4. CONTROL SITUATION

Basement

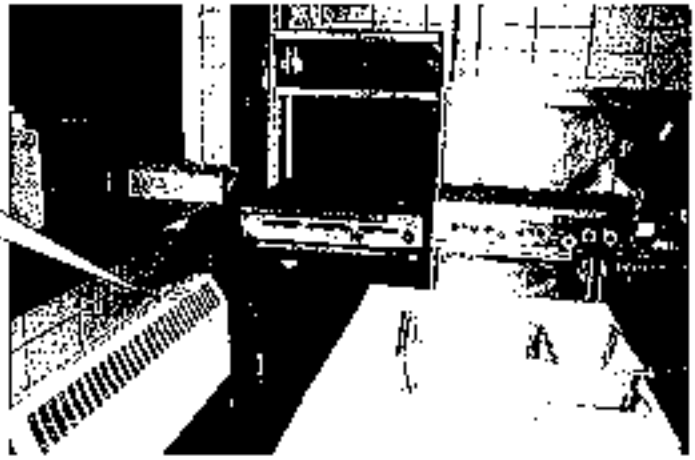


CO E 1/111TH INF (MECH)
PHOENIXVILLE, PENNSYLVANIA

(1) PA Pho-03177-18
Dining Hall



(2) PA Pho-03177-19
Kitchen



(3) PA Pho-03177-20
Assembly Hall

Attachment 18

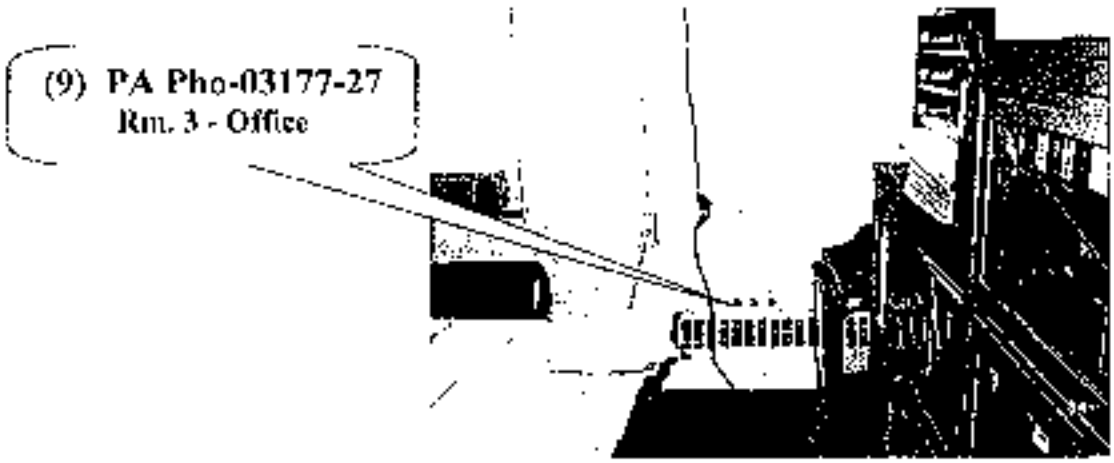
(4) PA Pho-03177-21
Classroom

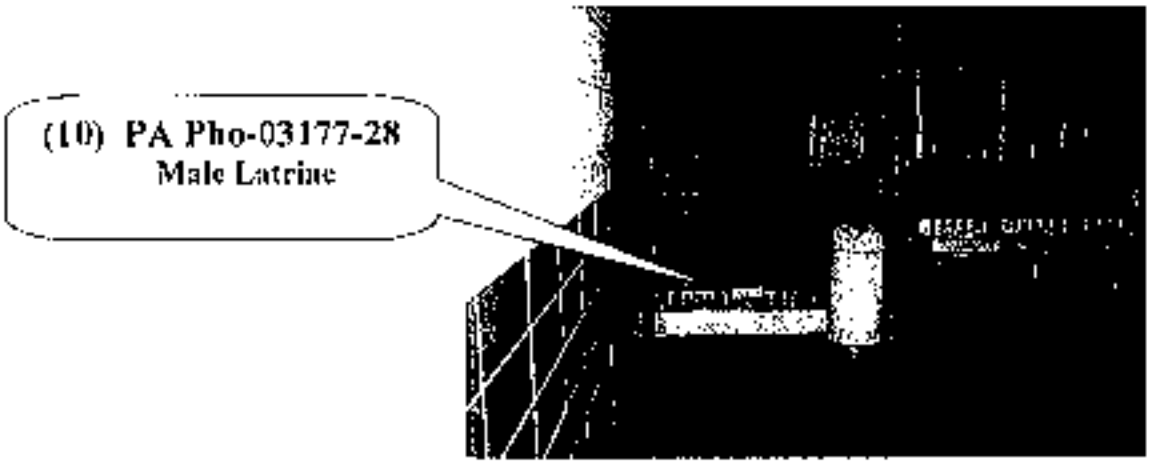
(5) PA Pho-03177-22
Hallway

ADDITIONAL SAMPLES

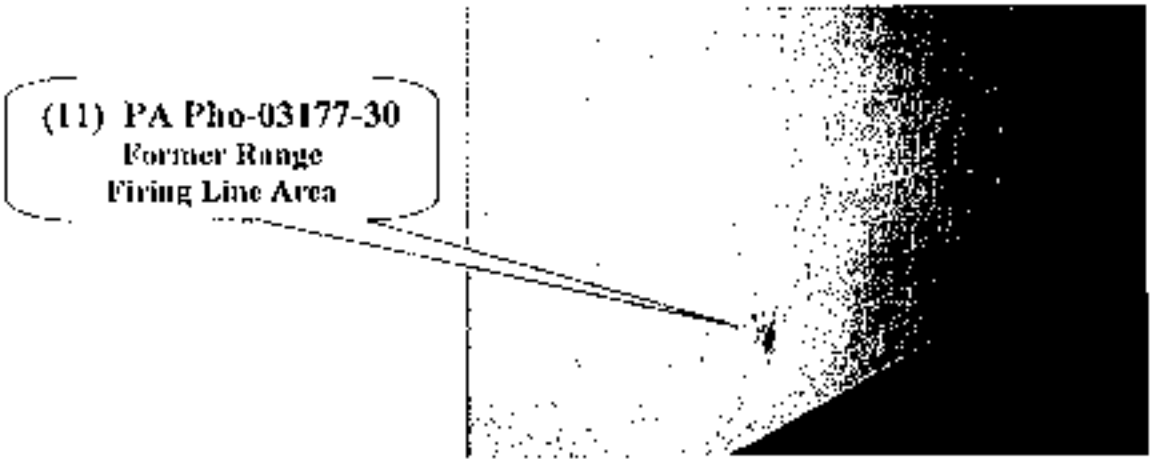
(8) PA Pho-03177-26
Rm. 2 – 1st PLT Office

Attachment B





FORMER INDOOR FIRING RANGE SAMPLES



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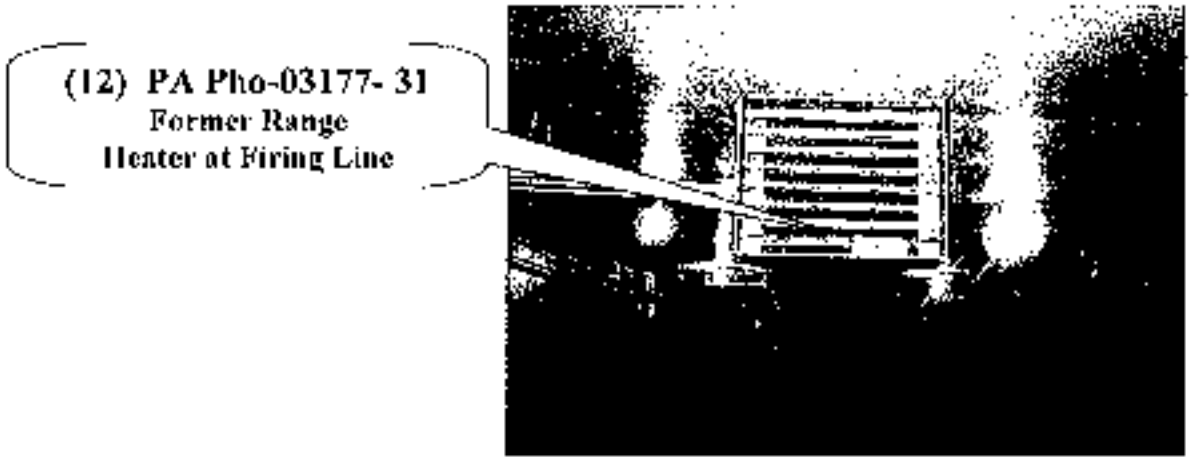

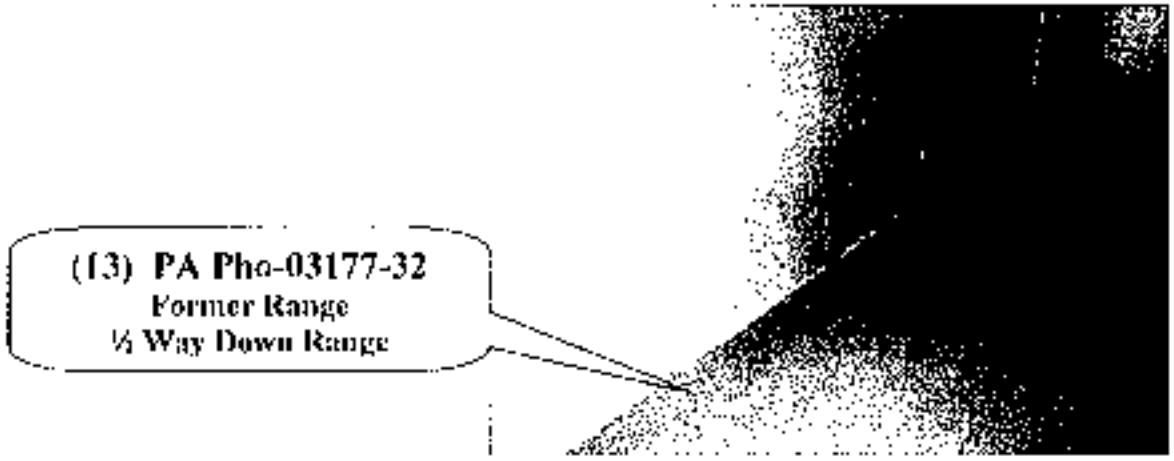

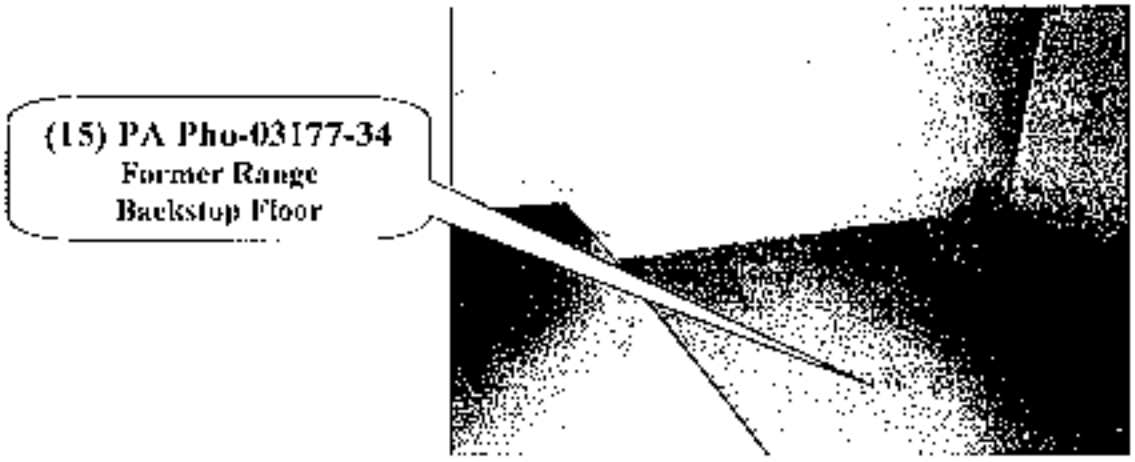

Attachment B

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
AIHA Certificate of Accreditation #680 LAB ID 101533

TABLE ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	RES 95353-1R
Client:	Operational Technologies, Corp.
Client Project Number / P.O.:	04 03
Client Project Description:	Armories//Pennsylvania
Date Samples Received:	July 11, 2003
Analysis Type:	USEPA SW846 3050B / AA(7420)
Turnaround:	3-5 Day
Date Samples Analyzed:	July 15, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA POT-03176-03	EM 794695	0.11	90.9	23	826
PA POT-03176-04	EM 794696	0.11	18.5	23	168
PA POT-03176-05	EM 794697	0.11	34.2	23	311
PA POT-03176-06	EM 794698	0.11	95.0	23	864
PA POT-03176-07	EM 794699	0.11	14.6	23	133
PA POT-03176-08	EM 794700	0.11	BDL	23	BDL
PA POT-03176-15	EM 794701	0.11	10.0	23	91
PA POT-03176-16	EM 794702	0.11	BDL	23	BDL
PA POT-03176-17	EM 794703	0.11	68.3	23	621
PA POT-03176-18	EM 794704	0.11	13.6	23	124
PA POT-03176-19	EM 794705	0.11	30.6	23	278
PA POT-03176-20	EM 794706	0.11	BDL	23	BDL
PA SEL-03177-03	EM 794707	0.11	2.9	23	26
PA SEL-03177-04	EM 794708	0.11	BDL	23	BDL
PA SEL-03177-05	EM 794709	0.11	BDL	23	BDL
PA SEL-03177-06	EM 794710	0.11	BDL	23	BDL
PA SEL-03177-07	EM 794711	0.11	BDL	23	BDL
PA SEL-03177-08	EM 794712	0.11	BDL	23	BDL
PA PEO-03177-18	EM 794713	0.11	94.4	23	858
PA PEO-03177-19	EM 794714	0.11	19.0	23	173
PA PEO-03177-20	EM 794715	0.11	21.1	23	192
PA PEO-03177-21	EM 794716	0.11	18.0	23	164
PA PEO-03177-22	EM 794717	0.11	4.2	23	38
PA PEO-03177-23	EM 794718	0.11	BDL	23	BDL
PA PEO-03177-30	EM 794719	0.11	BDL	23	BDL
PA PEO-03177-31	EM 794720	0.11	70.1	23	637
PA PEO-03177-32	EM 794721	0.11	10.3	23	94
PA PEO-03177-33	EM 794722	0.11	BDL	23	BDL
PA PEO-03177-34	EM 794723	0.11	7.2	23	65
PA PEO-03177-35	EM 794724	0.11	BDL	23	BDL

BDL = Below Detection Limit

Data Qa

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

No.0972 P. 6

Client:	National Guard Bureau	**Job Name:**	Pennsylvania Armories-Phoenixville	**Chain Of Custody:**	117537
Address:	301-IH Old Bay Lane, Attn: NGB-AVN-SI, State Military Reservation	**Job Location:**	Not Provided	**Date Analyzed:**	09/22/2003
	Havre de Grace, Maryland 21078	**Job Number:**	Not Provided	**Person Submitting:**	[redacted]
		P.O. Number:	Not Provided	**Report Date:**	22-Sep-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
0367584	PA-Pho-03177-24	Flame	Wipe	****	0.111	108.01 ug/ft²	< 110 ug/ft²	
0367585	PA-Pho-03177-25	Flame	Wipe	****	0.111	108.01 ug/ft²	< 110 ug/ft²	
0367586	PA-Pho-03177-26	Flame	Wipe	****	0.111	108.01 ug/ft²	450 ug/ft²	
0367587	PA-Pho-03177-27	Flame	Wipe	****	0.111	108.01 ug/ft²	630 ug/ft²	
0367588	PA-Pho-03177-28	Flame	Wipe	****	0.111	108.01 ug/ft²	690 ug/ft²	
0367589	PA-Pho-03177-29	Flame	Wipe	****	0.111	108.01 ug/ft²	< 110 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.

Analyst: [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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Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m³
PA Ber-03171-01	03-20704	338.4	ND	<0.003
PA Ber-03171-02	03-20705	327.0	ND	<0.003
PA Wes-03171-16	03-20706	423.5	ND	<0.002
PA Wes-03171-17	03-20707	414.8	ND	<0.002
PA Kut-03174-01	03-20708	467.4	ND	<0.002
PA Kut-03174-02	03-20709	463.1	ND	<0.002
PA Ham-03174-22	03-20710	333.0	ND	<0.003
PA Ham-03174-23	03-20711	323.8	ND	<0.003
PA Rea-03175-01	03-20712	158.6	ND	<0.006
PA Rea-03175-02	03-20713	162.1	ND	<0.006
PA Ann-03175-16	03-20714	159.6	ND	<0.006
PA Ann-03175-17	03-20715	147.5	ND	<0.007
PA Ann-03175-31	03-20716	147.5	ND	<0.007
PA Ann-03175-32	03-20717	142.7	ND	<0.007
PA Pot-03176-01	03-20718	281.9	ND	<0.004
PA Pot-03176-02	03-20719	266.8	ND	<0.004
PA Sel-03177-01	03-20720	382.4	ND	<0.003
PA Sel-03177-02	03-20721	377.2	ND	<0.003
PA Pho-03177-16	03-20722	354.4	ND	<0.003
PA Pho-03177-17	03-20723	348.6	ND	<0.003
	Prep Blank		ND	
% Recovery	LCS 5		97.	
% Recovery	LCS 6		98.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non-Responsive @md.ngb.army.mil

Attachment D

REFERENCE LIST INDEX

1. General Regulations and National Consensus Standards
2. Specific Regulations and Guidance
   a. Abrasive Blasting
   b. Asbestos
   c. Battery Charging Room
   d. Bird and Bat Manure
   e. Bloodborne Pathogens
   f. Chemical Agent Resistant Coating (CARC) Paint
   g. Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE)
   h. Confined Space Entry Program
   i. Design Review
   j. Ergonomics
   k. Flammable Storage Room
   l. Hazard Communication
   m. Hearing Conservation
   n. Indoor Air Quality
   o. Indoor Firing Ranges
   p. Lead
   q. Lighting
   r. Occupational Vision
   s. Paint Spray Booth
   t. Personal Protection
   u. Radiation Protection
   v. Respiratory Protection
   w. Sanitation
   x. Smoking
   y. Vehicle Exhaust
   z. Welding Operation

GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REFERENCE LIST

1. General Regulations and National Consensus Standards

a. DODI 6055.1, DOD SOH Program, 19 August 1998.

b. DODI 6055.5, DOD OEH. *[DRAFT]*

c. DOD 6055.5-M, DOD Occupational Health Surveillance Manual, 13 May 1987.

d. DODI 6050.5, DOD Hazard Communication, 29 Oct 90. Change 1, 6 May 1996.

e. AR 40-5, Preventive Medicine, 15 October 1990. [05/2002 Being Updated]

f. DA PAM 40-5, Preventive Medicine. *[DRAFT]*

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

h. NGR 385-10, ARNG SOH Program, 7 October 1988, Change 1, 29 December 1989.

i. Title 29, Part 1910, Occupational Safety and Health Standards. [Current Date]

j. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 2002.

k. ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th edition, 2001.

l. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.

m. TG 141, USACHPPM Industrial Hygiene Sampling Guide, November 1997.

n. National Safety Council, Fundamentals of Industrial Hygiene, 5th Edition, 2002.

o. NIOSH, Pocket Guide to Chemical Hazards, 2001.

p. NFC, A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. [Current date]

q. ASHRAE Standards. [Current Dates]

r. ANSI Standards. [Current Dates]

2. Specific Regulations/Guidance

a. **ABRASIVE BLASTING**

(1) ANSI Z9.4 1997, Abrasive Blasting Operations - Ventilation and Safe Practices.

(2) 29 CFR 1910.94 Ventilation

(3) 42 CFR 84

b. **ASBESTOS**

(1) AR 40-5, Preventive Medicine, 15 October 1990. *[05/2002 Being Updated]*

(2) AR 200-1, Environmental Protection and Enhancement, Chapter 8, 21 February 1997.

(3) TB MED 513, Guidelines for the Evaluation and Control of Asbestos Exposure, 15 December 1986. *[05/2000 Under Revision as DA PAM 40-513]*

(4) TG 157, USAEHA, The Installation Asbestos Management Program Assessment Checklists, July 1994.

(5) 29 CFR 1910.1001

(6) 29 CFR 1926.58 (prior to 1994 CFR)

(7) 29 CFR 1926.1101

(8) MEMORANDUM SGPS-PSP, OTSG, subject: AMEDD Role Supporting Asbestos Abatement/Asbestos Management Programs, 19 Jan 89.

(9) EPA, Guidance for Controlling Asbestos-Containing Materials in Buildings, June 1985.

(10) DD Form 2493-1 (Asbestos Exposure, Part I--Initial Medical Questionnaire)

(11) DD Form 2493-2 (Asbestos Exposure, Part II--Periodic Medical Questionnaire)

(12) EPA NESHAPS Asbestos Regulation (40 CFR 61, Subpart M).

c. **BATTERY CHARGING ROOM**

(1) TG 022, USAEHA, page 81, Industrial Hygiene Evaluation Guide, October 1975. *[Out of Print]*

(2) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

d. **BIRD AND BAT MANURE**

(1) TG 142, USAEHA, Managing Health Hazards Associated with Bird and Bat Excrement, Dec 1992.

e. **BLOODBORNE PATHOGENS**

(1) 29 CFR 1910.1030

(2) TG 190, USAEHA, Guide to Managing Occupational Exposure to Bloodborne Pathogens, Jan 94.

f. **CHEMICAL AGENT RESISTANT COATING (CARC) PAINT**

(1) TG 144, USAEHA, Guidelines for Controlling Health Hazards in Painting Operations, 24 August 1987.

(2) DA LTR, USAEHA, HSHB-MI-WR, subject: Respiratory Protection When Spraying CARC, 19 November 1992.

(3) TM 43-0139, Painting Instructions for Army Material, 27 July 19881 Aug 86.

(4) MEMORANDUM SGPS-PSP, OTSG, subject AMEDD, Occupational Health Requirements in Support of Painting in the Army, 22 February 1985.

(5) AR 750-1, Army Materiel Maintenance Policy and Retail Maintenance Operations (Prohibits welding on CARC paint) 1 July 1996.

g. **CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR, EXPLOSIVE (CBRNE)**

(1) DODI 2000.gg, DOD Installation CBRNE Emergency Response Guidelines.

(2) DHHS, NIOSH Pub No. 2002 139, Guidance for Protecting Building Environments from Airborne Chemical, Biological, or Radiological Attacks, May 2002.

(3) TG 275, USACHPPM, Personal Protective Equipment Guide for Medical Treatment Facility Personnel Handling Casualties from Weapons of Mass Destruction and Terrorism Events. *[Draft]*

h. **CONFINED SPACE**

(1) 29 CFR 1910.146 (Confined Space Entry)
(2) 29 CFR 1910.147 (Lockout/Tagout)
(3) ANSI Z117.1-Safety Requirements for Confined Spaces, 1995.
(4) SOP for ARNG Confined Space Entry Program, 25 April 1991.
(5) Letter, US Dept of Labor (DOL) addressed to Vanessa Cher, 22 Apr 1994.
(6) OSHA Instruction STD 1-7.3, US DOL, subject: 29 CFR 1910.147, the Control of Hazardous Energy (Lockout/Tagout)--Inspection Procedures and Interpretive Guidance, 11 Sep 90.
(7) DHHS, NIOSH Pub No. 87113, A Guide to Safety in Confined Spaces, July 1987.
(8) Confined Space Entry Program for Helicopters, 2003.

i. **DESIGN REVIEW**

(1) DG 415-1, Design Guide for Armories, current.
(2) DG 415-2, Design Guide for Logistics Facilities, current.
(3) DG 415-3, Design Guide for Training Site Facilities, current.
(4) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.
(5) TI-300, 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.
(6) UFGS 15940A, Overhead Vehicle Tailpipe (and welding Fume) Exhaust Removal Systems, December 2001.
(7) ASHRAE, Standard 62-2002, Ventilation for Acceptable Indoor Air Quality.
(8) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

j. **ERGONOMICS**

(1) DA PAM 40-21, Medical Services, Ergonomics Program, 15 May 2000.
(2) ANSI Z-365, Management of Work Related Musculoskeletal Disorders, 2000.
(3) 29 CFR 1910. *[PROPOSED STANDARD]*

k. **FLAMMABLE STORAGE ROOM**

(1) 29 CFR 1910.106
(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

l. **HAZARD COMMUNICATION**

(1) 29 CFR 1910.1200
(2) NGR 385-10, Chapter 6

m. **HEARING CONSERVATION**

(1) DA PAM 40-501, Medical Services, Hearing Conservation Program, 10 December 1998.

(2) TG 181, USAEHA, Noise Dosimetry and Risk Assessment, May 1999.

(3) TG 175, USAEHA, Readiness thru Hearing Conservation: Guide for Unit Commanders and Supervisors, June 1999.

(4) 29 CFR 1910.95

n. **INDOOR AIR QUALITY (IAQ)**

(1) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

(2) USACERL Technical Report P-91/42, IAQ Management for Operations and Maintenance Personnel, September 1991.

(3) EPA 400/1-91/003 or DHHS, NIOSH, Publication No. 91-114, Building IAQ, A Guide for Building Owners and Facility Managers, December 1991.

(4) ASHRAE, Standard 62-2002, Ventilation for Acceptable IAQ.

(5) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

(6) NIOSH, IAQ Selected References, Sep 1989.

(7) OSHA Instruction CPL 2-2.20B CH-1, Directorate of Technical Support, 13 Nov 90.

(8) DA PAM 25-52, Mail Facility Security and Handling Suspicious Mail, 6 November 2001.

(9) ASTM, D 5952-96, 10 May 1996.

o. **INDOOR FIRING RANGES**

(1) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(2) NGR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges, 30 March 1990. *[11/02 Under Revision]*

(3) CEHND 1110-1-18, USACE Design Manual for Indoor Firing Range, June 1990.

(4) HQDA LTR, Office of the Adjutant General, DACS-SF, subject: Inspection and Evaluation of US Army Indoor Firing Ranges, 26 March 1993.

(5) Departments of the Army and Air Force, NGB-ADE-OM, subject: All State Log Number (I920323) Indoor Range Clean-up at State Owned Armories, 28 July 1992.

(6) NIOSH, Technical Information, December 1975, subject: Lead Exposure and Design Considerations for Indoor Firing Ranges.

(7) All-States Ltr P01-0075, 5 December 2001.

(8) Information Paper, Alternative Ammunition, 15 March 1996.

(9) Information Paper, Bullet Traps, 26 April 1996.

(10) Information Paper, ARNG IFR Action Plan, 28 January 2002.

p. **LEAD**

(1) 29 CFR 1910.1025

(2) 29 CFR 1926.62

(3) 24 CFR 35.61 (HUD, Percentage of Lead in Paint)

(4) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(5) OSHA Instruction CPL 2-2.58, Office of Health Compliance Assistance, 13 December 1993.

(6) Federal Register, 18 April 1990, Vol. 55, No. 75, HUD, Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing, as amended, September 1990, Office of Public and Indian Housing, Department of Housing and Urban Development, 451 Seventh Street, SW, Washington, DC 20410.

(7) NIOSH, Request for Assistance in Preventing Lead Poisoning in Construction Workers, April 1992.

(8) EPA, Strategy for Reducing Lead Exposures, 21 Feb 91.

q. **LIGHTING**

(1) RP-1-1993, Office Lighting, ANSI/IESNA.

(2) RP-7-2001, Industrial Lighting, IES.

r. **OCCUPATIONAL VISION**

(1) DA PAM 40-506, Medical Services, The Army Vision Conservation and Readiness Program, 20 July 2001.

(2) ANSI Z87.1, Practice for Occupational and Educational Eye and Face Protection, 1989, Change A, REAF 1998.

(3) ANSI Z358.1 for Emergency Eyewash and Shower Equipment, 1998.

(4) OTSG Memorandum SGPS-PSP, subject: Acanthamoeba Keratitis and Eyewash Stations, 8 May 89.

(4) 29 CFR 1910.133

s. **PAINT SPRAY BOOTH**

(1) NFPA No. 33, Standard for Spray Application Using Flammable and Combustible Materials, 1995.

(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

(3) 29 CFR 1910.94

(4) 29 CFR 1910.107

(5) ANSI Z9.3-1995 for Exhaust Systems - Spray Finishing Operations - Safety Code for Design, Construction, and Ventilation.

(6) ANSI Z9.2-2001, Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems.

t. **PERSONAL PROTECTIVE EQUIPMENT**

(1) Quick Selection Guide to Chemical Protective Clothing, 2nd edition, Forsberg, K and Mansdorf, S., 1993.

(2) Chemical Protective Clothing, Vol I and 2, Johnson, J. and Anderson, K., American Industrial Hygiene Association, 1990.

(3) Guidelines for the Selection of Chemical Protective Clothing, 3rd Edition, ACGIH, Inc., Feb 1987.

u. **RADIATION PROTECTION PROGRAM**

(1) NGR 385-11, Safety, Ionizing and Nonionizing Radiation Protection, 18 February 1999.

(2) AR 11-9, Army Radiation Safety Program, 28 May 1999.

(3) 29 CFR 1910.96

(4) 29 CFR 1910.97

v. **RESPIRATORY PROTECTION**

(1) AR 11-34, The Army Respiratory Protection Program, 15 February 1990. *[11/02 Being Updated]*

(2) 29 CFR 1910.134

(3) 42 CFR 84

(4) TB MED 502, Respiratory Protection Program, February 1992. *[11/02 Being Updated as DA PAM 40-502]*

(5) ANSI/CGA G-7.1-1997, Commodity Specification for Air.

(6) ANSI Z88.2-1992, Standard for Respiratory Protection.

w. **SANITATION**

(1) ANSI Z4.1-1986, Change REAF 1995, Sanitation in Places of Employment-Minimum Requirements.

(2) 29 CFR 1910.141

x. **SMOKING**

(1) AR 600-63, Army Health Promotion, 28 April 1996.

(2) DODI 1010.15, Smoke-Free DOD Facilities, 2 January 2001.

(3) DODD1010.10, Health Promotion, 11 March 1986.

y. **VEHICLE EXHAUST**

(1) ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th Edition, 2001.

(2) TI-300f 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

z. **WELDING OPERATION**

(1) 29 CFR 1910.252

(2) 29 CFR 1910.253

(3) 29 CFR 1910.254

(4) ANSI/AWS Z49.1-1999, Safety in Welding and Cutting and Allied Processes.

(5) TM 5-805-7, Welding Design, Procedures and Inspection, 20 May 85.

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 $\mu g/ft^2$) and windowsills (250 $\mu g/ft^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of 200 $\mu g/ft^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 $\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

Attachment E

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 $\mu g/ft^2$ on floors and 250 $\mu g/ft^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

Attachment F

Industrial Hygiene Survey

CO A (SUP) 328th SPT BN (FSN)

POTTSTOWN, PENNSYLVANIA

June 25, 2003
&
December 9, 2003

OPTECH
OPERATIONAL TECHNOLOGIES
CORPORATION

INDUSTRIAL HYGIENE SURVEY
CO A (SUP) 328th SPT BN (FSB)
POTTSTOWN, PENNSYLVANIA

1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Armory in Pottstown, Pennsylvania on June 25, 2003. The NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. Non-Respon from OpTech, completed this survey. Non-Responsive a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the IH Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D.

NATIONAL GUARD BUREAU
ARMY NATIONAL GUARD
REGION NORTH INDUSTRIAL HYGIENE OFFICE
ATTN: NGB-AVS-SI
301-IH OLD BAY LANE
HAVRE DE GRACE, MD 21078-4094

NGB-AVS-SI (40-5f)

13 February 2004

MEMORANDUM FOR PAARNG, Pottstown Armory, ATTN: 1SG [redacted] 261 King Street, Pottstown, PA 19464

SUBJECT: Baseline Survey Report

1. I have enclosed the industrial hygiene survey report completed by Operational Technologies, Corporation.

2. In addition to the attached discussion and recommendations regarding wipe samples for lead, if a special function is held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function.

3. Please contact me at (410) 942-0273 or 1-800-550-6967 if you have any questions regarding the enclosed report.

[redacted]
Regional Industrial Hygienist

Encl

CF: SOHM, COL [redacted]
SAB/FMO, C

RECOMMENDATIONS

1. INDOOR AIR QUALITY

1.1. Indoor temperatures were slightly higher than recommended comfort ranges in the office area. The relative humidity readings were above the acceptable range in all areas. Humidity levels should be maintained below 60% for occupant comfort and controlling mold growth. No mold was observed during the survey.

2. ILLUMINATION

2.1. Illumination levels were below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3. LEAD WIPE SAMPLES

3.1. Wipe samples for inorganic lead collected in the front room of the office, classroom, latrine, classroom B, plus locker rooms A&B exceeded the 200 $\mu g/ft^2$ criterion. Three of the five samples taken in the former firing range also exceeded the criterion. Lower levels were detected in other areas of the building. The source of lead contamination is apparently from the inactive indoor firing range and from lead paint. Recommend that the facility be wet-wiped/mopped and/or vacuumed with a high efficiency particulate air (HEPA) vacuum. This method of cleaning should be repeated during routine housecleaning duties, to further reduce lead dust levels.

4. WATER INTRUSION

4.1. Water intrusion damage IS present in some hallways, second floor classrooms, latrines and showers. Ceiling tiles were stained, paint was peeling plus some wall deterioration. A new roof has been installed, which has corrected the intrusion. These damaged areas need to be repaired and damaged ceiling tiles and insulation should be replace to prevent mold growth.

5. LEAD PAINT

5.1. Chipping paint was noted in some areas of the building. Samples were collected in four areas and analyzed for lead content. All four samples greatly exceeded EPA's 0.5% by weight criteria and is therefore considered lead-contaminated paint. A certified lead abatement team should remove damaged paint. This action will help in preventing further accumulation of lead dust in the facility.

2.0. EXECUTIVE SUMMARY

2.1. Carbon monoxide and carbon dioxide readings were within recommended levels. Indoor temperatures were slightly higher than recommended comfort ranges in the office area. The relative humidity readings were above the acceptable range in all areas. Humidity should be maintained below 60% for occupant comfort and controlling mold growth. No mold was observed during the survey.

2.2. Illumination levels were below recommended minimum standards in most areas of the facility.

2.3. Wipe samples for inorganic lead were collected throughout the facility. Samples in the front room of the office, classroom, latrine, classroom B plus locker rooms A&B exceeded the 200 $\mu g/ft^2$ criterion. Three of the five samples collected in the former firing range also exceeded the criterion. Lower levels were detected in other areas of the building. The source of lead contamination is apparently from the firing range and from lead paint

2.4. Air sampling for inorganic lead was taken. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building.

2.5. Water intrusion damage was present in some hallways, second floor classrooms, latrines and showers. Ceiling tiles were stained, paint was peeling plus some wall deterioration.

2.6. Chipping paint was noted in some areas of the building. Samples were collected in four areas and analyzed for lead content. All four samples greatly exceeded EPA's 0.5% by weight criteria and is therefore considered lead-contaminated paint.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	CO A (SPT) 328TH SPT BN (FSB)		
ADDRESS	261 King Street		
	Pottstown, PA 19464		
CONTACT	1SG [redacted]		
PHONE	610-378-4305		
DATE BUILT	1906	FACILITY SIZE	12,083 sq. ft.
INDOOR FIRING RANGE	CLOSED		2-floors plus basement
ASSISTED			
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	12		
TRADITIONAL (MIL)	50		
CHILD ACTIVITIES	No activities.		
ADULT ACTIVITIES			

3.1.1. The exterior is brick and appears to be in good condition. Due to a bad roof, many areas had experienced serious water intrusion damage to ceilings and walls. The facility is heated by a steam furnace and cooled by window air conditioning units.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity (RH) in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 Indoor Air Quality Standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ASHRAE 62-2001, Section 6.1.3, states that concentrations up to 700 ppm CO_2, above outdoor concentrations will achieve an acceptable level of indoor air quality.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ASHRAE 55-1992 recommends that temperature ranges be 73 to 79 degrees Fahrenheit (°F) during the summer and 68 to 74°F during the winter. Relative humidity levels be maintained between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE I
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO2 (ppm)	Temp. (°F)	RH (%)
0920	Outside - Background	0.0	516	91.1	73.4
0945	Office (occupied)	0.0	541	83.1	68.8
0950	Assembly Hall	0.0	533	78.1	68.1
0954	Kitchen	0.0	520	75.4	68.2
0959	Male Latrine	0.0	524	75.6	68.1
1004	Classroom C	0.0	521	78.2	67.4
1010	Female Latrine	0.0	518	77.4	68.5
1013	Classroom	0.0	522	76.5	68.4
1016	Classroom A	0.0	518	74.2	67.6
1020	Classroom B	0.0	521	76.4	68.4
1024	Locker rRoom	0.0	518	77.1	68.5
1029	Shower Room	0.0	519	77.1	68.6

3.2.5. Carbon monoxide and carbon dioxide readings were within recommended levels. Indoor temperatures were slightly higher than recommended comfort ranges in the office area. The relative humidity readings were above the acceptable range in all areas. Humidity should be maintained below 60% for occupant comfort and controlling mold growth. No mold was observed during the survey.

3.3. ILLUMINATION

3.3.1. Illumination levels were measured in most areas of the facility. Sunlight was excluded, as much as possible for this survey, by closing doors and blocking windows. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 – 463). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
Kitchen	40 – 52	48	75	NO
Male Latrine	38 – 44	41	40	YES
Classroom C	40 – 48	45	70	NO
Female Latrine	36 – 42	39	40	NO
Assembly Hall	32 – 40	36	75	NO
Locker Room	32 – 40	39	40	NO
Classroom A	32 – 58	44	70	NO
Classroom B	40 – 60	46	70	NO
Former Range Area (storage)	20 – 40	32	40	NO

3.3.2. Levels were below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting would improve some areas.

3.4. WIPE SAMPLES

3.4.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples were taken at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot ($\mu g/ft^2$) and are listed in Table 3. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead ($\mu g/ft^2$)
PA Pot-03176-03	Office - Front Room – Vent	826
PA Pot-03176-04	Assembly Hall – Wood Trim	168
PA Pot-03176-05	Classroom Window Sill	311
PA Pot-03176-06	Latrine Floor	864
PA Pot-03176-07	Kitchen - Top of Refrigerator	133
PA Pot-03176-08	BLANK Sample	BDL

$\mu g/ft^2$ = micrograms per square foot BDL = Below Detection Limits

3.4.2. Additional wipe samples were collected during this survey. These samples were collected to further analyze the extent of contamination should the first five samples indicate a possible hazard. Since the samples collected in office, classroom and latrine exceeded the 200 $\mu g/ft^2$

criterion (see Section 3.4.4); these additional samples were analyzed. The results are presented below in Table 4.

TABLE 4
ADDITIONAL WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Pot-03176-09	Classroom B – Window Sill	1,600
PA Pot-03176-10	Classroom A - Window Sill	BDL
PA Pot-03176-11	Locker Room A	4,800
PA Pot-03176-12	Locker Room B	9,400
PA Pot-03176-13	Latrine	BDL
PA Pot-03176-14	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.3. CLOSED FIRING RANGE WIPE SAMPLING

3.4.3.1. Additional wipe samples were take in the former indoor firing range. This area is presently being utilized for storage. The laboratory analysis results are listed in Table 5.

TABLE 5
FORMER FIRING RANGE WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Pot-03176-15	Floor	91
PA Pot-03176-16	Pipe	BDL
PA Pot-03176-17	Desktop Cabinet	621
PA Pot-03176-18	Floor	124
PA Pot-03176-19	Pipe	278
PA Pot-03176-20	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.4. WIPE SAMPLING RESULTS

3.4.4.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 µg/ft². This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. (See memorandum in Attachment E, Recommendations for Surface Lead Dust in Armories.) Samples in the front room of the office, classroom, latrine, classroom B plus locker rooms A&B exceeded the 200 µg/ft² criterion. Three of the five samples collected in the former firing range also exceeded the criterion. Lower levels were detected in other areas of the building. The source of lead contamination is apparently from the firing range and from lead paint (see section 3.5.2.).

3.4.5. AIR SAMPLING

3.4.5.1. Air Sampling for inorganic lead was performed during this survey. Table 6 lists the results of these samples, and is reported in milligrams per cubic meter (mg/m^3) of air.

TABLE 6
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
[redacted]	PA Pot-03176-01	Lead	<0.004 mg/m^3	0.05 mg/m^3	YES
Area – Kitchen	PA Pot-03176-02	Lead	<0.004 mg/m^3	0.05 mg/m^3	YES

mg/m^3 = milligrams per cubic meter < = less than (below detection limits)

3.4.5.2. Air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this building.

3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION DAMAGE

3.5.1.1. Water intrusion damage was present in some hallways, second floor classrooms, latrines and showers. Ceiling tiles were stained, paint was peeling plus some wall deterioration.

3.5.2. LEAD PAINT

3.5.2.1. Chipping paint was noted in some areas of the building. Samples were collected in four areas and analyzed for lead content. The laboratory results are listed in Table 7. Photographs of these sampling locations are presented in Attachment B.

TABLE 7
PAINT CHIP SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (percent)
PA Pot-03343-14	1st Floor – Male Latrine	5.4%
PA Pot-03343-15	2nd Floor – Classroom A	16.0%
PA Pot-03343-16	2nd Floor – Shower	11.0%
PA Pot-03343-17	2nd Floor – Classroom B	11.0%

BDL = Below Detection Limits

3.5.2.2. The Environmental Protection Agency (EPA) considers paint with a lead content equal to or greater than 0.5% by weight as contaminated. Therefore, all four areas are considered lead-contaminated paint.

3.5.3. ASBESTOS

3.5.3.1. Asbestos is known to exist on some steam pipes. All observed areas were in good condition.

3.5.4. PROGRAMS

3.5.3.1. There are no designated confined space areas within this facility. There are no exhaust ventilation systems to control a hazard. No chemicals besides normal cleaning materials are present. Therefore, a need has not been established for a HAZCOM program, the need for personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.5. HOUSEKEEPING

3.5.4.1. The facility is well maintained and orderly but some physical damage due to the water intrusion was present.

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

E – Recommendations for Surface Lead in Armories

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
Pottstown, PA	PENNSYLVANIA ARNG ARMORY	Pottstown Armory

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR (initials)
25 June / 9 December 2003	JSS

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	NA	1SGT Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
610-378-4305	CO A 328TH SPT BN (FSB)	3	9

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
3	50			

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	CONROLS 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			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	½ FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	¾ 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 WEATHR 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	/		

AEHA Form 271-R (Test), 1 Jan 92 (HSHB-MI-I)

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	3	C

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

SECTION 6. COMMENTS

☐ No comments ☐ See attached sheet

PRIVACY ACT STATEMENT

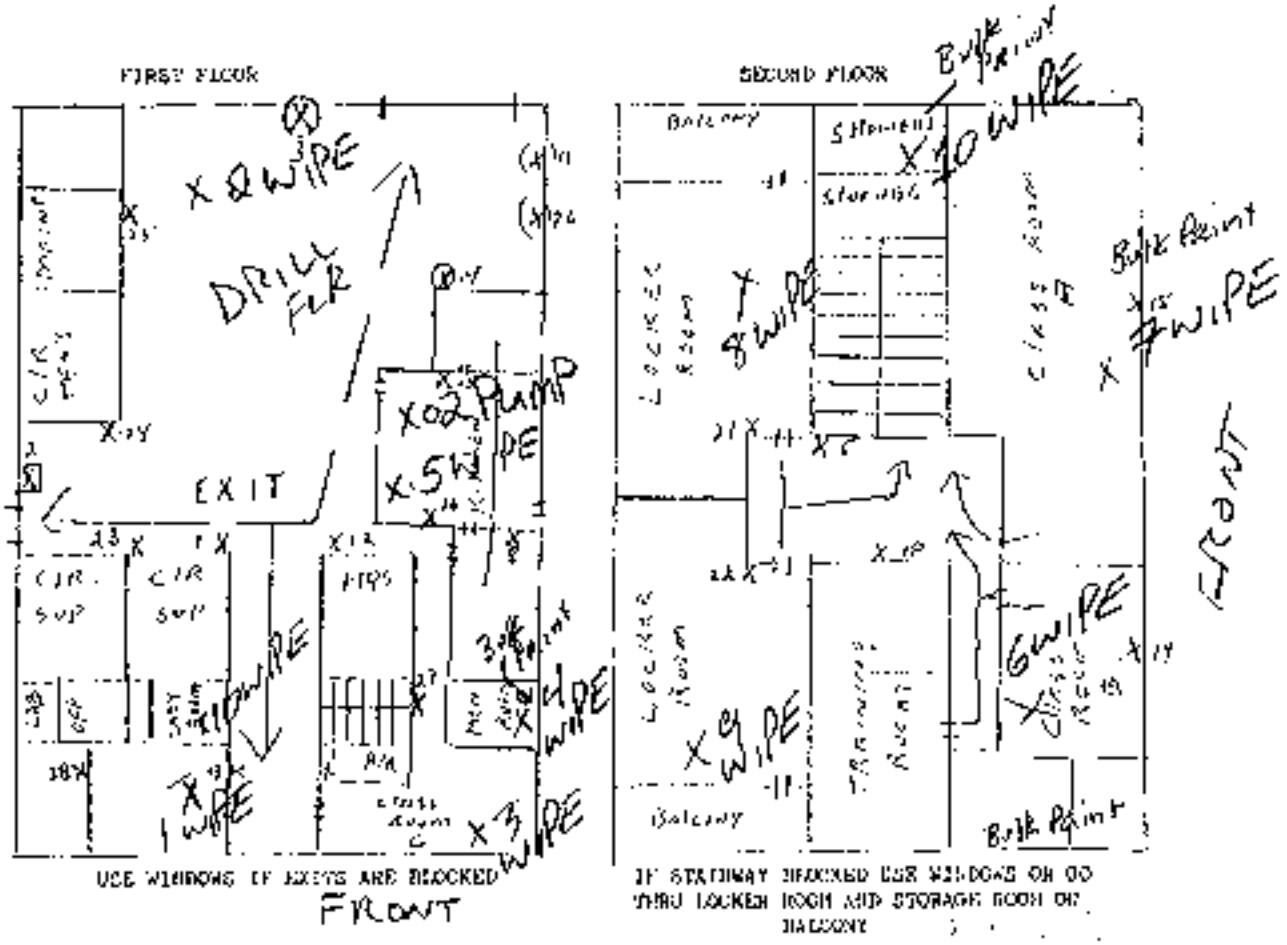
Title 5 US Code, Section 301; Executive Order 9397 authorized the use of your Social Security Number as an identification number. The purpose of this information is to identify and monitor data relating each DA civilian and military employee exposed to a hazardous workplace or operation. The use of this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

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

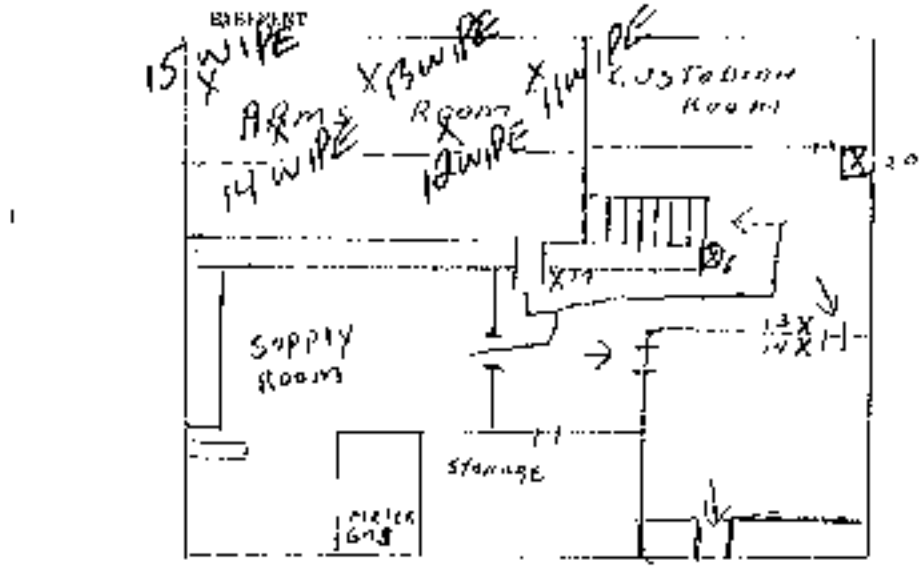
ANNEX I

FIRE EVACUATION PLAN AND EXTINGUISHER LOCATIONS

FIRE DEPARTMENT TELEPHONE NUMBER 911



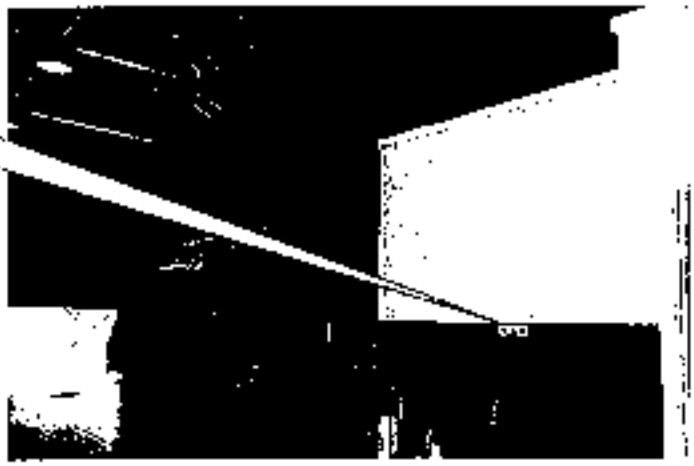
YOU ARE HERE



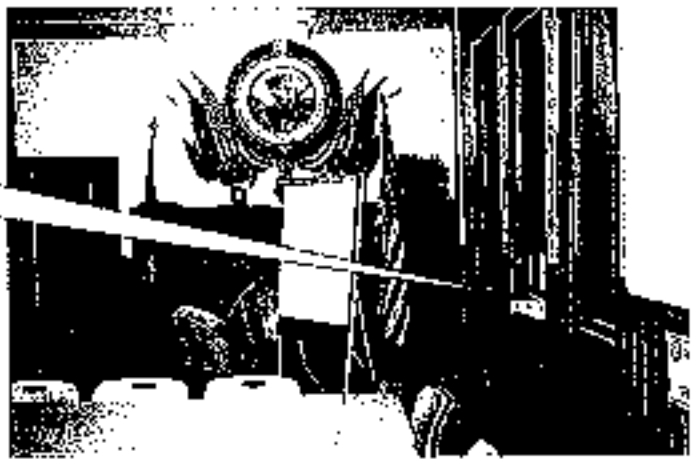
CO A 328TH SPT BN (FSB)
POTTSTOWN, PENNSYLVANIA

(1) PA Pot-03176-03
Office – Vent

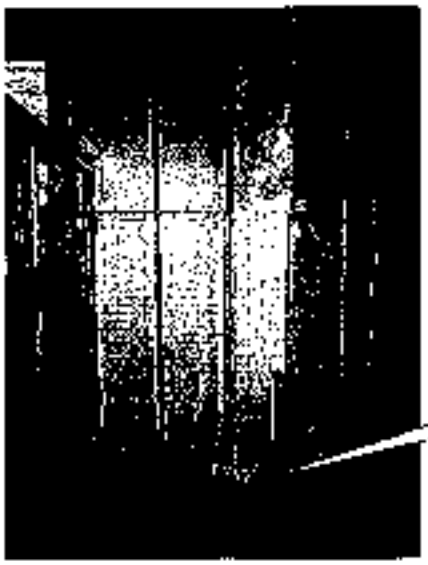
(2) PA Pot-03176-04
Assembly Hall



(3) PA Pot-03176-05
Classroom

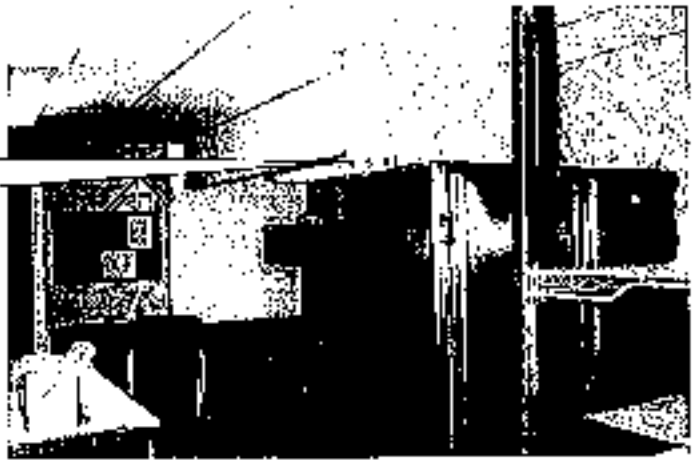


Attachment B



(4) PA Pot-03176-06
Men's Latrine

(5) PA Pot-03176-07
Kitchen

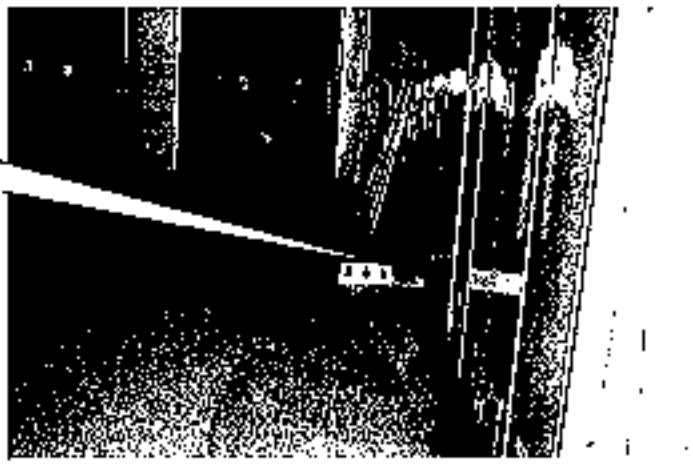


(6) PA Pot-03176-09
Classroom

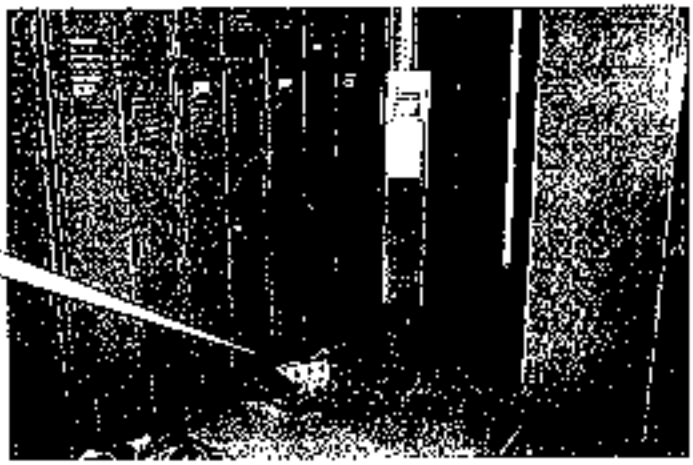
Attachment B

(7) PA Pot-03176-10
Classroom

(8) PA Pot-03176-11
Locker Room



(9) PA Pot-03176-12
Locker Room



Attachment B

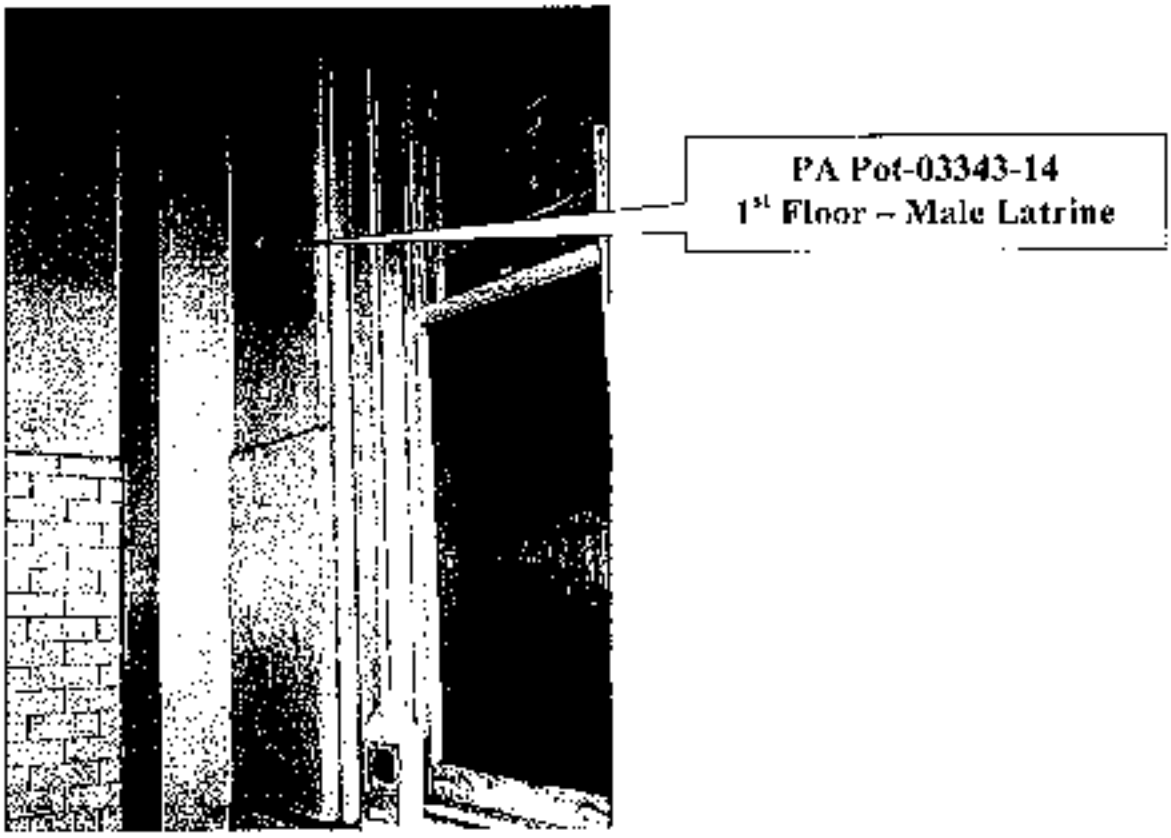
(11) PA Pot-03176-15
Former Range
Behind Firing Line

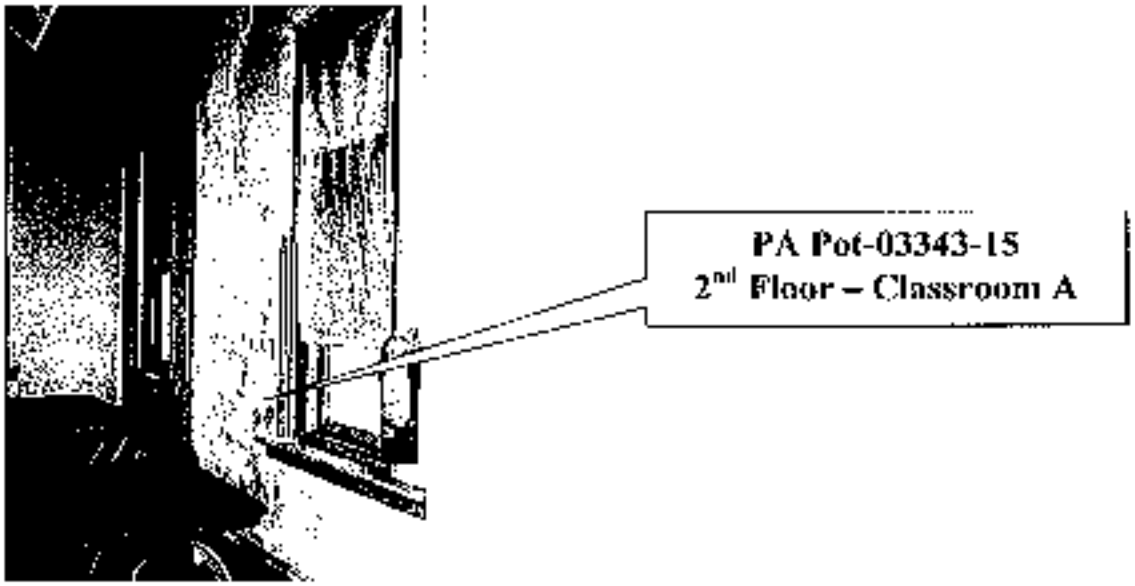
(12) PA Pot-03176-16
Former Range - Pipe

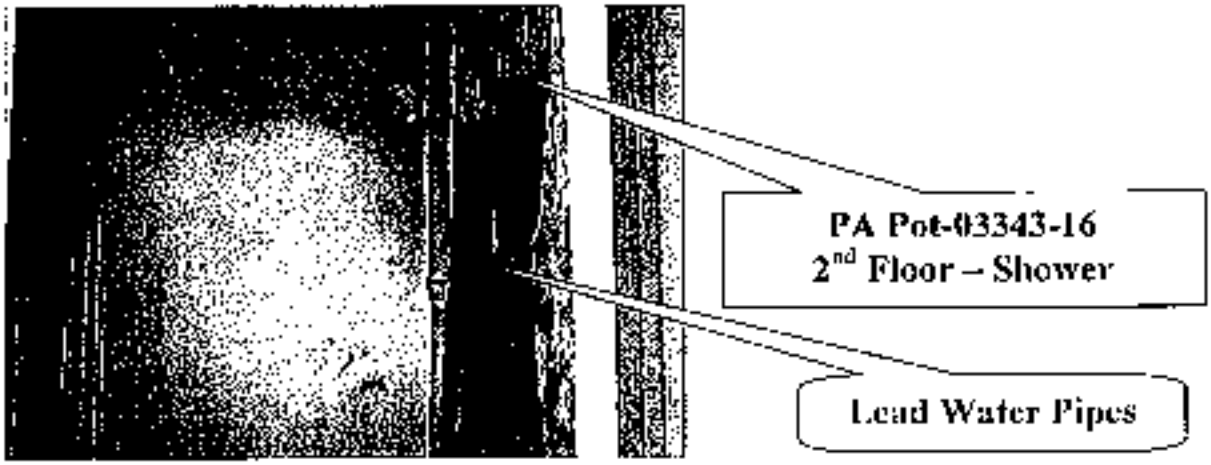
(13) PA Pot-03176-17
Former Range
Stored Material

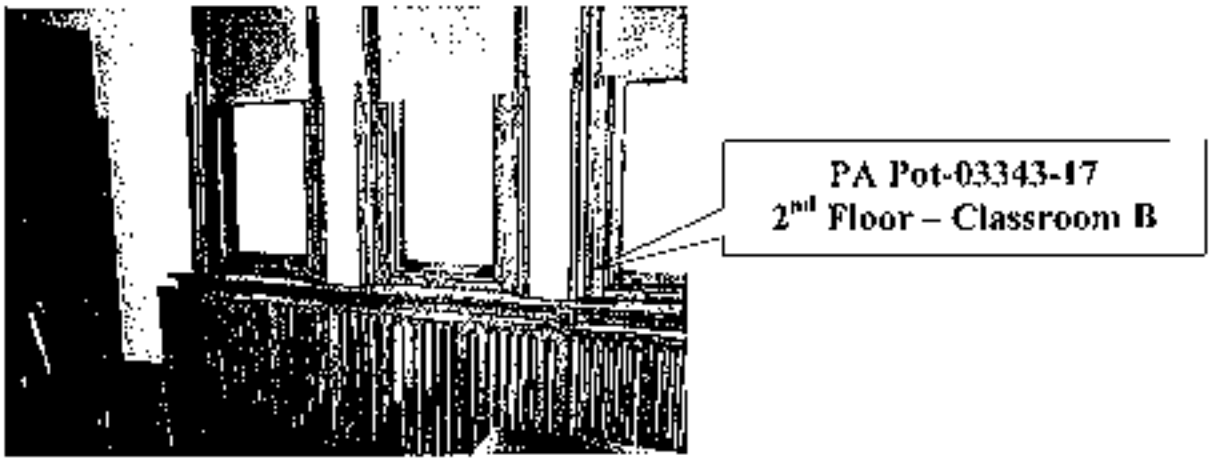
Attachment B

2nd Visit – Paint Chip Sample Areas









Attachment B

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
AIHA Certificate of Accreditation 9480 LAP ID 101533

TABLE ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	RES 95353-1R
Client:	Operational Technologies, Corp.
Client Project Number / P.O.:	06 03
Client Project Description:	Armories//Pennsylvania
Date Samples Received:	July 11, 2003
Analysis Type:	USEPA SW846 3050B / AA(7420)
Turnaround:	3-5 Day
Date Samples Analyzed:	July 15, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA POT-03176-03	EM 794695	0.11	90.9	23	826
PA POT-03176-04	EM 794696	0.11	18.5	23	168
PA POT-03176-05	EM 794697	0.11	34.2	23	311
PA POT-03176-06	EM 794698	0.11	95.0	23	864
PA POT-03176-07	EM 794699	0.11	14.6	23	133
PA POT-03176-08	EM 794700	0.11	BDL	23	BDL
PA POT-03176-15	EM 794701	0.11	10.0	23	91
PA POT-03176-16	EM 794702	0.11	BDL	23	BDL
PA POT-03176-17	EM 794703	0.11	68.3	23	621
PA POT-03176-18	EM 794704	0.11	13.6	23	124
PA POT-03176-19	EM 794705	0.11	30.6	23	278
PA POT-03176-20	EM 794706	0.11	BDL	23	BDL
PA SEL-03177-03	EM 794707	0.11	2.9	23	26
PA SEL-03177-04	EM 794708	0.11	BDL	23	BDL
PA SEL-03177-05	EM 794709	0.11	BDL	23	BDL
PA SEL-03177-06	EM 794710	0.11	BDL	23	BDL
PA SEL-03177-07	EM 794711	0.11	BDL	23	BDL
PA SEL-03177-08	EM 794712	0.11	BDL	23	BDL
PA PHO-03177-18	EM 794713	0.11	94.4	23	858
PA PHO-03177-19	EM 794714	0.11	19.0	23	173
PA PHO-03177-20	EM 794715	0.11	21.1	23	192
PA PHO-03177-21	EM 794716	0.11	18.0	23	164
PA PHO-03177-22	EM 794717	0.11	4.2	23	38
PA PHO-03177-23	EM 794718	0.11	BDL	23	BDL
PA PHO-03177-30	EM 794719	0.11	BDL	23	BDL
PA PHO-03177-31	EM 794720	0.11	70.1	23	637
PA PHO-03177-32	EM 794721	0.11	10.3	23	94
PA PHO-03177-33	EM 794722	0.11	BDL	23	BDL
PA PHO-03177-34	EM 794723	0.11	7.2	23	65
PA PHO-03177-35	EM 794724	0.11	BDL	23	BDL

BDL - Below Detection Limit

Data Qa

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

NVLAP
NY ELAP
AIHA

CERTIFICATE OF ANALYSIS

Client:	National Guard Bureau	**Job Name:**	Pennsylvania Armories-Pottstown	**Chain Of Custody:**	117536
Address:	301-III Old Bay Lane, Attn: NGB-AVN-SL, State Military Reservation	**Job Location:**	Not Provided	**Date Analyzed:**	09/22/2003
	Havre de Grace, Maryland 21078	**Job Number:**	Not Provided	**Person Submitting:**	[redacted]
Attention:	[redacted]	**P.O. Number:**	Not Provided	**Report Date:**	22-Sep-03

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
0367578	PA-Pot-03176-09	Flame	Wipe	****	0.111	108.01 ug/ft²	1600 ug/ft²	
0367579	PA-Pot-03176-10	Flame	Wipe	****	0.111	108.01 ug/ft²	< 110 ug/ft²	
0367580	PA-Pot-03176-11	Flame	Wipe	****	0.111	108.01 ug/ft²	4800 ug/ft²	
0367581	PA-Pot-03176-12	Flame	Wipe	****	0.111	108.01 ug/ft²	9400 ug/ft²	
0367582	PA-Pot-03176-13	Flame	Wipe	****	0.111	108.01 ug/ft²	< 110 ug/ft²	
0367583	PA-Pot-03176-14	Flame	Wipe	****	0.111	108.01 ug/ft²	< 110 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.

Analyst: [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.

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m³
PA Ber-03171-01	03-20704	338.4	ND	<0.003
PA Ber-03171-02	03-20705	327.0	ND	<0.003
PA Wes-03171-16	03-20706	423.5	ND	<0.002
PA Wes-03171-17	03-20707	414.8	ND	<0.002
PA Kut-03174-01	03-20708	467.4	ND	<0.002
PA Kut-03174-02	03-20709	463.1	ND	<0.002
PA Ham-03174-22	03-20710	333.0	ND	<0.003
PA Ham-03174-23	03-20711	323.8	ND	<0.003
PA Rea-03175-01	03-20712	158.6	ND	<0.006
PA Rea-03175-02	03-20713	162.1	ND	<0.006
PA Ann-03175-16	03-20714	159.6	ND	<0.006
PA Ann-03175-17	03-20715	147.5	ND	<0.007
PA Ann-03175-31	03-20716	147.5	ND	<0.007
PA Ann-03175-32	03-20717	142.7	ND	<0.007
PA Pot-03176-01	03-20718	281.9	ND	<0.004
PA Pot-03176-02	03-20719	266.8	ND	<0.004
PA Sel-03177-01	03-20720	382.4	ND	<0.003
PA Sel-03177-02	03-20721	377.2	ND	<0.003
PA Pho-03177-16	03-20722	354.4	ND	<0.003
PA Pho-03177-17	03-20723	348.6	ND	<0.003
	Prep Blank		ND	
% Recovery	LCS 5		97.	
% Recovery	LCS 6		98.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer

Results
Lead

Client #	DCL #	mg/Kg (ppm)	% by weight
PA Rid-03342-01	03-35904	1200.	0.12
PA Cle-03342-10	03-35905	170.	0.017
PA Pot-03343-13	03-35906	4600.	0.46
PA Pot-03343-14	03-35907	54000.	5.4
PA Pot-03343-15	03-35908	160000.	16.
PA Pot-03343-16	03-35909	110000.	11.
PA Pot-03343-17	03-35910	110000.	11.
PA Wes-03344-07	03-35911	59000.	5.9
	Prep Blank	ND	
% Recovery	LCS	87.	
% Recovery	MS	94.	
% Recovery	MSD	94.	
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

Analyst

Non-Responsive

Reviewer

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non-Responsive @md.ngb.army.mil

Attachment D

REFERENCE LIST INDEX

1. General Regulations and National Consensus Standards
2. Specific Regulations and Guidance
   a. Abrasive Blasting
   b. Asbestos
   c. Battery Charging Room
   d. Bird and Bat Manure
   e. Bloodborne Pathogens
   f. Chemical Agent Resistant Coating (CARC) Paint
   g. Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE)
   h. Confined Space Entry Program
   i. Design Review
   j. Ergonomics
   k. Flammable Storage Room
   l. Hazard Communication
   m. Hearing Conservation
   n. Indoor Air Quality
   o. Indoor Firing Ranges
   p. Lead
   q. Lighting
   r. Occupational Vision
   s. Paint Spray Booth
   t. Personal Protection
   u. Radiation Protection
   v. Respiratory Protection
   w. Sanitation
   x. Smoking
   y. Vehicle Exhaust
   z. Welding Operation

GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REFERENCE LIST

1. General Regulations and National Consensus Standards

a. DODI 6055.1, DOD SOH Program, 19 August 1998.

b. DODI 6055.5, DOD OEH. *[DRAFT]*

c. DOD 6055.5-M, DOD Occupational Health Surveillance Manual, 13 May 1987.

d. DODI 6050.5, DOD Hazard Communication, 29 Oct 90. Change 1, 6 May 1996.

e. AR 40-5, Preventive Medicine, 15 October 1990. [05/2002 Being Updated]

f. DA PAM 40-5, Preventive Medicine. *[DRAFT]*

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

h. NGR 385-10, ARNG SOH Program, 7 October 1988, Change 1, 29 December 1989.

i. Title 29, Part 1910, Occupational Safety and Health Standards. [Current Date]

j. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 2002.

k. ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th edition, 2001.

l. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.

m. TG 141, USACHPPM Industrial Hygiene Sampling Guide, November 1997.

n. National Safety Council, Fundamentals of Industrial Hygiene, 5th Edition, 2002.

o. NIOSH, Pocket Guide to Chemical Hazards, 2001.

p. NFC, A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. [Current date]

q. ASHRAE Standards. [Current Dates]

r. ANSI Standards. [Current Dates]

2. Specific Regulations/Guidance

a. **ABRASIVE BLASTING**

(1) ANSI Z9.4 1997, Abrasive Blasting Operations - Ventilation and Safe Practices.

(2) 29 CFR 1910.94 Ventilation

(3) 42 CFR 84

b. **ASBESTOS**

(1) AR 40-5, Preventive Medicine, 15 October 1990. *[05/2002 Being Updated]*

(2) AR 200-1, Environmental Protection and Enhancement, Chapter 8, 21 February 1997.

(3) TB MED 513, Guidelines for the Evaluation and Control of Asbestos Exposure, 15 December 1986. *[05/2000 Under Revision as DA PAM 40-513]*

(4) TG 157, USAEHA, The Installation Asbestos Management Program Assessment Checklists, July 1994.

(5) 29 CFR 1910.1001

(6) 29 CFR 1926.58 (prior to 1994 CFR)

(7) 29 CFR 1926.1101

(8) MEMORANDUM SGPS-PSP, OTSG, subject: AMEDD Role Supporting Asbestos Abatement/Asbestos Management Programs, 19 Jan 89.

(9) EPA, Guidance for Controlling Asbestos-Containing Materials in Buildings, June 1985.

(10) DD Form 2493-1 (Asbestos Exposure, Part I--Initial Medical Questionnaire)

(11) DD Form 2493-2 (Asbestos Exposure, Part II--Periodic Medical Questionnaire)

(12) EPA NESHAPS Asbestos Regulation (40 CFR 61, Subpart M).

c. **BATTERY CHARGING ROOM**

(1) TG 022, USAEHA, page 81, Industrial Hygiene Evaluation Guide, October 1975. *[Out of Print]*

(2) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

d. **BIRD AND BAT MANURE**

(1) TG 142, USAEHA, Managing Health Hazards Associated with Bird and Bat Excrement, Dec 1992.

e. **BLOODBORNE PATHOGENS**

(1) 29 CFR 1910.1030

(2) TG 190, USAEHA, Guide to Managing Occupational Exposure to Bloodborne Pathogens, Jan 94.

f. **CHEMICAL AGENT RESISTANT COATING (CARC) PAINT**

(1) TG 144, USAEHA, Guidelines for Controlling Health Hazards in Painting Operations, 24 August 1987.

(2) DA LTR, USAEHA, HSHB-MI-WR, subject: Respiratory Protection When Spraying CARC, 19 November 1992.

(3) TM 43-0139, Painting Instructions for Army Material, 27 July 19881 Aug 86.

(4) MEMORANDUM SGPS-PSP, OTSG, subject AMEDD, Occupational Health Requirements in Support of Painting in the Army, 22 February 1985.

(5) AR 750-1, Army Materiel Maintenance Policy and Retail Maintenance Operations (Prohibits welding on CARC paint) 1 July 1996.

g. **CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR, EXPLOSIVE (CBRNE)**

(1) DODI 2000.gg, DOD Installation CBRNE Emergency Response Guidelines.

(2) DHHS, NIOSH Pub No. 2002 139, Guidance for Protecting Building Environments from Airborne Chemical, Biological, or Radiological Attacks, May 2002.

(3) TG 275, USACHPPM, Personal Protective Equipment Guide for Medical Treatment Facility Personnel Handling Casualties from Weapons of Mass Destruction and Terrorism Events. *[Draft]*

h. **CONFINED SPACE**

(1) 29 CFR 1910.146 (Confined Space Entry)
(2) 29 CFR 1910.147 (Lockout/Tagout)
(3) ANSI Z117.1-Safety Requirements for Confined Spaces, 1995.
(4) SOP for ARNG Confined Space Entry Program, 25 April 1991.
(5) Letter, US Dept of Labor (DOL) addressed to Vanessa Cher, 22 Apr 1994.
(6) OSHA Instruction STD 1-7.3, US DOL, subject: 29 CFR 1910.147, the Control of Hazardous Energy (Lockout/Tagout)--Inspection Procedures and Interpretive Guidance, 11 Sep 90.
(7) DHHS, NIOSH Pub No. 87113, A Guide to Safety in Confined Spaces, July 1987.
(8) Confined Space Entry Program for Helicopters, 2003.

i. **DESIGN REVIEW**

(1) DG 415-1, Design Guide for Armories, current.
(2) DG 415-2, Design Guide for Logistics Facilities, current.
(3) DG 415-3, Design Guide for Training Site Facilities, current.
(4) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.
(5) TI-300, 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.
(6) UFGS 15940A, Overhead Vehicle Tailpipe (and welding Fume) Exhaust Removal Systems, December 2001.
(7) ASHRAE, Standard 62-2002, Ventilation for Acceptable Indoor Air Quality.
(8) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

j. **ERGONOMICS**

(1) DA PAM 40-21, Medical Services, Ergonomics Program, 15 May 2000.
(2) ANSI Z-365, Management of Work Related Musculoskeletal Disorders, 2000.
(3) 29 CFR 1910. *[PROPOSED STANDARD]*

k. **FLAMMABLE STORAGE ROOM**

(1) 29 CFR 1910.106
(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

l. **HAZARD COMMUNICATION**

(1) 29 CFR 1910.1200
(2) NGR 385-10, Chapter 6

m. **HEARING CONSERVATION**

(1) DA PAM 40-501, Medical Services, Hearing Conservation Program, 10 December 1998.

(2) TG 181, USAEHA, Noise Dosimetry and Risk Assessment, May 1999.

(3) TG 175, USAEHA, Readiness thru Hearing Conservation: Guide for Unit Commanders and Supervisors, June 1999.

(4) 29 CFR 1910.95

n. **INDOOR AIR QUALITY (IAQ)**

(1) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

(2) USACERL Technical Report P-91/42, IAQ Management for Operations and Maintenance Personnel, September 1991.

(3) EPA 400/1-91/003 or DHHS, NIOSH, Publication No. 91-114, Building IAQ, A Guide for Building Owners and Facility Managers, December 1991.

(4) ASHRAE, Standard 62-2002, Ventilation for Acceptable IAQ.

(5) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

(6) NIOSH, IAQ Selected References, Sep 1989.

(7) OSHA Instruction CPL 2-2.20B CH-1, Directorate of Technical Support, 13 Nov 90.

(8) DA PAM 25-52, Mail Facility Security and Handling Suspicious Mail, 6 November 2001.

(9) ASTM, D 5952-96, 10 May 1996.

o. **INDOOR FIRING RANGES**

(1) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(2) NGR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges, 30 March 1990. *[11/02 Under Revision]*

(3) CEHND 1110-1-18, USACE Design Manual for Indoor Firing Range, June 1990.

(4) HQDA LTR, Office of the Adjutant General, DACS-SF, subject: Inspection and Evaluation of US Army Indoor Firing Ranges, 26 March 1993.

(5) Departments of the Army and Air Force, NGB-ADE-OM, subject: All State Log Number (I920323) Indoor Range Clean-up at State Owned Armories, 28 July 1992.

(6) NIOSH, Technical Information, December 1975, subject: Lead Exposure and Design Considerations for Indoor Firing Ranges.

(7) All-States Ltr P01-0075, 5 December 2001.

(8) Information Paper, Alternative Ammunition, 15 March 1996.

(9) Information Paper, Bullet Traps, 26 April 1996.

(10) Information Paper, ARNG IFR Action Plan, 28 January 2002.

p. **LEAD**

(1) 29 CFR 1910.1025

(2) 29 CFR 1926.62

(3) 24 CFR 35.61 (HUD, Percentage of Lead in Paint)

(4) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(5) OSHA Instruction CPL 2-2.58, Office of Health Compliance Assistance, 13 December 1993.

(6) Federal Register, 18 April 1990, Vol. 55, No. 75, HUD, Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing, as amended, September 1990, Office of Public and Indian Housing, Department of Housing and Urban Development, 451 Seventh Street, SW, Washington, DC 20410.

(7) NIOSH, Request for Assistance in Preventing Lead Poisoning in Construction Workers, April 1992.

(8) EPA, Strategy for Reducing Lead Exposures, 21 Feb 91.

q. **LIGHTING**

(1) RP-1-1993, Office Lighting, ANSI/IESNA.

(2) RP-7-2001, Industrial Lighting, IES.

r. **OCCUPATIONAL VISION**

(1) DA PAM 40-506, Medical Services, The Army Vision Conservation and Readiness Program, 20 July 2001.

(2) ANSI Z87.1, Practice for Occupational and Educational Eye and Face Protection, 1989, Change A, REAF 1998.

(3) ANSI Z358.1 for Emergency Eyewash and Shower Equipment, 1998.

(4) OTSG Memorandum SGPS-PSP, subject: Acanthameoba Keratitis and Eyewash Stations, 8 May 89.

(4) 29 CFR 1910.133

s. **PAINT SPRAY BOOTH**

(1) NFPA No. 33, Standard for Spray Application Using Flammable and Combustible Materials, 1995.

(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

(3) 29 CFR 1910.94

(4) 29 CFR 1910.107

(5) ANSI Z9.3-1995 for Exhaust Systems - Spray Finishing Operations - Safety Code for Design, Construction, and Ventilation.

(6) ANSI Z9.2-2001, Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems.

t. **PERSONAL PROTECTIVE EQUIPMENT**

(1) Quick Selection Guide to Chemical Protective Clothing, 2nd edition, Forsberg, K and Mansdorf, S., 1993.

(2) Chemical Protective Clothing, Vol 1 and 2, Johnson, J. and Anderson, K., American Industrial Hygiene Association, 1990.

(3) Guidelines for the Selection of Chemical Protective Clothing, 3rd Edition, ACGIH, Inc., Feb 1987.

u. **RADIATION PROTECTION PROGRAM**

(1) NGR 385-11, Safety, Ionizing and Nonionizing Radiation Protection, 18 February 1999.

(2) AR 11-9, Army Radiation Safety Program, 28 May 1999.

(3) 29 CFR 1910.96

(4) 29 CFR 1910.97

v. **RESPIRATORY PROTECTION**

(1) AR 11-34, The Army Respiratory Protection Program, 15 February 1990. *[11/02 Being Updated]*

(2) 29 CFR 1910.134

(3) 42 CFR 84

(4) TB MED 502, Respiratory Protection Program, February 1992. *[11/02 Being Updated as DA PAM 40-502]*

(5) ANSI/CGA G-7.1-1997, Commodity Specification for Air.

(6) ANSI Z88.2-1992, Standard for Respiratory Protection.

w. **SANITATION**

(1) ANSI Z4.1-1986, Change REAF 1995, Sanitation in Places of Employment-Minimum Requirements.

(2) 29 CFR 1910.141

x. **SMOKING**

(1) AR 600-63, Army Health Promotion, 28 April 1996.

(2) DODI 1010.15, Smoke-Free DOD Facilities, 2 January 2001.

(3) DODD1010.10, Health Promotion, 11 March 1986.

y. **VEHICLE EXHAUST**

(1) ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th Edition, 2001.

(2) TI-300f 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

z. **WELDING OPERATION**

(1) 29 CFR 1910.252

(2) 29 CFR 1910.253

(3) 29 CFR 1910.254

(4) ANSI/AWS Z49.1-1999, Safety in Welding and Cutting and Allied Processes.

(5) TM 5-805-7, Welding Design, Procedures and Inspection, 20 May 85.

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(b)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 $\mu g/ft^2$) and windowsills (250 $\mu g/ft^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of 200 $\mu g/ft^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 $\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 $\mu g/ft^2$ on floors and 250 $\mu g/ft^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

Industrial Hygiene Survey

DET 1 BTRY A 1/213th ADA BN

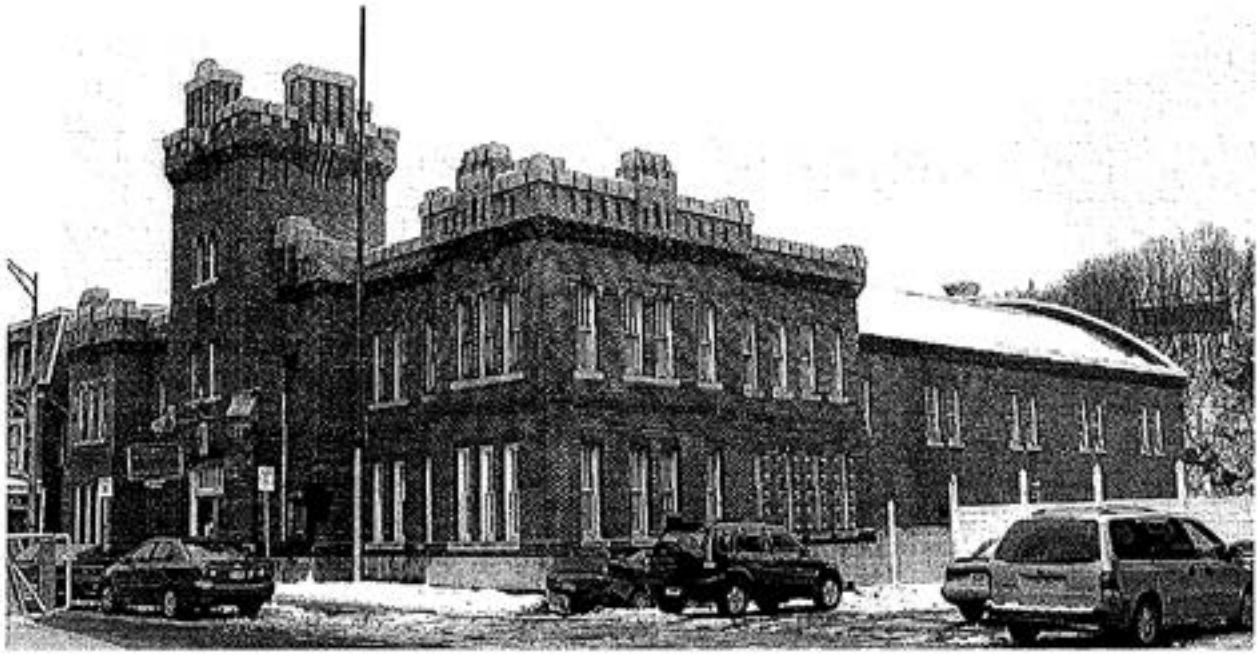
POTTSVILLE, PENNSYLVANIA

June 19, 2003
and
December 9, 2003

OPTECH

OPERATIONAL TECHNOLOGIES
CORPORATION

INDUSTRIAL HYGIENE SURVEY
DET 1 BTRY A 1/213th ADA BN
POTTSVILLE, PENNSYLVANIA



1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Armory in Pottsville, Pennsylvania on June 19, 2003 with a return visit on December 9, 2003. The NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. [redacted] and [redacted] from OpTech, completed this survey. [redacted] a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the IH Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D.

RECOMMENDATIONS

1. INDOOR AIR QUALITY

1.1. Relative humidity readings were at the high end of the acceptable range of 60% throughout the facility, and the orderly room exceeded the 60% limit. Humidity should be maintained below 60% relative humidity for occupant comfort and controlling mold growth. No mold was observed during the survey.

2. ILLUMINATION

2.1. Levels were below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3. LEAD WIPE SAMPLES

3.1. Samples for inorganic lead collected on the kitchen water heater, plus samples in the maintenance room, assembly hall and on a locker in the former indoor firing range area exceeded the 200 $\mu g/ft^2$ criteria. Lower levels of lead were detected throughout the building. Contamination on the hot water is likely from soldering water lines. Suspect that lead contamination in the building is due to former firing range activities, which has migrated throughout the facility, plus lead paint. Lead dust has accumulated over the years from these sources. Recommend that the facility be wet-wiped/mopped and/or cleaned using a high efficiency particulate air (HEPA) vacuum. This method of cleaning should be repeated during normal housekeeping activities.

4. LEAD PAINT

4.1. A small area of paint was peeling on the south wall of the assembly hall. The walls had recently been painted. A paint chip sample of all paint layers was collected and analyzed for lead content. The results exceeded the EPA's 0.5% by weight criteria; therefore, the assembly hall paint is considered lead-contaminated. Since a layer of non-lead paint was recently applied, there is not a present hazard. The small peeling area should be repaired and a protective coating of non-lead paint reapplied. Any future peeling should be immediately repaired and a protective coating applied.

2.0. EXECUTIVE SUMMARY

2.1. Carbon monoxide, carbon dioxide and indoor temperatures were within recommended levels. Relative humidity readings were at the high end of the acceptable range of 60% throughout the facility, and the orderly room exceeded the 60% limit. Humidity should be maintained below 60% relative humidity for occupant comfort and controlling mold growth. No mold was observed during the survey.

2.2. Illumination levels were below recommended minimum standards in most areas of the facility.

2.3. Wipe samples for inorganic lead were collected throughout the facility. Samples on the kitchen water heater, plus samples in the maintenance room, assembly hall and on a locker in the former indoor firing range area exceeded the 200 $\mu g/ft^2$ criteria. Lower levels of lead were detected throughout the building. Contamination on the hot water is likely from soldering water lines. Suspect that lead contamination in the building is due to former firing range activities, which has migrated throughout the facility, plus lead paint. Lead dust has accumulated over the years from these sources.

2.4. Air sampling for inorganic lead was accomplished. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building.

2.5. A small area of paint was peeling on the south wall of the assembly hall. The walls had recently been painted with non-lead paint. A paint chip sample of all paint layers was collected and analyzed for lead content. The results exceeded the EPA's 0.5% by weight criteria; therefore, the assembly hall paint is considered lead-contaminated.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	DET 1 BTRY A 1/213th ADA BN		
ADDRESS	520 North Centre Street		
	Pottsville, PA 17901		
CONTACT	Non-Responsive		
PHONE	570-622-8461		
DATE BUILT	1913	FACILITY SIZE	14,870 sq. ft.
INDOOR FIRING RANGE	Inactive		2-floors plus basement
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	2		
TRADITIONAL (MIL)	45		
CHILD ACTIVITIES	The armory rents the center out to the YMCA for the Pottsville City Youth Program		
ADULT ACTIVITIES			

3.1.1. The exterior is brick and appears to be in good condition. The interior has been kept in good condition. During this survey, some areas were being remodeled and most of the facility was receiving a fresh coat of paint. The facility is heated with a natural gas steam furnace and cooled with window air conditioners.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity (RH) in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 Indoor Air Quality Standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ASHRAE 62-2001, Section 6.1.3, states that concentrations up to 700 ppm CO_2, above outdoor concentrations will achieve an acceptable level of indoor air quality.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ASHRAE 55-1992 recommends that temperature ranges be 73 to 79 degrees Fahrenheit (°F) during the summer and 68 to 74°F during the winter. Relative humidity levels be maintained between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE 1
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO2 (ppm)	Temp. (°F)	RH (%)
1615	Outdoors – Background	0.0	510	78.3	60.4
1635	Orderly Room	0.0	530	77.9	60.8
1638	Lobby	0.0	522	75.2	58.5
1642	Assembly Hall	0.0	531	74.4	58.4
1645	Hallway	0.0	530	75.4	57.2
1649	Supply Room	0.0	526	74.2	56.4
1652	Storage	0.0	522	73.8	58.1
1656	Classroom	0.0	521	73.2	57.2
1659	Fitness Center	0.0	524	74.4	56.3
1704	Classroom	0.0	531	75.2	54.2
1708	Kitchen	0.0	534	75.2	54.8
1711	Social Room	0.0	518	74.4	55.2
1714	Locker Room	0.0	522	74.3	56.2
1718	Male Latrine	0.0	523	73.2	54.6
1722	Maintenance Area	0.0	524	73.8	55.3

3.2.5. Carbon monoxide, carbon dioxide and indoor temperatures were within recommended levels. Relative humidity readings were at the high end of the acceptable range of 60% throughout the facility, and the orderly room exceeded the 60% limit. Humidity should be maintained below 60% relative humidity for occupant comfort and controlling mold growth. No mold was observed during the survey.

3.3. ILLUMINATION

3.3.1. Illumination levels were measured in most areas of the facility. Sunlight was excluded, as much as possible for this survey, by closing doors and blocking windows. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 – 463). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
RDNCO's Office	40 - 48	45	70	NO
Orderly Room	40 - 44	42	70	NO
Hallway	32 - 42	38	7.5	YES
Lobby	38 – 68	49	15	YES
Assembly Hall	30 - 42	37	75	NO
Kitchen	28 - 50	42	75	NO
Locker Room	34 - 44	40	40	YES
Male Latrine	30 - 44	39	40	NO
Classroom	40 - 50	46	70	NO
Maintenance Area	40 – 50	43	70	NO

3.3.2. Levels were below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using supplemental lighting would improve some areas.

3.4. WIPE SAMPLES

3.4.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples were taken at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot ($\mu g/ft^2$) and are listed in Table 3. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead ($\mu g/ft^2$)
PA Pot-03170-24	Orderly Room – Vent	48
PA Pot-03170-25	Officer Room – Floor	186
PA Pot-03170-26	Assembly Hall Basketball Floor	75
PA Pot-03170-27	Classroom – Window Sill	45
PA Pot-03170-28	Kitchen - Water heater	2,564
PA Pot-03170-29	BLANK Sample	BDL

$\mu g/ft^2$ = micrograms per square foot BDL = Below Detection Limits

3.4.2. Additional wipe samples were collected during this survey. These samples were collected to further analyze the extent of contamination should the first five samples indicate a possible hazard. Since the sample collected in the kitchen exceeded the 200 $\mu g/ft^2$ criterion (see Section 3.4.5 below), these additional samples were analyzed. The results are presented in Table 4.

TABLE 4
ADDITIONAL WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead ($\mu g/ft^2$)
PA Pot-03170-30	Break Room – Top of Refrigerator	320
PA Pot-03170-31	Maintenance Room	490
PA Pot-03170-32	2nd Floor – Classroom – Top of Box	170
PA Pot-03170-33	2nd Floor – Storage Room – Desk	BDL
PA Pot-03170-34	1st Floor – Stairwell	170
PA Pot-03170-35	BLANK Sample	BDL

$\mu g/ft^2$ = micrograms per square foot BDL = Below Detection Limits

3.4.3. Since the facility is used by YMCA youth and lead dust has been identified in the facility, a second visit was arranged and additional samples were collected in the assembly hall plus a sample in the kitchen. The results are presented in Table 5.

TABLE 5
2ND VISIT WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead ($\mu g/ft^2$)
PA Pot-03343-07	Assembly Hall – Southwest Corner – Ledge	890
PA Pot-03343-08	Assembly Hall – Southeast Corner – Floor	360
PA Pot-03343-09	Assembly Hall – Northeast Corner – Floor	190
PA Pot-03343-10	Assembly Hall – Northwest Corner – Ledge	400
PA Pot-03343-11	Kitchen – Floor	77
PA Pot-03343-12	BLANK Sample	BDL

$\mu g/ft^2$ = micrograms per square foot BDL = Below Detection Limits

3.4.4. CLOSED FIRING RANGE WIPE SAMPLING

3.4.4.1. Additional wipe samples were collected in the former indoor firing range. This area is presently being utilized as a locker room and garage. The laboratory analysis results are listed in Table 6.

TABLE 6
FORMER FIRING RANGE WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Pot-03170-36	Top of Locker	**5,073**
PA Pot-03170-37	Top of Pipe	145
PA Pot-03170-38	Window Sill	39
PA Pot-03170-39	Wire Cage	61
PA Pot-03170-40	Top of Locker	41
PA Pot-03170-41	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits (110 µg/ft²)

3.4.5. WIPE SAMPLING RESULTS

3.4.5.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 µg/ft^2. This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. (See memorandum in Attachment E, Recommendations for Surface Lead Dust in Armories.) Samples on the kitchen water heater, plus samples in the maintenance room, assembly hall and on a locker in the former indoor firing range area exceeded the 200 µg/ft^2 criteria. Contamination on the hot water is likely from soldering water lines. Suspect that lead contamination in the building is due to former firing range activities, which has migrated throughout the facility, plus lead paint. Lead dust has accumulated over the years from these sources.

3.4.6. AIR SAMPLING

3.4.6.1. Air Sampling for inorganic lead was performed during this survey. Table 7 lists the results of these samples, and is reported in milligrams per cubic meter (mg/m^3) of air.

TABLE 7
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
Non-Responsive	PA Pot-03170-22	Lead	<0.002 mg/m³	0.05 mg/m³	YES
Area – Kitchen	PA Pot-03170-23	Lead	<0.002 mg/m³	0.05 mg/m³	YES

mg/m³ = milligrams per cubic meter < = less than (below detection limits)

3.4.6.2. Air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this

building.

3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION DAMAGE

3.5.1.1. There was no water intrusion damage observed during this survey.

3.5.2. LEAD PAINT

3.5.2.1. The majority of the facility had received a fresh coat of paint. During the second visit a small area on the south wall in the assembly hall was chipping. A bulk sample was collected and analyzed for lead content. The results are listed in Table 8.

TABLE 8
PAINT CHIP SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (percent)
PA Pot-03343-13	Assembly Hall – South Wall	18%

BDL = Below Detection Limits

3.5.2.2. The Environmental Protection Agency (EPA) considers paint with a lead content equal to or greater than 0.5% by weight as contaminated. Therefore, the paint on the assembly hall wall is considered lead-contaminated paint. These walls were recently painted with non-lead paint. The paint sample included all layers of paint.

3.5.3. ASBESTOS

3.5.3.1. No suspect containing asbestos was noted or reported in the facility.

3.5.4. PROGRAMS

3.5.4.1. There are no designated confined space areas within this facility. There are no exhaust ventilation systems to control a hazard. No chemicals besides normal cleaning materials are present. Therefore, a need has not been established for a HAZCOM program, the need for personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.5. HOUSEKEEPING

3.5.5.1 The facility was well maintained and organized.

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

E – Recommendations for Surface Lead in Armories

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
Pottsville, PA	PENNSYLVANIA ARNG ARMORY	Pottsville Armory

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR (initials)
19 June / 9 December 2003	JSS

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	NA	Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
570-622-8461	DET 1 BTRY A 1/213TH ADA BN	3	9

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
0	45			

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	CONROLS 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			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	½ FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	¼ 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 WEATHR 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	/		

AEHA Form 271-R (Test), 1 Jan 92 (HSHB-MI-I)

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	3	C

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

SECTION 6. COMMENTS

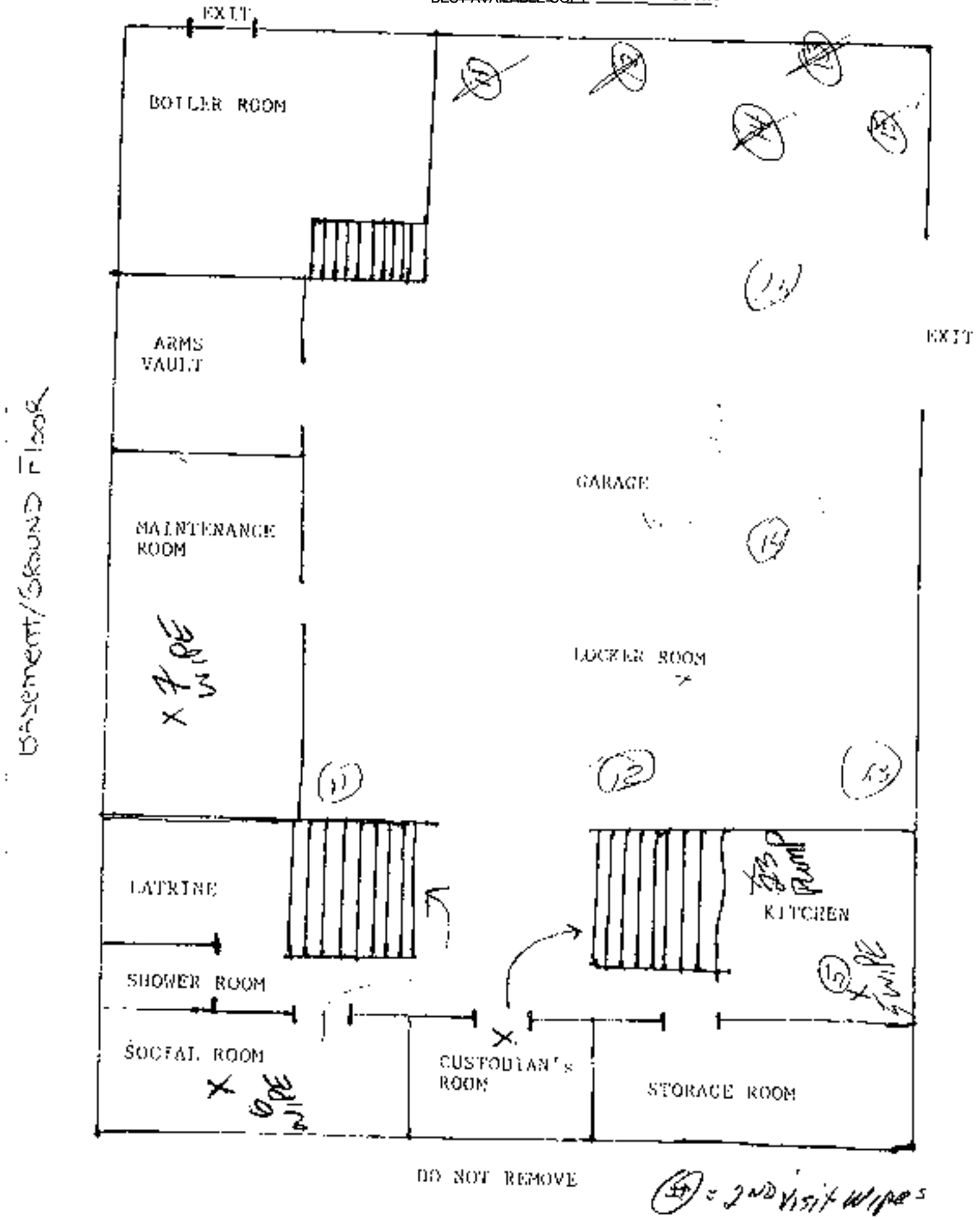
☐ No comments ☐ See attached sheet

PRIVACY ACT STATEMENT

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

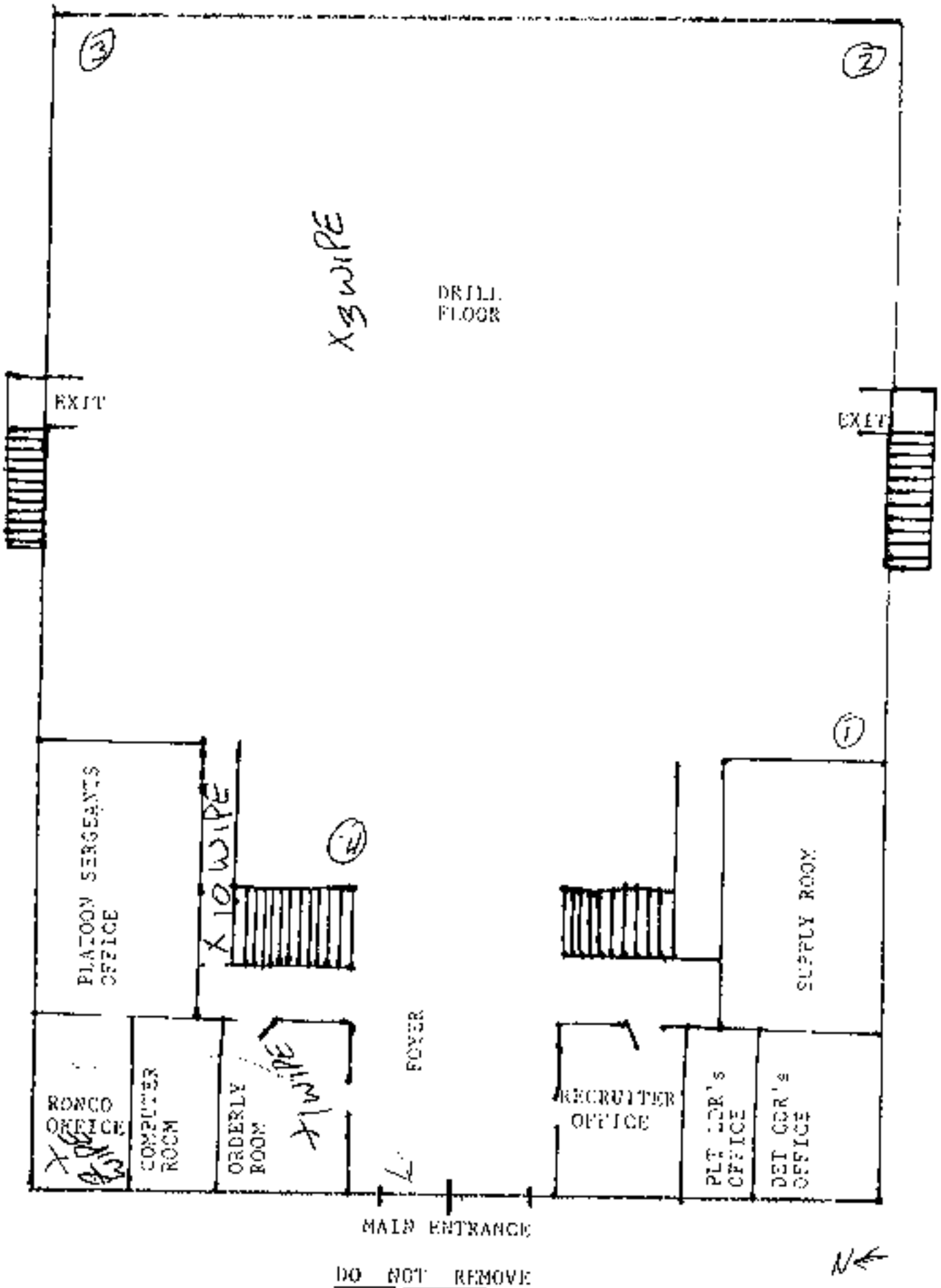
Disclosure of your Social Security Number is not mandatory; however, nondisclosures may result in untimely provision of proper medical monitoring.

FIRE EVACUATION DIAGRAM



BASEMENT/GROUND FLOOR

FIRE EVACUATION DIAGRAM



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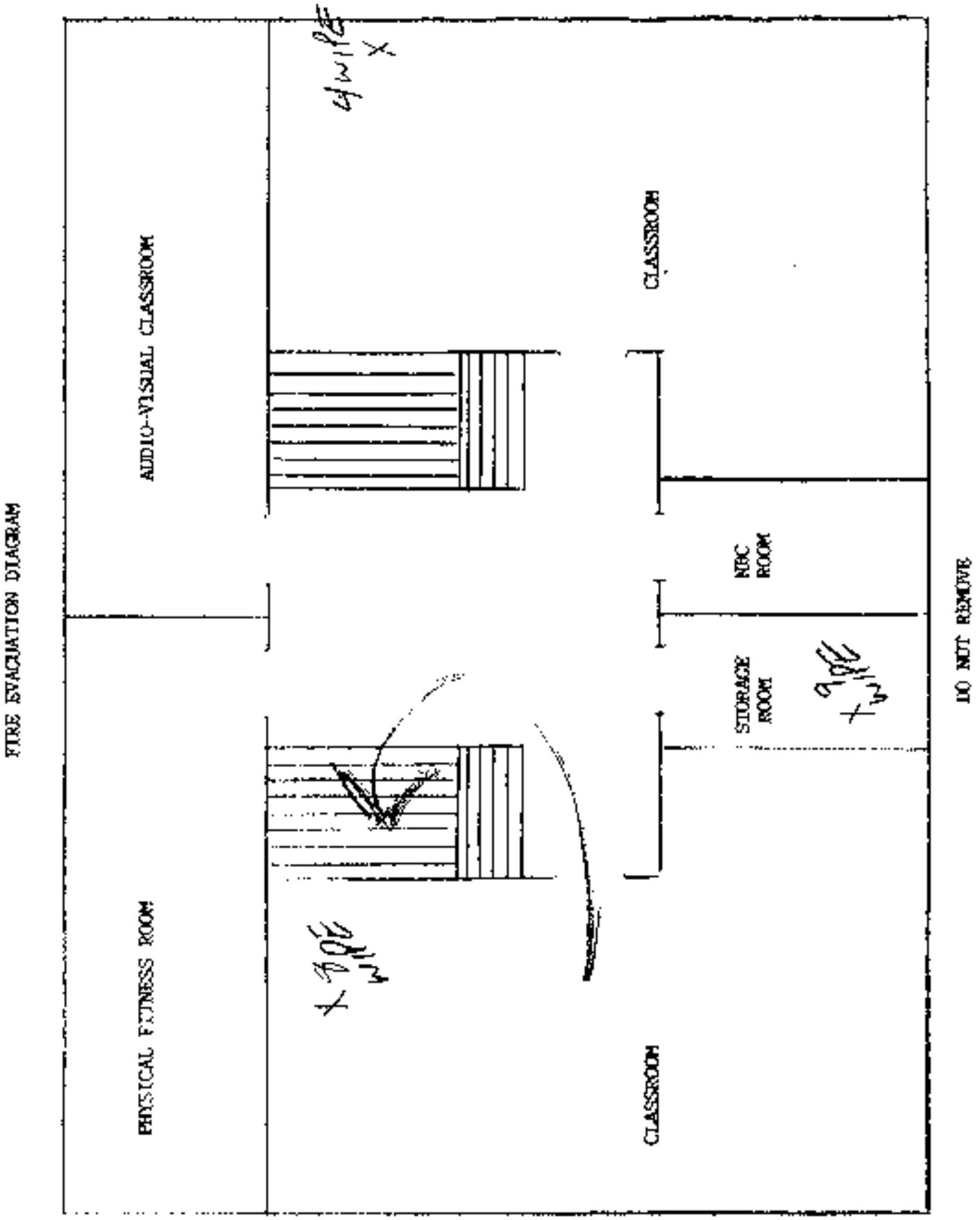
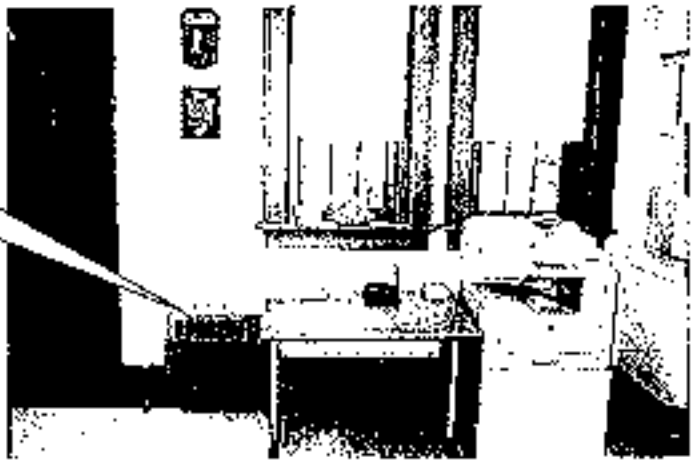


DET 1 BTRY A 1/213TH ADA BN
POTTSVILLE, PENNSYLVANIA

(1) PA Pot-03170-24
Orderly Room



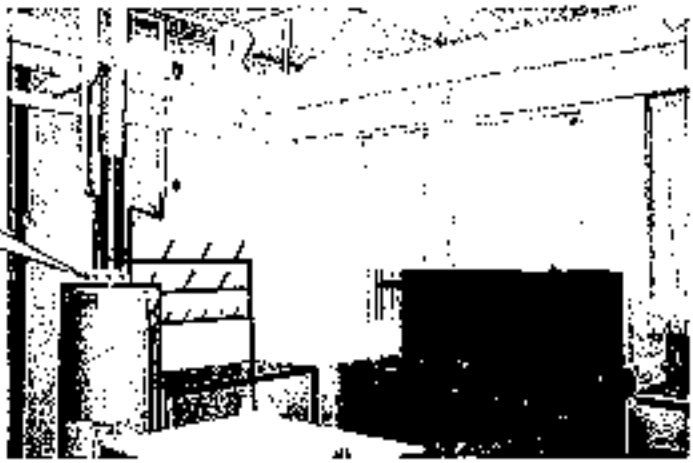
(2) PA Pot-03170-25
RD NCO's Office

(3) PA Pot-03170-26
Assembly Hall

Attachment B

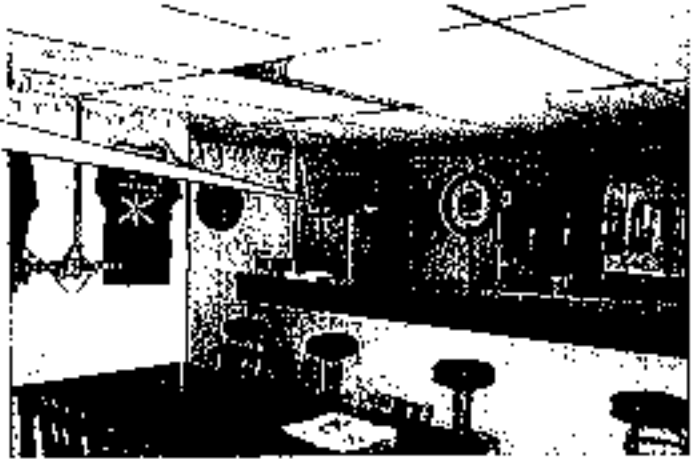
(4) PA Pot-03170-27
Classroom

(5) PA Pot-03170-28
Kitchen



ADDITIONAL SAMPLES

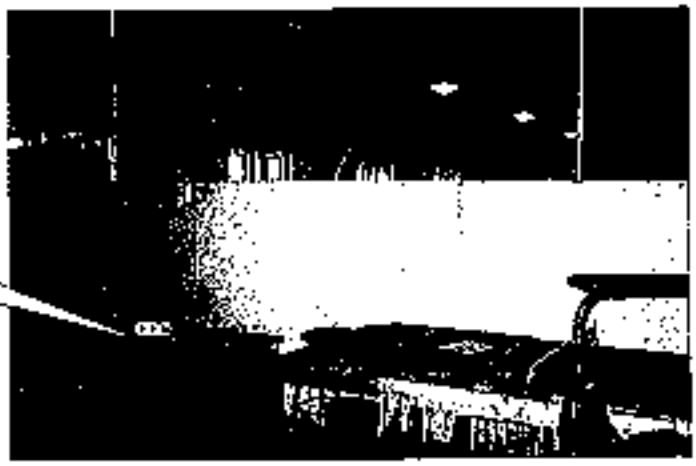
(6) PA Pot-03170-30
Break Room



Attachment B

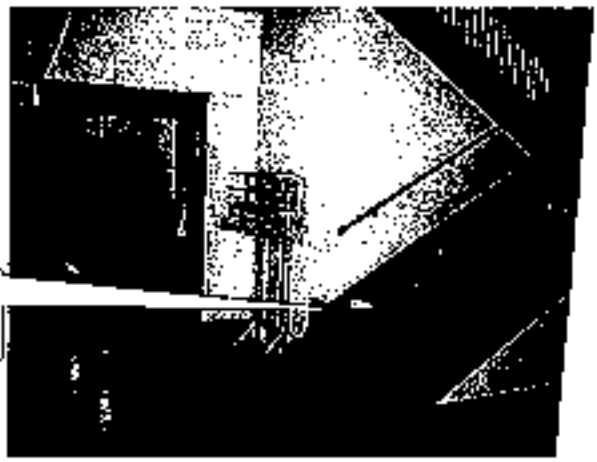
(7) PA Pot-03170-31
Maintenance room

(8) PA Pot-03170-32
2nd Floor – Classroom



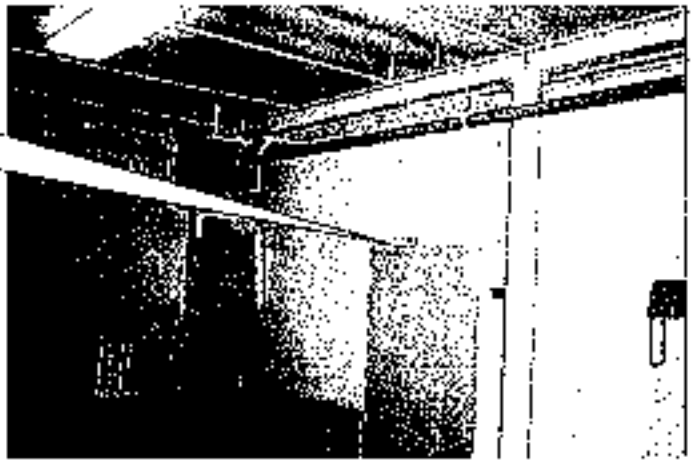
(9) PA Pot-03170-33
Classroom

Attachment B

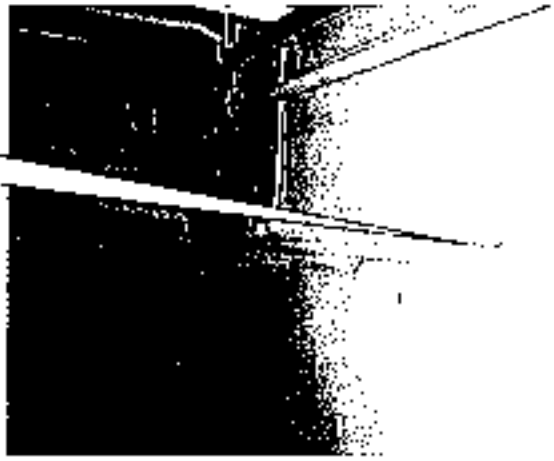


(10) PA Pot-03170-34
Stairs to 2nd Floor

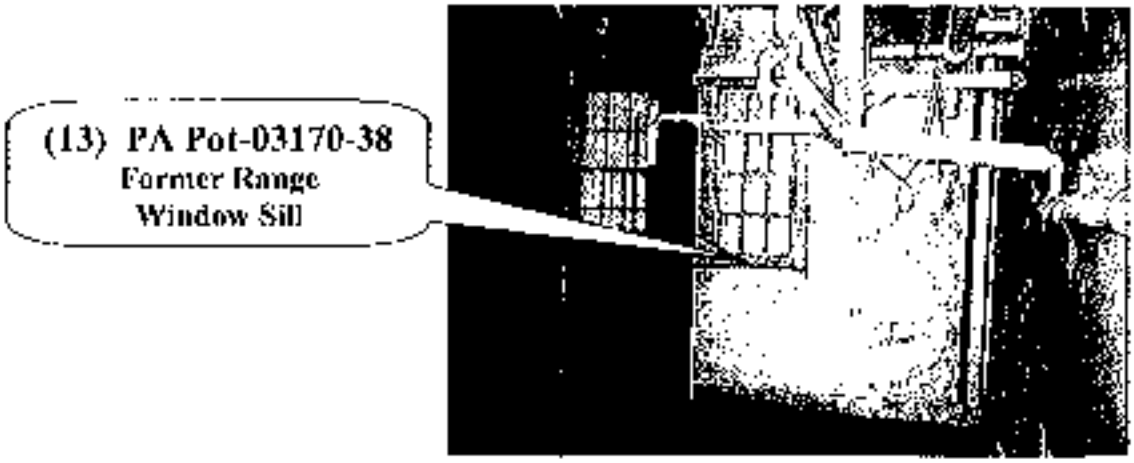
FORMER INDOOR FIRING RANGE SAMPLES

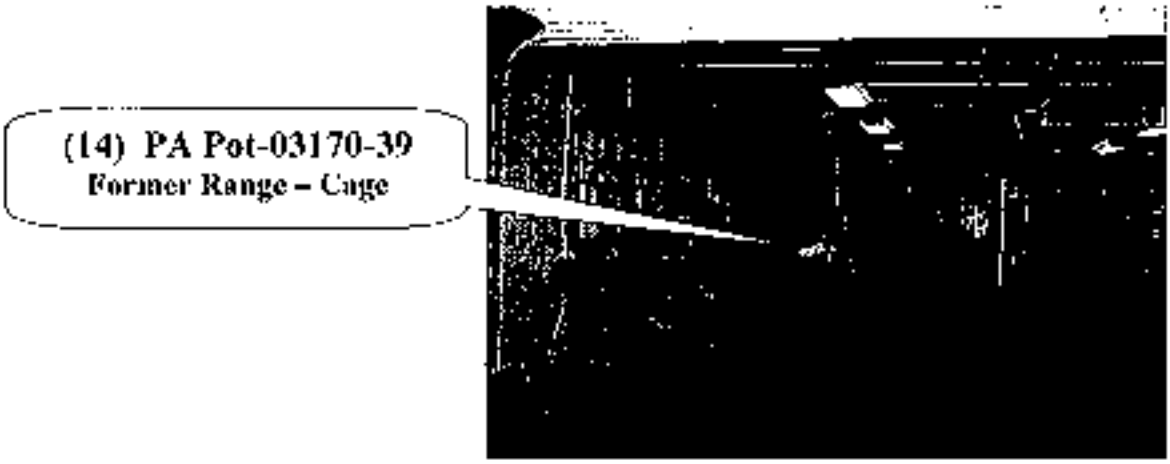


(11) PA Pot-03170-36
Former Range

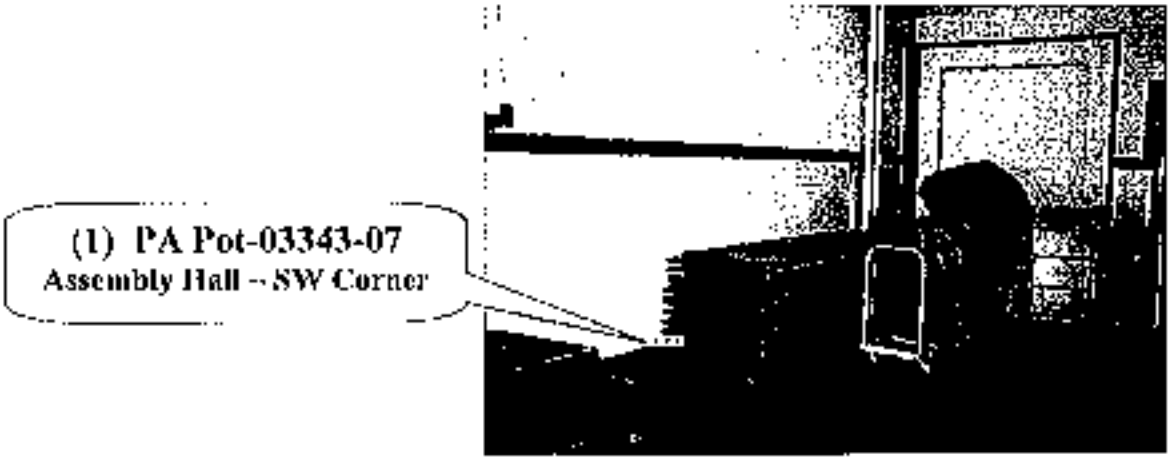


(12) PA Pot-03170-37
Former Range

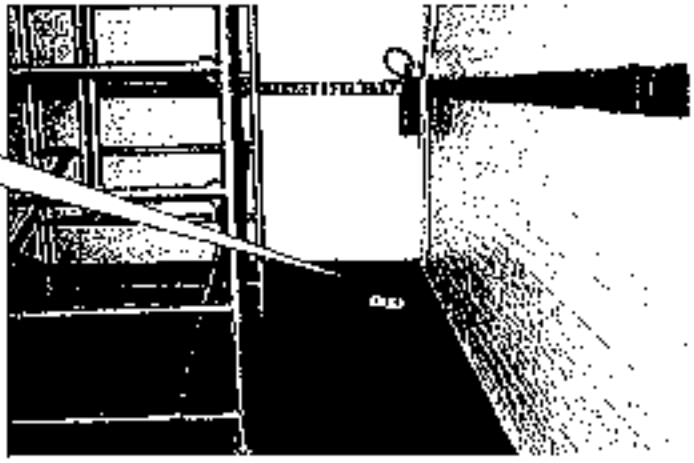




2nd VISIT WIPE SAMPLES



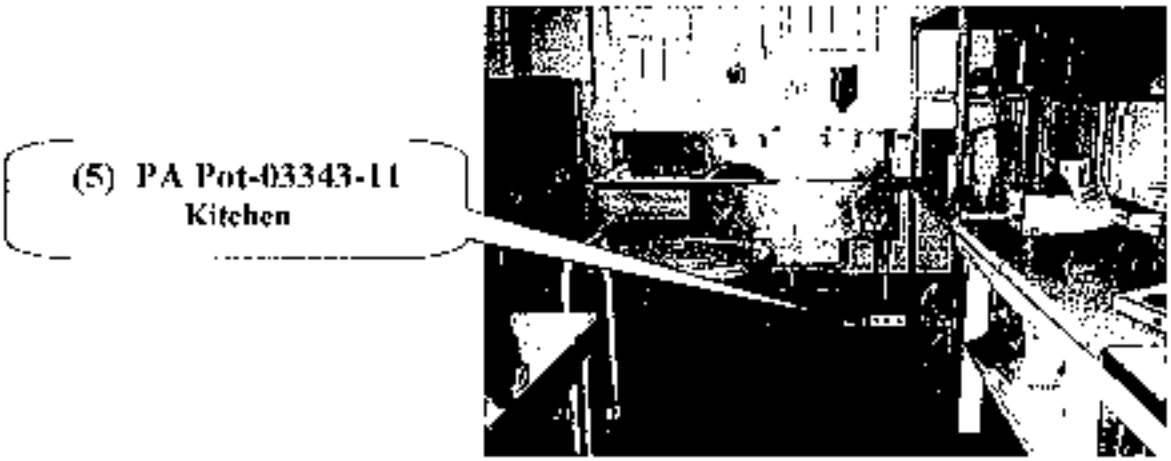
(2) PA Pot-03343-08
Assembly Hall – SE Corner

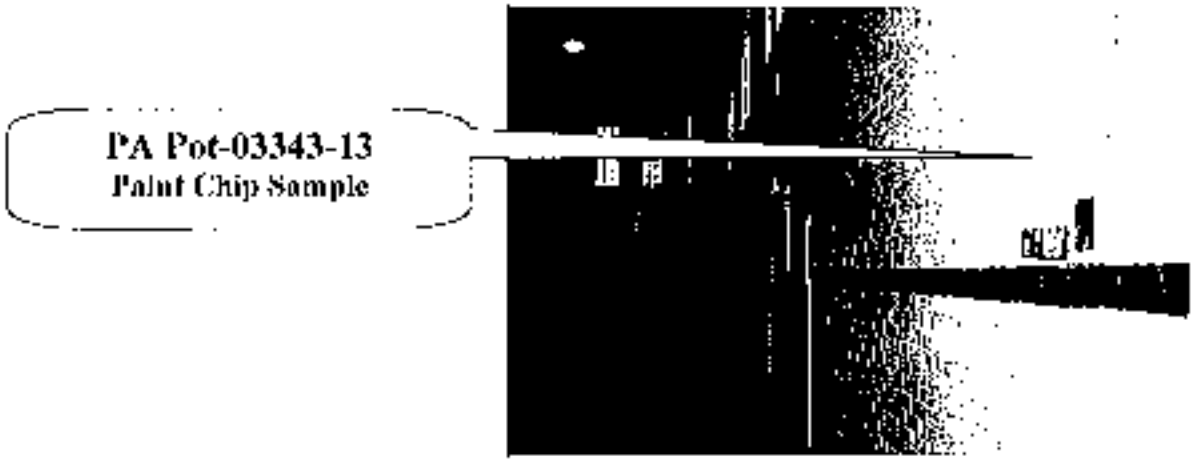


(3) PA Pot-03343-09
Assembly Hall – NE Corner

(4) PA Pot-03343-10
Assembly Hall – NW Corner

Attachment B





Attachment B

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
AIHA Certificate of Accreditation #480 LAB ID 101533

TABLE ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	RES 95335-1
Client:	Operational Technologies, Corp.
Client Project Number / P.O.:	06 03
Client Project Description:	Armories/ Pennsylvania
Date Samples Received:	July 11, 2003
Analysis Type:	USEPA SW846 3050B / AA(7420)
Turnaround:	3-5 Day
Date Samples Analyzed:	July 15, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA TAM-03170-03	EM 794490	0.11	4.2	23	38
PA TAM-03170-04	EM 794491	0.11	3.0	23	27
PA TAM-03170-05	EM 794492	0.11	11.5	23	105
PA TAM-03170-06	EM 794493	0.11	2.9	23	26
PA TAM-03170-07	EM 794494	0.11	4.5	23	41
PA TAM-03170-08	EM 794495	0.11	BDL	23	BDL
PA TAM-03170-15	EM 794496	0.11	14.5	23	132
PA TAM-03170-16	EM 794497	0.11	18.5	23	168
PA TAM-03170-17	EM 794498	0.11	BDL	23	BDL
PA TAM-03170-18	EM 794499	0.11	BDL	23	BDL
PA TAM-03170-19	EM 794500	0.11	5.5	23	50
PA TAM-03170-20	EM 794501	0.11	BDL	23	BDL
PA POT-03170-24	EM 794502	0.11	5.3	23	48
PA POT-03170-25	EM 794503	0.11	20.5	23	186
PA POT-03170-26	EM 794504	0.11	8.2	23	75
PA POT-03170-27	EM 794505	0.11	5.0	23	45
PA POT-03170-28	EM 794506	0.11	282.0	23	2564
PA POT-03170-29	EM 794507	0.11	BDL	23	BDL
PA POT-03170-36	EM 794508	0.11	558.0	23	5073
PA POT-03170-37	EM 794509	0.11	59.9	23	545
PA POT-03170-38	EM 794510	0.11	4.3	23	39
PA POT-03170-39	EM 794511	0.11	6.7	23	61
PA POT-03170-40	EM 794512	0.11	4.5	23	41
PA POT-03170-41	EM 794513	0.11	BDL	23	BDL
PA BER-03171-03	EM 794514	0.11	4.6	23	42
PA BER-03171-04	EM 794515	0.11	8.0	23	73
PA BER-03171-05	EM 794516	0.11	8.1	23	74
PA BER-03171-06	EM 794517	0.11	38.0	23	345
PA BER-03171-07	EM 794518	0.11	6.0	23	55
PA BER-03171-08	EM 794519	0.11	BDL	23	BDL

BDL = Below Detection Limit

Data Qa

AMA Analytical Services, Inc.
A Specialized Environmental Laboratory

NVLAP
NY ELAP
AIHA

CERTIFICATE OF ANALYSIS

Client:	National Guard Bureau	**Job Name:**	Pennsylvania Armories-Pottsville	**Chain Of Custody:**	117532
Address:	301-IH Old Bay Lane, Attn: NGB-AVN-SI, State Military Reservation	**Job Location:**	Not Provided	**Date Analyzed:**	09/22/2003
	Havre de Grace, Maryland 21078	**Job Number:**	Not Provided	**Person Submitting:**	[redacted]
		P.O. Number:	Not Provided	**Report Date:**	22-Sep-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
0367554	PA-Pot-03170-30	Flame	Wipe	****	0.111	108.01	ug/ft²		320	ug/ft²	
0367555	PA-Pot-03170-31	Flame	Wipe	****	0.111	108.01	ug/ft²		490	ug/ft²	
0367556	PA-Pot-03170-32	Flame	Wipe	****	0.111	108.01	ug/ft²		170	ug/ft²	
0367557	PA-Pot-03170-33	Flame	Wipe	****	0.111	108.01	ug/ft²	<	110	ug/ft²	
0367558	PA-Pot-03170-34	Flame	Wipe	****	0.111	108.01	ug/ft²		170	ug/ft²	
0367559	PA-Pot-03170-35	Flame	Wipe	****	0.111	108.01	ug/ft²	<	110	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.

Analyst: [redacted] Technical Manager: [redacted]

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AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client:	National Guard Bureau	**Job Name:**	Pennsylvania Armories	**Chain Of Custody:**	121312
Address:	301-IH Old Bay Lane, Attn: NGB-AVN-SI, State Military Reservation	**Job Location:**	Carbondale, Pottsville	**Date Analyzed:**	12/31/2003
	Havre de Grace, Maryland 21078	**Job Number:**	Not Provided	**Person Submitting:**	[redacted]
		P.O. Number:	12-02	**Report Date:**	02-Jan-04

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
0414430	PA Car-03343-01	Furnace	Wipe	****	0.111	2.70	ug/ft²	8.6	ug/ft²	
0414431	PA Car-03343-02	Furnace	Wipe	****	0.111	2.70	ug/ft²	10	ug/ft²	
0414432	PA Car-03343-03	Furnace	Wipe	****	0.111	2.70	ug/ft²	16	ug/ft²	
0414433	PA Car-03343-04	Furnace	Wipe	****	0.111	2.70	ug/ft²	13	ug/ft²	
0414434	PA Car-03343-05	Furnace	Wipe	****	0.111	2.70	ug/ft²	11	ug/ft²	
0414435	PA Car-03343-06	Furnace	Wipe	****	0.111	2.70	ug/ft²	5.5	ug/ft²	
0414436	PA Pot-03343-07	Flame	Wipe	****	0.111	108.01	ug/ft²	890	ug/ft²	
0414437	PA Pot-03343-08	Flame	Wipe	****	0.111	108.01	ug/ft²	360	ug/ft²	
0414438	PA Pot-03343-09	Furnace	Wipe	****	0.111	67.51	ug/ft²	190	ug/ft²	
0414439	PA Pot-03343-10	Furnace	Wipe	****	0.111	67.51	ug/ft²	400	ug/ft²	
0414440	PA Pot-03343-11	Furnace	Wipe	****	0.111	13.50	ug/ft²	77	ug/ft²	
0414441	PA Pot-03343-12	Furnace	Wipe	****	0.111	2.70	ug/ft²	18	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.

Analyst: [redacted] **Technical Manager:** [redacted]

An AIHA (#8863), NVLAP (# 101143), & New York ELAP (#10920) Accredited Laboratory
4475 Forbes Blvd. • Lanham, MD 20706 • (301) 459-2640 • Toll Free (800) 346-0961 • Fax (301) 459-2643

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m³
PA Scr-03162-01	03-20684	260.9	ND	<0.004
PA Scr-03162-02	03-20685	251.7	ND	<0.004
PA Hon-03162-22	03-20686	248.7	ND	<0.004
PA Hon-03162-23	03-20687	237.0	ND	<0.004
PA Ply-03163-01	03-20688	378.1	ND	<0.003
PA Ply-03163-02	03-20689	381.3	ND	<0.003
PA Nan-03163-22	03-20690	351.2	ND	<0.003
PA Nan-03163-23	03-20691	336.9	ND	<0.003
PA All-03168-01	03-20692	503.8	ND	<0.002
PA All-03168-02	03-20693	478.0	ND	<0.002
PA Bet-03168-22	03-20694	276.5	ND	<0.004.
PA Bet-03168-23	03-20695	282.1	ND	<0.004
PA Eas-03169-01	03-20696	297.9	ND	<0.003
PA Eas-03169-02	03-20697	279.3	ND	<0.004
PA Eas-03169-16	03-20698	234.7	ND	<0.004
PA Eas-03169-17	03-20699	226.7	ND	<0.004
PA Tam-03170-01	03-20700	249.6	ND	<0.004
PA Tam-03170-02	03-20701	241.5	ND	<0.004
PA Pot-03170-22	03-20702	420.5	ND	<0.002
PA Pot-03170-23	03-20703	413.6	ND	<0.002
	Prep Blank		ND	
% Recovery	LCS 3		99.	
% Recovery	LCS 4		101.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive
Analyst

Non-Responsive
Reviewer

Results
Lead

Client #	DCL #	mg/Kg (ppm)	% by weight
PA Rid-03342-01	03-35904	1200.	0.12
PA Cle-03342-10	03-35905	170.	0.017
PA Pot-03343-13	03-35906	4600.	0.46
PA Pot-03343-14	03-35907	54000.	5.4
PA Pot-03343-15	03-35908	160000.	16.
PA Pot-03343-16	03-35909	110000.	11.
PA Pot-03343-17	03-35910	110000.	11.
PA Wes-03344-07	03-35911	59000.	5.9
	Prep Blank	ND	
% Recovery	LCS	87.	
% Recovery	MS	94.	
% Recovery	MSD	94.	
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

Analyst

Non-Responsive

Reviewer

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non-[redacted]@md.ngb.army.mil

Attachment D

REFERENCE LIST INDEX

1. General Regulations and National Consensus Standards
2. Specific Regulations and Guidance
   a. Abrasive Blasting
   b. Asbestos
   c. Battery Charging Room
   d. Bird and Bat Manure
   e. Bloodborne Pathogens
   f. Chemical Agent Resistant Coating (CARC) Paint
   g. Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE)
   h. Confined Space Entry Program
   i. Design Review
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   n. Indoor Air Quality
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   s. Paint Spray Booth
   t. Personal Protection
   u. Radiation Protection
   v. Respiratory Protection
   w. Sanitation
   x. Smoking
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   z. Welding Operation

GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REFERENCE LIST

1. General Regulations and National Consensus Standards
   a. DODI 6055.1, DOD SOH Program, 19 August 1998.
   b. DODI 6055.5, DOD OEH. *[DRAFT]*
   c. DOD 6055.5-M, DOD Occupational Health Surveillance Manual, 13 May 1987.
   d. DODI 6050.5, DOD Hazard Communication, 29 Oct 90. Change 1, 6 May 1996.
   e. AR 40-5, Preventive Medicine, 15 October 1990. [05/2002 Being Updated]
   f. DA PAM 40-5, Preventive Medicine. *[DRAFT]*
   g. AR 385-10, The Army Safety Program, 29 February 2000.
   h. NGR 385-10, ARNG SOH Program, 7 October 1988, Change 1, 29 December 1989.
   i. Title 29, Part 1910, Occupational Safety and Health Standards. [Current Date]
   j. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 2002.
   k. ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th edition, 2001.
   l. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.
   m. TG 141, USACHPPM Industrial Hygiene Sampling Guide, November 1997.
   n. National Safety Council, Fundamentals of Industrial Hygiene, 5th Edition, 2002.
   o. NIOSH, Pocket Guide to Chemical Hazards, 2001.
   p. NFC, A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. [Current date]
   q. ASHRAE Standards. [Current Dates]
   r. ANSI Standards. [Current Dates]

2. Specific Regulations/Guidance
   a. **ABRASIVE BLASTING**
      (1) ANSI Z9.4 1997, Abrasive Blasting Operations - Ventilation and Safe Practices.
      (2) 29 CFR 1910.94 Ventilation
      (3) 42 CFR 84

   b. **ASBESTOS**
      (1) AR 40-5, Preventive Medicine, 15 October 1990. *[05/2002 Being Updated]*
      (2) AR 200-1, Environmental Protection and Enhancement, Chapter 8, 21 February 1997.
      (3) TB MED 513, Guidelines for the Evaluation and Control of Asbestos Exposure, 15 December 1986. *[05/2000 Under Revision as DA PAM 40-513]*
      (4) TG 157, USAEHA, The Installation Asbestos Management Program Assessment Checklists, July 1994.
      (5) 29 CFR 1910.1001
      (6) 29 CFR 1926.58 (prior to 1994 CFR)
      (7) 29 CFR 1926.1101

(8) MEMORANDUM SGPS-PSP, OTSG, subject: AMEDD Role Supporting Asbestos Abatement/Asbestos Management Programs, 19 Jan 89.

(9) EPA, Guidance for Controlling Asbestos-Containing Materials in Buildings, June 1985.

(10) DD Form 2493-1 (Asbestos Exposure, Part I--Initial Medical Questionnaire)

(11) DD Form 2493-2 (Asbestos Exposure, Part II--Periodic Medical Questionnaire)

(12) EPA NESHAPS Asbestos Regulation (40 CFR 61, Subpart M).

c. **BATTERY CHARGING ROOM**

(1) TG 022, USAEHA, page 81, Industrial Hygiene Evaluation Guide, October 1975. *[Out of Print]*

(2) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

d. **BIRD AND BAT MANURE**

(1) TG 142, USAEHA, Managing Health Hazards Associated with Bird and Bat Excrement, Dec 1992.

e. **BLOODBORNE PATHOGENS**

(1) 29 CFR 1910.1030

(2) TG 190, USAEHA, Guide to Managing Occupational Exposure to Bloodborne Pathogens, Jan 94.

f. **CHEMICAL AGENT RESISTANT COATING (CARC) PAINT**

(1) TG 144, USAEHA, Guidelines for Controlling Health Hazards in Painting Operations, 24 August 1987.

(2) DA LTR, USAEHA, HSHB-MI-WR, subject: Respiratory Protection When Spraying CARC, 19 November 1992.

(3) TM 43-0139, Painting Instructions for Army Material, 27 July 19881 Aug 86.

(4) MEMORANDUM SGPS-PSP, OTSG, subject AMEDD, Occupational Health Requirements in Support of Painting in the Army, 22 February 1985.

(5) AR 750-1, Army Materiel Maintenance Policy and Retail Maintenance Operations (Prohibits welding on CARC paint) 1 July 1996.

g. **CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR, EXPLOSIVE (CBRNE)**

(1) DODI 2000.gg, DOD Installation CBRNE Emergency Response Guidelines.

(2) DHHS, NIOSH Pub No. 2002 139, Guidance for Protecting Building Environments from Airborne Chemical, Biological, or Radiological Attacks, May 2002.

(3) TG 275, USACHPPM, Personal Protective Equipment Guide for Medical Treatment Facility Personnel Handling Casualties from Weapons of Mass Destruction and Terrorism Events. *[Draft]*

h. **CONFINED SPACE**

(1) 29 CFR 1910.146 (Confined Space Entry)
(2) 29 CFR 1910.147 (Lockout/Tagout)
(3) ANSI Z117.1-Safety Requirements for Confined Spaces, 1995.
(4) SOP for ARNG Confined Space Entry Program, 25 April 1991.
(5) Letter, US Dept of Labor (DOL) addressed to Vanessa Char, 22 Apr 1994.
(6) OSHA Instruction STD 1-7.3, US DOL, subject: 29 CFR 1910.147, the Control of Hazardous Energy (Lockout/Tagout)--Inspection Procedures and Interpretive Guidance, 11 Sep 90.
(7) DHHS, NIOSH Pub No. 87113, A Guide to Safety in Confined Spaces, July 1987.
(8) Confined Space Entry Program for Helicopters, 2003.

i. **DESIGN REVIEW**

(1) DG 415-1, Design Guide for Armories, current.
(2) DG 415-2, Design Guide for Logistics Facilities, current.
(3) DG 415-3, Design Guide for Training Site Facilities, current.
(4) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.
(5) TI-300, 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.
(6) UFGS 15940A, Overhead Vehicle Tailpipe (and welding Fume) Exhaust Removal Systems, December 2001.
(7) ASHRAE, Standard 62-2002, Ventilation for Acceptable Indoor Air Quality.
(8) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

j. **ERGONOMICS**

(1) DA PAM 40-21, Medical Services, Ergonomics Program, 15 May 2000.
(2) ANSI Z-365, Management of Work Related Musculoskeletal Disorders, 2000.
(3) 29 CFR 1910. *[PROPOSED STANDARD]*

k. **FLAMMABLE STORAGE ROOM**

(1) 29 CFR 1910.106
(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

l. **HAZARD COMMUNICATION**

(1) 29 CFR 1910.1200
(2) NGR 385-10, Chapter 6

m. **HEARING CONSERVATION**

(1) DA PAM 40-501, Medical Services, Hearing Conservation Program, 10 December 1998.

(2) TG 181, USAEHA, Noise Dosimetry and Risk Assessment, May 1999.

(3) TG 175, USAEHA, Readiness thru Hearing Conservation: Guide for Unit Commanders and Supervisors, June 1999.

(4) 29 CFR 1910.95

n. **INDOOR AIR QUALITY (IAQ)**

(1) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

(2) USACERL Technical Report P-91/42, IAQ Management for Operations and Maintenance Personnel, September 1991.

(3) EPA 400/1-91/003 or DHHS, NIOSH, Publication No. 91-114, Building IAQ, A Guide for Building Owners and Facility Managers, December 1991.

(4) ASHRAE, Standard 62-2002, Ventilation for Acceptable IAQ.

(5) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

(6) NIOSH, IAQ Selected References, Sep 1989.

(7) OSHA Instruction CPL 2-2.20B CH-1, Directorate of Technical Support, 13 Nov 90.

(8) DA PAM 25-52, Mail Facility Security and Handling Suspicious Mail, 6 November 2001.

(9) ASTM, D 5952-96, 10 May 1996.

o. **INDOOR FIRING RANGES**

(1) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(2) NGR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges, 30 March 1990. *[11/02 Under Revision]*

(3) CEHND 1110-1-18, USACE Design Manual for Indoor Firing Range, June 1990.

(4) HQDA LTR, Office of the Adjutant General, DACS-SF, subject: Inspection and Evaluation of US Army Indoor Firing Ranges, 26 March 1993.

(5) Departments of the Army and Air Force, NGB-ADE-OM, subject: All State Log Number (I920323) Indoor Range Clean-up at State Owned Armories, 28 July 1992.

(6) NIOSH, Technical Information, December 1975, subject: Lead Exposure and Design Considerations for Indoor Firing Ranges.

(7) All-States Ltr P01-0075, 5 December 2001.

(8) Information Paper, Alternative Ammunition, 15 March 1996.

(9) Information Paper, Bullet Traps, 26 April 1996.

(10) Information Paper, ARNG IFR Action Plan, 28 January 2002.

p. **LEAD**

(1) 29 CFR 1910.1025

(2) 29 CFR 1926.62

(3) 24 CFR 35.61 (HUD, Percentage of Lead in Paint)

(4) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(5) OSHA Instruction CPL 2-2.58, Office of Health Compliance Assistance, 13 December 1993.

(6) Federal Register, 18 April 1990, Vol. 55, No. 75, HUD, Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing, as amended, September 1990, Office of Public and Indian Housing, Department of Housing and Urban Development, 451 Seventh Street, SW, Washington, DC 20410.

(7) NIOSH, Request for Assistance in Preventing Lead Poisoning in Construction Workers, April 1992.

(8) EPA, Strategy for Reducing Lead Exposures, 21 Feb 91.

q. **LIGHTING**

(1) RP-1-1993, Office Lighting, ANSI/IESNA.

(2) RP-7-2001, Industrial Lighting, IES.

r. **OCCUPATIONAL VISION**

(1) DA PAM 40-506, Medical Services, The Army Vision Conservation and Readiness Program, 20 July 2001.

(2) ANSI Z87.1, Practice for Occupational and Educational Eye and Face Protection, 1989, Change A, REAF 1998.

(3) ANSI Z358.1 for Emergency Eyewash and Shower Equipment, 1998.

(4) OTSG Memorandum SGPS-PSP, subject: Acanthamoeba Keratitis and Eyewash Stations, 8 May 89.

(4) 29 CFR 1910.133

s. **PAINT SPRAY BOOTH**

(1) NFPA No. 33, Standard for Spray Application Using Flammable and Combustible Materials, 1995.

(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

(3) 29 CFR 1910.94

(4) 29 CFR 1910.107

(5) ANSI Z9.3-1995 for Exhaust Systems - Spray Finishing Operations - Safety Code for Design, Construction, and Ventilation.

(6) ANSI Z9.2-2001, Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems.

t. **PERSONAL PROTECTIVE EQUIPMENT**

(1) Quick Selection Guide to Chemical Protective Clothing, 2nd edition, Forsberg, K and Mansdorf, S., 1993.

(2) Chemical Protective Clothing, Vol 1 and 2, Johnson, J. and Anderson, K., American Industrial Hygiene Association, 1990.

(3) Guidelines for the Selection of Chemical Protective Clothing, 3rd Edition, ACGIH, Inc., Feb 1987.

u. **RADIATION PROTECTION PROGRAM**

(1) NGR 385-11, Safety, Ionizing and Nonionizing Radiation Protection, 18 February 1999.

(2) AR 11-9, Army Radiation Safety Program, 28 May 1999.

(3) 29 CFR 1910.96

(4) 29 CFR 1910.97

v. **RESPIRATORY PROTECTION**

(1) AR 11-34, The Army Respiratory Protection Program, 15 February 1990. *[11/02 Being Updated]*

(2) 29 CFR 1910.134

(3) 42 CFR 84

(4) TB MED 502, Respiratory Protection Program, February 1992. *[11/02 Being Updated as DA PAM 40-502]*

(5) ANSI/CGA G-7.1-1997, Commodity Specification for Air.

(6) ANSI Z88.2-1992, Standard for Respiratory Protection.

w. **SANITATION**

(1) ANSI Z4.1-1986, Change REAF 1995, Sanitation in Places of Employment-Minimum Requirements.

(2) 29 CFR 1910.141

x. **SMOKING**

(1) AR 600-63, Army Health Promotion, 28 April 1996.

(2) DODI 1010.15, Smoke-Free DOD Facilities, 2 January 2001.

(3) DODD1010.10, Health Promotion, 11 March 1986.

y. **VEHICLE EXHAUST**

(1) ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th Edition, 2001.

(2) TI-300f 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

z. **WELDING OPERATION**

(1) 29 CFR 1910.252

(2) 29 CFR 1910.253

(3) 29 CFR 1910.254

(4) ANSI/AWS Z49.1-1999, Safety in Welding and Cutting and Allied Processes.

(5) TM 5-805-7, Welding Design, Procedures and Inspection, 20 May 85.

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 $\mu g/ft^2$) and windowsills (250 $\mu g/ft^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of 200 $\mu g/ft^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 $\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 $\mu g/ft^2$ on floors and 250 $\mu g/ft^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

Industrial Hygiene Survey

CO B 337th ENGR BN
SPT PLT 337TH ENGR BN
PUNXSUTAWNEY, PENNSYLVANIA

May 22, 2003

OPTECH

OPERATIONAL TECHNOLOGIES
CORPORATION

CO B 337TH ENGR BN
SPT PLT 337TH ENGR BN
PUNXSUTAWNEY, PENNSYLVANIA
INDUSTRIAL HYGIENE SURVEY

1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Armory in Punxsutawney, Pennsylvania on May 22, 2003. The NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. Non-Responsive from OpTech, completed this survey. Non-Responsive a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the IH Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D.

RECOMMENDATIONS

1. INDOOR AIR QUALITY

1.1. Indoor temperatures were slightly below the recommended comfort range. Relative humidity was mostly above the acceptable range. Recommend that the elevated humidity conditions be further investigated and corrected.

2. ILLUMINATION

2.1. Illumination levels were slightly below recommended minimum standards in some areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3. WIPE SAMPLES

3.1. Wipe samples for lead were collected throughout the facility. Samples in Room 106 as well as two of five samples in the former indoor firing range exceeded the 200 $\mu g/ft^2$ criteria. Lower levels were detected in other areas of the building. The source of lead contamination is apparently from the former indoor firing range activities and possibly from lead paint. Recommend that areas above the 200 $\mu g/ft^2$ criteria be wet-wiped/mopped or cleaned with a high efficiency particulate air (HEPA) vacuum. This method of cleaning should be repeated during routine housekeeping duties.

4. WATER INTRUSION

4.1. Personnel stated that water seeps through the north basement walls after a heavy rain. These areas are mopped up when necessary. Former water intrusion problems are evident in a few areas. A new roof has since been installed. The ceiling and walls in the stairway leading from the former firing range to the kitchen area has been damaged by previous leaks. Recommend an evaluation of the facility for mold, as there is significant water intrusion and high humidity levels in this facility. Water damaged areas should be repaired to prevent mold growth.

2.0. EXECUTIVE SUMMARY

2.1. Carbon monoxide and carbon dioxide levels were within recommended ranges. Indoor temperatures were slightly lower than recommended comfort levels. Relative humidity was higher than recommended levels in some areas. Humidity should be maintained below 60% relative humidity for occupant comfort and controlling mold growth. No mold was observed during the survey.

2.2. Illumination levels were slightly below recommended minimum standards in some areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

2.3. Wipe samples for lead were collected throughout the facility. Samples in Room 106 as well as two of five samples in the former indoor firing range exceeded the 200 $\mu g/ft^2$ criteria. Lower levels were detected in other areas of the building. The source of lead contamination is apparently from the former indoor firing range activities and possibly from lead paint.

2.4. Air sampling for inorganic lead was taken. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building.

2.4. Personnel stated that water seeps through the north basement walls after a heavy rain. These areas are mopped up when necessary. Former water intrusion problems are evident in a few areas. A new roof has since been installed. The ceiling and walls in the stairway leading from the former firing range to the kitchen area has been damaged by previous leaks.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	CO B 337th ENGR BN		
	SPT PLT 337TH ENGR BN		
ADDRESS	441 North Findley Street		
	Punxsutawney, PA		
CONTACT	SSG Non-Responsive		
PHONE	814-938-8810		
DATE BUILT	1930/63	FACILITY SIZE	18,650 sq. ft.
INDOOR FIRING RANGE	Inactive		1-floor plus basement
ASSISTED			
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	3		
TRADITIONAL (MIL)	90 individuals for drill duty		
CHILD ACTIVITIES	NA		
ADULT ACTIVITIES	Counseling service		

3.1.1. The facility was built in 1930 and upgraded in 1963. The exterior is brick and is in very good condition. The interior has been well maintained. The building is heated by a gas furnace and is cooled by window air conditioners. Asbestos is known to exist in the facility, mainly in the steam pipe insulation.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity (RH) in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 Indoor Air Quality Standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ASHRAE 62-2001, Section 6.1.3, states that concentrations up to 700 ppm CO_2, above outdoor concentrations will achieve an acceptable level of indoor air quality.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ASHRAE 55-1992 recommends that temperature ranges be 73 to 79 degrees Fahrenheit (°F) during the summer and 68 to 74°F during the winter. Relative humidity levels be maintained between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE 1
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO2 (ppm)	Temp. (°F)	RH (%)
1456	Outdoors - Background	0.0	505	83.1	68.4
1508	Room 105	0.0	520	65.1	62.2
1515	Room 109	0.0	526	63.2	60.1
1520	Room 110	0.0	518	64.1	59.8
1525	Room 104	0.0	524	62.1	56.4
1534	Room 4	0.0	518	64.8	60.1
1541	Room 7	0.0	531	62.3	62.2
1545	Room 11	0.0	507	64.1	55.8
1552	Room 9	0.0	522	60.6	60.1
1602	Room B - 4	0.0	510	63.1	63.2
1610	Room B - 7	0.0	521	68.2	64.2
1615	Room B - 1	0.0	516	75.1	60.1

3.2.5. Carbon monoxide and carbon dioxide readings were within recommended ranges. Indoor temperatures were slightly below recommended comfort ranges. Relative humidity was slightly elevated above recommended ranges. Humidity should be maintained below 60% relative humidity for occupant comfort and controlling mold growth. No mold was observed during the survey.

3.3. ILLUMINATION

3.3.1. Illumination levels were measured in most areas of the facility. Sunlight was excluded, as much as possible for this survey, by closing doors and blocking windows. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 - 463). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
Lounge	42 -70	51	70	NO
Office – Room 110	42 – 62	61	70	NO
Office – Room 105	40 - 90	54	70	NO
Hallway	44 - 60	49	7.5	YES
Assembly Hall	38 – 80	53	75	YES
Classroom	40 – 50	45	70	NO
Kitchen	42 – 62	52	75	NO
Female Latrine	50 - 80	63	40	YES
Boiler Room	28 -62	44	15	YES
Storage	32 – 46	39	40	NO
Hallway	44 -52	47	7.5	YES
Office Custodian	32 - 46	39	70	NO

3.3.2. Levels were slightly below recommended minimum standards in some areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3.4. WIPE SAMPLES

3.4.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples were taken at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot (µg/ft²) and are listed in Table 3. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Pun-03142-18	Office - Center Window	50
PA Pun-03142-19	Room 106	1,436
PA Pun-03142-20	1st Floor - Stair Well	35
PA Pun-03142-21	Hall B-6	BDL
PA Pun-03142-22	Kitchen	26
PA Pun-03142-23	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.2. Additional wipe samples were collected during this survey. These samples were collected to further analyze the extent of contamination should the first five samples indicate a possible hazard. Since the sample collected in Room 106 exceeded the 200 $\mu g/ft^2$ criteria (see Section 3.4.4 below), these additional samples were analyzed. The results are presented in Table 4.

TABLE 4
WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Pun-03142-24	Hall B-8	BDL
PA Pun-03142-25	Assembly Hall -- Locker	BDL
PA Pun-03142-26	Hall 1 - by Drill Area	BDL
PA Pun-03142-27	Supply Room	2100
PA Pun-03142-28	Basement -- Stair Well	BDL
PA Pun-03142-29	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.3. CLOSED FIRING RANGE WIPE SAMPLING

3.4.3.1. Additional wipe samples were collected in the former indoor firing range. Laboratory analysis results are listed in Table 5.

TABLE 5
FORMER FIRING RANGE WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Pun-03142-30	Former Range – NBC room	1,273
PA Pun-03142-31	Storage – Floor	86
PA Pun-03142-32	Storage – Box	300
PA Pun-03142-33	Storage -- Back Wall	61
PA Pun-03142-34	On Container	109
PA Pun-03142-35	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.4. WIPE SAMPLING RESULTS

3.4.4.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 $\mu g/ft^2$. This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. (See memorandum in Attachment E, Recommendations for Surface Lead Dust in Armories.) Samples in Room 106 as well as two of five samples in the former range exceeded the 200 $\mu g/ft^2$ criteria. Lower levels were detected in other areas of the building. The source of lead contamination is apparently from the former indoor firing range activities and possibly from lead paint.

3.4.5. AIR SAMPLING

3.4.5.1. Air Sampling for inorganic lead was performed during this survey. Table 6 lists the results of these samples, and is reported in milligrams per cubic meter (mg/m^3) of air.

TABLE 6
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
Non-Responsive	PA Pun-03142-15	Lead	<0.003 mg/m^3	0.05 mg/m^3	YES
Area – Stair Well	PA Pun-03142-16	Lead	<0.003 mg/m^3	0.05 mg/m^3	YES
Area – Outside NBC Room	PA Pun-03142-17	Lead	<0.003 mg/m^3	0.05 mg/m^3	YES

mg/m^3 = milligrams per cubic meter < = less than (below detection limits)

3.4.4.2. Air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(e)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this building.

3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION DAMAGE

3.5.1.1. Personnel stated that water seeps through the north basement walls after a heavy rain. These areas are mopped up when necessary. Former water intrusion problems are evident in a few areas. A new roof has since been installed. The ceiling and walls in the stairway leading from the former firing range to the kitchen area has been damaged by previous leaks.

3.5.2. LEAD PAINT

3.5.2.1. No peeling paint was observed and no paint samples were taken for lead.

3.5.3. ASBESTOS

3.5.3.1. No asbestos was known to exist or observed in the facility.

3.5.4. PROGRAMS

3.5.4.1. There are no designated confined space areas within this facility. There are no exhaust ventilation systems to control a hazard. No chemicals besides normal cleaning materials are present. Therefore, a need has not been established for a HAZCOM program, the need for

personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.5. HOUSEKEEPING

3.5.5.1. The facility has been maintained very well and the house keeping is very presentable. Portions of the basement were being renovated.

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

E – Recommendations for Surface Lead in Armories

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
Punxsutawney, PA	PENNSYLVANIA ARNG ARMORY	Punxsutawney Armory

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR (Initials)
22 May 2003	JSS

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	NA	SSG Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
814-938-8810	337TH ENGR BN	3	9

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
3	90			

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	CONROLS 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			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	½ FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	½ 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 WEATHR 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	/		

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	3	C

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

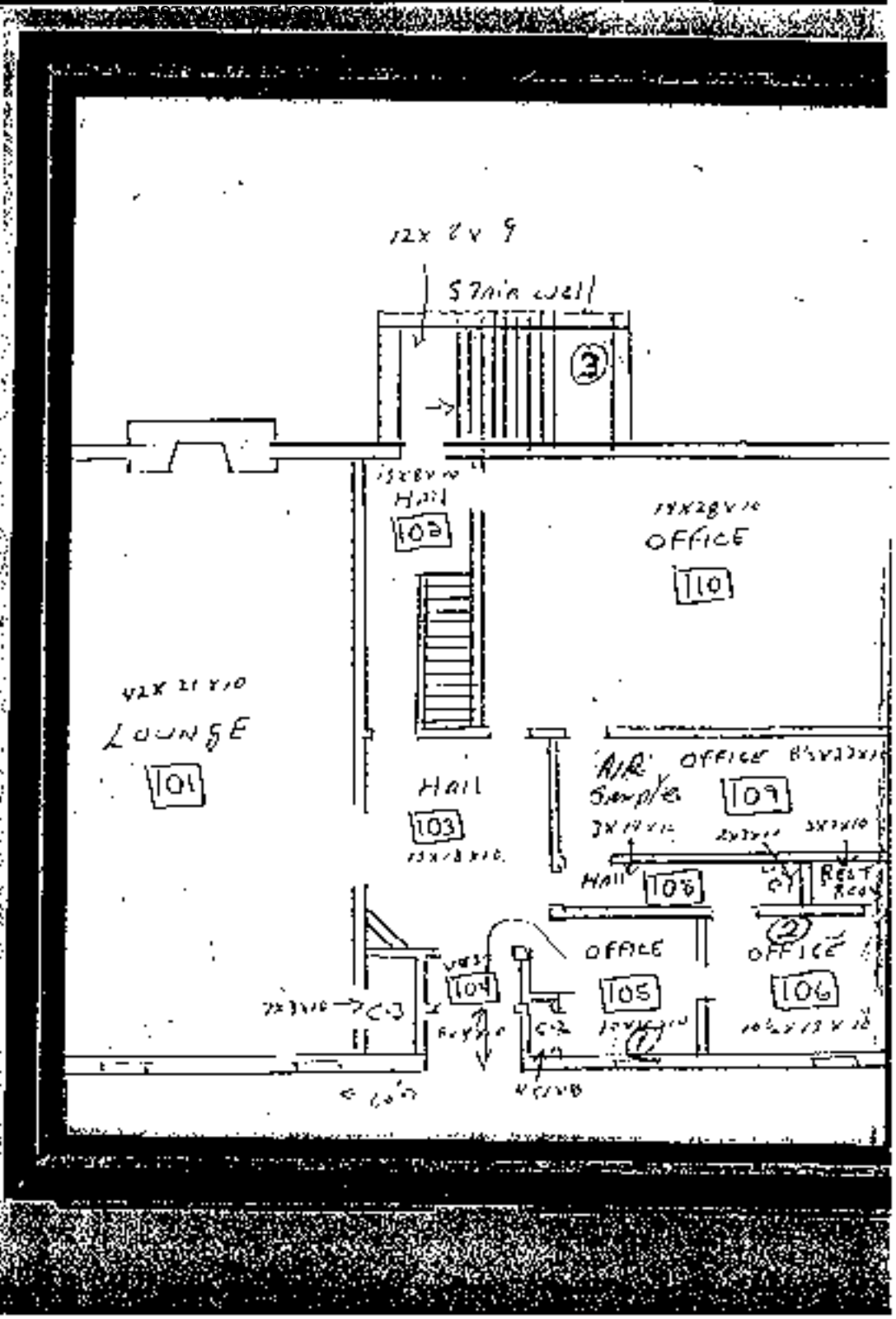
SECTION 6. COMMENTS

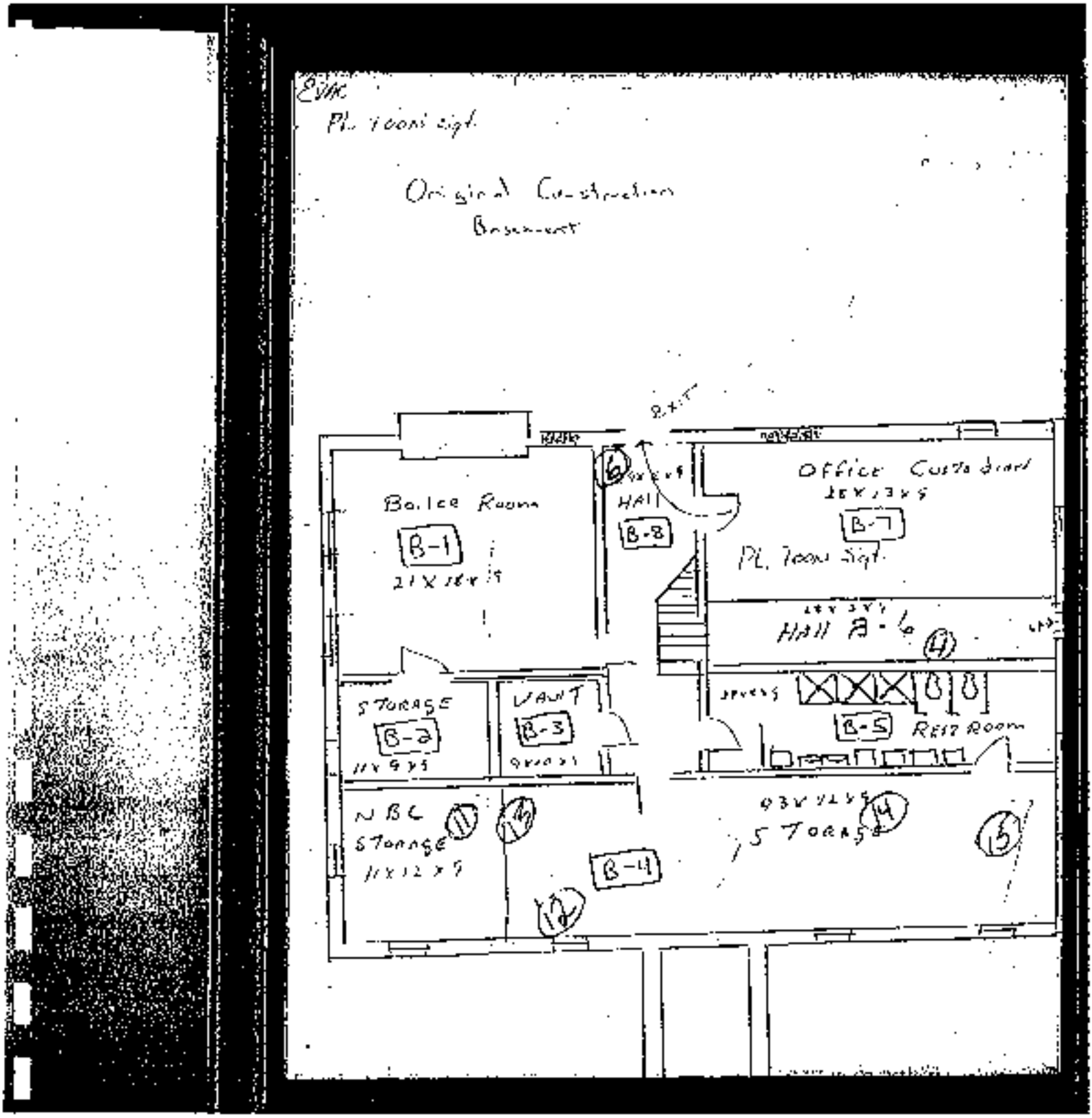
☐ No comments ☐ See attached sheet

PRIVACY ACT STATEMENT

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

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

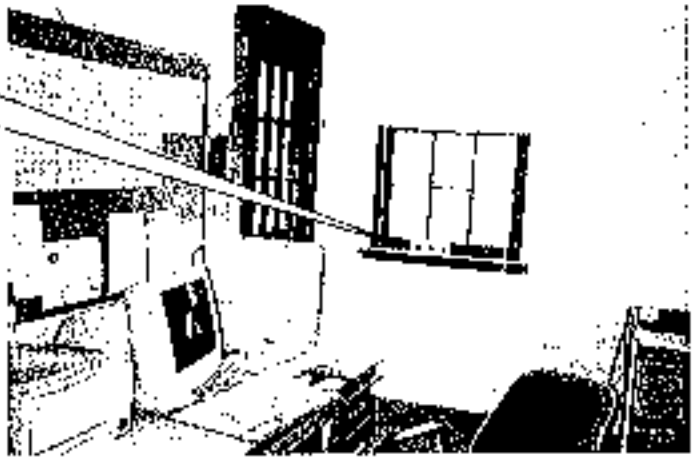

Stair well
3
Hall
102
OFFICE
110
LOUNGE
101
Hall
103
Air Sample
109
Hall
108
OFFICE
105
OFFICE
106
104
C-3
C-2
1



CO B 337TH ENGR BN
SPT PLT 337TH ENGR BN
PUNXSUTAWNEY, PENNSYLVANIA

(1) PA Pun-03142-18
Room 105 - Office

(2) PA Pun-03142-19
Room 106 - Office



(3) PA Pun-03142-20
Stairwell

Attachment B

(4) PA Pun-03142-21
Hallway

(5) PA Pun-03142-22
Kitchen

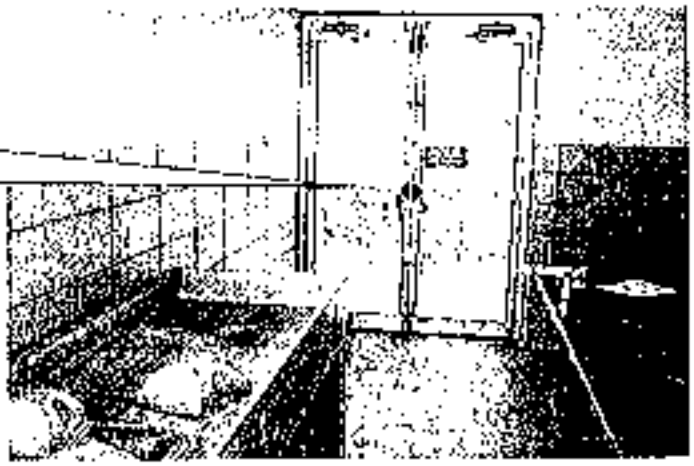
ADDITIONAL SAMPLES

(6) PA Pun-03142-24
Hallway

Attachment 3

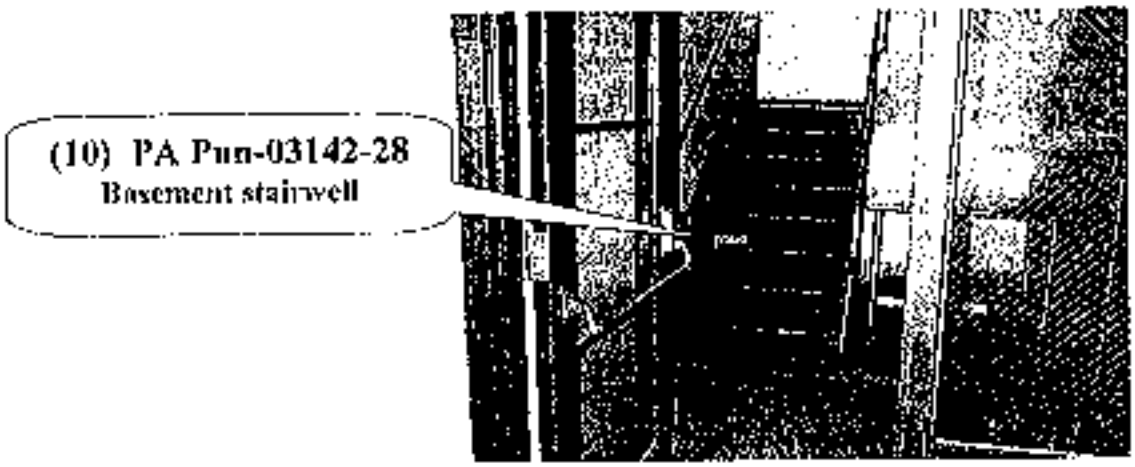
(7) PA Pun-03142-25
Assembly Hall

(8) PA Pun-03142-26
Hallway

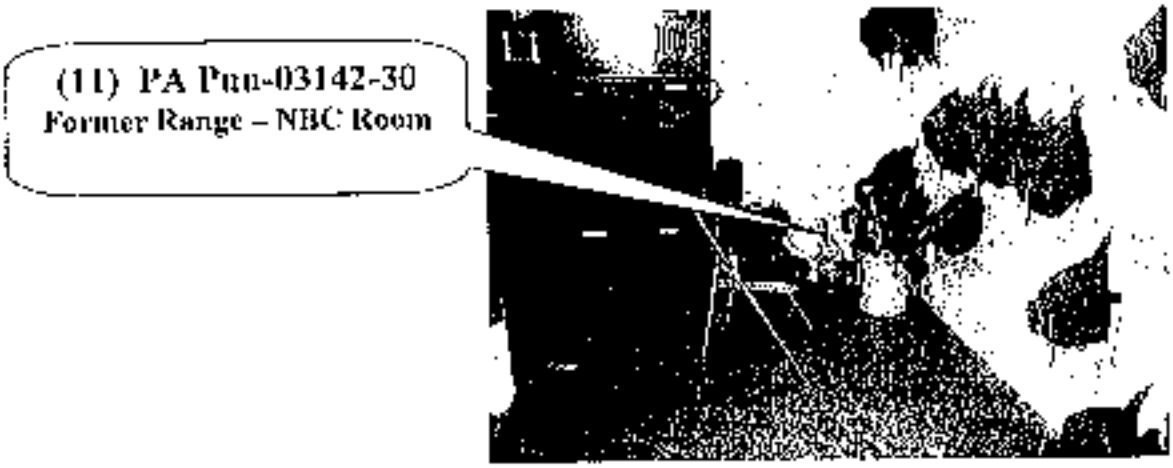


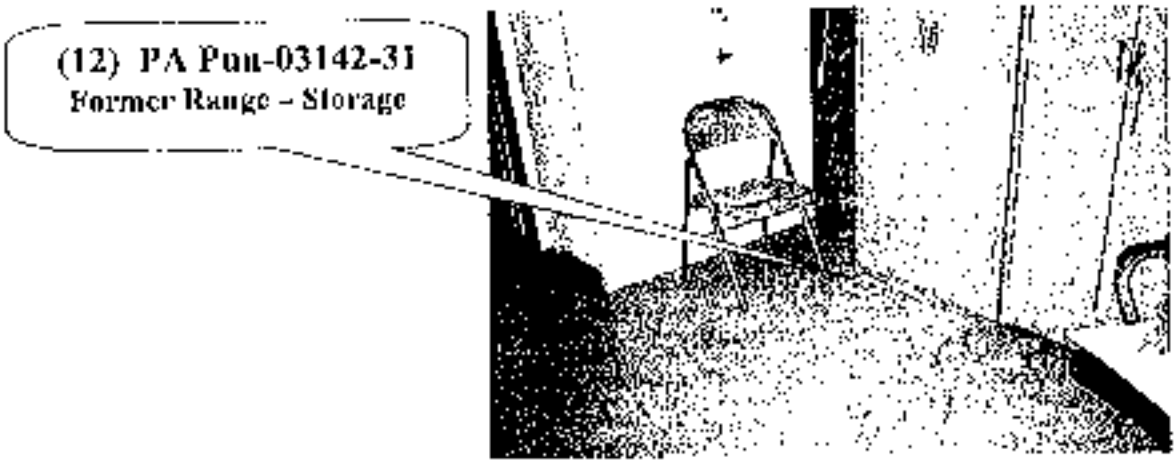
(9) PA Pun-03142-27
Supply

Attachment B



FORMER INDOOR FIRING RANGE SAMPLES





Attachment B

(13) PA Pun-03142-32
Former Range – Stored Material

(14) PA Pun-03142-33
Former Range – Side Wall

(15) PA Pun-03142-34
Former Range – Backstop Area

Attachment B

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101876
AIHA Certificate of Accreditation #480 LAB ID 101533

TABLE 1. ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	RES 93716-1
Client:	Operational Technologies, Corp.
Client Project Number / P.O.:	06 01
Client Project Description:	Armories/Pennsylvania
Date Samples Received:	June 6, 2003
Analysis Type:	USEPA SW846 3050B / AA(7420)
Turnaround:	3-5 Day
Date Samples Analyzed:	June 14, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA Rid-03141-36	EM 778593	0.11	BDL	23	BDL
PA Bra-03142-03	EM 778594	0.11	18.6	23	169
PA Bra-03142-04	EM 778595	0.11	97.9	23	890
PA Bra-03142-05	EM 778596	0.11	BDL	23	BDL
PA Bra-03142-06	EM 778597	0.11	BDL	23	BDL
PA Bra-03142-07	EM 778598	0.11	9.2	23	84
PA Bra-03142-08	EM 778599	0.11	BDL	23	BDL
PA Pun-03142-18	EM 778600	0.11	5.5	23	50
PA Pun-03142-19	EM 778601	0.11	158.0	23	1436
PA Pun-03142-20	EM 778602	0.11	3.8	23	35
PA Pun-03142-21	EM 778603	0.11	BDL	23	BDL
PA Pun-03142-22	EM 778604	0.11	2.9	23	26
PA Pun-03142-23	EM 778605	0.11	BDL	23	BDL
PA Pun-03142-30	EM 778606	0.11	140.0	23	1273
PA Pun-03142-31	EM 778607	0.11	9.5	23	86
PA Pun-03142-32	EM 778608	0.11	33.0	23	300
PA Pun-03142-33	EM 778609	0.11	6.7	23	61
PA Pun-03142-34	EM 778610	0.11	12.0	23	109
PA Pun-03142-35	EM 778611	0.11	BDL	23	BDL
PA Mun-03143-03	EM 778612	0.11	BDL	23	BDL
PA Mun-03143-04	EM 778613	0.11	BDL	23	BDL
PA Mun-03143-05	EM 778614	0.11	9.2	23	84
PA Mun-03143-06	EM 778615	0.11	41.6	23	378
PA Mun-03143-07	EM 778616	0.11	3.2	23	29
PA Mun-03143-08	EM 778617	0.11	BDL	23	BDL
PA Eri-03148-04	EM 778618	0.11	BDL	23	BDL
PA Eri-03148-05	EM 778619	0.11	10.8	23	98
PA Eri-03148-06	EM 778620	0.11	15.1	23	137
PA Eri-03148-07	EM 778621	0.11	BDL	23	BDL
PA Eri-03148-08	EM 778622	0.11	BDL	23	BDL

BDL = Below Detection Limit

Data Qa

Results
Lead

Client #	DCL #	Total Area (ft^2)	µg/Wipe	µg/ft^2
PA Rid-03141-27	03-30463	0.11	260.	2400.
PA Rid-03141-28	03-30464	0.11	14.	130.
PA Rid-03141-29	03-30465	0.11	48.	440.
PA Rid-03141-30	03-30466	0.11	ND	<91.
PA Bra-03142-09	03-30467	0.11	39.	350.
PA Bra-03142-10	03-30468	0.11	ND	<91.
PA Bra-03142-11	03-30469	0.11	79.	720.
PA Bra-03142-12	03-30470	0.11	ND	<91.
PA Bra-03142-13	03-30471	0.11	ND	<91.
PA Bra-03142-14	03-30472	0.11	ND	<91.
PA Pun-03142-24	03-30473	0.11	ND	<91.
PA Pun-03142-25	03-30474	0.11	ND	<91.
PA Pun-03142-26	03-30475	0.11	ND	<91.
PA Pun-03142-27	03-30476	0.11	230.	2100.
PA Pun-03142-28	03-30477	0.11	ND	<91.
PA Pun-03142-29	03-30478	0.11	ND	<91.
PA Man-03143-09	03-30479	0.11	86.	780.
PA Man-03143-10	03-30480	0.11	ND	<91.
PA Man-03143-11	03-30481	0.11	88.	800.
PA Man-03143-12	03-30482	0.11	ND	<91.
	Prep Blank		ND	
% Recovery	LCS 3		81.	
% Recovery	LCS 4		86.	
RPL			10.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive [redacted]
Analyst

Non-Responsive [redacted]
Reviewer

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m³
PA But-03136-03	03-17890	347.3	ND	<0.003
PA For-03139-01	03-17891	383.4	ND	<0.003
PA For-03139-02	03-17892	389.5	ND	<0.003
PA For-03139-03	03-17893	374.0	ND	<0.003
PA Cle-03140-01	03-17894	537.5	ND	<0.002
PA Cle-03140-02	03-17895	523.0	ND	<0.002
PA Cle-03140-03	03-17896	493.5	ND	<0.002
PA Kan-03141-01	03-17897	469.4	ND	<0.002
PA Kan-03141-02	03-17898	470.6	ND	<0.002
PA Kan-03141-03	03-17899	464.6	ND	<0.002
PA Rid-03141-16	03-17900	462.6	ND	<0.002
PA Rid-03141-17	03-17901	439.6	ND	<0.002
PA Rid-03141-18	03-17902	452.4	ND	<0.002
PA Bra-03142-01	03-17903	356.0	ND	<0.003
PA Bra-03142-02	03-17904	355.2	ND	<0.003
PA Pun-03142-15	03-17905	336.7	ND	<0.003
PA Pun-03142-16	03-17906	331.9	ND	<0.003
PA Pun-03142-17	03-17907	324.6	ND	<0.003
PA Man-03143-01	03-17908	261.4	ND	<0.004
PA Man-03143-02	03-17909	252.6	ND	<0.004
	Prep Blank 7		ND	
% Recovery	LCS 13		95.	
% Recovery	LCS 14		97.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

Non-Responsive

Reviewer

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non-Responsive@md.ngb.army.mil

Attachment D

REFERENCE LIST INDEX

1. General Regulations and National Consensus Standards
2. Specific Regulations and Guidance
   a. Abrasive Blasting
   b. Asbestos
   c. Battery Charging Room
   d. Bird and Bat Manure
   e. Bloodborne Pathogens
   f. Chemical Agent Resistant Coating (CARC) Paint
   g. Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE)
   h. Confined Space Entry Program
   i. Design Review
   j. Ergonomics
   k. Flammable Storage Room
   l. Hazard Communication
   m. Hearing Conservation
   n. Indoor Air Quality
   o. Indoor Firing Ranges
   p. Lead
   q. Lighting
   r. Occupational Vision
   s. Paint Spray Booth
   t. Personal Protection
   u. Radiation Protection
   v. Respiratory Protection
   w. Sanitation
   x. Smoking
   y. Vehicle Exhaust
   z. Welding Operation

GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

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Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 $\mu g/ft^2$) and windowsills (250 $\mu g/ft^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of 200 $\mu g/ft^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 $\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

Attachment 6

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 $\mu g/ft^2$ on floors and 250 $\mu g/ft^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

Attachment E

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland




Industrial Hygiene Survey for PAARNG – Punxsutawney Readiness Center 461 North Findley Street Punxsutawney, Pennsylvania 15767

AECOM
January 2013
Document No.: 60276421/Punxsutawney Readiness Center

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland

Industrial Hygiene Survey for PAARNG – Punxsutawney Readiness Center 461 North Findley Street Punxsutawney, Pennsylvania 15767

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Industrial Hygienist

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AECOM Environment
January 2013
Document No.: 60276421/Punxsutawney Readiness Center

AECOM

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Executive Summary

On November 8, 2012, AECOM Technical Services Northeast, Inc. (AECOM) conducted an Industrial Hygiene (IH) survey of the Punxsutawney Readiness Center facility located at 461 North Findley Street in Punxsutawney, Pennsylvania. SSG Non-Pri was the point of contact for the facility and the facility MR2 accompanied AECOM during the survey to provide access and information concerning the Punxsutawney Readiness Center operations.

The industrial hygiene survey was generally conducted in accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings", dated January 2012.

The Punxsutawney Readiness Center is currently staffed by six personnel. The facility is configured as an administrative area and a drill/assembly hall.

Personnel at the facility were undertaking normal daily activities, which are administrative in nature, at the time of the survey.

The activities undertaken during the industrial hygiene survey included facility descriptions, lead wipe sampling, evaluation of housekeeping, illumination studies, ventilation system evaluation, and a review of the physical building condition.

Housekeeping is performed regularly at the Punxsutawney Readiness Center. AECOM did not observe dust accumulation on readily accessible horizontal surfaces within areas commonly used administrative areas in the facility

Lighting levels measured throughout the facility were generally adequate as per American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U.S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 micrograms per square foot (ug/ft^2) for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

No peeling paint was observed at the Punxsutawney Readiness Center during this survey.

No damaged suspect asbestos containing materials were observed during this survey.

No signs of water intrusion or visible mold growth were observed during this survey.

The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of air handlers that provide fresh air to interior spaces as well as a boiler room that feeds radiant heaters throughout the building.

1.0 Facility Description and Operations

The Punxsutawney Readiness Center was constructed in the mid 1940's with a complete renovation and addition added in 2008. The Punxsutawney Readiness Center is a two-story administrative facility slab on-grade masonry structure. The building consists primarily of offices, training/classroom, locker/shower rooms, storage and administrative areas, and is finished with sheetrock, painted block and brick walls, lay-in ceiling tiles and floor tile. The Drill Hall, located in the center of the building, is finished with painted block walls and a concrete floor. The former firing range has been converted into a fitness room.

The primary activity at the Punxsutawney Readiness Center is routine administrative duties. The Punxsutawney Readiness Center is currently staffed by approximately 6 personnel. No vehicle maintenance activities are undertaken at the facility.

2.0 Sampling in Readiness Centers

2.1.1 Wipe Sampling

Wipe sampling for lead was following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost Wipes. AECOM did not observe dust accumulation on readily accessible horizontal surfaces within areas commonly used administrative areas in the facility.

The following table presents the results of the lead wipe sampling conducted at the facility.

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
PX-01	Drill hall north – floor	<110 ug/ft^2
PX-02	Drill hall south – floor	<110 ug/ft^2
PX-03	Drill hall – top of electrical panel	<110 ug/ft^2
PX-04	Kitchen – top of electrical panel	<110 ug/ft^2
PX-05	Conference room – HVAC supply grille	<110 ug/ft^2
PX-06	Office room 107 – desk	<110 ug/ft^2
PX-07	Conference room – fireplace mantle	<110 ug/ft^2
PX-08	Upper corridor – floor	<110 ug/ft^2
PX-09	Classroom 006 – HVAC supply grille	<110 ug/ft^2
PX-10	Fitness Room – (Former firing range bullet trap area)	<110 ug/ft^2
PX-11	Fitness Room – (Former firing range light fixture)	<110 ug/ft^2
PX-12	Fitness Room – (Former firing range overhead heater)	<110 ug/ft^2
PX-13	Fitness Room – (Former firing range on gym equipment)	<110 ug/ft^2
PX-14	Fitness Room – (Former firing range floor)	<110 ug/ft^2
PX-15	Outside of former firing range - floor	<110 ug/ft^2

ug/ft^2 = Micrograms per square foot.

Wipe samples collected in association with the drill hall, administrative areas, and former firing range indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft^2 for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas. Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

Per Non-Responsive of NGB-IH, the requirement for Lead air sampling has been removed from the Statement of work. It was reported that historically, air samples collected at administrative facilities are typically below the limit of detection.

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls is in good condition. AECOM did not observe damaged or peeling paint during this evaluation.

3.1.2 Suspect Asbestos Containing Materials

AECOM did not observe damaged, friable suspect asbestos-containing materials (ACM) in readily accessible areas of the Punxsutawney Readiness Center during this survey.

Typical miscellaneous building materials observed throughout the building but not sampled include sheetrock and associated joint compound, floor tiles and associated mastic, cove base and associated mastic, ceiling tiles, fiberglass pipe insulation, and window caulk.

3.1.3 Water Damage/Mold

AECOM did not observe evidence of water intrusion or visible signs of mold growth during this survey.

3.1.4 Housekeeping

The Punxsutawney Readiness Center was observed to be generally clean and orderly during this assessment. AECOM did not observe dust accumulation on readily accessible horizontal surfaces within areas commonly used in the facility.

3.1.5 Indoor Air Quality/ Ergonomics

The administration section contains general office space. The administration section is generally utilized by all of the Punxsutawney Readiness Center staff members. No Indoor Air Quality concerns were noted by the Punxsutawney Readiness Center personnel.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (^{o} Fahrenheit), and relative humidity (as percentage) are presented in the following table. All readings were within acceptable guidelines.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (^{o}F)	Relative Humidity (%)
Outside – baseline	1.3	380	24.2	84.4
Library/conference room 116	0.8	712	70.3	24.2
General office	1.5	609	70.9	21.0
Fitness room 001	0.8	492	70.4	24.7
Drill hall room 017	0.7	503	71.0	18.2

Table 3-1 Guidelines:
Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard.
OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.
Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.
Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 5.10.1).
Temperature: Winter (clothing insulation = 1.0 clo) Relative humidity 30-60% - Temp - 68 – 75°F
Summer Temp - 73 – 79°F. (Derived from ASHRAE Standard 55-2010)

Punxsutawney Readiness Center personnel did not report any ergonomics issues or concerns. Office furniture and accessories designed to promote ergonomically correct behaviors were observed.

4.0 Ventilation and HVAC System

4.1.1 Ventilation Systems and Potential for Contamination of Clean Air Sources

No potential for contamination of clean air sources was observed at the facility. The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of air handling units that provide fresh air from outside the building to administrative areas.

AECOM did not observe any obvious indications of maintenance issues with the general ventilation system from readily accessible areas. Percentage of outside air supplied by the HVAC system was calculated using CO_2 levels, and was determined to be approximately 36.36%, using the ASHRAE formula $\%OA=((C_{RA}-C_{SA})/(C_{RA}-C_{OA}))X100$, where C_{RA}=512 ppm CO_2, C_{SA}=464 ppm CO_2, and C_{OA}=380 ppm CO_2. Based on the carbon dioxide levels observed inside the building during this assessment, there appears to be a sufficient quantity of outside air being delivered via the HVAC system in order to satisfy the occupant load.

A minor amount of dust was observed on HVAC supply grilles. Site personnel indicated that the system seems to work well. Temperature readings were consistent in all areas occupied by readiness center personnel.

4.1.2 HVAC Maintenance

The HVAC system is reported to be maintained on a biannual maintenance/service agreement. Natural gas boilers feed radiant heaters throughout the remainder of the building including storage areas, the drill hall as well as provide heat for the facilities domestic water.

5.0 Lighting

Lighting levels in all areas were measured utilizing Extech model 401-025 light meter that displays lighting levels in foot-candles. Lighting levels were adequate in all areas.

Table 5-1: Light Survey

Location	Results (Foot candles)	Met Standard (Y/N)	Standard*
Fitness room 001	37-50	Y	30
Electrical room 016	46.2	Y	30
Storage room 014	32.1	Y	30
Men's room 002	58.8	Y	5
Corridor 003	40-60	Y	5
Facilities office 004	80.7	Y	50
Corridor 013	30-60	Y	5
Mechanical room 012	42.3	Y	30
Classroom 006	68.2	Y	30
Stair A1	35.4	Y	5
Serving 010	52.3	Y	50
Kitchen 008	75.1	Y	50
Dry storage 009	75.6	Y	30
Drill hall 017	34-41	Y	10
Corridor 028	31.4	Y	5
HC Toilet 029	44.2	Y	5
Men's room 025	60.3	Y	5
Women's room 026	38.2	Y	5
Mechanical 024	30.4	Y	30
Storage 023	41.1	Y	30
Supply room / armorer storage 020	53.4	Y	30
Commo office 019	51.2	Y	50
NBC office 018	52.3	Y	50
Library/distance learning 116	61.6	Y	50
Lobby 101	73.6	Y	10
Regional ret. Office 119	89.5	Y	50
General office 102	83.5	Y	50
Office 104	100.2	Y	50
1SG office 105	80.0	Y	50
C.O. Office 107	72.8	Y	50
Work room 113	74.9	Y	50
FSG office 108	65.9	Y	50
Classroom 109	75.2	Y	30
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI RP-7-01)			

6.0 Evaluation of Attached Garage

There is no garage associated with the Punxsutawney Readiness Center.

7.0 Conclusions and Limitations

AECOM has conducted this survey in accordance with applicable OSHA methods and standard industrial hygiene practice. The following conclusions were based on the observations and assessments of activities that occurred during the on-site evaluation:

Housekeeping is performed regularly at the Punxsutawney Readiness Center. AECOM did not observe dust accumulation on readily accessible horizontal surfaces within areas commonly used administrative areas in the facility

Lighting levels measured throughout the facility were generally adequate as per ANSI/IESNA RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

Wipe samples collected in association with most administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft^2 for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

No peeling paint was observed at the Punxsutawney Readiness Center during this survey.

No damaged suspect asbestos containing materials were observed during this survey.

No signs of water intrusion or visible mold growth were observed during this survey.

The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of air handlers that provide fresh air to interior spaces as well as a boiler room that feeds radiant heaters throughout the building.

AECOM provided these services consistent with the level and skill ordinarily exercised by members of the profession currently providing similar services under similar circumstances at the time the services were provided. This statement is in lieu of other statements either expressed or implied. This report is intended for the sole use of National Guard Bureau – Army National Guard. The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, and use or re-use of this document, the findings, conclusions, or recommendations is at the risk of said user.

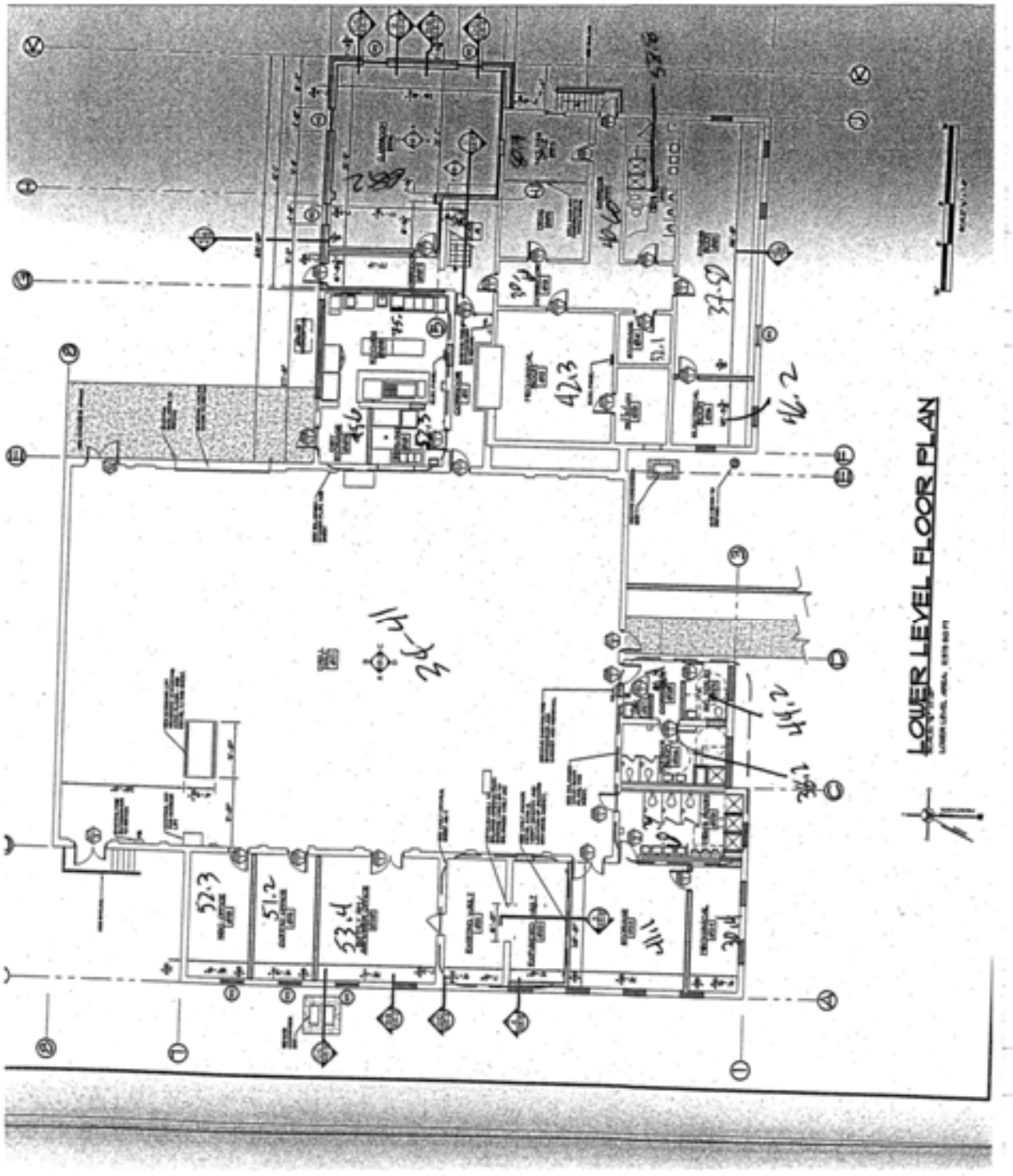
As with all such surveys, the results of the sampling represent conditions found on the date of the survey and may not represent conditions found at other times. Additionally, this survey was limited with respect to the specific parameters indicated above and should not be construed to be a comprehensive evaluation or a definitive representation of conditions within the facility. The information presented in this report is intended to be used as a guide to evaluate the need for further investigation or the need for modifications to the processes or procedures surveyed.

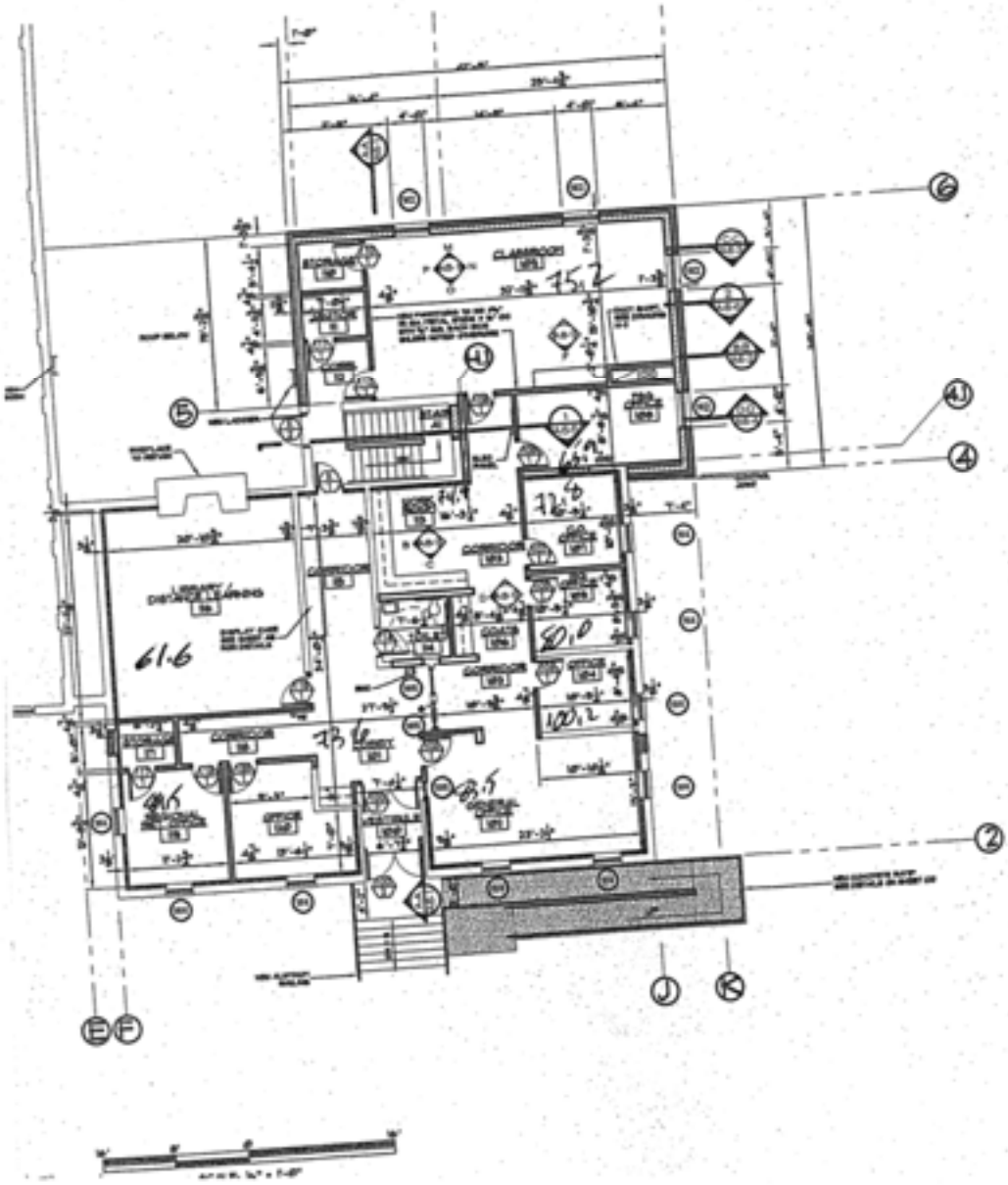
The Client recognizes and agrees that all testing and remediation methods have reliability limitations, no method nor number of sampling locations can guarantee that a condition will be discovered within the performance of the services as authorized by the Client. Additionally, the passage of time may result in a change in the environmental characteristics at this site. This report does not warrant against future operations or conditions that could affect the recommendations made. The results, findings, conclusions, and recommendations expressed in this report are based only on conditions that were observed during AECOM's inspection of the site.

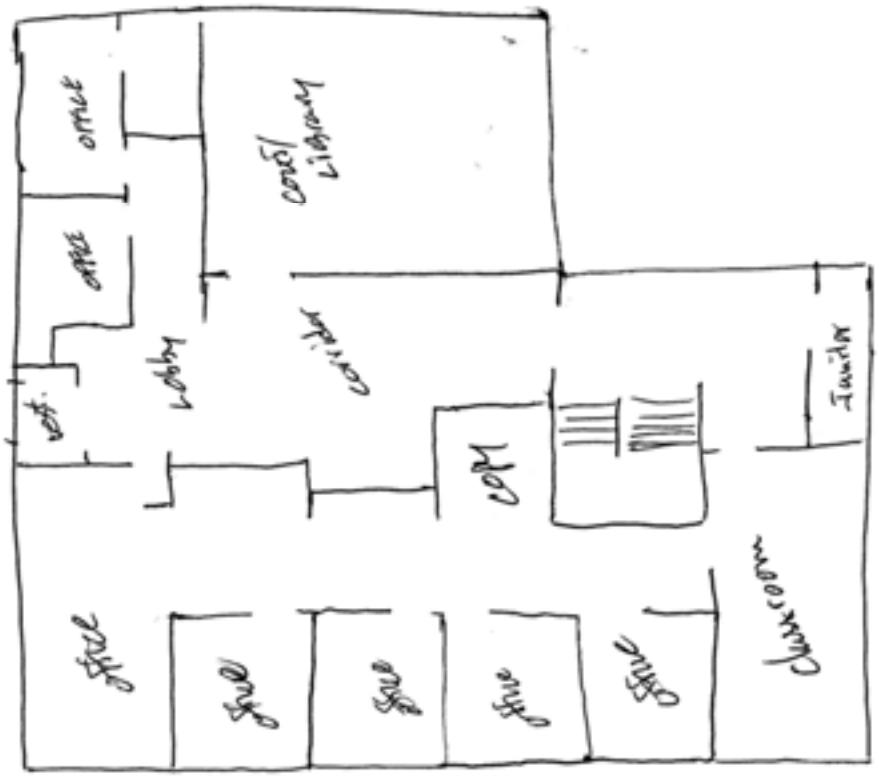
Appendix A

Punxsutawney Readiness Center Facility Layout

AECOM







Appendix B

Punxsutawney Readiness Center Photographs

AECOM

Photograph 1
 Facility Front

Photograph 2
 Drill Hall

AECOM

Photograph 3

Boiler Room

Photograph 4

Fitness Room - Former Firing Range

Photograph 5
 Kitchen

Photograph 6
 Lobby

Photograph 7
 Typical Fiberglass Pipe Insulation

Photograph 8
 Typical HVAC Supply Grille

Appendix C

Analytical Results

AECOM

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

AIHA LAP, LLC ACCREDITED LABORATORY

CERTIFICATE OF ANALYSIS

Client:	National Guard Bureau	Job Name:	PA RC's Group 4e	Chain Of Custody:	314471
Address:	301-E! Old Bay Lane, Attn: ARNG-CIG-7, State Military Reservation	Job Location:	Parcantowny	Date Submitted:	11/12/2012
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM
		P.O. Number:	W912K6-09-A-0033	Date Analyzed:	11/16/2012 Report Date: 11/16/2012

Attention: [redacted]

Summary of Atomic Absorption Analysis for Lead

Page 1 of 2

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Total ug	Final Result	Comments
13014066	PX-01	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13014067	PX-02	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13014068	PX-03	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13014069	PX-04	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13014070	PX-05	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13014071	PX-06	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13014072	PX-07	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13014073	PX-08	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13014074	PX-09	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13014075	PX-10	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13014076	PX-11	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13014077	PX-12	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13014078	PX-13	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13014079	PX-14	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
13014080	PX-15	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	

AECOM

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	PA ECs Group 4c	Chain Of Custody:	514471		
Address:	301-TH Old Hoy Lane, Attn: ARNG-CIG-P, State Military Reservation	Job Location:	Pennsylvania	Date Submitted:	10/2/2012		
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM		
		P.O. Number:	W912G5-09-A-0303	Date Analyzed:	10/6/2012	Report Date:	10/16/2012

Attention: Non-Responsive

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		Total ug	Final Result		Comments
13014066	PX-01	Flame	Wipe	****	0.111	100	ug/ft²	<12	<108	ug/ft²	
13014067	PX-02	Flame	Wipe	****	0.111	100	ug/ft²	<12	<108	ug/ft²	
13014068	PX-03	Flame	Wipe	****	0.111	100	ug/ft²	<12	<108	ug/ft²	
13014069	PX-04	Flame	Wipe	****	0.111	100	ug/ft²	<12	<108	ug/ft²	
13014070	PX-05	Flame	Wipe	****	0.111	100	ug/ft²	<12	<108	ug/ft²	
13014071	PX-06	Flame	Wipe	****	0.111	100	ug/ft²	<12	<108	ug/ft²	
13014072	PX-07	Flame	Wipe	****	0.111	100	ug/ft²	<12	<108	ug/ft²	
13014073	PX-08	Flame	Wipe	****	0.111	100	ug/ft²	<12	<108	ug/ft²	
13014074	PX-09	Flame	Wipe	****	0.111	100	ug/ft²	<12	<108	ug/ft²	
13014075	PX-10	Flame	Wipe	****	0.111	100	ug/ft²	<12	<108	ug/ft²	
13014076	PX-11	Flame	Wipe	****	0.111	100	ug/ft²	<12	<108	ug/ft²	
13014077	PX-12	Flame	Wipe	****	0.111	100	ug/ft²	<12	<108	ug/ft²	
13014078	PX-13	Flame	Wipe	****	0.111	100	ug/ft²	<12	<108	ug/ft²	
13014079	PX-14	Flame	Wipe	****	0.111	100	ug/ft²	<12	<108	ug/ft²	
13014080	PX-15	Flame	Wipe	****	0.111	100	ug/ft²	<12	<108	ug/ft²	

An AIHA (#100429) and NY ELAP (#10920) Accredited Laboratory

4475 Forbes Blvd. · Lanham, MD, 20706 · (301) 459-2640 · Toll Free (800) 346-9961 · Fax (301) 459-2643

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AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	PA RC's Group 4a	Chain Of Custody:	514471
Address:	301-81 Old Bay Lane, Attn: ARNG-CIG-P, State Military Reservation	Job Location:	Pennsylvania	Date Submitted:	11/12/2012
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM
		P.O. Number:	W912DQ-05-A-8039	Date Analyzed:	11/16/2012 Report Date: 11/16/2012

Attention: Non-Responsive

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	Total ug	Final Result	Comments

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7030B; Water: SM-3111B

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B

See QC Summary for analytical results of quality control samples associated with these samples.

N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)

%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)

Note: All samples were received in good condition unless otherwise noted.

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results

Final results for air and wipe samples are based on client supplied information not verified by this laboratory.

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

Analyst: Non-Responsive

Technical Manager: Non-Responsive

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Focused on Results www.amalab.com
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4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This Number For Inquiries) 514471

Mailing/Billing Information:
1. Client Name: National Guard Bureau
2. Address 1: 301-H Old Bay Lane
3. Address 2: Attn: NGB-AVN-SI, State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:
1. (Job Name) PA RC's Group 4e
2. (Job Location) Punxsutawney
3. Job #: PO #: W91ZRS-09-A-0003
4. Contact Person: [redacted] Phone #: [redacted]
5. Submitted by: AECOM (Signature) [redacted]

Reporting Info (Results provided as soon as technically feasible). If no TAT/Reporting Info is provided, AMA will assign defaults of 5-Day [redacted]

AFTER HOURS / NORMAL BUSINESS HOURS: ☐ Immediate ☐ Next Day ☐ 2 Day ☐ 3 Day ☐ 5 Day+ (circled) Wala ☐ Results Required By Noon

REPORT TO: ☒ Include COC/Field Data Sheets with Report [redacted]

Asbestos Analysis
PCM Air – Please Indicate Filter Type: ☐ NIOSH 7400 ___ (QTY) ☐ Fiberglass ___ (QTY)
TEM Air* – Please Indicate Filter Type: ☐ AHERA ___ (QTY) ☐ NIOSH 7402 ___ (QTY) ☐ Other (specify) ___ (QTY)
PLM Bulk: ☐ EPA 600 – Visual Estimate ___ (QTY) ☐ EPA Point Count ___ (QTY) ☐ NY State Friable 198.1 ___ (QTY) ☐ Grav. Reduction ELAP 198.6 ___ (QTY) ☐ Other (specify) ___ (QTY)
MISC: ☐ Vermiculite
☐ Asbestos Soil PLM

TEM Bulk: ☐ ELAP 198.4/Chatfield ___ (QTY) ☐ NY State PLM/TEM ___ (QTY) ☐ Residual Ash ___ (QTY)
TEM Dust*: ☐ Qual. (portable) Vacuum/Dust ___ (QTY) ☐ Quan. (micro) Vacuum D5755-95 ___ (QTY) ☐ Quan. (micro)/Dust D6480-99 ___ (QTY)
TEM Water: ☐ Qual. (portable) ___ (QTY) ☐ ELAP 198.2/EPA 100.2 ___ (QTY) ☐ EPA 100.1 ___ (QTY)
☒ All samples received in good condition unless otherwise noted. (TEM Water samples ___ °C)

Metals Analysis
☐ Pb Paint Chip ___ (QTY)
☒ Pb Dust Wipe (wipe type: ghost) 1 15 (QTY)
☐ Pb Air ___ (QTY)
☐ Pb Soil/Solid ___ (QTY)
☐ Pb TCLP ___ (QTY)
☐ Drinking Water ☐ Pb ☐ Cu ☐ As (QTY)
☐ Waste Water ☐ Pb ☐ Cu ☐ As (QTY)
☐ Pb Pressure (Media ___) ___ (QTY)

Fungal Analysis
Collection Apparatus for Spore Traps/Air Samples: ___
Collection Media: ___
☐ Spore-Trap ___ (QTY) ☐ Surface Vacuum Dust ___ (QTY)
☐ Surface Swab ___ (QTY) ☐ Culturable ID Genus ___ (QTY)
☐ Surface Tape ___ (QTY) ☐ Culturable ID Species ___ (QTY)
☐ Other (Specify) ___ (QTY)

CLIENT ID #	SAMPLE LOCATION ID	DATE/TIME	VOL (L)/Wipe Area	ANALYSIS / MATRIX	CLIENT CONTACT (LABORATORY STAFF ONLY)
					Date/Time: Contact: By:
	SEE ATTACHED FIELD DATA SHEETS				Date/Time: Contact: By:
					Date/Time: Contact: By:
					[redacted]

LABORATORY STAFF ONLY: (CUSTODY)
1. Date/Time RCVD: 11 / 12 / 13 @ 1000 Via: FedEx By: [redacted]
2. Date/Time Analyzed: ___ / ___ / ___ @ ___ By: ___ Sign: ___
3. Results Reported To: ___ Via: ___ Date: ___ Time: ___ Initials: ___
4. Comments: 7959 6820 3687

AECOM

Surface Sampling Field Data Sheet

Date Collected: 11/8/12
Job Number: 60276421
Contact Person: [redacted]

Job Name: PA - group 4e Punxsutawney RCs
Job Location: Punxsutawney
Address: 461 N. Findley St. Punxsutawney, PA

Company: AECOM
Page 1 of 1
Phone Number: 315 4320526
Collected By: [redacted]
COC Number:

Sample Number	Sample Location	Surface/Substrate Sampled	Area Wiped (in²/ft²)	Collection Media
PX-01	Drill Hall North	Floor	16 in²	Ghost wipe
PX-02	South	Floor	↓	↓
PX-03	Drill Hall	Top of elec. Box		
PX-04	Kitchen	Top of elec. Box		
PX-05	conf. room	HVAC Supply grille		
PX-06	OFFICE 107	Desk		
PX-07	conf. Room	FIREPLACE MANTLE		
PX-08	upper Corridor	Floor		
PX-09	classroom 206	HVAC Supply Grille		
PX-10	Former Range	Bullet Trap Area		
PX-11	↓	Light Fixture		
PX-12	↓	O/H Heater		
PX-13	↓	On Gym Group		
PX-14	↓	Floor	↓	↓
PX-15	Outside Former Range	Floor		

Please Return Samples To:
AMA Analytical Services, Inc., 4475 Forbes Blvd., Lanham, MD 20706, (800) 346-0961 / (301) 459-2640 Fax, www.amalab.com, info@amalab.com

Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. http://www.osha.gov/comp-links.html

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15. RP-1-2004, Office Lighting, ANSI/IESNA.

16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.

17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.

18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.

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Industrial Hygiene Survey

CO C 1/112 MECH INF

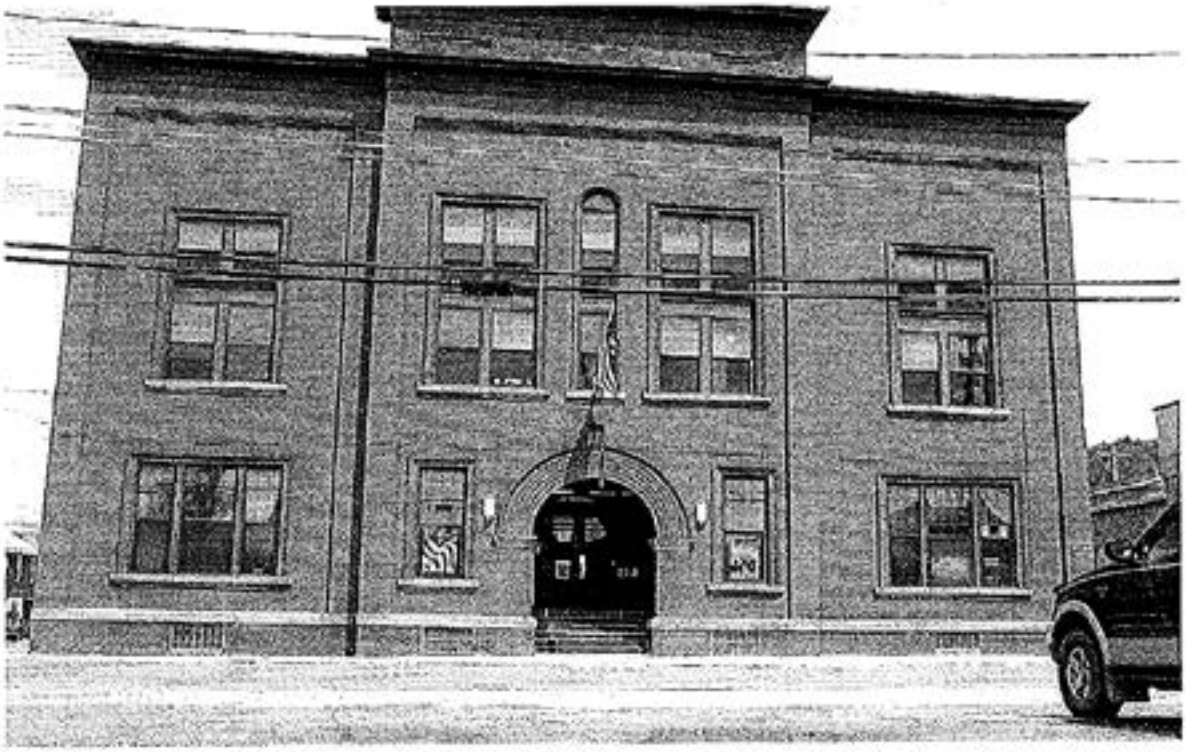
RIDGWAY, PENNSYLVANIA

May 21, 2003
and
December 8, 2003

OPTECH

OPERATIONAL TECHNOLOGIES
CORPORATION

CO C 1/112 MECH INF
RIDGWAY, PENNSYLVANIA
INDUSTRIAL HYGIENE SURVEY



1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Armory in Ridgway, Pennsylvania on May 21, 2003, with a return visit on December 8, 2003. The NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. Non-Responsive and Non-Responsive from OpTech, completed this survey. Non-Responsive a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the IH Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D.

RECOMMENDATIONS

1. ILLUMINATION

1.1. Illumination levels were slightly below recommended minimum standards in some areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

2. LEAD WIPE SAMPLES

2.1. Lead wipe sampling results in day room, balcony, latrine along with two of four samples in the former indoor firing range exceeded the 200 $\mu g/ft^2$ criteria. Lower levels were detected in other areas of the facility. The source of lead contamination is apparently from former indoor firing range activities and possibly from lead paint. It is apparent that lead dust from the range has migrated throughout the facility and has accumulated over the years. Recommend that the facility be wet-wiped/mopped and/or cleaned using a high efficiency particulate air (HEPA) vacuum. This method of cleaning should be used during routine housekeeping duties, to further reduce lead dust levels.

3. ASBESTOS

3.1. Asbestos is present in steam pipe insulation. All observed areas were in good condition and no asbestos samples were collected. Recommend that areas containing asbestos be inspected for damage or deterioration on a routine basis.

2.0. EXECUTIVE SUMMARY

2.1. Carbon monoxide and carbon dioxide levels were within recommended guidelines. Indoor temperatures were slightly lower than recommended comfort levels in many areas. Relative humidity readings were within recommended ranges. Humidity levels should be kept below 60% for occupant comfort and preventing mold growth.

2.2. Illumination levels were slightly below recommended minimum standards in some areas of the facility.

2.3. Wipe samples for inorganic lead were collected throughout the facility. Samples in day room, balcony, latrine along with two of four samples in the former indoor firing range exceeded the 200 $\mu g/ft^2$ criteria. Lower levels were detected in other areas of the facility. The source of lead contamination is apparently from former indoor firing range activities and possibly from lead paint. It is apparent that lead dust from the range has migrated throughout the facility and has accumulated over the years.

2.4. Air sampling for inorganic lead was taken. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building.

2.5. Water intrusion damage is present in the balcony area. A paint chip samples was collected in this area and analyzed for lead content. Sample results were below EPA's 0.5% by weight criteria; therefore, the paint in the balcony area is not considered lead-contaminated.

2.6. Asbestos is present in steam pipe insulation. All observed areas were in good condition and no asbestos samples were collected.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	CO C 1/112th MECH INF		
ADDRESS	72 North Broad Street		
	Ridgway, PA 15853		
CONTACT	Non-Responsive		
PHONE	814-772-2322		
DATE BUILT	1900	FACILITY SIZE	16,276 sq. ft.
INDOOR FIRING RANGE	Inactive		2-floors plus basement
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	3		
TRADITIONAL (MIL)	130		
CHILD ACTIVITIES	None		
ADULT ACTIVITIES			

3.1.1. The exterior is brick and appears to be in good condition. The interior has been kept in good condition, except for water intrusion damage in the balcony area. The building is heated by a steam furnace and is cooled by window air conditioners. Asbestos is known to exist in steam pipe insulation. No friable insulation was observed during the survey.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity (RH) in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 Indoor Air Quality Standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ASHRAE 62-2001, Section 6.1.3, states that concentrations up to 700 ppm CO_2, above outdoor concentrations will achieve an acceptable level of indoor air quality.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ASHRAE 55-1992 recommends that temperature ranges be 73 to 79 degrees Fahrenheit (°F) during the summer and 68 to 74°F during the winter. Relative humidity levels be maintained between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE 1
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO2 (ppm)	Temp. (°F)	RH (%)
1420	Outdoors – Background	0.0	415	76.6	52.4
1432	Kitchen	0.0	540	69.2	50.8
1446	Basement	0.0	560	69.6	51.3
1448	Basement Storage	0.0	540	69.6	51.2
1450	Main Latrine	0.0	543	69.2	51.1
1458	Shower Area	0.0	537	68.3	50.1
1503	Classroom	0.0	544	69.5	52.5
1510	Commander's Office	0.0	547	71.3	53.9
1518	Lobby	0.0	538	71.8	54.2
1520	Orderly Room	0.0	548	72.0	54.3
1530	Day Room	0.0	522	71.4	53.6
1545	RNCO Room	0.0	532	72.7	54.9
1550	Balcony	0.0	540	72.7	55.1
1600	Balcony Overlook	0.0	540	72.1	57.2
1608	Latrine	0.0	560	73.3	56.4
1621	Hallway	0.0	565	70.7	53.4
1624	Former Range Area	0.0	540	70.7	53.5

3.2.5. Carbon monoxide and carbon dioxide levels were within recommended guidelines. Indoor temperatures were slightly lower than recommended comfort levels in many areas. Relative humidity readings were within recommended ranges. Humidity levels should be kept below 60% for occupant comfort and preventing mold growth.

3.3. ILLUMINATION

3.3.1. Illumination levels were measured in most areas of the facility. Sunlight was excluded, as much as possible for this survey, by closing doors and blocking windows. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering

Society of North America, 8th Edition, 1993 (pages 460 - 463). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
Dinning Area	44 – 60	50	7.5	YES
Kitchen	32 – 60	44	75	NO
Basement – Former Range Area	38 - 64	45	40	YES
Main Latrine	40 - 90	54	40	YES
Classroom A	50 - 80	63	75	NO
Classroom B	40 – 70	52	75	NO
Lobby	30 – 82	55	15	YES
RNCO's Office	50 - 90	68	70	NO

3.3.2. Levels were slightly below recommended minimum standards in some areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3.4. WIPE SAMPLES

3.4.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples were taken at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot ($\mu g/ft^2$) and are listed in Table 3. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Rid-03141-19	Main Latrine	91
PA Rid-03141-20	Classroom	BDL
PA Rid-03141-21	Room 22 1st floor Office	BDL
PA Rid-03141-22	Kitchen	66
PA Rid-03141-23	Day Room	**306**
PA Rid-03141-24	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.2. Additional wipe samples were collected during this survey. These samples were collected to further analyze the extent of contamination should the first five samples indicate a possible hazard. Since the samples taken in Day Room exceeded the 200 $\mu g/ft^2$ criteria (see Section 3.4.4), these additional samples were analyzed. The results are presented in Table 4.

TABLE 4
WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead ($\mu g/ft^2$)
PA Rid-03141-25	Assembly Hall	BDL
PA Rid-03141-26	Balcony	**1000**
PA Rid-03141-27	Latrine - Outside Day Room	**2400**
PA Rid-03141-28	Dining Area	130
PA Rid-03141-29	Stairs from Basement	**440**
PA Rid-03141-30	BLANK Sample	BDL

$\mu g/ft^2$ = micrograms per square foot BDL = Below Detection Limits

3.4.3. CLOSED FIRING RANGE WIPE SAMPLING

3.4.3.1. Additional wipe samples were collected in the former indoors firing range and in the Boiler Room. This area is presently being utilized for storage. The laboratory analysis results are listed in Table 5.

TABLE 5
FORMER FIRING RANGE AND BOILER ROOM WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead ($\mu g/ft^2$)
PA Rid-03141-31	Former Range Floor	33
PA Rid-03141-32	Boiler Room	53
PA Rid-03141-33	Basement (Old Range) Window Ledge	70
PA Rid-03141-34	Basement (Old Range) Ceiling	500
PA Rid-03141-35	Basement (Old Range) Floor	**1918**
PA Rid-03141-36	BLANK Sample	BDL

$\mu g/ft^2$ = micrograms per square foot BDL = Below Detection Limits

3.4.4. WIPE SAMPLING RESULTS

3.4.4.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 $\mu g/ft^2$. This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. (See memorandum in Attachment E, Recommendations for Surface Lead Dust in Armories.) Samples in day room, balcony, latrine

along with two of four samples in the former firing range exceeded the 200 µg/ft^2 criteria. Lower levels were detected in other areas of the facility. The source of lead contamination is apparently from former indoor firing range activities and possibly from lead paint. It is apparent that lead dust from the range has migrated throughout the facility and has accumulated over the years.

3.4.5. AIR SAMPLING

3.4.5.1. Air Sampling for inorganic lead was performed during this survey. Table 6 lists the results of these samples, and is reported in milligrams per cubic meter (mg/m^3) of air.

TABLE 6
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
[redacted]	PA Rid-03141-16	Lead	<0.002 mg/m^3	0.05 mg/m^3	YES
Area – 1st Floor Hallway	PA Rid-03141-17	Lead	<0.002 mg/m^3	0.05 mg/m^3	YES
Area – Kitchen	PA Rid-03141-18	Lead	<0.002 mg/m^3	0.05 mg/m^3	YES

mg/m^3 = milligrams per cubic meter < = less than (below detection limits)

3.4.5.2. Air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this building.

3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION DAMAGE

3.5.1.1. Severe water intrusion damage from a leak in the roof was present in the balcony area. The leak has been repaired. Since lead dust was present throughout the facility a second visit was arranged to collect a paint chip sample in the damaged area. Laboratory analysis results are listed in Table 7. A photograph of the water intrusion area is presented in Attachment B.

TABLE 7
PAINT CHIP SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (percent)
PA Rid-03342-01	Balcony	0.12%

3.5.1.2. The Environmental Protection Agency (EPA) considers paint with a lead content equal to or greater than 0.5% by weight as contaminated. Therefore, the paint in the balcony area is not considered lead-contaminated paint.

3.5.2. ASBESTOS

3.5.2.1. Asbestos is present in steam pipe insulation. All observed areas were in good condition and no asbestos samples were collected.

3.5.3. PROGRAMS

3.5.3.1. There are no designated confined space areas within this facility. There are no exhaust ventilation systems to control a hazard. No chemicals besides normal cleaning materials are present. Therefore, a need has not been established for a HAZCOM program, the need for personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.4. HOUSEKEEPING

3.5.4.1. The facility was relatively clean.

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

E – Recommendations for Surface Lead in Armories

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
Ridgway, PA	PENNSYLVANIA ARNG ARMORY	Ridgway Armory

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR (initials)
21 May / 8 December 2003	JSS

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	NA	Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
814-772-2322	CO C(-) 1/112 MECH INF	3	9

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
3	130			

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	CONROLS 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			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	½ FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	¾ 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 WEATHR 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	/		

AEHA Form 271-R (Test), 1 Jan 92 (HSHB-MI-I)

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	3	C
1001-29-5	Asbestos	2	C

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

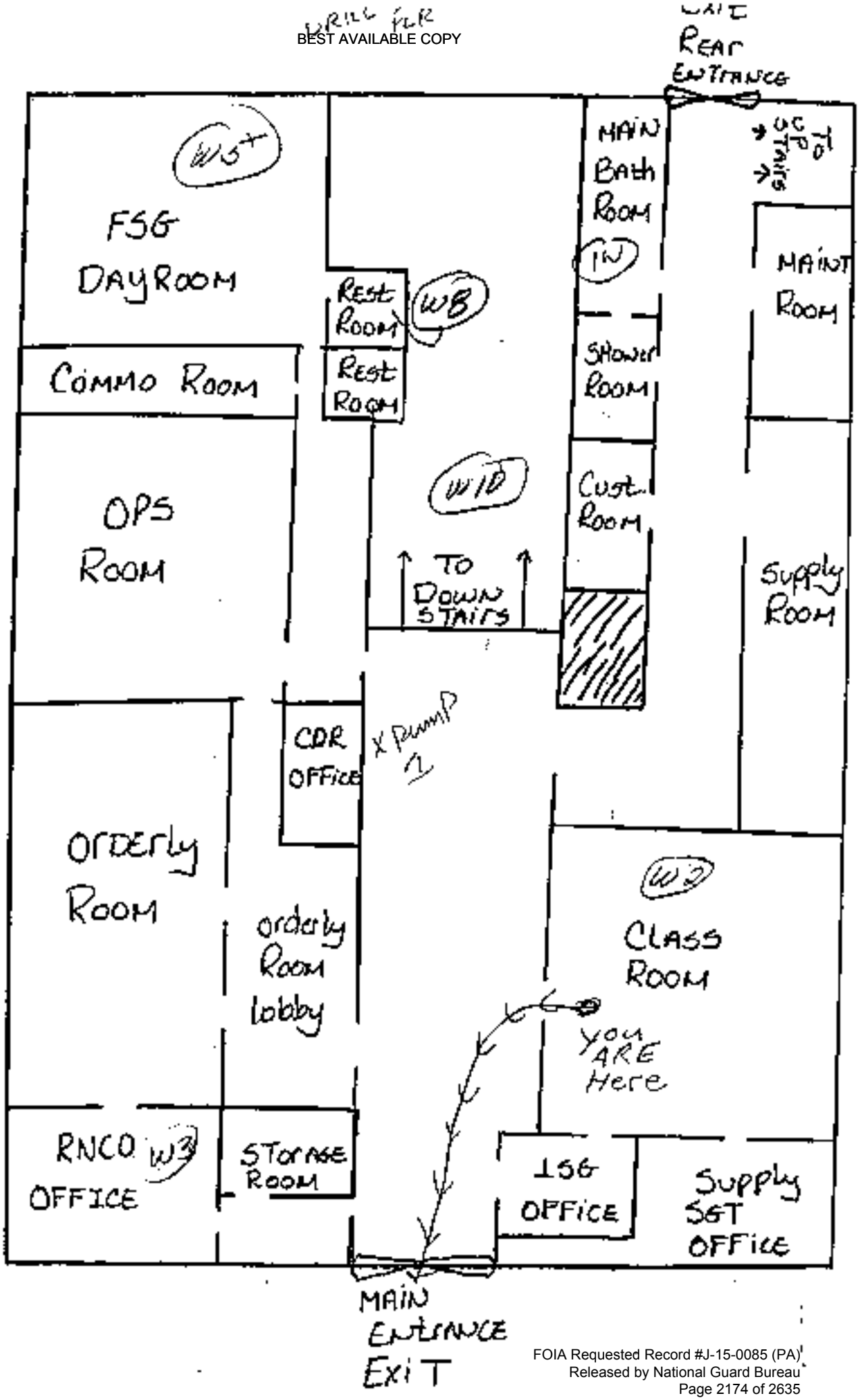
SECTION 6. COMMENTS

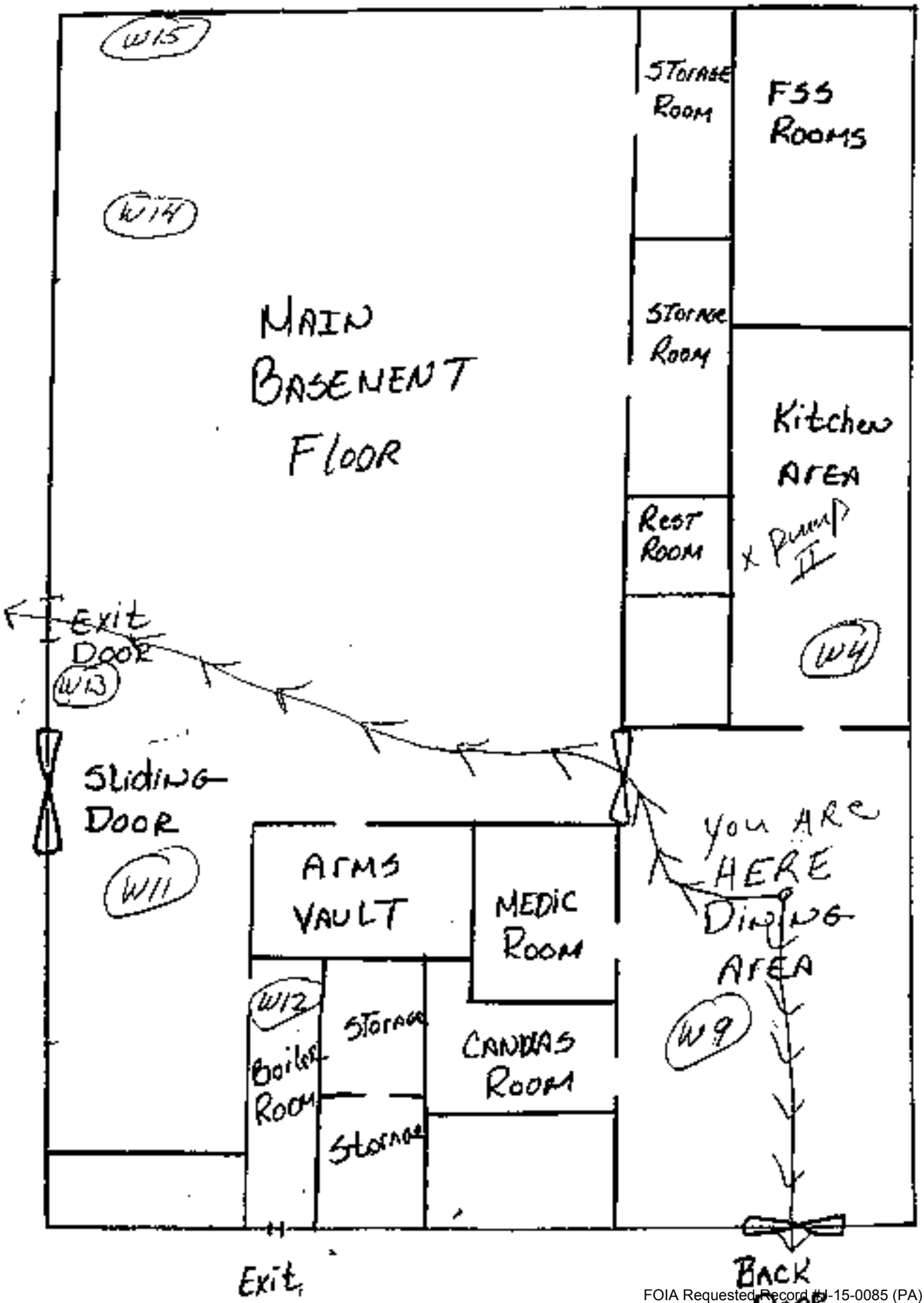
☐ No comments ☐ See attached sheet

PRIVACY ACT STATEMENT

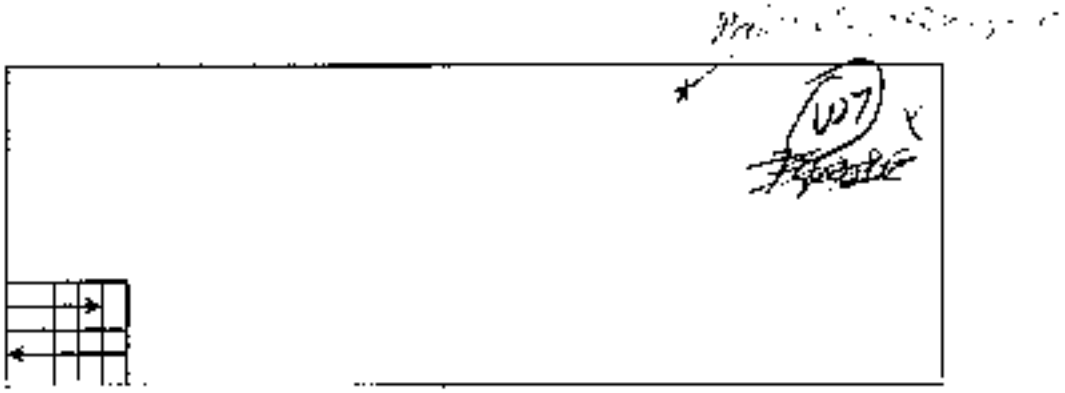
Title 5 US Code, Section 301; Executive Order 9397 authorized the use of your Social Security Number as an identification number. The purpose of this information is to identify and monitor data relating each DA civilian and military employee exposed to a hazardous workplace or operation. The use of this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

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





balcony

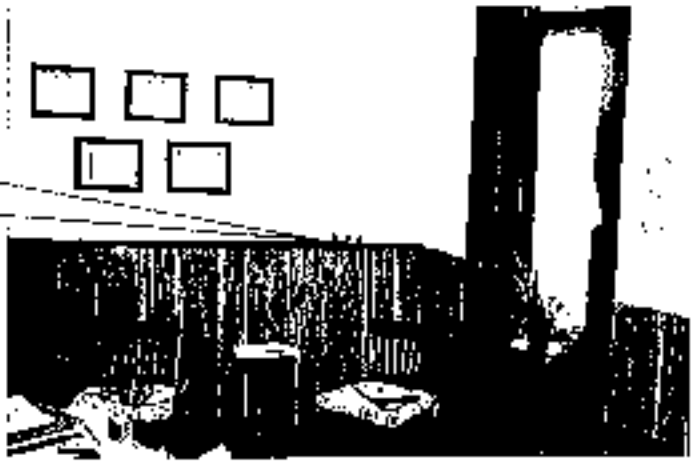


CO C (-) 1/112TH MECH INF
RIDGWAY, PENNSYLVANIA

(1) PA Rid-03141-19
Latrine

(2) PA Rid-03141-20
Classroom

(3) PA Rid-03141-21
1SG's Office



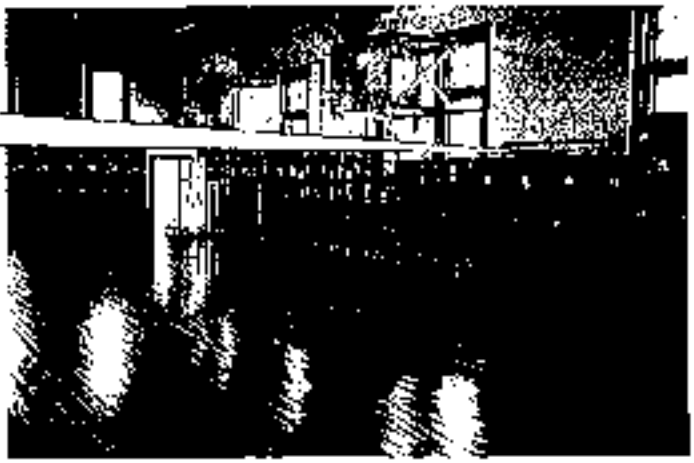
Attachment B

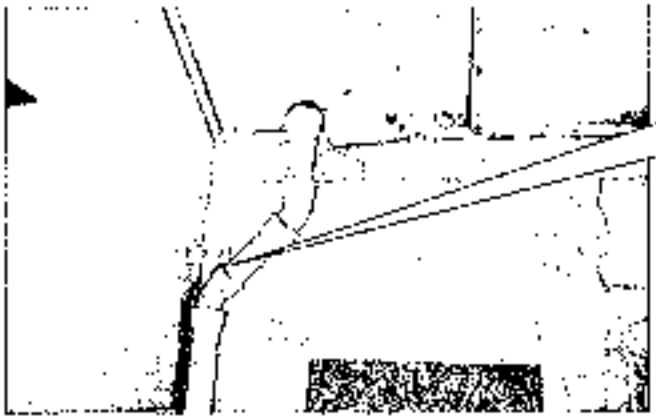
(4) PA Rid-03141-22
Kitchen

(5) PA Rid-03141-23
Day Room / Fitness Center

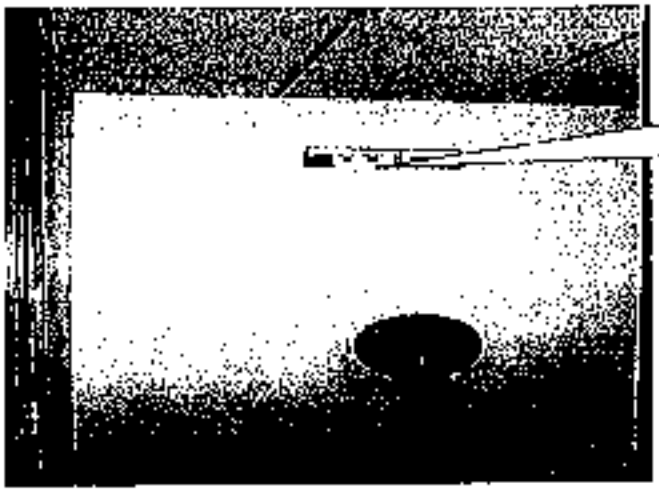
ADDITIONAL SAMPLES

(6) PA Rid-03141-25
Assembly Hall



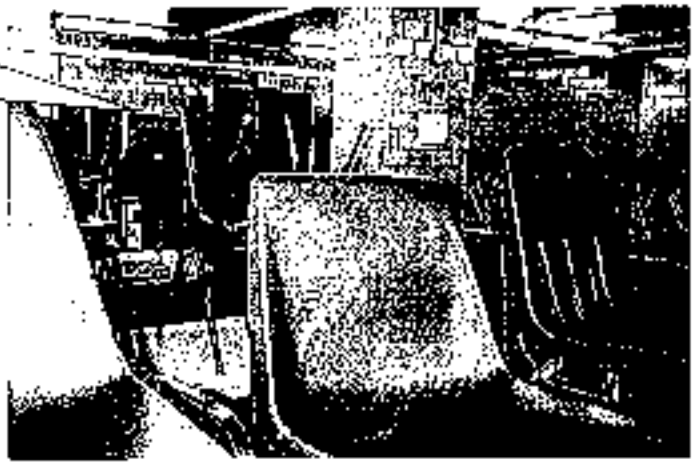


(7) PA Rid-03141-26
Balcony



(8) PA Rid-03141-27
Latrine

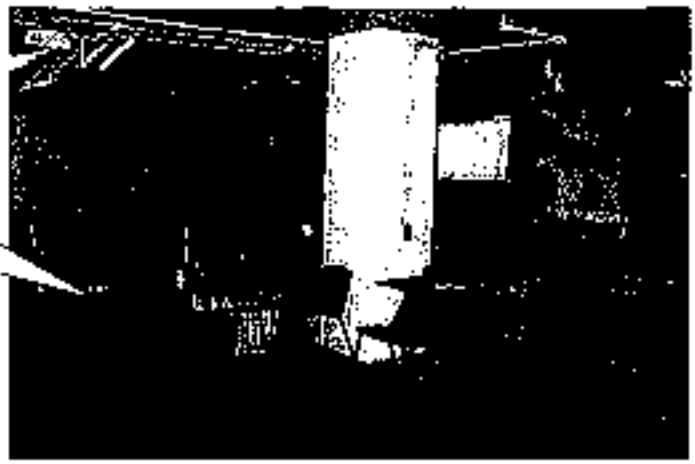
(9) PA Rid-03141-28
Dining Room



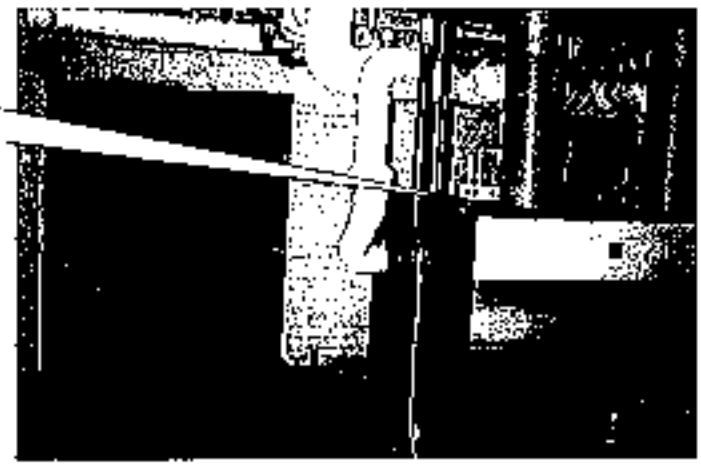
Attachment B

(10) PA Rid-03141-29
Stairs (basement)

FORMER INDOOR FIRING RANGE SAMPLES



(11) PA Rid-03141-31
Former Range – Floor

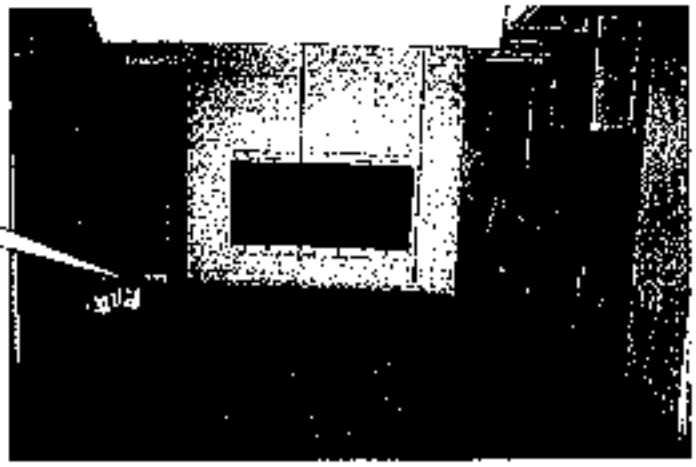


(12) PA Rid-03141-32
Boiler – By Former Range

Attachment B

(14) PA Rid-03141-34
Former Range
Deflection Plate

(15) PA Rid-03141-35
Former Range
Backstop Area Floor



BULK PAINT CHIP SAMPLE

PA Rid-03342-01
Paint Chip Sample
Balcony

Attachment 15

Results
Lead

Client #	DCL #	Total Area (ft^2)	µg/Wipe	µg/ft^2
PA Joh-03134-11	03-30443	0.11	10.	91.
PA Joh-03134-12	03-30444	0.11	34.	310.
PA Joh-03134-13	03-30445	0.11	ND	<91.
PA Joh-03134-14	03-30446	0.11	ND	<91.
PA Joh-03134-15	03-30447	0.11	ND	<91.
PA Joh-03134-16	03-30448	0.11	ND	<91.
PA Cle-03140-10	03-30449	0.11	17.	150.
PA Cle-03140-11	03-30450	0.11	ND	<91.
PA Cle-03140-12	03-30451	0.11	11.	100.
PA Cle-03140-13	03-30452	0.11	ND	<91.
PA Cle-03140-14	03-30453	0.11	87.	790.
PA Cle-03140-15	03-30454	0.11	ND	<91.
PA Kan-03141-10	03-30455	0.11	19.	170.
PA Kan-03141-11	03-30456	0.11	20.	180.
PA Kan-03141-12	03-30457	0.11	3100.	28000.
PA Kan-03141-13	03-30458	0.11	13.	120.
PA Kan-03141-14	03-30459	0.11	ND	<91.
PA Kan-03141-15	03-30460	0.11	ND	<91.
PA Rid-03141-25	03-30461	0.11	ND	<91.
PA Rid-03141-26	03-30462	0.11	110.	1000.
	Prep Blank		ND	
% Recovery	LCS 1		91.	
% Recovery	LCS 2		90.	
RPL			10.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive
Analyst

Non-Responsive
Reviewer

Results
Lead

Client #	DCL #	Total Area (ft^2)	µg/Wipe	µg/ft^2
PA Rid-03141-27	03-30463	0.11	**260.**	**2400.**
PA Rid-03141-28	03-30464	0.11	**14.**	**130.**
PA Rid-03141-29	03-30465	0.11	**48.**	**440.**
PA Rid-03141-30	03-30466	0.11	ND	<91.
PA Bra-03142-09	03-30467	0.11	**39.**	**350.**
PA Bra-03142-10	03-30468	0.11	ND	<91.
PA Bra-03142-11	03-30469	0.11	**79.**	**720.**
PA Bra-03142-12	03-30470	0.11	ND	<91.
PA Bra-03142-13	03-30471	0.11	ND	<91.
PA Bra-03142-14	03-30472	0.11	ND	<91.
PA Pun-03142-24	03-30473	0.11	ND	<91.
PA Pun-03142-25	03-30474	0.11	ND	<91.
PA Pun-03142-26	03-30475	0.11	ND	<91.
PA Pun-03142-27	03-30476	0.11	**230.**	**2100.**
PA Pun-03142-28	03-30477	0.11	ND	<91.
PA Pun-03142-29	03-30478	0.11	ND	<91.
PA Man-03143-09	03-30479	0.11	**86.**	**780.**
PA Man-03143-10	03-30480	0.11	ND	<91.
PA Man-03143-11	03-30481	0.11	**88.**	**800.**
PA Man-03143-12	03-30482	0.11	ND	<91.
	Prep Blank		ND	
% Recovery	LCS 3		81.	
% Recovery	LCS 4		86.	
RPL			**10.**	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive
Analyst

Non-Responsive
Reviewer

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
AIHA Certificate of Accreditation #480 LAB ID 101533

TABLE I. ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	RES 93716-1
Client:	Operational Technologies, Corp.
Client Project Number / P.O.:	06 01
Client Project Description:	Aranorles/Pennsylvania
Date Samples Received:	June 6, 2003
Analysis Type:	USEPA SW846 3050B / AA(7420)
Turnaround:	3-5 Day
Date Samples Analyzed.	June 16, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA Ber-03139-09	BM 778563	0.11	BDL	23	BDL
PA Cle-03140-04	BM 778564	0.11	6.5	23	59
PA Cle-03140-05	BM 778565	0.11	2.8	23	25
PA Cle-03140-06	BM 778566	0.11	7.5	23	68
PA Cle-03140-07	BM 778567	0.11	13.7	23	125
PA Cle-03140-08	BM 778568	0.11	59.9	23	545
PA Cle-03140-09	BM 778569	0.11	BDL	23	BDL
PA Cle-03140-16	BM 778570	0.11	4.6	23	42
PA Cle-03140-17	BM 778571	0.11	25.5	23	232
PA Cle-03140-18	BM 778572	0.11	7.6	23	69
PA Cle-03140-19	BM 778573	0.11	7.0	23	64
PA Cle-03140-20	BM 778574	0.11	5.2	23	47
PA Cle-03140-21	BM 778575	0.11	BDL	23	BDL
PA Kan-03141-04	BM 778576	0.11	93.0	23	845
PA Kan-03141-05	BM 778577	0.11	7.5	23	68
PA Kan-03141-06	BM 778578	0.11	2.6	23	24
PA Kan-03141-07	BM 778579	0.11	420.0	23	3818
PA Kan-03141-08	BM 778580	0.11	3.2	23	29
PA Kan-03141-09	BM 778581	0.11	BDL	23	BDL
PA Rid-03141-19	BM 778582	0.11	10.0	23	91
PA Rid-03141-20	BM 778583	0.11	BDL	23	BDL
PA Rid-03141-21	BM 778584	0.11	BDL	23	BDL
PA Rid-03141-22	BM 778585	0.11	7.3	23	66
PA Rid-03141-23	BM 778586	0.11	33.7	23	306
PA Rid-03141-24	BM 778587	0.11	BDL	23	BDL
PA Rid-03141-31	BM 778588	0.11	3.6	23	33
PA Rid-03141-32	BM 778589	0.11	5.8	23	53
PA Rid-03141-33	BM 778590	0.11	7.7	23	70
PA Rid-03141-34	BM 778591	0.11	55.0	23	500
PA Rid-03141-35	BM 778592	0.11	211.0	23	1918

BDL = Below Detection Limit

Date Qa

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
AIHA Certificate of Accreditation #480 LAB ID 101533

TABLE I. ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number: RES 93716-1
Client: Operational Technologies, Corp.
Client Project Number / P.O.: 06 01
Client Project Description: Armories/Pennsylvania
Date Samples Received: June 6, 2003
Analysis Type: USEPA SW846 3050B / AA(7420)
Turnaround: 3-5 Day
Date Samples Analyzed: June 14, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (ug)	Detection Limit (ug/sq.ft.)	LEAD CONCENTRATION (ug/sq.ft.)
PA Bdl-03141-36	BM 778593	0.11	BDL	23	BDL
PA Brn-03142-03	BM 778594	0.11	18.6	23	169
PA Brn-03142-04	BM 778595	0.11	97.9	23	890
PA Bra-03142-05	BM 778596	0.11	BDL	23	BDL
PA Bru-03142-06	BM 778597	0.11	BDL	23	BDL
PA Bra-03142-07	BM 778598	0.11	9.2	23	84
PA Brn-03142-08	BM 778599	0.11	BDL	23	BDL
PA Pun-03142-18	BM 778600	0.11	5.5	23	50
PA Pun-03142-19	BM 778601	0.11	158.0	23	1436
PA Pun-03142-20	BM 778602	0.11	3.8	23	35
PA Pun-03142-21	BM 778603	0.11	BDL	23	BDL
PA Pun-03142-22	BM 778604	0.11	2.9	23	26
PA Pun-03142-23	BM 778605	0.11	BDL	23	BDL
PA Pun-03142-30	BM 778606	0.11	140.0	23	1273
PA Pun-03142-31	BM 778607	0.11	9.5	23	86
PA Pun-03142-32	BM 778608	0.11	33.0	23	300
PA Pun-03142-33	BM 778609	0.11	6.7	23	61
PA Pun-03142-34	BM 778610	0.11	12.0	23	109
PA Pun-03142-35	BM 778611	0.11	BDL	23	BDL
PA Mun-03143-03	BM 778612	0.11	BDL	23	BDL
PA Mun-03143-04	BM 778613	0.11	BDL	23	BDL
PA Mun-03143-05	BM 778614	0.11	9.2	23	84
PA Mun-03143-06	BM 778615	0.11	41.6	23	378
PA Mun-03143-07	BM 778616	0.11	3.2	23	29
PA Mun-03143-08	BM 778617	0.11	BDL	23	BDL
PA Eri-03148-04	BM 778618	0.11	BDL	23	BDL
PA Eri-03148-05	BM 778619	0.11	10.8	23	98
PA Eri-03148-06	BM 778620	0.11	15.1	23	137
PA Eri-03148-07	BM 778621	0.11	BDL	23	BDL
PA Eri-03148-08	BM 778622	0.11	BDL	23	BDL

BDL = Below Detection Limit

Data Qa

Results
Lead

Client #	DCL #	mg/Kg (ppm)	% by weight
PA Rid-03342-01	03-35904	1200.	0.12
PA Cle-03342-10	03-35905	170.	0.017
PA Pot-03343-13	03-35906	4600.	0.46
PA Pot-03343-14	03-35907	54000.	5.4
PA Pot-03343-15	03-35908	160000.	16.
PA Pot-03343-16	03-35909	110000.	11.
PA Pot-03343-17	03-35910	110000.	11.
PA Wes-03344-07	03-35911	59000.	5.9
	Prep Blank	ND	
% Recovery	LCS	87.	
% Recovery	MS	94.	
% Recovery	MSD	94.	
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

Analyst

Non-Responsive

Reviewer

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non-Responsive @md.ngb.army.mil

Attachment D

REFERENCE LIST INDEX

1. General Regulations and National Consensus Standards
2. Specific Regulations and Guidance
   a. Abrasive Blasting
   b. Asbestos
   c. Battery Charging Room
   d. Bird and Bat Manure
   e. Bloodborne Pathogens
   f. Chemical Agent Resistant Coating (CARC) Paint
   g. Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE)
   h. Confined Space Entry Program
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   k. Flammable Storage Room
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   m. Hearing Conservation
   n. Indoor Air Quality
   o. Indoor Firing Ranges
   p. Lead
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   r. Occupational Vision
   s. Paint Spray Booth
   t. Personal Protection
   u. Radiation Protection
   v. Respiratory Protection
   w. Sanitation
   x. Smoking
   y. Vehicle Exhaust
   z. Welding Operation

GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REFERENCE LIST

1. General Regulations and National Consensus Standards

a. DODI 6055.1, DOD SOH Program, 19 August 1998.

b. DODI 6055.5, DOD OEH. *[DRAFT]*

c. DOD 6055.5-M, DOD Occupational Health Surveillance Manual, 13 May 1987.

d. DODI 6050.5, DOD Hazard Communication, 29 Oct 90. Change 1, 6 May 1996.

e. AR 40-5, Preventive Medicine, 15 October 1990. [05/2002 Being Updated]

f. DA PAM 40-5, Preventive Medicine. *[DRAFT]*

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

h. NGR 385-10, ARNG SOH Program, 7 October 1988, Change 1, 29 December 1989.

i. Title 29, Part 1910, Occupational Safety and Health Standards. [Current Date]

j. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 2002.

k. ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th edition, 2001.

l. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.

m. TG 141, USACHPPM Industrial Hygiene Sampling Guide, November 1997.

n. National Safety Council, Fundamentals of Industrial Hygiene, 5th Edition, 2002.

o. NIOSH, Pocket Guide to Chemical Hazards, 2001.

p. NFC, A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. [Current date]

q. ASHRAE Standards. [Current Dates]

r. ANSI Standards. [Current Dates]

2. Specific Regulations/Guidance

a. **ABRASIVE BLASTING**

(1) ANSI Z9.4 1997, Abrasive Blasting Operations - Ventilation and Safe Practices.

(2) 29 CFR 1910.94 Ventilation

(3) 42 CFR 84

b. **ASBESTOS**

(1) AR 40-5, Preventive Medicine, 15 October 1990. *[05/2002 Being Updated]*

(2) AR 200-1, Environmental Protection and Enhancement, Chapter 8, 21 February 1997.

(3) TB MED 513, Guidelines for the Evaluation and Control of Asbestos Exposure, 15 December 1986. *[05/2000 Under Revision as DA PAM 40-513]*

(4) TG 157, USAEHA, The Installation Asbestos Management Program Assessment Checklists, July 1994.

(5) 29 CFR 1910.1001

(6) 29 CFR 1926.58 (prior to 1994 CFR)

(7) 29 CFR 1926.1101

(8) MEMORANDUM SGPS-PSP, OTSG, subject: AMEDD Role Supporting Asbestos Abatement/Asbestos Management Programs, 19 Jan 89.

(9) EPA, Guidance for Controlling Asbestos-Containing Materials in Buildings, June 1985.

(10) DD Form 2493-1 (Asbestos Exposure, Part I--Initial Medical Questionnaire)

(11) DD Form 2493-2 (Asbestos Exposure, Part II—Periodic Medical Questionnaire)

(12) EPA NESHAPS Asbestos Regulation (40 CFR 61, Subpart M).

c. **BATTERY CHARGING ROOM**

(1) TG 022, USAEHA, page 81, Industrial Hygiene Evaluation Guide, October 1975. *[Out of Print]*

(2) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

d. **BIRD AND BAT MANURE**

(1) TG 142, USAEHA, Managing Health Hazards Associated with Bird and Bat Excrement, Dec 1992.

e. **BLOODBORNE PATHOGENS**

(1) 29 CFR 1910.1030

(2) TG 190, USAEHA, Guide to Managing Occupational Exposure to Bloodborne Pathogens, Jan 94.

f. **CHEMICAL AGENT RESISTANT COATING (CARC) PAINT**

(1) TG 144, USAEHA, Guidelines for Controlling Health Hazards in Painting Operations, 24 August 1987.

(2) DA LTR, USAEHA, HSHB-MI-WR, subject: Respiratory Protection When Spraying CARC, 19 November 1992.

(3) TM 43-0139, Painting Instructions for Army Material, 27 July 1988I Aug 86.

(4) MEMORANDUM SGPS-PSP, OTSG, subject AMEDD, Occupational Health Requirements in Support of Painting in the Army, 22 February 1985.

(5) AR 750-1, Army Materiel Maintenance Policy and Retail Maintenance Operations (Prohibits welding on CARC paint) 1 July 1996.

g. **CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR, EXPLOSIVE (CBRNE)**

(1) DODI 2000.gg, DOD Installation CBRNE Emergency Response Guidelines.

(2) DHHS, NIOSH Pub No. 2002 139, Guidance for Protecting Building Environments from Airborne Chemical, Biological, or Radiological Attacks, May 2002.

(3) TG 275, USACHPPM, Personal Protective Equipment Guide for Medical Treatment Facility Personnel Handling Casualties from Weapons of Mass Destruction and Terrorism Events. *[Draft]*

h. **CONFINED SPACE**

(1) 29 CFR 1910.146 (Confined Space Entry)
(2) 29 CFR 1910.147 (Lockout/Tagout)
(3) ANSI Z117.1-Safety Requirements for Confined Spaces, 1995.
(4) SOP for ARNG Confined Space Entry Program, 25 April 1991.
(5) Letter, US Dept of Labor (DOL) addressed to Vanessa Char, 22 Apr 1994.
(6) OSHA Instruction STD 1-7.3, US DOL, subject: 29 CFR 1910.147, the Control of Hazardous Energy (Lockout/Tagout)--Inspection Procedures and Interpretive Guidance, 11 Sep 90.
(7) DHHS, NIOSH Pub No. 87113, A Guide to Safety in Confined Spaces, July 1987.
(8) Confined Space Entry Program for Helicopters, 2003.

i. **DESIGN REVIEW**

(1) DG 415-1, Design Guide for Armories, current.
(2) DG 415-2, Design Guide for Logistics Facilities, current.
(3) DG 415-3, Design Guide for Training Site Facilities, current.
(4) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.
(5) TI-300, 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.
(6) UFGS 15940A, Overhead Vehicle Tailpipe (and welding Fume) Exhaust Removal Systems, December 2001.
(7) ASHRAE, Standard 62-2002, Ventilation for Acceptable Indoor Air Quality.
(8) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

j. **ERGONOMICS**

(1) DA PAM 40-21, Medical Services, Ergonomics Program, 15 May 2000.
(2) ANSI Z-365, Management of Work Related Musculoskeletal Disorders, 2000.
(3) 29 CFR 1910. *[PROPOSED STANDARD]*

k. **FLAMMABLE STORAGE ROOM**

(1) 29 CFR 1910.106
(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

l. **HAZARD COMMUNICATION**

(1) 29 CFR 1910.1200
(2) NGR 385-10, Chapter 6

m. **HEARING CONSERVATION**

(1) DA PAM 40-501, Medical Services, Hearing Conservation Program, 10 December 1998.

(2) TG 181, USAEHA, Noise Dosimetry and Risk Assessment, May 1999.

(3) TG 175, USAEHA, Readiness thru Hearing Conservation: Guide for Unit Commanders and Supervisors, June 1999.

(4) 29 CFR 1910.95

n. **INDOOR AIR QUALITY (IAQ)**

(1) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

(2) USACERL Technical Report P-91/42, IAQ Management for Operations and Maintenance Personnel, September 1991.

(3) EPA 400/1-91/003 or DHHS, NIOSH, Publication No. 91-114, Building IAQ, A Guide for Building Owners and Facility Managers, December 1991.

(4) ASHRAE, Standard 62-2002, Ventilation for Acceptable IAQ.

(5) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

(6) NIOSH, IAQ Selected References, Sep 1989.

(7) OSHA Instruction CPL 2-2.20B CH-1, Directorate of Technical Support, 13 Nov 90.

(8) DA PAM 25-52, Mail Facility Security and Handling Suspicious Mail, 6 November 2001.

(9) ASTM, D 5952-96, 10 May 1996.

o. **INDOOR FIRING RANGES**

(1) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(2) NGR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges, 30 March 1990. *[11/02 Under Revision]*

(3) CEHND 1110-1-18, USACE Design Manual for Indoor Firing Range, June 1990.

(4) HQDA LTR, Office of the Adjutant General, DACS-SF, subject: Inspection and Evaluation of US Army Indoor Firing Ranges, 26 March 1993.

(5) Departments of the Army and Air Force, NGB-ADE-OM, subject: All State Log Number (I920323) Indoor Range Clean-up at State Owned Armories, 28 July 1992.

(6) NIOSH, Technical Information, December 1975, subject: Lead Exposure and Design Considerations for Indoor Firing Ranges.

(7) All-States Ltr P01-0075, 5 December 2001.

(8) Information Paper, Alternative Ammunition, 15 March 1996.

(9) Information Paper, Bullet Traps, 26 April 1996.

(10) Information Paper, ARNG IFR Action Plan, 28 January 2002.

p. **LEAD**

(1) 29 CFR 1910.1025

(2) 29 CFR 1926.62

(3) 24 CFR 35.61 (HUD, Percentage of Lead in Paint)

(4) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(5) OSHA Instruction CPL 2-2.58, Office of Health Compliance Assistance, 13 December 1993.

(6) Federal Register, 18 April 1990, Vol. 55, No. 75, HUD, Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing, as amended, September 1990, Office of Public and Indian Housing, Department of Housing and Urban Development, 451 Seventh Street, SW, Washington, DC 20410.

(7) NIOSH, Request for Assistance in Preventing Lead Poisoning in Construction Workers, April 1992.

(8) EPA, Strategy for Reducing Lead Exposures, 21 Feb 91.

q. **LIGHTING**

(1) RP-1-1993, Office Lighting, ANSI/IESNA.

(2) RP-7-2001, Industrial Lighting, IES.

r. **OCCUPATIONAL VISION**

(1) DA PAM 40-506, Medical Services, The Army Vision Conservation and Readiness Program, 20 July 2001.

(2) ANSI Z87.1, Practice for Occupational and Educational Eye and Face Protection, 1989, Change A, REAF 1998.

(3) ANSI Z358.1 for Emergency Eyewash and Shower Equipment, 1998.

(4) OTSG Memorandum SGPS-PSP, subject: Acanthameoba Keratitis and Eyewash Stations, 8 May 89.

(4) 29 CFR 1910.133

s. **PAINT SPRAY BOOTH**

(1) NFPA No. 33, Standard for Spray Application Using Flammable and Combustible Materials, 1995.

(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

(3) 29 CFR 1910.94

(4) 29 CFR 1910.107

(5) ANSI Z9.3-1995 for Exhaust Systems - Spray Finishing Operations - Safety Code for Design, Construction, and Ventilation.

(6) ANSI Z9.2-2001, Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems.

t. **PERSONAL PROTECTIVE EQUIPMENT**

(1) Quick Selection Guide to Chemical Protective Clothing, 2nd edition, Forsberg, K and Mansdorf, S., 1993.

(2) Chemical Protective Clothing, Vol 1 and 2, Johnson, J. and Anderson, K., American Industrial Hygiene Association, 1990.

(3) Guidelines for the Selection of Chemical Protective Clothing, 3rd Edition, ACGIH, Inc., Feb 1987.

u. **RADIATION PROTECTION PROGRAM**

(1) NGR 385-11, Safety, Ionizing and Nonionizing Radiation Protection, 18 February 1999.

(2) AR 11-9, Army Radiation Safety Program, 28 May 1999.

(3) 29 CFR 1910.96

(4) 29 CFR 1910.97

v. **RESPIRATORY PROTECTION**

(1) AR 11-34, The Army Respiratory Protection Program, 15 February 1990. *[11/02 Being Updated]*

(2) 29 CFR 1910.134

(3) 42 CFR 84

(4) TB MED 502, Respiratory Protection Program, February 1992. *[11/02 Being Updated as DA PAM 40-502]*

(5) ANSI/CGA G-7.1-1997, Commodity Specification for Air.

(6) ANSI Z88.2-1992, Standard for Respiratory Protection.

w. **SANITATION**

(1) ANSI Z4.1-1986, Change REAF 1995, Sanitation in Places of Employment-Minimum Requirements.

(2) 29 CFR 1910.141

x. **SMOKING**

(1) AR 600-63, Army Health Promotion, 28 April 1996.

(2) DODI 1010.15, Smoke-Free DOD Facilities, 2 January 2001.

(3) DODD1010.10, Health Promotion, 11 March 1986.

y. **VEHICLE EXHAUST**

(1) ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th Edition, 2001.

(2) TI-300f 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

z. **WELDING OPERATION**

(1) 29 CFR 1910.252

(2) 29 CFR 1910.253

(3) 29 CFR 1910.254

(4) ANSI/AWS Z49.1-1999, Safety in Welding and Cutting and Allied Processes.

(5) TM 5-805-7, Welding Design, Procedures and Inspection, 20 May 85.

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 $\mu g/ft^2$) and windowsills (250 $\mu g/ft^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of 200 $\mu g/ft^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 $\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 $\mu g/ft^2$ on floors and 250 $\mu g/ft^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

Industrial Hygiene Survey

HHC 2/103rd ARMORY
SCRANTON, PENNSYLVANIA

June 11, 2003

OPTECH

OPERATIONAL TECHNOLOGIES
CORPORATION

HHC 2/103rd ARMORY
SCRANTON, PENNSYLVANIA
INDUSTRIAL HYGIENE SURVEY

1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Armory in Scranton, Pennsylvania on June 11, 2003. The NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. Non-Responsive from OpTech, completed this survey. Non-Responsive, a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the IH Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D.

RECOMMENDATIONS

1. ILLUMINATION

1.1. Illumination levels were below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

2. LEAD WIPE SAMPLES

2.1. Samples collected in the latrine, hallway third floor office, as well as two of five samples in the former indoor firing range exceeded the 200 $\mu g/ft^2$ criteria. Suspect contamination is from former range activities which has migrated throughout the facility, as well as suspected lead paint. Recommend that these areas be wet-wiped/mopped or cleaning with a high efficiency particulate air (HEPA) vacuum. This method of cleaning should be repeated in the entire facility during routine housekeeping duties.

3. ASBESTOS

3.1. Asbestos is present in steam pipe insulation. All observed pipe insulation was in good condition. Recommend that all areas containing asbestos be inspected on a regular basis.

2.0. EXECUTIVE SUMMARY

2.1. No indoor air quality problems were noted.

2.2. Illumination levels were below recommended minimum standards in most areas of the facility.

2.3. Wipe samples for inorganic lead were collected throughout the facility. Sample results exceeded the 200 $\mu g/ft^2$ criterion in many areas of the facility. Suspect that contamination is from former indoor firing range activities and lead paint.

2.4. Air sampling for inorganic lead was accomplished. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building.

2.5. Asbestos is present in steam pipe insulation. All observed pipe insulation was in good condition.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	HHC 55TH BDE (MECH)		
	HHC 1/109TH INF (MECH)		
	HHC 2/103RD ARMOR		
ADDRESS	900 Adams Ave.		
	Scranton, PA 18510		
CONTACT	MAJ Non-Responsive		
PHONE	570-963-4558		
DATE BUILT	1787/1901	FACILITY SIZE	60,240 sq. ft.
INDOOR FIRING RANGE	CLOSED		3-floors plus basement
ASSISTED			
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	20		
TRADITIONAL (MIL)	80 to 150		
CHILD ACTIVITIES	None		
ADULT ACTIVITIES			

3.1.1. The exterior is brick and appears to be in good condition. The interior is in good condition. The facility is heated by a steam boiler and cooled by window air conditioning units.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity (RH) in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 Indoor Air Quality Standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ASHRAE 62-2001, Section 6.1.3, states that concentrations up to 700 ppm CO_2, above outdoor concentrations will achieve an acceptable level of indoor air quality.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ASHRAE 55-1992 recommends that temperature ranges be 73 to 79 degrees Fahrenheit (°F) during the summer and 68 to 74°F during the winter. Relative humidity levels be maintained between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE 1
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO_2 (ppm)	Temp. (°F)	RH (%)
0950	Outdoors – Background	0.0	463	75.4	57.9
0952	Male Latrine	0.0	541	75.3	57.6
0956	Storage Area	0.0	523	75.1	55.4
0959	Classroom	0.0	540	74.8	54.2
1003	Supply Room	0.0	524	72.9	56.3
1008	Maintenance Area	0.0	518	74.1	54.8
1011	Records Room	0.0	540	72.2	56.1
1013	Classroom	0.0	523	75.9	57.1
1016	Female Latrine	0.0	560	74.6	54.5
1020	1st Stairwell	0.0	528	76.4	55.3
1025	Cooks Room	0.0	526	75.2	56.2

TIME	AREA	CO (ppm)	CO2 (ppm)	Temp. (°F)	RH (%)
1028	Kitchen	0.0	540	76.4	57.8
1031	Fitness Center	0.0	534	75.4	55.4
1035	Balcony	0.0	528	73.4	56.6
1037	Hall	0.0	540	74.6	56.2
1041	Conference Room	0.0	535	75.1	53.1
1045	Office	0.0	531	73.2	55.4

3.2.5. No indoor air quality problems were noted.

3.3. ILLUMINATION

3.3.1. Illumination levels were measured in most areas of the facility. Sunlight was excluded, as much as possible for this survey, by closing doors and blocking windows. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 – 463). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
Office Room 5	32 - 60	46	70	NO
Office Room 7	28 – 60	44	70	NO
Balcony	46 - 64	56	70	NO
Female Latrine	32 - 40	36	40	NO
Supply Room	38 - 60	48	40	YES
Break Room	36 64	48	30	YES
Kitchen	38 – 46	42	75	NO

3.3.2. Levels were below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting would improve some areas.

3.4. WIPE SAMPLES

3.4.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples were taken at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot (µg/ft²) and are listed in Table 3. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Ser-03162-03	Kitchen Wall Lip	62
PA Ser-03162-04	Office Window Frame	BDL
PA Ser-03162-05	Assembly Hall	BDL
PA Ser-03162-06	1st Floor Hall	49
PA Ser-03162-07	2nd Floor Stairwell	145
PA Ser-03162-08	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.2. Additional wipe samples were collected during this survey. These samples were collected to further analyze the extent of contamination should the first five samples indicate a possible hazard. Although the first set of samples did not exceed the 200 µg/ft² criteria (see Section 3.4.4 below), these additional samples were analyzed due to the age of the facility. The results are presented in Table 4.

TABLE 4
ADDITIONAL WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Ser-03162-09	2nd Floor – Male Latrine	260
PA Ser-03162-10	Office – COL – Window Sill	190
PA Ser-03162-11	2nd Floor – Hallway Corner	630
PA Ser-03162-12	3rd Floor – Office – Window Sill	350
PA Ser-03162-13	3rd Floor – Stairwell – Top of Case	120
PA Ser-03162-14	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits (100 µg/ft²)

3.4.3. CLOSED FIRING RANGE WIPE SAMPLING

3.4.3.1. Additional wipe samples were take in the former indoor firing range. This area is presently being utilized for storage. The laboratory analysis results are listed in Table 5.

TABLE 5
FORMER FIRING RANGE WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Scr-03162-15	Stairs	100
PA Scr-03162-16	Floor	603
PA Scr-03162-17	Boxes	156
PA Scr-03162-18	Pipe	82
PA Scr-03162-19	Backstop Floor	528
PA Scr-03162-20	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.4. WIPE SAMPLING RESULTS

3.4.4.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 µg/ft^2. This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. (See memorandum in Attachment E, Recommendations for Surface Lead Dust in Armories.) Samples collected in the latrine, hallway third floor office, as well as two of five samples in the former indoor firing range exceeded the 200 µg/ft^2 criteria. Suspect contamination is from former range activities which has migrated throughout the facility, as well as suspected lead paint.

3.4.5. AIR SAMPLING

3.4.5.1. Air Sampling for inorganic lead was performed during this survey. Table 6 lists the results of these samples, and is reported in milligrams per cubic meter (mg/m^3) of air.

TABLE 6
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
[redacted]	PA Scr-03162-01	Lead	<0.004 mg/m³	0.05 mg/m³	YES
Area – Kitchen	PA Scr-03162-02	Lead	<0.004 mg/m³	0.05 mg/m³	YES

mg/m³ = milligrams per cubic meter < = less than (below detection limits)

3.4.4.2. Air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this building.

3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION DAMAGE

3.5.1.1. There no observed or reported water intrusion damage in the facility.

3.5.2. LEAD PAINT

3.5.2.1. No peeling paint was observed and no samples were collected.

3.5.3. ASBESTOS

3.5.3.1. Asbestos is present in steam pipe insulation. All observed areas were in good condition.

3.5.4. PROGRAMS

3.5.4.1. There are no designated confined space areas within this facility. There are no exhaust ventilation systems to control a hazard. No chemicals besides normal cleaning materials are present. Therefore, a need has not been established for a HAZCOM program, the need for personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.5. HOUSEKEEPING

3.5.5.1. The facility was impressively clean and well maintained.

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

E – Recommendations for Surface Lead in Armories

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
Scranton, PA	*PENNSYLVANIA ARNG ARMORY*	Scranton Armory

LOCATION/CODE	OPERATION/CODE
AA	*ADO*

SURVEY DATE	EVALUATOR (initials)
11 June 2003	*JSS*

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	*NA*	Col Non-Responsive [redacted]

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
570-963-4558	HHC 55th BDE (MECH) HHC 1/109 INF (MECH) HHC 2/103 ARMOR	3	9

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
20	80 - 150			

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	CONROLS 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			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	½ FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	¼ 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 WEATHR 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	/		

AEHA Form 271-R (Test), 1 Jan 92 (HSHB-MI-I)

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	3	C
12001-29-5	Asbestos	3	C

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

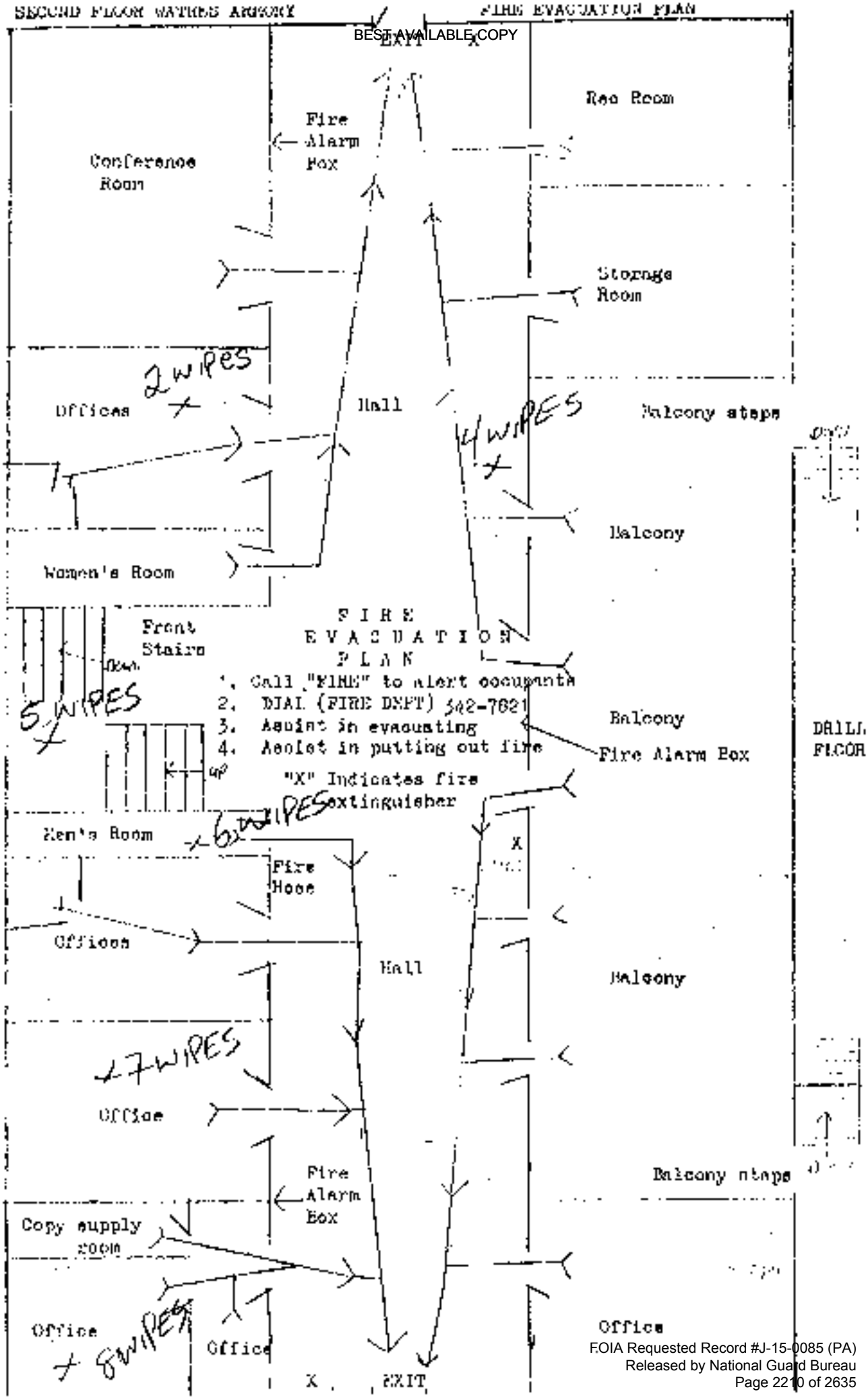
SECTION 6. COMMENTS

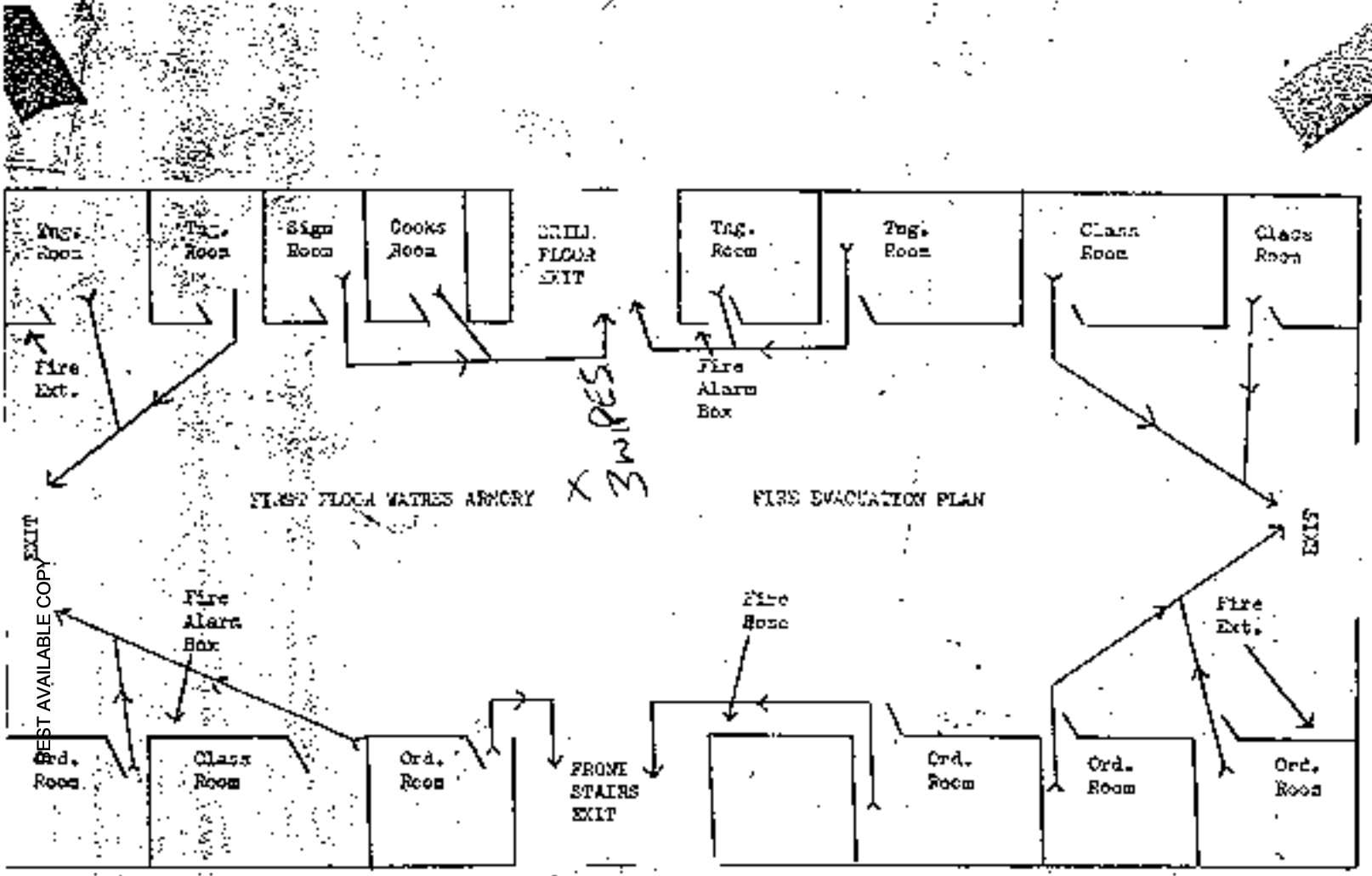
☐ No comments ☐ See attached sheet

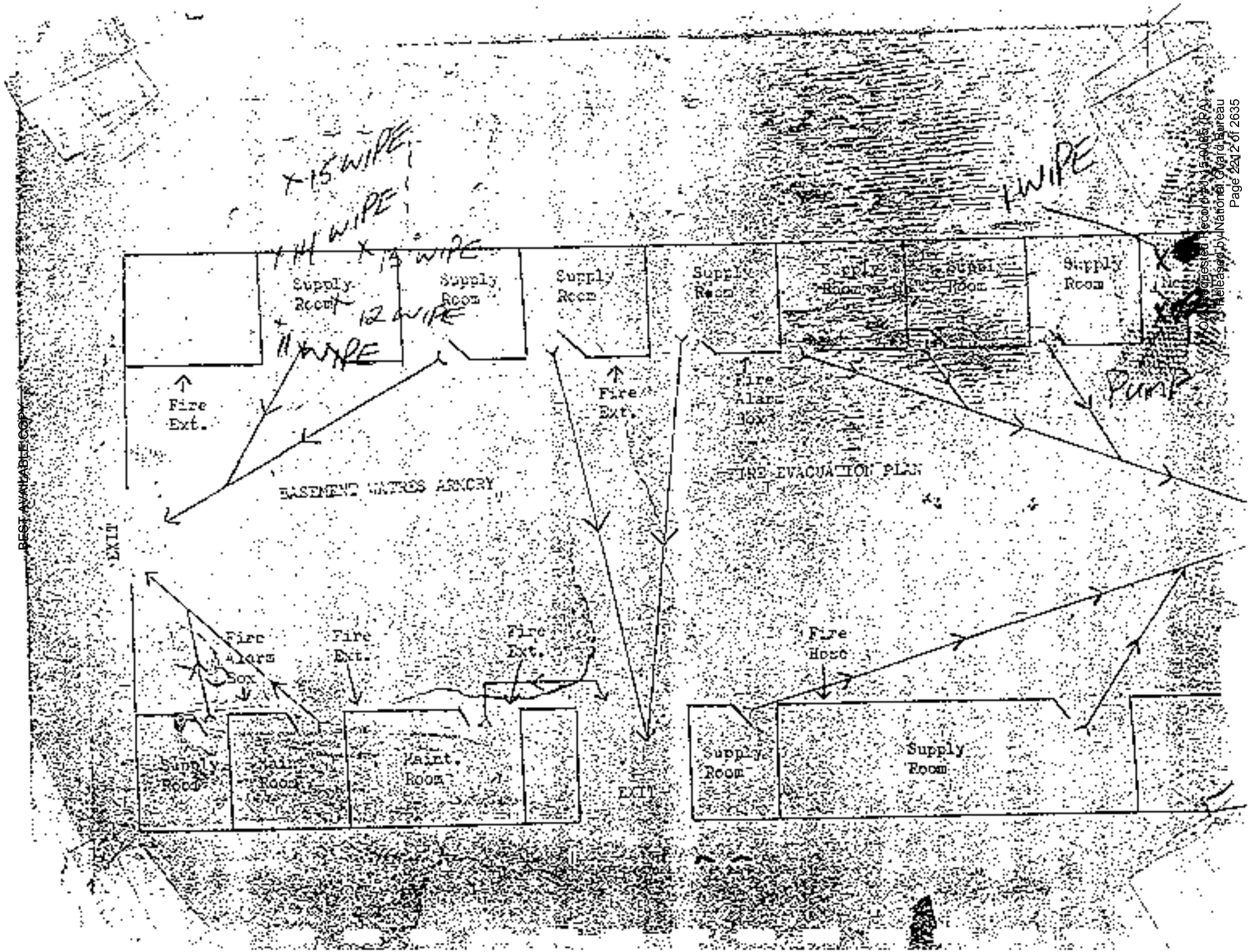
PRIVACY ACT STATEMENT

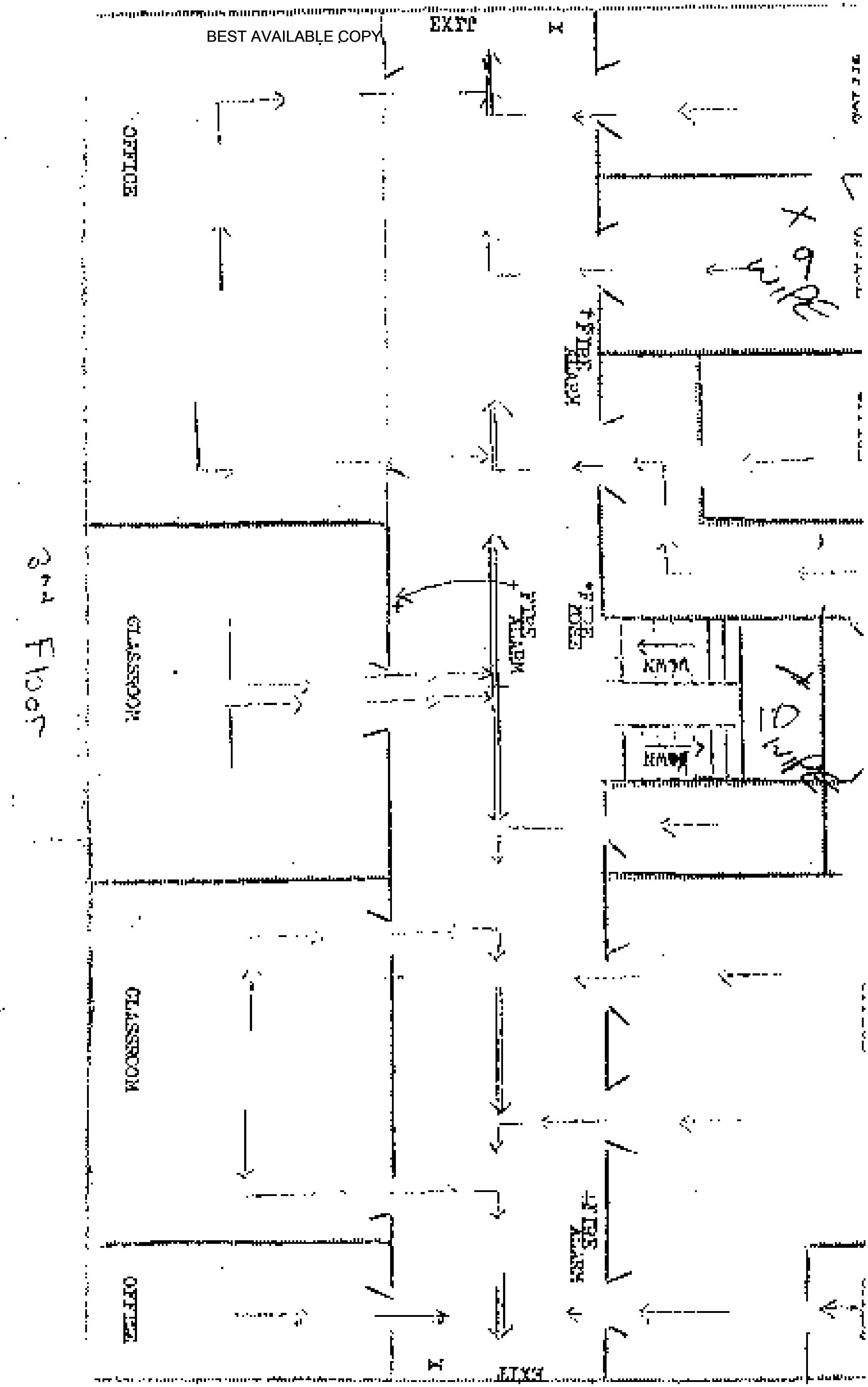
Title 5 US Code, Section 301; Executive Order 9397 authorized the use of your Social Security Number as an identification number. The purpose of this information is to identify and monitor data relating each DA civilian and military employee exposed to a hazardous workplace or operation. The use of this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

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







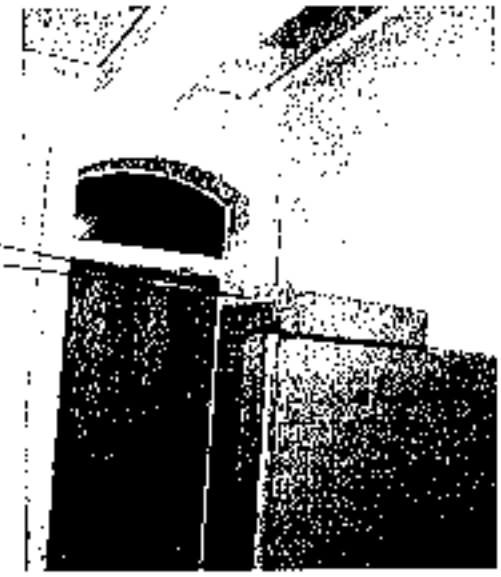


SCRANTON, PENNSYLVANIA
WIPE SAMPLING POINTS

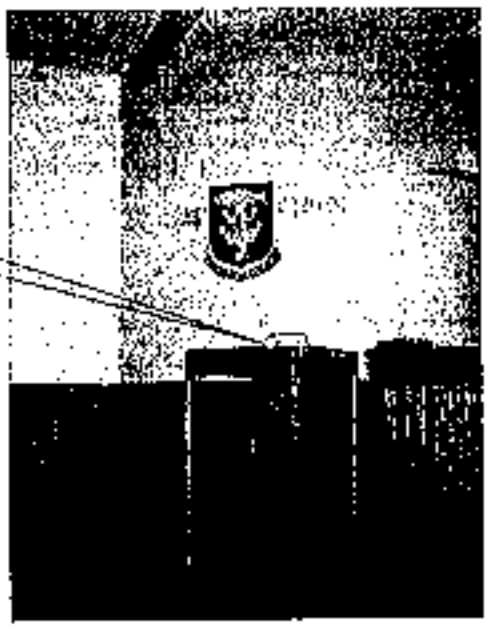
(1) PA Scr-03162-03
Kitchen

(5) PA Scr-03162-07
Stairs

(6) PA Scr-03162-09
Male Latrine



(10) PA Ser-03162-13
3rd Floor Stairwell

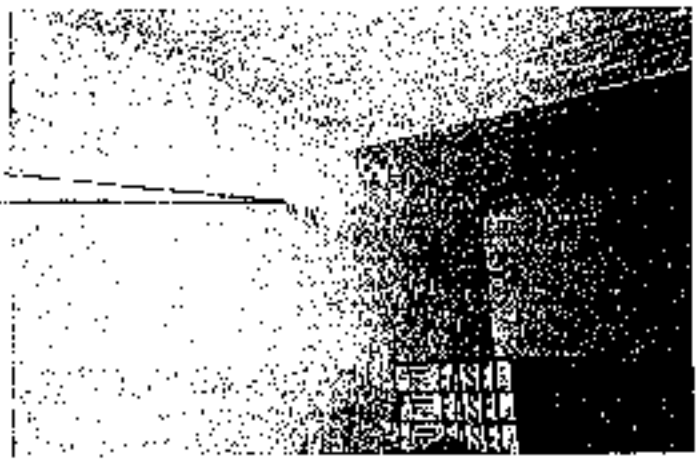


Indoor Firing Range

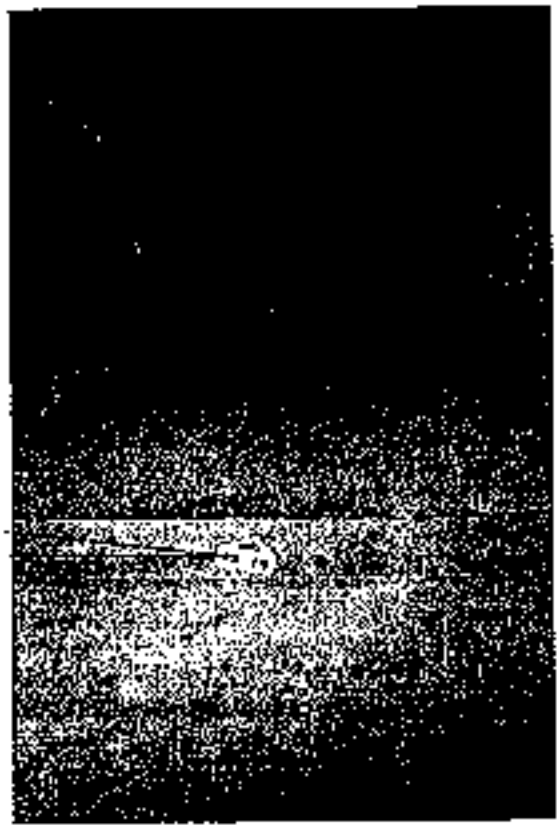
(11) PA Ser-03162-15
Former Range - Floor

(12) PA Ser-03162-16
Former Range - Floor

(14) PA Ser-03162-18
Former Range - Pipe



(15) PA Ser-03162-19
Former Range – Backstop
Floor



RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
AIHA Certificate of Accreditation #480 LAB ID 101533

TABLE I. ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	RES 94604-I
Client:	Operational Technologies, Corp.
Client Project Number / P.O.:	06 03
Client Project Description:	Armories/Pennsylvania
Date Samples Received:	June 24, 2003
Analysis Type:	USEPA SW846 3050B / AA(7420)
Turnaround:	3-5 Day
Date Samples Analyzed:	July 1, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq-ft.)
PA Car-03161-39	EM 787963	0.11	4.7	23	43
PA Car-03161-40	EM 787964	0.11	13.0	23	118
PA Car-03161-41	EM 787965	0.11	11.2	23	102
PA Car-03161-42	EM 787966	0.11	BDL	23	BDL
PA Car-03161-43	EM 787967	0.11	166.0	23	1509
PA Car-03161-44	EM 787968	0.11	BDL	23	BDL
PA Car-03161-51	EM 787969	0.11	BDL	23	BDL
PA Car-03161-52	EM 787970	0.11	BDL	23	BDL
PA Car-03161-53	EM 787971	0.11	BDL	23	BDL
PA Car-03161-54	EM 788008	0.11	BDL	23	BDL
PA Car-03161-55	EM 788009	0.11	BDL	23	BDL
PA Car-03161-56	EM 788010	0.11	BDL	23	BDL
PA Ser-03162-03	EM 788011	0.11	6.8	23	62
PA Ser-03162-04	EM 788012	0.11	BDL	23	BDL
PA Ser-03162-05	EM 788013	0.11	BDL	23	BDL
PA Ser-03162-06	EM 788014	0.11	5.4	23	49
PA Ser-03162-07	EM 788015	0.11	16.0	23	145
PA Ser-03162-08	EM 788016	0.11	BDL	23	BDL
PA Ser-03162-15	EM 788017	0.11	11.0	23	100
PA Ser-03162-16	EM 788018	0.11	66.3	23	603
PA Ser-03162-17	EM 788019	0.11	17.2	23	156
PA Ser-03162-18	EM 788020	0.11	9.0	23	82
PA Ser-03162-19	EM 788021	0.11	58.1	23	528
PA Ser-03162-20	EM 788022	0.11	BDL	23	BDL

*Calculations Based On A 1 sq.ft. Sample Area Unless Otherwise Noted

BDL - Below Detection Limit

Data Qa

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client:	National Guard Bureau	**Job Name:**	Pennsylvania Armories-Scranton	**Chain Of Custody:**	117547
Address:	301-BH Old Bay Lane, Attn: NGB-AVN-SI, State Military Reservation	**Job Location:**	Not Provided	**Date Analyzed:**	9/22/2003
	Havre de Grace, Maryland 21078	**Job Number:**	Not Provided	**Person Submitting:**	[redacted]
		P.O. Number:	Not Provided	**Report Date:**	22-Sep-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
0367530	PA-Scr-03162-09	Flame	Wipe	****	0.111	108.01	ug/ft²	260	ug/ft²	
0367531	PA-Scr-03162-10	Flame	Wipe	****	0.111	108.01	ug/ft²	190	ug/ft²	
0367532	PA-Scr-03162-11	Flame	Wipe	****	0.111	108.01	ug/ft²	630	ug/ft²	
0367533	PA-Scr-03162-12	Flame	Wipe	****	0.111	108.01	ug/ft²	350	ug/ft²	
0367534	PA-Scr-03162-13	Flame	Wipe	****	0.111	108.01	ug/ft²	120	ug/ft²	
0367535	PA-Scr-03162-14	Flame	Wipe	****	0.111	108.01	ug/ft²	< 110	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.

Analyst: [redacted] Technical Manager: [redacted]

An AIHA (#8863), NVLAP (# 101143), & New York ELAP (#10920) Accredited Laboratory
4475 Forbes Blvd. • Lanham, MD 20706 • (301) 459-2640 • Toll Free (800) 346-0961 • Fax (301) 459-2643

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m³
PA Scr-03162-01	03-20684	260.9	ND	<0.004
PA Scr-03162-02	03-20685	251.7	ND	<0.004
PA Hon-03162-22	03-20686	248.7	ND	<0.004
PA Hon-03162-23	03-20687	237.0	ND	<0.004
PA Ply-03163-01	03-20688	378.1	ND	<0.003
PA Ply-03163-02	03-20689	381.3	ND	<0.003
PA Nan-03163-22	03-20690	351.2	ND	<0.003
PA Nan-03163-23	03-20691	336.9	ND	<0.003
PA All-03168-01	03-20692	503.8	ND	<0.002
PA All-03168-02	03-20693	478.0	ND	<0.002
PA Bet-03168-22	03-20694	276.5	ND	<0.004.
PA Bet-03168-23	03-20695	282.1	ND	<0.004
PA Eas-03169-01	03-20696	297.9	ND	<0.003
PA Eas-03169-02	03-20697	279.3	ND	<0.004
PA Eas-03169-16	03-20698	234.7	ND	<0.004
PA Eas-03169-17	03-20699	226.7	ND	<0.004
PA Tam-03170-01	03-20700	249.6	ND	<0.004
PA Tam-03170-02	03-20701	241.5	ND	<0.004
PA Pot-03170-22	03-20702	420.5	ND	<0.002
PA Pot-03170-23	03-20703	413.6	ND	<0.002
	Prep Blank		ND	
% Recovery	LCS 3		99.	
% Recovery	LCS 4		101.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

[redacted]
Analyst

[redacted]
Reviewer

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non-Responsive @md.ngb.army.mil

Attachment D

REFERENCE LIST INDEX

1. General Regulations and National Consensus Standards
2. Specific Regulations and Guidance
   a. Abrasive Blasting
   b. Asbestos
   c. Battery Charging Room
   d. Bird and Bat Manure
   e. Bloodborne Pathogens
   f. Chemical Agent Resistant Coating (CARC) Paint
   g. Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE)
   h. Confined Space Entry Program
   i. Design Review
   j. Ergonomics
   k. Flammable Storage Room
   l. Hazard Communication
   m. Hearing Conservation
   n. Indoor Air Quality
   o. Indoor Firing Ranges
   p. Lead
   q. Lighting
   r. Occupational Vision
   s. Paint Spray Booth
   t. Personal Protection
   u. Radiation Protection
   v. Respiratory Protection
   w. Sanitation
   x. Smoking
   y. Vehicle Exhaust
   z. Welding Operation

GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REFERENCE LIST

1. General Regulations and National Consensus Standards
   a. DODI 6055.1, DOD SOH Program, 19 August 1998.
   b. DODI 6055.5, DOD OEH. *[DRAFT]*
   c. DOD 6055.5-M, DOD Occupational Health Surveillance Manual, 13 May 1987.
   d. DODI 6050.5, DOD Hazard Communication, 29 Oct 90. Change 1, 6 May 1996.
   e. AR 40-5, Preventive Medicine, 15 October 1990. [05/2002 Being Updated]
   f. DA PAM 40-5, Preventive Medicine. *[DRAFT]*
   g. AR 385-10, The Army Safety Program, 29 February 2000.
   h. NGR 385-10, ARNG SOH Program, 7 October 1988, Change 1, 29 December 1989.
   i. Title 29, Part 1910, Occupational Safety and Health Standards. [Current Date]
   j. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 2002.
   k. ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th edition, 2001.
   l. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.
   m. TG 141, USACHPPM Industrial Hygiene Sampling Guide, November 1997.
   n. National Safety Council, Fundamentals of Industrial Hygiene, 5th Edition, 2002.
   o. NIOSH, Pocket Guide to Chemical Hazards, 2001.
   p. NFC, A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. [Current date]
   q. ASHRAE Standards. [Current Dates]
   r. ANSI Standards. [Current Dates]

2. Specific Regulations/Guidance
   a. **ABRASIVE BLASTING**
      (1) ANSI Z9.4 1997, Abrasive Blasting Operations - Ventilation and Safe Practices.
      (2) 29 CFR 1910.94 Ventilation
      (3) 42 CFR 84

   b. **ASBESTOS**
      (1) AR 40-5, Preventive Medicine, 15 October 1990. *[05/2002 Being Updated]*
      (2) AR 200-1, Environmental Protection and Enhancement, Chapter 8, 21 February 1997.
      (3) TB MED 513, Guidelines for the Evaluation and Control of Asbestos Exposure, 15 December 1986. *[05/2000 Under Revision as DA PAM 40-513]*
      (4) TG 157, USAEHA, The Installation Asbestos Management Program Assessment Checklists, July 1994.
      (5) 29 CFR 1910.1001
      (6) 29 CFR 1926.58 (prior to 1994 CFR)
      (7) 29 CFR 1926.1101

(8) MEMORANDUM SGPS-PSP, OTSG, subject: AMEDD Role Supporting Asbestos Abatement/Asbestos Management Programs, 19 Jan 89.

(9) EPA, Guidance for Controlling Asbestos-Containing Materials in Buildings, June 1985.

(10) DD Form 2493-1 (Asbestos Exposure, Part I--Initial Medical Questionnaire)

(11) DD Form 2493-2 (Asbestos Exposure, Part II--Periodic Medical Questionnaire)

(12) EPA NESHAPS Asbestos Regulation (40 CFR 61, Subpart M).

c. **BATTERY CHARGING ROOM**

(1) TG 022, USAEHA, page 81, Industrial Hygiene Evaluation Guide, October 1975. *[Out of Print]*

(2) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

d. **BIRD AND BAT MANURE**

(1) TG 142, USAEHA, Managing Health Hazards Associated with Bird and Bat Excrement, Dec 1992.

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(1) 29 CFR 1910.1030

(2) TG 190, USAEHA, Guide to Managing Occupational Exposure to Bloodborne Pathogens, Jan 94.

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(1) TG 144, USAEHA, Guidelines for Controlling Health Hazards in Painting Operations, 24 August 1987.

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(2) TG 181, USAEHA, Noise Dosimetry and Risk Assessment, May 1999.

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(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

(3) 29 CFR 1910.94

(4) 29 CFR 1910.107

(5) ANSI Z9.3-1995 for Exhaust Systems - Spray Finishing Operations - Safety Code for Design, Construction, and Ventilation.

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(2) Chemical Protective Clothing, Vol I and 2, Johnson, J. and Anderson, K., American Industrial Hygiene Association, 1990.

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(4) 29 CFR 1910.97

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(1) ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th Edition, 2001.

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(2) 29 CFR 1910.253

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(4) ANSI/AWS Z49.1-1999, Safety in Welding and Cutting and Allied Processes.

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Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 $\mu g/ft^2$) and windowsills (250 $\mu g/ft^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of 200 $\mu g/ft^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 $\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

Attachment E

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 $\mu g/ft^2$ on floors and 250 $\mu g/ft^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

Industrial Hygiene Survey

CO A (S+S) 728TH SPT BN (MSB)

SELLERSVILLE, PENNSYLVANIA

June 30, 2003

OPTECH

OPERATIONAL TECHNOLOGIES
CORPORATION

CO A (S+S) 728TH SPT BN (MSB)
SELLERSVILLE, PENNSYLVANIA
INDUSTRIAL HYGIENE SURVEY

1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Armory in Sellersville, Pennsylvania on June 30, 2003. The NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. Non-R Non-Respons from OpTech, completed this survey. Non-R a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the IH Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D.

RECOMMENDATIONS

1. INDOOR AIR QUALITY

1.1. The relative humidity levels were above the acceptable range in all areas of the facility. Humidity should be maintained below 60% relative humidity for occupant comfort and controlling mold growth. No mold was observed during the survey.

2. ILLUMINATION

2.1. Illumination levels were below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3. LEAD WIPE SAMPLES

3.1. Five of ten wipe samples collected for inorganic lead (BN commander's, recruiting, executive officer's and SCM offices and male latrine) exceeded the 200 $\mu g/ft^2$ criterion. Three of the five samples taken in the former firing range exceeded the criteria. Lower levels were detected in other areas of the building. The source of lead contamination was apparently from the inactive indoor firing range and possibly from lead paint. Recommend that the areas exceeding the criterion be wet-wiped/mopped or cleaned with a high efficiency particulate air (HEPA) vacuum. This method of cleaning should be repeated throughout the entire facility during routine housekeeping duties.

4. ASBESTOS

4.1. There is possible asbestos in the steam line insulation. All observed areas were in good condition and no samples were collected. Recommend that suspect areas be tested for asbestos content. If the results are greater than 1.0%, the areas should be inspected on a routine basis.

2.0. EXECUTIVE SUMMARY

2.1. Carbon monoxide, carbon dioxide and indoor temperatures were within recommended levels. The relative humidity was above the acceptable range in all areas of the facility. Humidity should be maintained below 60% relative humidity for occupant comfort and controlling mold growth. No mold was observed during the survey.

2.2. Illumination levels were below recommended minimum standards in most areas of the facility.

2.3. Wipe samples for inorganic lead were collected throughout the facility. Five of ten wipe samples (BN commander's, recruiting, executive officer's and SCM offices and male latrine) exceeded the 200 $\mu g/ft^2$ criterion. Three of the five samples collected in the former firing range exceeded the criteria. Lower levels were detected in other areas of the building. The source of lead contamination was apparently from the inactive indoor firing range and possibly from lead paint.

2.4. Air sampling for inorganic lead was accomplished. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building.

2.5. There is possible asbestos in the steam line insulation. All observed areas were in good condition and no samples were collected.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	CO A (S+S) 728TH SPT BN (MSB)		
ADDRESS	225 East Park Ave.		
	Sellersville, PA 18960		
CONTACT	LTC Non-Resp		
PHONE	215-453 5032		
DATE BUILT	1953/88	FACILITY SIZE	23,589 sq. ft.
INDOOR FIRING RANGE	CLOSED		1-floor
ASSISTED			
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	10		
TRADITIONAL (MIL)	100		
CHILD ACTIVITIES	This facility conducts community functions about twice a year.		
ADULT ACTIVITIES			

3.1.1. The exterior of the building is brick and appears to be in good condition. The interior has been kept in good condition. The facility is heated by a steam furnace and cooled with window air conditioners. The indoor firing range had recently been cleaned.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity (RH) in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 Indoor Air Quality Standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ASHRAE 62-2001, Section 6.1.3, states that concentrations up to 700 ppm CO_2, above outdoor concentrations will achieve an acceptable level of indoor air quality.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ASHRAE 55-1992 recommends that temperature ranges be 73 to 79 degrees Fahrenheit (°F) during the summer and 68 to 74°F during the winter. Relative humidity levels be maintained between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE 1
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO2 (ppm)	Temp. (°F)	RH (%)
1321	Outdoors – Background	0.0	498	95.6	61.1
1340	Classroom	0.0	505	78.3	61.3
1344	Assembly Hall	0.0	511	76.7	60.1
1348	Commander Sergeant' Office (occupied)	0.0	530	77.6	60.3
1352	Male Latrine	0.0	512	77.3	60.6
1356	Conference Room (occupied)	0.0	522	77.6	61.0
1359	Orderly Room (occupied)	0.0	517	77.5	60.9
1404	XO's Office	0.0	518	77.5	60.8
1408	Recruiter's Office	0.0	521	77.4	60.9
1412	BN CDR's Office	0.0	520	77.6	60.8
1414	Former Range	0.0	511	75.1	61.8

3.2.5. Carbon monoxide, carbon dioxide and indoor temperatures were within recommended levels. The relative humidity was above the acceptable range in all areas of the facility. Humidity should be maintained below 60% relative humidity for occupant comfort and controlling mold growth. No mold was observed during the survey.

3.3. ILLUMINATION

3.3.1. Illumination levels were measured in most areas of the facility. Sunlight was excluded, as much as possible for this survey, by closing doors and blocking windows. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 – 463). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
CSM Office	36 – 42	40	70	NO
Orderly Room	30 – 62	42	70	NO
Male Latrine	36 – 48	41	40	YES
Conference Room	26 – 42	36	70	NO
Recruiter's Office	30 – 48	39	70	NO
BNXO's Office	36 – 48	42	70	NO
Kitchen	36 – 48	42	75	NO
Classroom	38 – 42	40	70	NO

3.3.2. Levels were below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3.4. WIPE SAMPLES

3.4.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples were taken at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot ($\mu g/ft^2$) and are listed in Table 3. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Sel-03181-03	Classroom – Window Sill	130
PA Sel-03181-04	Kitchen – Vent	73
PA Sel-03181-05	Assembly Hall	**314**
PA Sel-03181-06	BN CMDR's Office - Wood Trim	**2,027**
PA Sel-03181-07	Orderly Room	151
PA Sel-03181-08	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.2. Additional wipe samples were collected during this survey. These samples were collected to further analyze the extent of contamination should the first five samples indicate a possible hazard. Since the samples taken in assembly hall and BN Commander's office exceeded the 200

µg/ft² criterion (see Section 3.4.4), these additional samples were analyzed. The results are presented in Table 4.

TABLE 4
ADDITIONAL WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Sel-03181-09	Male Latrine Wall	220
PA Sel-03181-10	Recruiting	400
PA Sel-03181-11	SCM Office – Pipe	1,000
PA Sel-03181-12	Executive Officer's Office – Pipe	740
PA Sel-03181-13	Conference Room	110
PA Sel-03181-14	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits (110 µg/ft²)

3.4.3. CLOSED FIRING RANGE WIPE SAMPLING

3.4.3.1. Additional wipe samples were collected in the former indoor firing range. This area is presently being utilized as a fitness center and for storage. The laboratory analysis results are listed in Table 5.

TABLE 5
FORMER FIRING RANGE WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Sel-03181-15	Light Fixture	5,100
PA Sel-03181-16	Top of Fire Extinguisher	2,227
PA Sel-03181-17	Cabinet	82
PA Sel-03181-18	Floor	136
PA Sel-03181-19	Wall Frame	400
PA Sel-03181-20	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.4. WIPE SAMPLING RESULTS

3.4.4.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 µg/ft². This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. (See memorandum in Attachment F, Recommendations for Surface Lead Dust in Armories.) Five of ten wipe samples (BN commander's, recruiting, executive officer's and SCM offices and male latrine) exceeded the 200 µg/ft² criterion. Three of the five samples collected in the former firing range exceeded the criteria. Lower levels were detected in other areas of the building. The source of lead contamination was apparently from the inactive indoor firing range and possibly from lead paint.

3.4.5. AIR SAMPLING

3.4.5.1. Air Sampling for inorganic lead was performed during this survey. Table 6 lists the results of these samples, and is reported in milligrams per cubic meter (mg/m^3) of air.

TABLE 6
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
Non-[redacted]	PA Sel-03181-01	Lead	<0.005 mg/m^3	0.05 mg/m^3	YES
Area – Kitchen	PA Sel-03181-02	Lead	<0.005 mg/m^3	0.05 mg/m^3	YES

mg/m^3 = milligrams per cubic meter < = less than (below detection limits)

3.4.4.2. Air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this building.

3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION DAMAGE

3.5.1.1. There was no visible water intrusion damage to the facility.

3.5.2. LEAD PAINT

3.5.2.1. No peeling paint was observed and no samples were collected.

3.5.3. ASBESTOS

3.5.3.1. There is possible asbestos in the steam line insulation. However, observed areas were in good condition and no samples were collected.

3.5.4. PROGRAMS

3.5.4.1. There are no designated confined space areas within this facility. There are no exhaust ventilation systems to control a hazard. No chemicals besides normal cleaning materials are present. Therefore, a need has not been established for a HAZCOM program, the need for personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.5. HOUSEKEEPING

3.5.5.1 The facility is kept impressively clean and orderly. The ventilation ductwork was also very clean with very little dust build up.

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

E – Recommendations for Surface Lead in Armories

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
Sellersville, PA	PENNSYLVANIA ARNG ARMORY	Sellersville Armory

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR (Initials)
30 June 2003	JSS

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	NA	LTC Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
215-453-5032	4CA (515) 728th SPT BN(MSB)	3	9

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
10	100			

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	CONROLS 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			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	½ FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	¼ 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 WEATHR 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	/		

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	3	C

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

SECTION 6. COMMENTS

☐ No comments ☐ See attached sheet

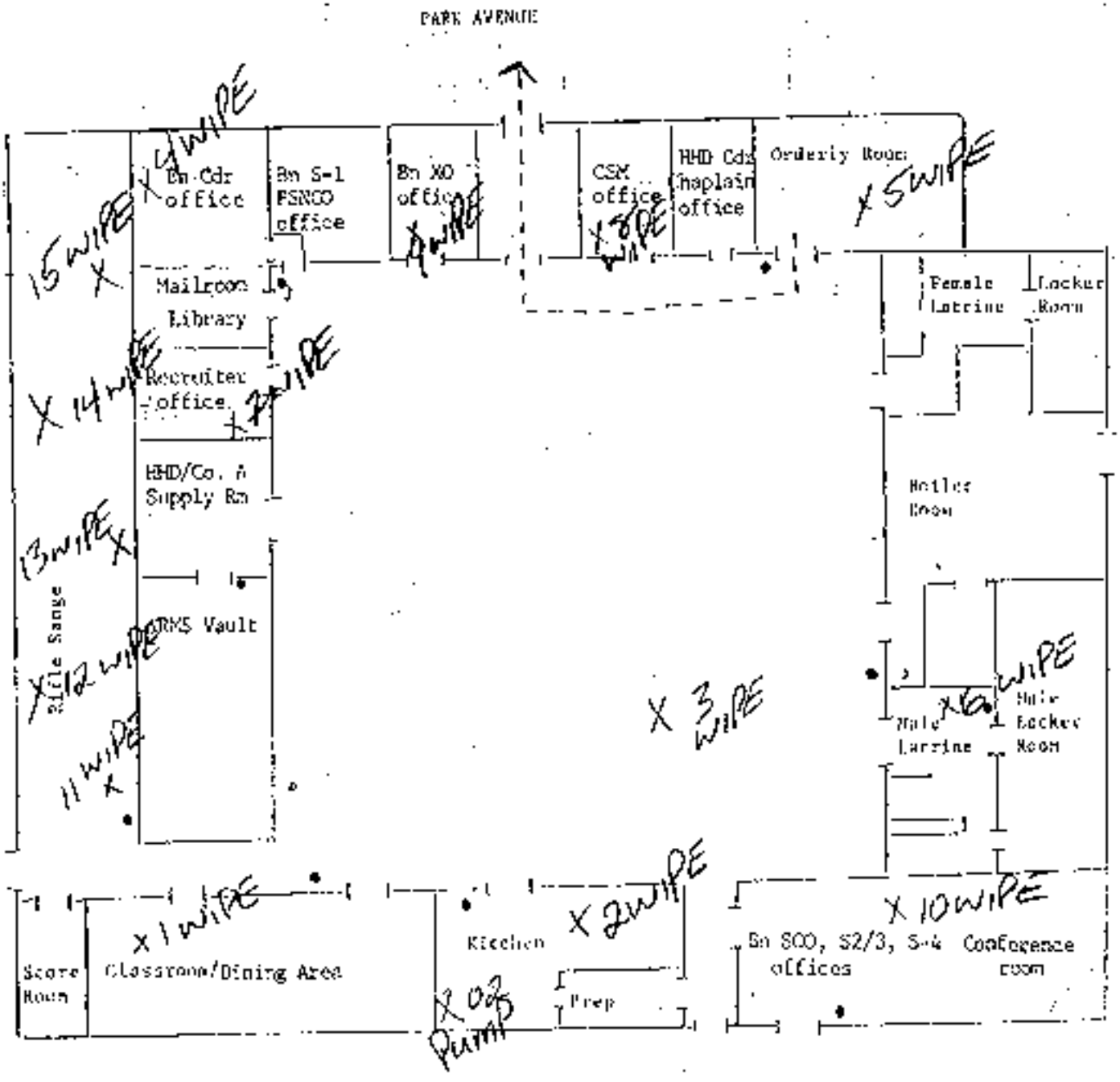
PRIVACY ACT STATEMENT

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

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

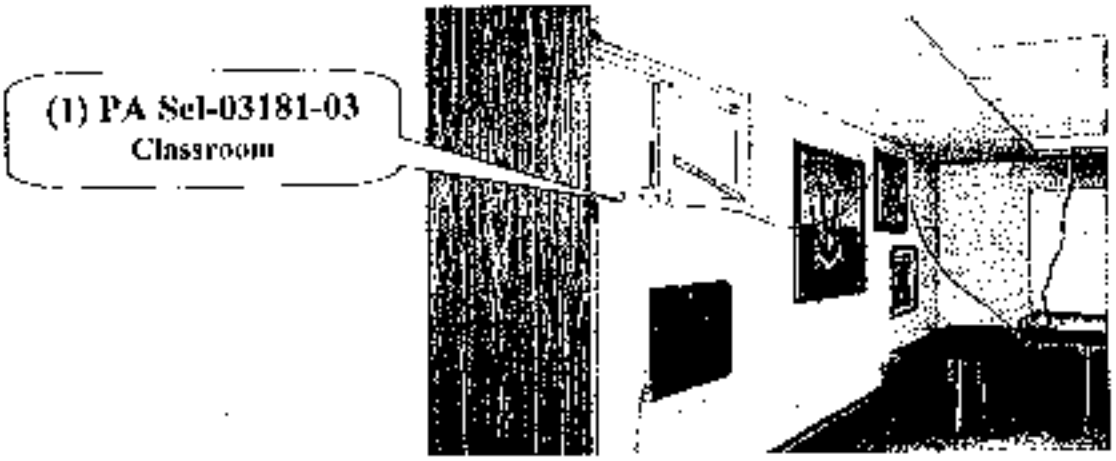
HHD & Co. A, 228th FSB - Sellersville

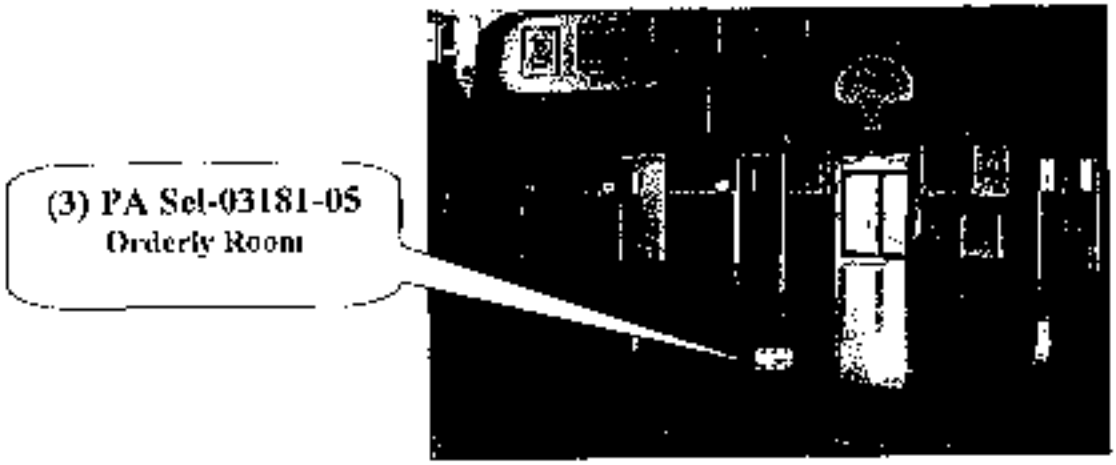
EMERGENCY EQUIPMENT LOCATIONS & EVACUATION PLAN



* INDICATES FIRE EXTINGUISHER LOCATION

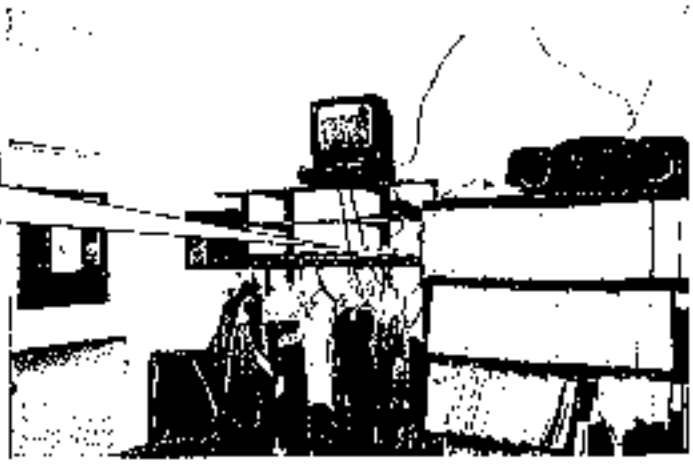
CO A (S+S) 728TH SPT BN (MSB)
SELLERSVILLE, PENNSYLVANIA





Attachment B

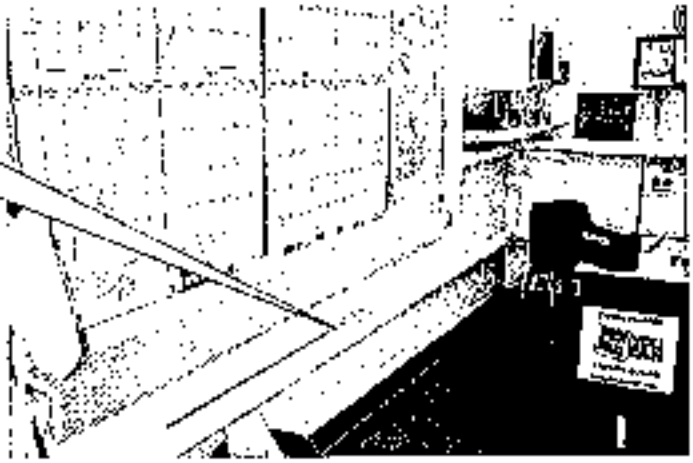
(5) PA Sel-03181-07
Orderly Room



ADDITIONAL SAMPLES

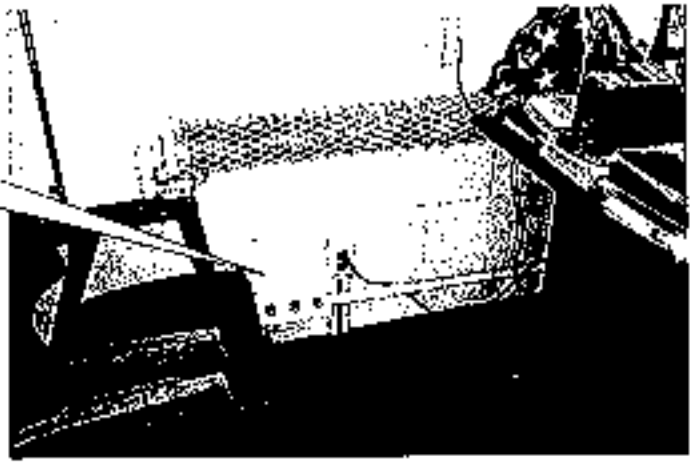
(6) PA Sel-03181-09
Male Latrine

(7) PA Sel-03181-10
Recruiter's Office

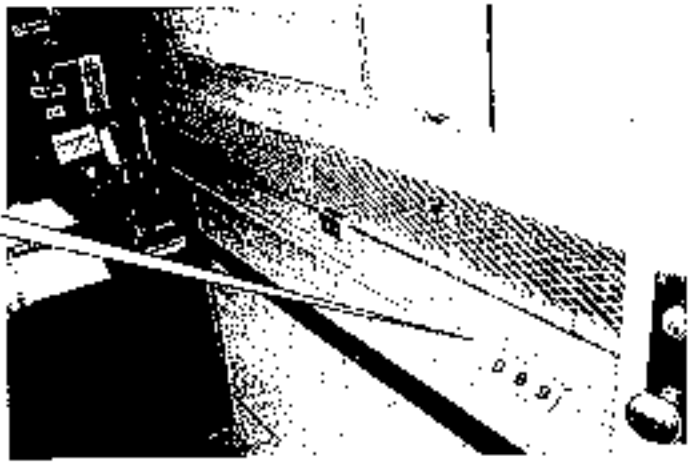


Attachment B

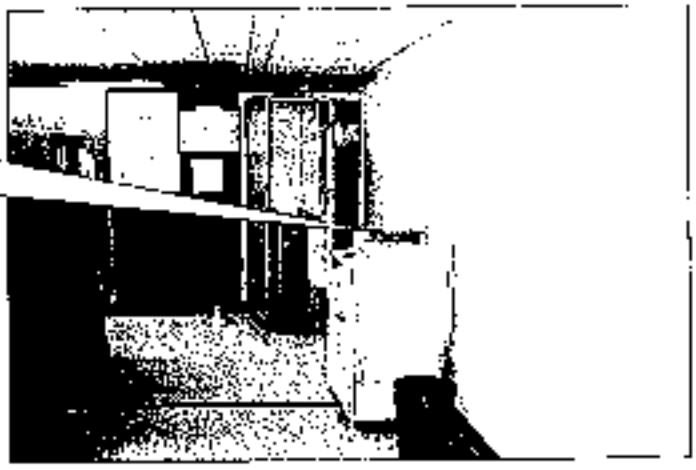
(8) PA Sel-03181-11
CSM Office



(9) PA Sel-03181-12
Executive Office

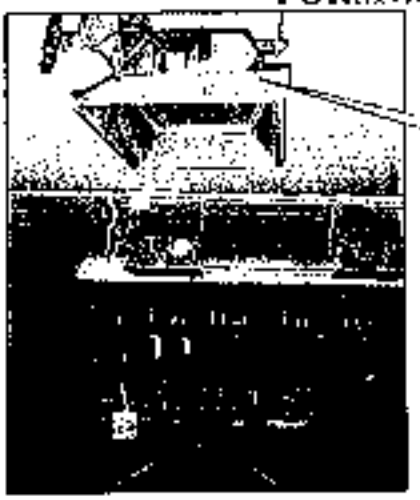


(10) PA Sel-03181-13
Conference Room



Attachment 13

FORMER INDOOR FIRING RANGE

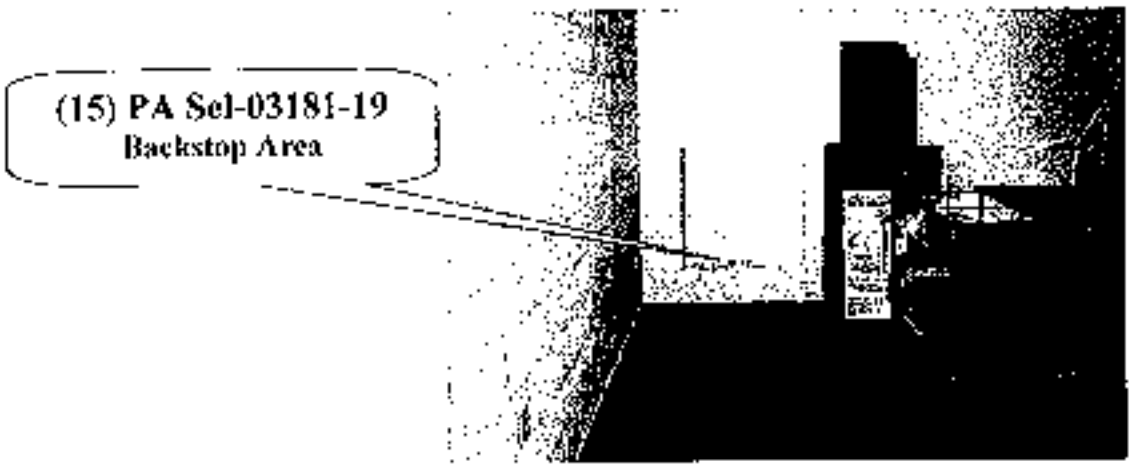


(11) PA Sel-03181-15
Ceiling Heater

(12) PA Sel-03181-16
Former Firing Line

(14) PA Sel-03181-18
¾ Way Down Range

Attachment 8



Attachment 8

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
AIHA Certificate of Accreditation #480 LAB ID 101533

TABLE ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	RES 95353-1R
Client:	Operational Technologies, Corp.
Client Project Number / P.O.:	06 03
Client Project Description:	Armories//Pennsylvania
Date Samples Received:	July 11, 2003
Analysis Type:	USEPA SW846 3050B / AA(7420)
Turnaround:	3-5 Day
Date Samples Analyzed:	July 15, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA WES-03178-03	EM 794725	0.11	226.0	23	2055
PA WES-03178-04	EM 794726	0.11	14.0	23	127
PA WES-03178-05	EM 794727	0.11	37.6	23	342
PA WES-03178-06	EM 794728	0.11	56.1	23	510
PA WES-03178-07	EM 794729	0.11	8.0	23	73
PA WES-03178-08	EM 794730	0.11	3.5	23	32
PA WES-03178-15	EM 794731	0.11	60.1	23	546
PA WES-03178-16	EM 794732	0.11	19.2	23	175
PA WES-03178-17	EM 794733	0.11	59.5	23	541
PA WES-03178-18	EM 794734	0.11	39.4	23	358
PA WES-03178-19	EM 794735	0.11	825.0	23	7500
PA WES-03178-20	EM 794736	0.11	BDL	23	BDL
PA SEL-03181-03	EM 794737	0.11	14.3	23	130
PA SEL-03181-04	EM 794738	0.11	8.0	23	73
PA SEL-03181-05	EM 794739	0.11	34.5	23	314
PA SEL-03181-06	EM 794740	0.11	223.0	23	2027
PA SEL-03181-07	EM 794741	0.11	16.6	23	151
PA SEL-03181-08	EM 794742	0.11	BDL	23	BDL
PA SEL-03181-15	EM 794743	0.11	561.0	23	5100
PA SEL-03181-16	EM 794744	0.11	245.0	23	2227
PA SEL-03181-17	EM 794745	0.11	9.0	23	82
PA SEL-03181-18	EM 794746	0.11	15.0	23	136
PA SEL-03181-19	EM 794747	0.11	44.0	23	400
PA SEL-03181-20	EM 794748	0.11	BDL	23	BDL
PA LEH-03182-03	EM 794749	0.11	BDL	23	BDL
PA LEH-03182-04	EM 794750	0.11	BDL	23	BDL
PA LEH-03182-05	EM 794751	0.11	BDL	23	BDL
PA LEH-03182-06	EM 794752	0.11	8.5	23	77
PA LEH-03182-07	EM 794753	0.11	3.3	23	30
PA LEH-03182-08	EM 794754	0.11	BDL	23	BDL

BDL Below Detection Limit

Data Qa

AMA Analytical Services, Inc.
A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client:	National Guard Bureau	**Job Name:**	Pennsylvania Armories-Sellersville	**Chain Of Custody:**	117539
Address:	301-IH Old Bay Lane, Attn: NGB-AVN-SI, State Military Reservation	**Job Location:**	Not Provided	**Date Analyzed:**	9/22/2003
	Havre de Grace, Maryland 21078	**Job Number:**	Not Provided	**Person Submitting:**	[redacted]
		P.O. Number:	Not Provided	**Report Date:**	22-Sep-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
0367596	PA-Sel-03181-09	Flame	Wipe	****	0.111	108.01 ug/ft²	220 ug/ft²	
0367597	PA-Sel-03181-10	Flame	Wipe	****	0.111	108.01 ug/ft²	400 ug/ft²	
0367598	PA-Sel-03181-11	Flame	Wipe	****	0.111	108.01 ug/ft²	1000 ug/ft²	
0367599	PA-Sel-03181-12	Flame	Wipe	****	0.111	108.01 ug/ft²	740 ug/ft²	
0367600	PA-Sel-03181-13	Flame	Wipe	****	0.111	108.01 ug/ft²	110 ug/ft²	
0367601	PA-Sel-03181-14	Flame	Wipe	****	0.111	108.01 ug/ft²	< 110 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.

Analyst: [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.

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m³
PA Wes-03178-01	03-20724	343.0	ND	<0.003
PA Wes-03178-02	03-20725	394.0	ND	<0.003
PA Sel-03181-01	03-20726	213.5	ND	<0.005
PA Sel-03181-02	03-20727	219.2	ND	<0.005
PA Leh-03182-01	03-20728	277.8	ND	<0.004
PA Leh-03182-02	03-20729	291.4	ND	<0.003
PA Leh-03182-22	03-20730	232.7	ND	<0.004
PA Leh-03182-23	03-20731	196.7	ND	<0.005
PA Haz-03182-37	03-20732	178.7	ND	<0.006
PA Haz-03182-38	03-20733	188.9	ND	<0.005
PA Joh-03183-01	03-20734	202.7	ND	<0.005
PA Joh-03183-02	03-20735	212.3	ND	<0.005
PA Joh-03183-16	03-20736	258.1	ND	<0.004
PA Joh-03183-17	03-20737	271.6	ND	<0.004
	Prep Blank		ND	
% Recovery	LCS 7		96.	
% Recovery	LCS 8		97.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

[redacted]
Analyst

[redacted]
Reviewer

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non- @md.ngb.army.mil

Attachment D

REFERENCE LIST INDEX

1. General Regulations and National Consensus Standards
2. Specific Regulations and Guidance
   a. Abrasive Blasting
   b. Asbestos
   c. Battery Charging Room
   d. Bird and Bat Manure
   e. Bloodborne Pathogens
   f. Chemical Agent Resistant Coating (CARC) Paint
   g. Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE)
   h. Confined Space Entry Program
   i. Design Review
   j. Ergonomics
   k. Flammable Storage Room
   l. Hazard Communication
   m. Hearing Conservation
   n. Indoor Air Quality
   o. Indoor Firing Ranges
   p. Lead
   q. Lighting
   r. Occupational Vision
   s. Paint Spray Booth
   t. Personal Protection
   u. Radiation Protection
   v. Respiratory Protection
   w. Sanitation
   x. Smoking
   y. Vehicle Exhaust
   z. Welding Operation

GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REFERENCE LIST

1. General Regulations and National Consensus Standards
   a. DODI 6055.1, DOD SOH Program, 19 August 1998.
   b. DODI 6055.5, DOD OEH. *[DRAFT]*
   c. DOD 6055.5-M, DOD Occupational Health Surveillance Manual, 13 May 1987.
   d. DODI 6050.5, DOD Hazard Communication, 29 Oct 90. Change 1, 6 May 1996.
   e. AR 40-5, Preventive Medicine, 15 October 1990. [05/2002 Being Updated]
   f. DA PAM 40-5, Preventive Medicine. *[DRAFT]*
   g. AR 385-10, The Army Safety Program, 29 February 2000.
   h. NGR 385-10, ARNG SOH Program, 7 October 1988, Change 1, 29 December 1989.
   i. Title 29, Part 1910, Occupational Safety and Health Standards. [Current Date]
   j. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 2002.
   k. ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th edition, 2001.
   l. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.
   m. TG 141, USACHPPM Industrial Hygiene Sampling Guide, November 1997.
   n. National Safety Council, Fundamentals of Industrial Hygiene, 5th Edition, 2002.
   o. NIOSH, Pocket Guide to Chemical Hazards, 2001.
   p. NFC, A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. [Current date]
   q. ASHRAE Standards. [Current Dates]
   r. ANSI Standards. [Current Dates]

2. Specific Regulations/Guidance
   a. **ABRASIVE BLASTING**
      (1) ANSI Z9.4 1997, Abrasive Blasting Operations - Ventilation and Safe Practices.
      (2) 29 CFR 1910.94 Ventilation
      (3) 42 CFR 84

   b. **ASBESTOS**
      (1) AR 40-5, Preventive Medicine, 15 October 1990. *[05/2002 Being Updated]*
      (2) AR 200-1, Environmental Protection and Enhancement, Chapter 8, 21 February 1997.
      (3) TB MED 513, Guidelines for the Evaluation and Control of Asbestos Exposure, 15 December 1986. *[05/2000 Under Revision as DA PAM 40-513]*
      (4) TG 157, USAEHA, The Installation Asbestos Management Program Assessment Checklists, July 1994.
      (5) 29 CFR 1910.1001
      (6) 29 CFR 1926.58 (prior to 1994 CFR)
      (7) 29 CFR 1926.1101

(8) MEMORANDUM SGPS-PSP, OTSG, subject: AMEDD Role Supporting Asbestos Abatement/Asbestos Management Programs, 19 Jan 89.

(9) EPA, Guidance for Controlling Asbestos-Containing Materials in Buildings, June 1985.

(10) DD Form 2493-1 (Asbestos Exposure, Part I--Initial Medical Questionnaire)

(11) DD Form 2493-2 (Asbestos Exposure, Part II--Periodic Medical Questionnaire)

(12) EPA NESHAPS Asbestos Regulation (40 CFR 61, Subpart M).

c. **BATTERY CHARGING ROOM**

(1) TG 022, USAEHA, page 81, Industrial Hygiene Evaluation Guide, October 1975. *[Out of Print]*

(2) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

d. **BIRD AND BAT MANURE**

(1) TG 142, USAEHA, Managing Health Hazards Associated with Bird and Bat Excrement, Dec 1992.

e. **BLOODBORNE PATHOGENS**

(1) 29 CFR 1910.1030

(2) TG 190, USAEHA, Guide to Managing Occupational Exposure to Bloodborne Pathogens, Jan 94.

f. **CHEMICAL AGENT RESISTANT COATING (CARC) PAINT**

(1) TG 144, USAEHA, Guidelines for Controlling Health Hazards in Painting Operations, 24 August 1987.

(2) DA LTR, USAEHA, HSHB-MI-WR, subject: Respiratory Protection When Spraying CARC, 19 November 1992.

(3) TM 43-0139, Painting Instructions for Army Material, 27 July 1988I Aug 86.

(4) MEMORANDUM SGPS-PSP, OTSG, subject AMEDD, Occupational Health Requirements in Support of Painting in the Army, 22 February 1985.

(5) AR 750-1, Army Materiel Maintenance Policy and Retail Maintenance Operations (Prohibits welding on CARC paint) 1 July 1996.

g. **CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR, EXPLOSIVE (CBRNE)**

(1) DODI 2000.gg, DOD Installation CBRNE Emergency Response Guidelines.

(2) DHHS, NIOSH Pub No. 2002 139, Guidance for Protecting Building Environments from Airborne Chemical, Biological, or Radiological Attacks, May 2002.

(3) TG 275, USACHPPM, Personal Protective Equipment Guide for Medical Treatment Facility Personnel Handling Casualties from Weapons of Mass Destruction and Terrorism Events. *[Draft]*

h. **CONFINED SPACE**

(1) 29 CFR 1910.146 (Confined Space Entry)

(2) 29 CFR 1910.147 (Lockout/Tagout)

(3) ANSI Z117.1-Safety Requirements for Confined Spaces, 1995.

(4) SOP for ARNG Confined Space Entry Program, 25 April 1991.

(5) Letter, US Dept of Labor (DOL) addressed to Vanessa Char, 22 Apr 1994.

(6) OSHA Instruction STD 1-7.3, US DOL, subject: 29 CFR 1910.147, the Control of Hazardous Energy (Lockout/Tagout)--Inspection Procedures and Interpretive Guidance, 11 Sep 90.

(7) DHHS, NIOSH Pub No. 87113, A Guide to Safety in Confined Spaces, July 1987.

(8) Confined Space Entry Program for Helicopters, 2003.

i. **DESIGN REVIEW**

(1) DG 415-1, Design Guide for Armories, current.

(2) DG 415-2, Design Guide for Logistics Facilities, current.

(3) DG 415-3, Design Guide for Training Site Facilities, current.

(4) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

(5) TI-300, 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

(6) UFGS 15940A, Overhead Vehicle Tailpipe (and welding Fume) Exhaust Removal Systems, December 2001.

(7) ASHRAE, Standard 62-2002, Ventilation for Acceptable Indoor Air Quality.

(8) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

j. **ERGONOMICS**

(1) DA PAM 40-21, Medical Services, Ergonomics Program, 15 May 2000.

(2) ANSI Z-365, Management of Work Related Musculoskeletal Disorders, 2000.

(3) 29 CFR 1910. *[PROPOSED STANDARD]*

k. **FLAMMABLE STORAGE ROOM**

(1) 29 CFR 1910.106

(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

l. **HAZARD COMMUNICATION**

(1) 29 CFR 1910.1200

(2) NGR 385-10, Chapter 6

m. **HEARING CONSERVATION**

(1) DA PAM 40-501, Medical Services, Hearing Conservation Program, 10 December 1998.

(2) TG 181, USAEHA, Noise Dosimetry and Risk Assessment, May 1999.

(3) TG 175, USAEHA, Readiness thru Hearing Conservation: Guide for Unit Commanders and Supervisors, June 1999.

(4) 29 CFR 1910.95

n. **INDOOR AIR QUALITY (IAQ)**

(1) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

(2) USACERL Technical Report P-91/42, IAQ Management for Operations and Maintenance Personnel, September 1991.

(3) EPA 400/1-91/003 or DHHS, NIOSH, Publication No. 91-114, Building IAQ, A Guide for Building Owners and Facility Managers, December 1991.

(4) ASHRAE, Standard 62-2002, Ventilation for Acceptable IAQ.

(5) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

(6) NIOSH, IAQ Selected References, Sep 1989.

(7) OSHA Instruction CPL 2-2.20B CH-1, Directorate of Technical Support, 13 Nov 90.

(8) DA PAM 25-52, Mail Facility Security and Handling Suspicious Mail, 6 November 2001.

(9) ASTM, D 5952-96, 10 May 1996.

o. **INDOOR FIRING RANGES**

(1) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(2) NGR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges, 30 March 1990. *[11/02 Under Revision]*

(3) CEHND 1110-1-18, USACE Design Manual for Indoor Firing Range, June 1990.

(4) HQDA LTR, Office of the Adjutant General, DACS-SF, subject: Inspection and Evaluation of US Army Indoor Firing Ranges, 26 March 1993.

(5) Departments of the Army and Air Force, NGB-ADE-OM, subject: All State Log Number (I920323) Indoor Range Clean-up at State Owned Armories, 28 July 1992.

(6) NIOSH, Technical Information, December 1975, subject: Lead Exposure and Design Considerations for Indoor Firing Ranges.

(7) All-States Ltr P01-0075, 5 December 2001.

(8) Information Paper, Alternative Ammunition, 15 March 1996.

(9) Information Paper, Bullet Traps, 26 April 1996.

(10) Information Paper, ARNG IFR Action Plan, 28 January 2002.

p. **LEAD**

(1) 29 CFR 1910.1025

(2) 29 CFR 1926.62

(3) 24 CFR 35.61 (HUD, Percentage of Lead in Paint)

(4) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(5) OSHA Instruction CPL 2-2.58, Office of Health Compliance Assistance, 13 December 1993.

(6) Federal Register, 18 April 1990, Vol. 55, No. 75, HUD, Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing, as amended, September 1990, Office of Public and Indian Housing, Department of Housing and Urban Development, 451 Seventh Street, SW, Washington, DC 20410.

(7) NIOSH, Request for Assistance in Preventing Lead Poisoning in Construction Workers, April 1992.

(8) EPA, Strategy for Reducing Lead Exposures, 21 Feb 91.

q. **LIGHTING**

(1) RP-1-1993, Office Lighting, ANSI/IESNA.

(2) RP-7-2001, Industrial Lighting, IES.

r. **OCCUPATIONAL VISION**

(1) DA PAM 40-506, Medical Services, The Army Vision Conservation and Readiness Program, 20 July 2001.

(2) ANSI Z87.1, Practice for Occupational and Educational Eye and Face Protection, 1989, Change A, REAF 1998.

(3) ANSI Z358.1 for Emergency Eyewash and Shower Equipment, 1998.

(4) OTSG Memorandum SGPS-PSP, subject: Acanthameoba Keratitis and Eyewash Stations, 8 May 89.

(4) 29 CFR 1910.133

s. **PAINT SPRAY BOOTH**

(1) NFPA No. 33, Standard for Spray Application Using Flammable and Combustible Materials, 1995.

(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

(3) 29 CFR 1910.94

(4) 29 CFR 1910.107

(5) ANSI Z9.3-1995 for Exhaust Systems - Spray Finishing Operations - Safety Code for Design, Construction, and Ventilation.

(6) ANSI Z9.2-2001, Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems.

t. **PERSONAL PROTECTIVE EQUIPMENT**

(1) Quick Selection Guide to Chemical Protective Clothing, 2nd edition, Forsberg, K and Mansdorf, S., 1993.

(2) Chemical Protective Clothing, Vol 1 and 2, Johnson, J. and Anderson, K., American Industrial Hygiene Association, 1990.

(3) Guidelines for the Selection of Chemical Protective Clothing, 3rd Edition, ACGIH, Inc., Feb 1987.

u. **RADIATION PROTECTION PROGRAM**

(1) NGR 385-11, Safety, Ionizing and Nonionizing Radiation Protection, 18 February 1999.

(2) AR 11-9, Army Radiation Safety Program, 28 May 1999.

(3) 29 CFR 1910.96

(4) 29 CFR 1910.97

v. **RESPIRATORY PROTECTION**

(1) AR 11-34, The Army Respiratory Protection Program, 15 February 1990. *[11/02 Being Updated]*

(2) 29 CFR 1910.134

(3) 42 CFR 84

(4) TB MED 502, Respiratory Protection Program, February 1992. *[11/02 Being Updated as DA PAM 40-502]*

(5) ANSI/CGA G-7.1-1997, Commodity Specification for Air.

(6) ANSI Z88.2-1992, Standard for Respiratory Protection.

w. **SANITATION**

(1) ANSI Z4.1-1986, Change REAF 1995, Sanitation in Places of Employment-Minimum Requirements.

(2) 29 CFR 1910.141

x. **SMOKING**

(1) AR 600-63, Army Health Promotion, 28 April 1996.

(2) DODI 1010.15, Smoke-Free DOD Facilities, 2 January 2001.

(3) DODD1010.10, Health Promotion, 11 March 1986.

y. **VEHICLE EXHAUST**

(1) ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th Edition, 2001.

(2) TI-300f 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

z. **WELDING OPERATION**

(1) 29 CFR 1910.252

(2) 29 CFR 1910.253

(3) 29 CFR 1910.254

(4) ANSI/AWS Z49.1-1999, Safety in Welding and Cutting and Allied Processes.

(5) TM 5-805-7, Welding Design, Procedures and Inspection, 20 May 85.

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 $\mu g/ft^2$) and windowsills (250 $\mu g/ft^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of 200 $\mu g/ft^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 $\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 $\mu g/ft^2$ on floors and 250 $\mu g/ft^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

Industrial Hygiene Survey Report

National Guard Facility
Sellersville Armory

Prepared For:	**National Guard Bureau Region North IH** **301-IH Old Bay Lane** **Havre de Grace, MD 21078**
Survey Location:	**Sellersville Armory** **225 East Park Avenue** **Sellersville, PA 18960**
Prepared By:	**ALS Environmental** **3544 North Progress Avenue** **Suite 100** **Harrisburg, PA 17110**
Survey Date:	**July 28, 2011**
Report Date:	**September 27, 2011**
ALS Project #:	**1107512**

Non-Responsive

Director, Industrial Hygiene Services

Table of Contents

Section 1.0
Executive Summary

Section 1.0 Executive Summary

An industrial hygiene survey was conducted on July 28, 2011, at the Sellersville Armory located at 225 East Park Avenue, Sellersville, PA 18960. The survey was performed by Mr. Non-Responsive

1. Lead surface and air samples were collected. Surface levels of lead exceeded 200 ug/ft^2 in two locations. Cleaning procedures should be improved to maintain lead levels below 200 micrograms per square foot (ug/ft^2). See Section 3.0 for sampling results.

2. Lighting levels did not meet the American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) recommended guideline in the boiler room, kitchen, S1 office and garage.

3. Indoor air quality parameters of temperature, relative humidity, carbon monoxide and carbon dioxide (ventilation) were evaluated during the assessment. Temperature and relative humidity levels were higher than the American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) recommended guideline. See section 5.0 for sampling results. For comfort, we recommend that temperature levels be maintained between 68-79 °F in occupied areas. Relative humidity should be maintained at 30-60%.

Section 2.0
Operation Description & Observations

Section 2.0 Operation Description & Observations

The Sellersville Armory is mainly an administrative facility with offices, training and storage areas. There were approximately 28 full-time employees stationed at this facility at the time of this survey. There is also a garage located on the property. The garage is used for vehicle equipment storage only. There is no local exhaust ventilation system in the garage.

The building was initially constructed in 1948. There have been some renovations. The armory is one story with a brick exterior. The interior walls are primarily concrete block and drywall. The floors are concrete with vinyl floor tile. The garage is one story with concrete block exterior and concrete floors.

There is a central heating, ventilating, and air conditioning system (HVAC) present in the facility. Window air-conditioners are also utilized in some areas. Heat is provided via a gas-fired furnace.

The firing range was converted into five offices and a conference room. No firing range components remain.

There is no child-care facility in the building.

Overall housekeeping was fair. Cleaning procedures should be improved.

No ergonomic concerns were reported. Office areas have computer work stations. Work stations appeared properly designed. Personnel had supportive chairs.

Section 3.0
Lead Testing

Section 3.0 Lead Testing

Due to the age of the building there is the potential for lead based paint to be present. Various surfaces within the facility were screened for lead using surface wipe samples. Surface wipe samples were collected in accordance with the ASTM E 1792 protocols. Air samples were collected using 0.8 um mixed cellulose ester (MCE) filter cassettes attached to low volume air sampling pumps. Blank samples were submitted to the laboratory for quality control purposes. Samples were sent to AMA Analytical Services, Inc., in Lanham, Maryland, for lead analysis using EPA Method 600 R-93 200 (M)-7420. A copy of the laboratory analysis report can be found in Appendix A.

Lead Testing Results Summary

Sample #	Location	Air ug/m³	Surface ug/ft²
1	Blank	<3 (ug)	*
2	Drill Hall	<6.2	*
3	Classroom/Dining Room	<6.0	*
4	Kitchen	*	<120
5	Drill Hall HVAC Duct Work	*	<120
6	Drill Hall Floor Center	*	<120
7	Drill Hall - Heat Supply Grill	*	<120
8	Drill Hall - Counter Surface	*	<120
9	Dining Room - Top of Vending Machine	*	<120
10	Supply Office - Desk Surface	*	<120
11	S1 Office - File Cabinet Surface	*	<120
12	Boiler Room File Cabinet	*	<120
13	S4 – Canteen Area - Table	*	**250**
14	Conference Room - Table	*	<120
15	Conference Room Supply Grill	*	<120
16	Conference Room – Return Grill	*	**500**
17	Hallway – Floor	*	<120
18	Hallway – Floor	*	<120
19	Blank	*	<12 (ug)
Criteria		**50**	**200**

Key: **Bolded** results exceed listed criteria

Source: Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) & U.S. Department of Housing and Urban Development (HUD).

The National Guard Bureau currently utilizes 200 ug/ft² as a benchmark for identifying lead-contaminated surfaces. In the "Derivation of Wipe Surface Screening Levels for Environmental Chemicals," the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 ug/ft² is a satisfactory surface contamination level unless the facility is utilized as a childcare facility. In such cases, U.S. Department of Housing and Urban Development (HUD) limit of 40 ug/ft² on floors

and 250 ug ft^2 on windowsills should be observed. There is no child care provided at this facility.

Lead surface and air samples were collected.

- Surface levels of lead exceeded 200 ug/ft^2 in the following areas:
    - S4 – Common Area - Table
    - Conference Room – Return Grill
- Cleaning procedures should be improved to maintain lead levels on surfaces below 200 ug ft^2.
- Air samples for lead were below the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit of 50 ug m^3. In fact, no detectable level of lead was identified in the air samples collected.
- No chipping or peeling paint was observed in the facility. Paint was in good condition.

Section 4.0
Lighting

Section 4.0 Lighting Measurements

A lighting assessment was conducted throughout the facility. Measurements were collected using a Cooke Cal-Light 400L Precision Light Meter (Serial No. K0701559). The light meter was last calibrated on September 19, 2011. Measurements collected were compared to ANSI IESNA RP-7-01 Lighting Industrial Facilities and RP-1-04 Office Lighting.

Light Survey Assessment Summary

Location	Foot Candles	Recommended Lighting	Sufficient Lighting
Drill Hall	38.6	10	Yes
Boiler Room	**14.0**	**30**	**No**
S4 (Office)	51.6	30-50	Yes
Kitchen	**37.9**	**50**	**No**
Dining Room	23.4	10	Yes
Supply Office/ Arms Room	10.7	10	Yes
Recruiting Office	62.0	30-50	Yes
XO Office	40.5	**30-50**	Yes
Orderly Room (Storage)	44.1	30	Yes
Hallway	43.2	5	Yes
S1 Office	**21.8**	**30-50**	**No**
Support OPS Office	73.7	30-50	Yes
Garage	**71.0**	**75**	**No**

The lighting level did not meet the minimum recommended guideline in the boiler room, kitchen, S1 office and garage. Lighting should be improved in these areas.

Section 5.0
Indoor Air Quality

Section 5.0 Indoor Air Quality

Survey measurements were made for ventilation and comfort parameters (carbon dioxide, temperature, carbon monoxide and relative humidity). The air quality measurements were collected using direct reading instrumentation for comfort parameters using a QTRAK IAQ Meter, Model 7565 (Serial #7565X0839017). The IAQ Meter was last calibrated in February 11, 2011.

The American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) have developed indoor air quality guidelines for mechanically ventilated office buildings and commercial settings (ASHRAE standard 62.1-2010). ASHRAE specifies temperature and relative humidity ranges for human comfort (ASHRAE 55-2010). The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation, recommends maintaining a relative humidity range between 30 to 60% in occupied areas.

The following table summarizes the measurements collected.

IAQ Assessment Summary

Location	Temperature (°F)	Relative Humidity (%)	Carbon Dioxide (ppm)	Carbon Monoxide (ppm)
Drill Hall	77.6	**61.3**	408	0.5
Boiler Room	**79.8**	58.9	505	0.8
S4 (Office)	75.5	55.2	844	1.2
Kitchen	77.3	**62.0**	484	0.4
Dining Room	75.4	53.9	497	0.5
Supply Office Arms Room	**79.7**	57.0	438	0.9
Recruiting Office	**80.6**	57.0	509	0.2
XO Office	75.5	55.7	437	0.5
Orderly Room (Storage)	73.3	41.1	757	0.7
Hallway	77.9	55.9	788	0.8
S1 Office	76.6	56.3	870	0.7
Support OPS Office	75.4	50.8	949	0.6
Outdoors	82.1	58.1	454	0.3
Criteria	**68.0-79.0**	**30-60**	**<1,154**	**<9.0**

Key: **Bolded** results exceed listed criteria

Source: The American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) 62.1-2010, 55-2010 & The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation.

Summary of findings and recommendations:

- Relative humidity was above the recommended criteria of 30-60% in the drill hall and kitchen. Maintain relative humidity levels between 30-60%.
- Temperature measurements were above the recommended criteria of 68.0-79.0 F in the boiler room, supply office arms room and the recruiting office. For comfort, maintain temperature levels at 68.0 - 79.0 F in occupied areas.
- Carbon dioxide levels did not exceed the recommended ceiling of 1,154 ppm. This indicates that outdoor air ventilation is adequate in all areas.
- Carbon monoxide levels were less than the recommended ceiling of 9 ppm.
- A visual inspection was conducted throughout visually accessible portions of the facility. The visual inspection was conducted to assess sources or pathways of factors potentially deleterious to IAQ. No significant observations were made.

Section 6.0

Suspect Asbestos Containing Building Materials

Section 6.0 Suspect Asbestos Containing Building Materials

Based on the age of the building (e.g., constructed in 1948) asbestos containing materials (ACM) could be present in the facility. However, no suspect ACM was observed. Inaccessible areas such as behind walls or crawlspaces were not inspected. No bulk samples were collected.

Section 7.0
Limitations

Section 7.0 Limitations

This report summarizes our evaluation of the conditions observed at the above referenced location. Our findings are based upon our observations and sampling results obtained at the facility at the time of our visit. The report, results, and subsequent recommendations reported herein are also limited to the information available at the time it was prepared and investigated. Conditions may have been in effect prior to the sampling events that have changed over time and which cannot be predicted within the scope of this limited investigation. Any conditions discovered which deviate from the data contained in this report should be presented to us for our evaluation.

This report is intended for the exclusive use of the client. This report and the findings herein shall not, in whole or in part, be relied upon by any other parties, disseminated or conveyed to any other party without prior written consent of the National Guard Bureau, and ALS Environmental. The findings are relative to the dates of our site visits and should not be relied upon for substantially later dates.

Appendix A
Laboratory Analysis Report

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	**Job Name:**	RC-Sellersville	**Chain Of Custody:**	510977
Address:	301-IH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation	**Job Location:**	Sellersville, PA	**Date Submitted:**	8/3/2011
	Havre de Grace, Maryland 21078	**Job Number:**	RC-Sellersville	**Person Submitting:**	[redacted]
		P.O. Number:	NGB-IHNE	**Date Analyzed:**	8/9/2011 **Report Date:** 8/9/2011
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		Total ug	Final Result		Comments
1186150	1107512-1	Flame	Air Blank	0	N/A	3	ug/m³		<3	ug	
1186151	1107512-2	Flame	Air	487	N/A	6.2	ug/m³	<3	<6.2	ug/m³	
1186152	1107512-3	Flame	Air	504	N/A	6	ug/m³	<3	<6	ug/m³	
1186153	1107512-4	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1186154	1107512-5	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1186155	1107512-6	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1186156	1107512-7	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1186157	1107512-8	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1186158	1107512-9	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1186159	1107512-10	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1186160	1107512-11	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1186161	1107512-12	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1186162	1107512-13	Flame	Wipe	****	0.108	110	ug/ft²	27	250	ug/ft²	
1186163	1107512-14	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1186164	1107512-15	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1186165	1107512-16	Flame	Wipe	****	0.108	110	ug/ft²	54	500	ug/ft²	
1186166	1107512-17	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1186167	1107512-18	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
1186168	1107512-19	Flame	Wipe Blank	****	N/A	12	ug		<12	ug	

An AIHA (#100479), NVLAP (101143-0), and NY ELAP (#10970) Accredited Laboratory

4475 Forbes Blvd. · Lanham, MD, 20706 · (301) 459-2640 · Toll Free (800) 346-9961 · Fax (301) 459-2643

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	RC-Sellersville	Chain Of Custody:	510977
Address:	301-81 Old Bay Lane, Attn: ARNG-CIG-P, State Military Reservation	Job Location:	Sellersville, PA	Date Submitted:	8/3/2011
	Havre de Grace, Maryland 21078	Job Number:	RC-Sellersville	Person Submitting:	[redacted]
		P.O. Number:	NGB-BINS	Date Analyzed:	8/9/2011 Report Date: 8/9/2011

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	Total ug	Final Result	Comments

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B

N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)

%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)

Note: All samples were received in good condition unless otherwise noted.

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results

Final results for air and wipe samples are based on client supplied information nor verified by this laboratory.

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

See QC Summary for analytical results of quality control samples associated with these samples.

Analyst: [redacted]

Technical Manager: [redacted]

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AMA Analytical Services, Inc.
Focused on Results www.amalab.com
AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)
4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

Page 1 of 2

CHAIN OF CUSTODY

(Please Refer To This Number For Inquiries) **510977**

Mailing/Billing Information:
1. Client Name: National Guard Bureau
2. Address 1: 301-H Old Bay Lane
3. Address 2: Attn: NGB-AVN-SI, State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:
1. Job Name: RC - Sellersville
2. Job Location: Sellersville, PA
3. Job #: RC - Sellersville P.O. #: NGB - IHNE
4. Contact Person [redacted]
5. Submitted by [redacted]

Reporting Information (Results will be provided as soon as technically feasible):

AFTER HOURS (must be pre-scheduled)	NORMAL BUSINESS HOURS	REPORT TO:
☐ Immediate Due Date: ____ ☐ 24 Hours Time Due: ____ Comments: ____	☐ Immediate ☐ Next Day ☐ 2 Day ☐ 3 Day ☒ 5 Day + Date Due: 8/10/11 ☐ Results Required By Noon (Every Attempt Will Be Made to Accommodate)	[redacted] @us.army.mil @us.army.mil

Asbestos Analysis
PCM Air – Please Indicate Filter Type:
☐ NIOSH 7400 ____ (QTY)
☐ Fiberglass ____ (QTY)
TEM Air – Please Indicate Filter Type:
☐ AHERA ____ (QTY)
☐ NIOSH 7402 ____ (QTY)
☐ Other (specify ____) ____ (QTY)
PLM Bulk
☐ EPA 600 – Visual Estimate ____ (QTY)
☐ EPA Point Count ____ (QTY)
☐ NY State Friable PLM ____ (QTY)
☐ Grav. Reduction ELAP 198.6 ____ (QTY)
☐ Other (specify ____) ____ (QTY)
MISC
☐ Vermiculite
☐ Asbestos Soil [illegible]

TEM Bulk
☐ ELAP 198.4/Chatfield ____ (QTY)
☐ NY State PLM/TEM ____ (QTY)
☐ Residual Ash ____ (QTY)
TEM Dust
☐ Qual. (presence) Vacuum/Dust ____ (QTY)
☐ Quan. (structures) Vacuum D5755-95 ____ (QTY)
☐ Quan. (structures) Dust D6480-99 ____ (QTY)
TEM Water
☐ Qual. (presence) ____ (QTY)
☐ ELAP 198.2/EPA 100.2 ____ (QTY)
☐ EPA 100.1 ____ (QTY)

☒ All samples received in good condition unless otherwise noted.
(TEM Water samples ____ °C)

Metals Analysis
☐ Pb Paint Chip ____ (QTY)
☒ Pb Dust Wipe (wipe type Ghost) 1 - 16 (QTY)
☒ Pb Air 3 (QTY)
☐ Pb Soil/Solid ____ (QTY)
☐ Pb TCLP ____ (QTY)
☐ Drinking Water ☐ Pb ____ (QTY) ☐ Cu ____ (QTY) ☐ As ____ (QTY)
☐ Waste Water ☐ Pb ____ (QTY) ☐ Cu ____ (QTY) ☐ As ____ (QTY)
☐ Pb Furnace (Media ____) ____ (QTY)

Fungal Analysis
Collection Apparatus for Spore Traps/Air Samples: ____
Collection Media ____
☐ Spore-Trap ____ (QTY) ☐ Surface Vacuum Dust ____ (QTY)
☐ Surface Swab ____ (QTY) ☐ Culturable Air [illegible] ____ (QTY)
☐ Surface Tape ____ (QTY) ☐ Culturable ID [illegible] ____ (QTY)
☐ Other (Specify ____) ____ (QTY)

SAMPLE INFORMATION — ANALYSIS — MATRIX — CLIENT CONTACT

CLIENT ID NUMBER	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPE AREA	Analysis 1	Analysis 2	Analysis 3	Analysis 4	Analysis 5	Analysis 6	Analysis 7	Matrix 1	Matrix 2	Matrix 3	Matrix 4	Matrix 5
110751a-1		7/28	0					X		X						
110751a-2			487					X		X						
110751a-3			504					X		X						
110751a-4				100cm²				X				X				
110751a-5								X				X				
110751a-6								X				X				
110751a-7								X				X				
110751a-8								X				X				
110751a-9								X				X				
110751a-10								X				X				
110751a-11								X				X				
110751a-12		↓		↓				X				X				

CLIENT CONTACT (LABORATORY STAFF ONLY)
Date/Time: ____ Contact: ____ By: ____
Date/Time: ____ Contact: ____ By: ____
Date/Time: ____ Contact: ____ By: ____

LABORATORY STAFF ONLY: (CUSTODY)
1. Date/Time RCVD: 8 / 3 / 11 0845 Via: UPS By [redacted]
2. Date/Time Analyzed: ____ / ____ / ____ @ ____ By (print) ____ Sign: ____
3. Results Reported To: ____ Via: ____ Date: ____ / ____ / ____ Time: ____ Initials: ____
4. Comments: 1Z X77 395034763 22272

AMA Analytical Services, Inc.
Focused on Results www.amalab.com
AIHA #100470; NVLAP #101143-0; NY ELAP 11220
4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

Page 2 of 2

CHAIN OF CUSTODY

(Please Refer To This Number For Inquiries) 510977

Mailing/Billing Information:
1. Client Name: National Guard Bureau
2. Address 1: 301-81 Old Bay Lane
3. Address 2: Attn: NGB-AVN-SL State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submitted Information:
1. Job Name: RC-Sellersville
2. Job Location:
3. Job #: P.O. #: W912K0-09-A-0000
4. Contact Person: [redacted] Or phone # (410) 942-0273
5. Submitted by: Signature:

Reporting Information (Results will be provided as soon as technically feasible):

AFTER HOURS (must be pre-scheduled)	NORMAL BUSINESS HOURS			REPORT TO:
☐ Immediate Date Due:	☐ Immediate	☐ 3 Day	☐ Results Required By Noon (Every Attempt Will Be Made to Accommodate)	☒ Include COC/Field Data Sheets with Report
☐ 24 Hours Time Due:	☐ Next Day	☐ 5 Day +		☒ [redacted]
Comments:	☐ 2 Day	Date Due:		☐ [redacted]us.army.mil
				☐ [redacted]us.army.mil

Asbestos Analysis
PCM Air – Please Indicate Filter Type:
☐ NIOSH 7400 ____ (QTY)
☐ Fiberglass ____ (QTY)
TEM Air – Please Indicate Filter Type:
☐ AHERA ____ (QTY)
☐ NIOSH 7402 ____ (QTY)
☐ Other (specify ____) ____ (QTY)
PLM Bulk
☐ EPA 600 – Visual Estimate ____ (QTY)
☐ EPA Point Count ____ (QTY)
☐ NY State Friable 198.1 ____ (QTY)
☐ Grav. Reduction ELAP 198.6 ____ (QTY)
☐ Other (specify ____) ____ (QTY)
MISC.
☐ Vermiculite
☐ Asbestos Soil PLM [illegible]

TEM Bulk
☐ ELAP 198.4 [illegible] ____ (QTY)
☐ NY State PLM/TEM ____ (QTY)
☐ Residual Ash ____ (QTY)
TEM Dust
☐ Qual. (present/absent) Vacuum/Dust ____ (QTY)
☐ Quan. (structures) Vacuum D5755-95 ____ (QTY)
☐ Quan. (structures) Dust D6480-99 ____ (QTY)
TEM Water
☐ Qual. (presence) ____ (QTY)
☐ ELAP 198.2 [illegible] ____ (QTY)
☐ EPA 100.1 ____ (QTY)
☐ All samples received in good condition unless otherwise noted. (TEM Water samples ____ °C)

Metals Analysis
☐ Pb Paint Chip ____ (QTY)
☐ Pb Dust Wipe (wipe type ____) ____ (QTY)
☐ Pb Air ____ (QTY)
☐ Pb Soil/Solid ____ (QTY)
☐ Pb TCLP ____ (QTY)
☐ Drinking Water ☐ Pb ____ (QTY) ☐ Cu ____ (QTY) ☐ As ____ (QTY)
☐ Waste Water ☐ Pb ____ (QTY) ☐ Cu ____ (QTY) ☐ As ____ (QTY)
☐ Pb Personal (Media ____) ____ (QTY)
Fungal Analysis
Collection Apparatus for Spore Trap/Air Samples ____
Collection Media ____
☐ Spore Trap ____ (QTY) ☐ Surface Vacuum Dust ____ (QTY)
☐ Surface Swab ____ (QTY) ☐ Culturable ID Genus (Media ____) ____ (QTY)
☐ Surface Tape ____ (QTY) ☐ Culturable ID Species (Media ____) ____ (QTY)
☐ Other (Specify ____) ____ (QTY)

SAMPLE INFORMATION / ANALYSIS / MATRIX / CLIENT CONTACT (LABORATORY STAFF ONLY)

CLIENT ID NUMBER	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPE AREA	Analysis	Matrix
1107512-13		7/08		100cm²	X	X
1107512-14		↓		↓	X	X
1107512-15		↓		↓	X	X
1107512-16		↓		↓	X	X
1107512-17		↓		↓	X	X
1107512-18		↓		↓	X	X
1107512-19		↓		0cm²	X	X

Client contact (Laboratory staff only): Date/Time: Contact: By: / Date/Time: Contact: By: / Date/Time: Contact: By:

LABORATORY STAFF ONLY: (CUSTODY)
1. Date/Time RCVD: ___ / ___ / ___ @ ___ Via: ___ By (Print) ___ Sign: ___
2. Date/Time Analyzed: ___ / ___ / ___ @ ___ By (Print) ___ Sign: ___
3. Results Reported To: ___ Via: ___ Date: ___ / ___ / ___ Time: ___ Initials: ___
4. Comments:

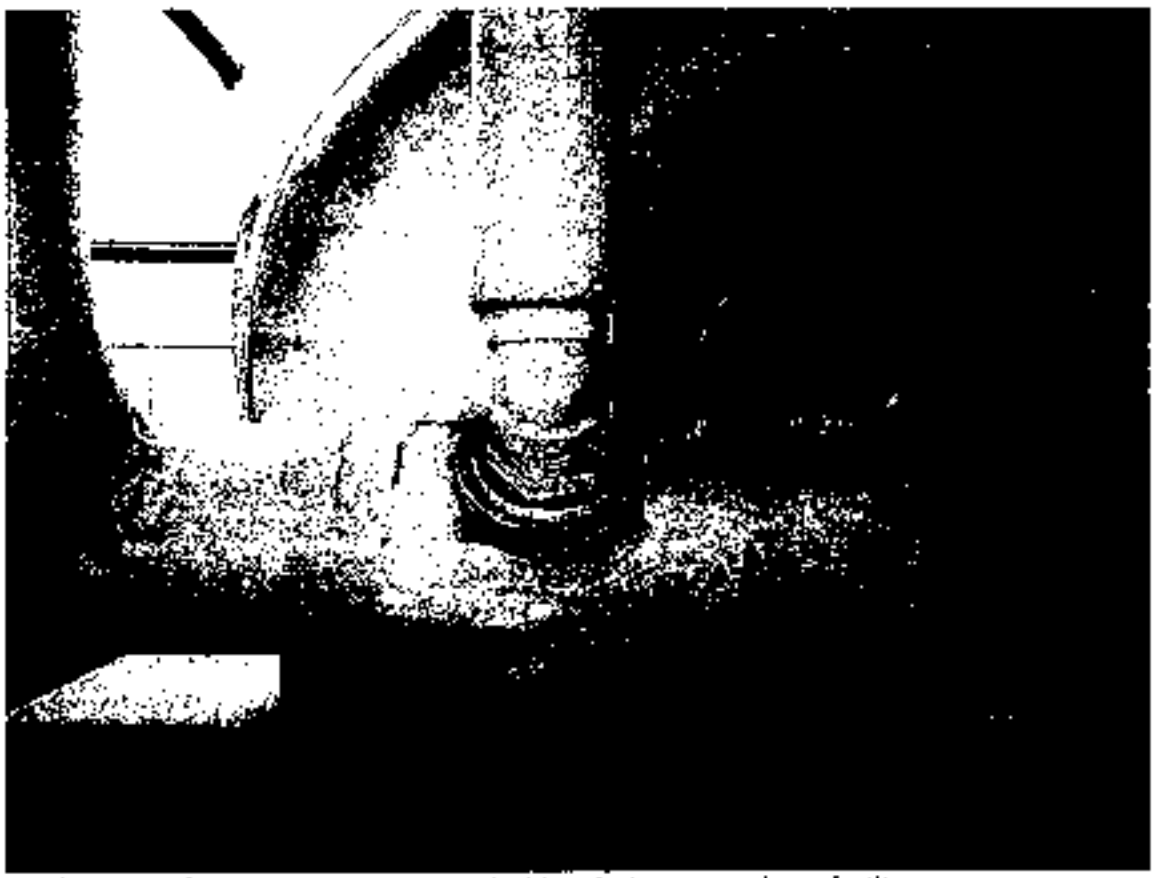
Appendix B. Photographs

Appendix B
Photograghs

Exterior, ARNG Sellersville

Drill Hall

Furnace in Boiler Room

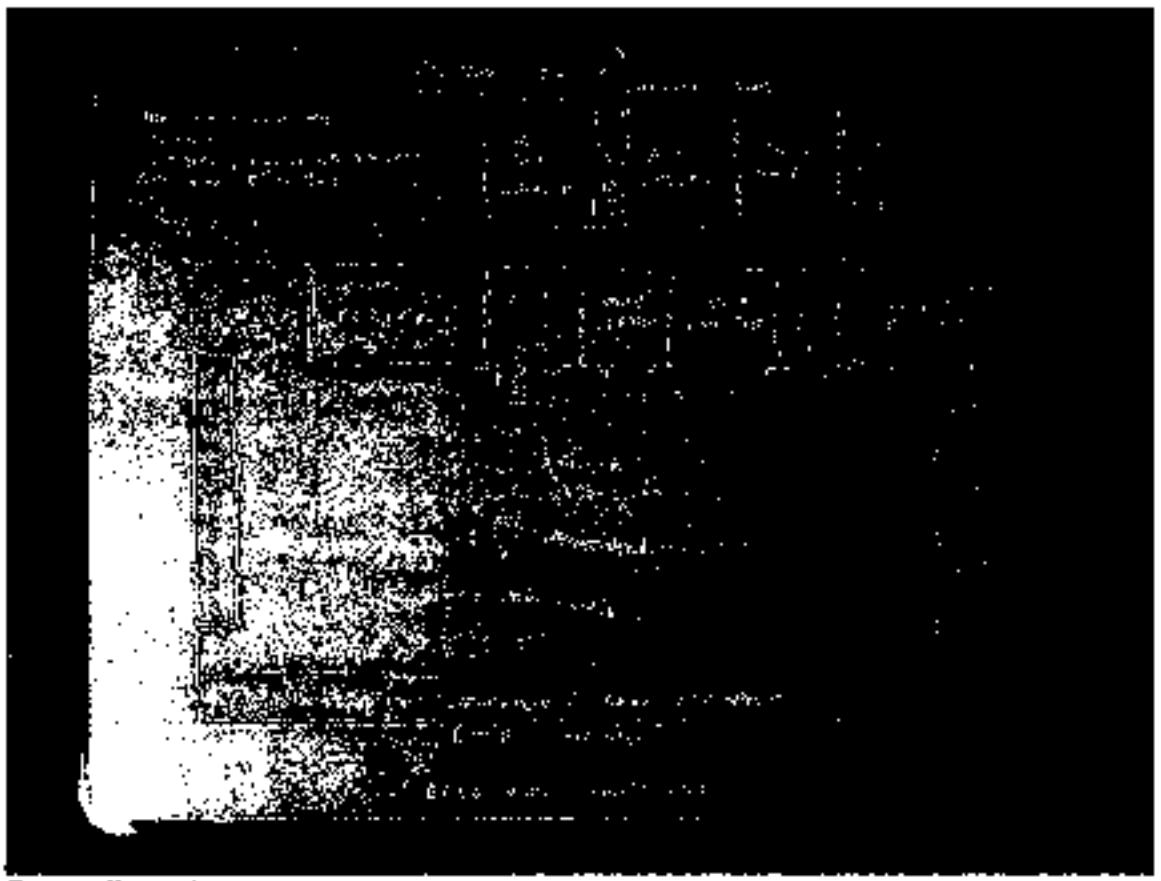


Insulation on furnace, example typical of insulation throughout facility

Garage, exterior

Garage, interior

Fiammables cabinets, garage

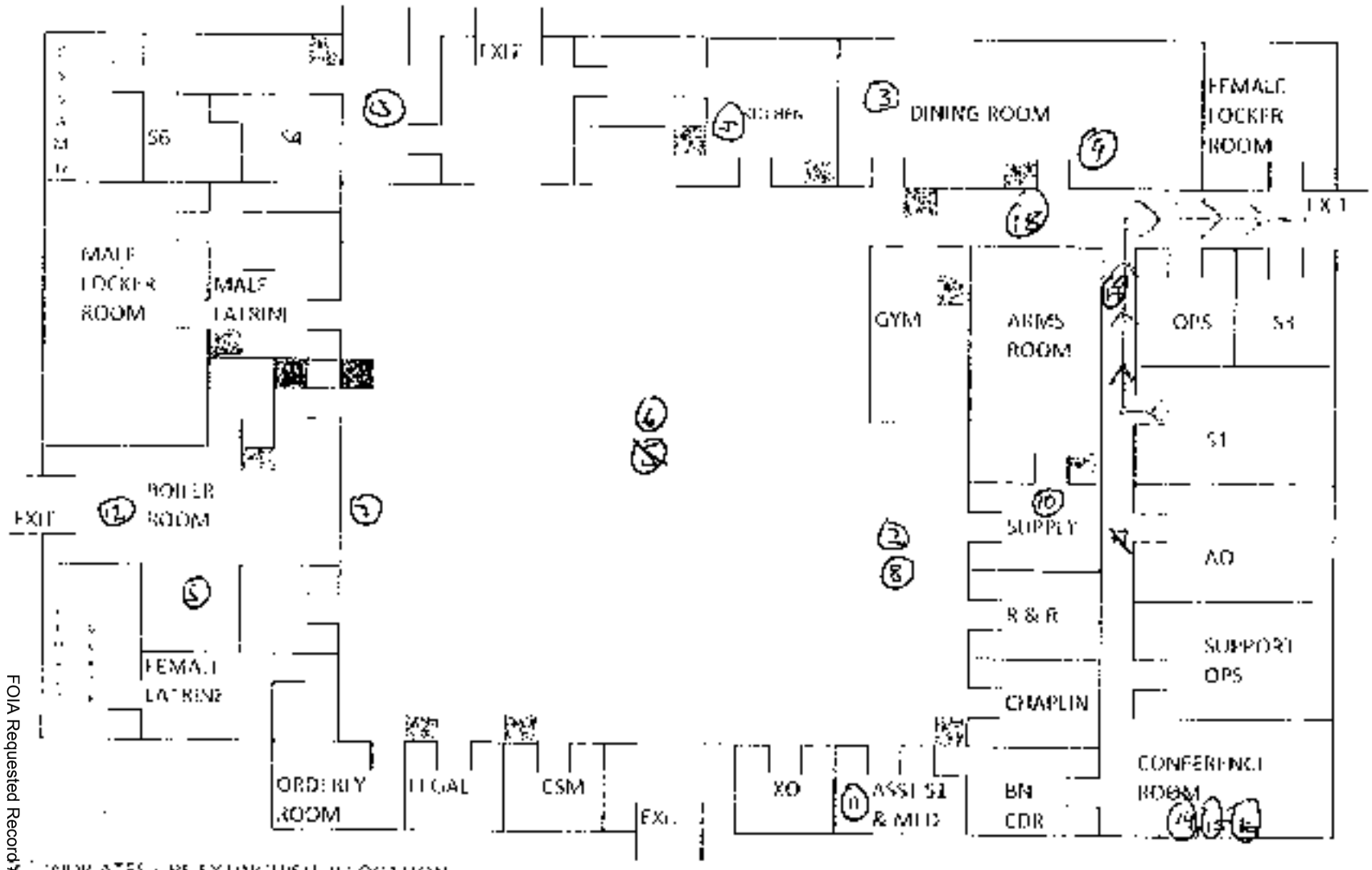


Garage floor plan

Appendix C
Floor Plans

HHC 225TH SUPPORT BN

FIRE FIGHTING EQUIPMENT LOCATIONS & EVACUATION PLAN



Appendix D
References

Appendix D. References

1. Title 29 Code of Federal Regulations (CFR). Part 1910.1025. Occupational Safety and Health Administration. Occupational Exposure to Lead

2. American Conference of Governmental Industrial Hygienists (ACGIH) – Threshold Limit Values and Biological Exposure Indices. 2011 Edition

3. Industrial Ventilation: A Manual of Recommended Practice for Design, 27th Edition.

4. American Society of Heating, Refrigerating and Air-Conditioning Engineers, Ventilation for Acceptable Indoor Air Quality. 62.1-2010

5. RP-1-2004, Industrial Lighting, Illuminating Engineering Society of North America ANSI

6. RP-7-2001, Industrial Lighting, Illuminating Engineering Society of North America ANSI

7. National Emission Standard Hazardous Air Pollutants (NESHAP) The standards for asbestos are contained in 40 CFR 61.140 through 61.157.

8. Environmental Protection Agency (EPA) standards [40 Code of Federal Regulations (CFR) 745.227(h)(3)]

9. Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM)

10. The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation

11. NGB PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 Nov 06.

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland




Industrial Hygiene Survey
for PAARNG – Sellersville Readiness Center
225 East Park Avenue
Sellersville, Pennsylvania 18960

AECOM
January 2013
Document No.: 60276421.1/Sellersville Readiness Center

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland

Industrial Hygiene Survey
for PAARNG – Sellersville Readiness Center
225 East Park Avenue
Sellersville, Pennsylvania 18960

Non-Responsive
Industrial Hygienist

Non-Responsive
Project Manager

Non-Responsive
Northeast District Health & Safety Manager

AECOM
January 2013
Document No.: 60276421.1/Sellersville Readiness Center

AECOM

Contents

List of Appendices

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Executive Summary

On November 14, 2012, AECOM conducted an Industrial Hygiene (IH) survey of the Sellersville Readiness Center facility located at 225 East Park Avenue in Sellersville, Pennsylvania. Non-[redacted], LTC was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Sellersville Readiness Center operations.

The industrial hygiene survey was generally conducted in accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings", dated January 2012.

The Sellersville Readiness Center is currently staffed by fourteen personnel. Some of the personnel were not present at the time of the survey due to active duty assignments or other off-site responsibilities. The facility is configured as an administrative area and a Drill/Assembly Hall.

Personnel at the facility were undertaking normal daily activities, which are primarily administrative in nature, at the time of the survey.

The activities undertaken during the Industrial Hygiene survey included facility descriptions, lead wipe/air sampling, evaluation of housekeeping, illumination studies, ventilation system evaluation, and a review of the physical building condition.

The Sellersville Readiness Center is housed in a one-story masonry building, and consists of approximately 60% administrative space and 40% Assembly Hall.

Some lighting levels measured throughout the facility were inadequate as per American National Standards Institute (ANSI)/Illuminating Engineering Society of North America (IESNA) RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

Wipe samples collected for lead-containing dust throughout the facility did not indicate lead levels above the ARNG action level.

No peeling lead-based paint was observed at the Sellersville Readiness Center during this survey.

No visible damaged suspect asbestos-containing material (ACM) was observed.

No visible water damaged or visible signs of mold growth were observed.

The Heating, Ventilation & Air Conditioning (HVAC) system for the building consists of an air handling unit located on the roof that provides fresh air from outside the building exterior to administrative areas. Natural gas boilers feed radiant heaters throughout the remainder of the building including storage areas, the assembly hall as well as provide heat for the facilities domestic water.

1.0 Facility Description and Operations

The Sellersville Readiness Center, constructed in 1950, is a one-story administrative facility slab on-grade masonry structure. The building, consists primarily of offices, training/classroom, locker/shower rooms, kitchen, storage and administrative areas, and is finished with sheetrock or painted block walls; lay-in ceiling tiles, and floor tile, carpet, or bare concrete floors. The Assembly Hall area, located in the center of the building, is finished with painted block walls, a concrete floor, and lay-in ceiling tiles. According to site personnel there is an indoor firing range at the facility that is presently used as administrative offices and a conference room. The former fire range was cleaned and renovated approximately 25 to 30 years ago and has been used as administrative offices and a conference room since its conversion.

The primary activity at the Sellersville Readiness Center is routine administrative duties and occasional use by units for support and training of soldiers. The Assembly Hall is rented out (approximately once or twice a year) for limited civic activities such as group meetings, community polling center, trade shows and to other related local groups and organizations. The Sellersville Readiness Center is currently staffed by fourteen personnel. No vehicle maintenance activities are undertaken at the facility.

2.0 Sampling in Readiness Centers

2.1.1 Wipe Sampling

Wipe sampling for lead was conducted in the Assembly Hall, administrative areas, and former firing range following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost wipes. Samples were collected in areas that are not frequently cleaned and showed signs of dust whenever possible.

The following table presents the results of the lead wipe sampling conducted at the facility.

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
WIPE – 001	Assembly Hall - table	<110 ug/ft^2
WIPE – 002	Kitchen - counter	<110 ug/ft^2
WIPE – 003	Administrative Office – desk top	<110 ug/ft^2
WIPE – 004	Administrative Office - cabinet	<110 ug/ft^2
WIPE – 005	Administrative Corridor - floor	<110 ug/ft^2
WIPE – 006	Assembly Hall - floor	<110 ug/ft^2
WIPE – 007	Former Fire Range (Administrative Office) - desk	<110 ug/ft^2

ug/ft^2 = Micrograms per square foot.

Wipe samples collected in association with the administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U. S. Department of Housing and Urban Development's (HUD) acceptable decontamination level of 200 micrograms per square foot (ug/ft^2) for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

The wipe samples collected throughout the facility did not detect levels of lead in excess of the ARNG action level of 200 micrograms per square foot (ug/ft^2). Former indoor firing ranges shall be converted in accordance with NG PAM 420-15. Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

Per Shirley Chapman of NGB-IH, the requirement for Lead air sampling has been removed from the Statement of Work. It was reported that historically, air samples collected at administrative facilities are typically below the limit of detection.

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls appeared to be generally in good condition. Concrete flooring was generally tiled, carpeted, or unpainted. AECOM did not observe damaged or peeling paint during this evaluation.

3.1.2 Suspect Asbestos Containing Materials

AECOM did not observe damaged, friable suspect asbestos containing materials (ACM) in readily accessible areas of the Sellersville Readiness Center during this survey. Thermal system piping is typically covered in typical fiberglass insulation with associated fittings and appeared in good condition.

Other typical miscellaneous suspect building materials observed throughout the building but not sampled include floor tiles and associated mastic, cove base and associated mastic, ceiling tiles, and window glazing compound and caulks.

3.1.3 Water Damage/Mold

AECOM did not observe evidence of water intrusion during this survey.

3.1.4 Housekeeping

The Sellersville Readiness Center was observed to be generally clean and orderly during this assessment. AECOM did not observe dust accumulation on readily accessible horizontal surfaces within areas commonly used in the facility.

3.1.5 Indoor Air Quality/ Ergonomics

The administration section of the building contains general office space. The administration section is generally utilized by all of the Sellersville Readiness Center staff members including a recruiter. No Indoor Air Quality concerns were noted by the Sellersville Readiness Center personnel.

Sellersville Readiness Center personnel did not report any ergonomics issues or concerns. Office furniture and accessories designed to promote ergonomically correct behaviors were observed.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (^{o} Fahrenheit), and relative humidity (as percentage) are presented in the following table.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (^{o}F)	Relative Humidity (%)
Outside	0.3	364	68.6	24.5
Foyer	1.0	463	70.5	22.9
Drill Hall	1.0	289	70.6	20.3
Recruiter Office	0.8	315	70.7	21.2
Office	0.8	368	71.2	24.7
Physical Fitness Area	0.7	340	71.0	23.5
Classroom	0.7	322	71.1	24.2
Administrative Corridor	0.6	454	69.7	28.6
Former Fire Range	0.6	519	68.8	35.4

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (^{o}F)	Relative Humidity (%)
(Conference Room)				
Kitchen	0.5	267	68.7	20.1
Former Fire Range (Support Ops Office)	0.8	306	62.8	22.7
Boiler Room	0.0	358	75.8	32.2
Office	0.4	574	74.1	21.0

Table 3-1 Guidelines:
Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard. OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.
Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.
Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 5.10.1).
Temperature: Winter (clothing insulation = 1.0 clo) Relative humidity 30-60% - Temp - 68 – 75°F
Summer Temp - 73 – 79°F. (Derived from ASHRAE Standard 55-2010)

4.0 Ventilation and HVAC System

4.1.1 Ventilation Systems and Potential for Contamination of Clean Air Sources

There is no Field Maintenance Shop (FMS) located at the Sellersville Readiness Center. As such, no potential for contamination of clean air sources was observed at the facility.

The Heating, Ventilation & Air Conditioning (HVAC) system in the building consists of air handling units that provide fresh air from outside the building exterior to administrative areas.

4.1.2 HVAC Maintenance

The HVAC system is reported to be on a maintenance/service agreement, and is serviced every two years. Further, building personnel informed AECOM that the HVAC filters are changed at least twice a year. Natural gas boilers feed radiant heaters throughout the remainder of the building including storage areas, the assembly hall as well as provide heat for the facilities domestic water.

5.0 Lighting

Lighting levels in all areas were measured utilizing a Cal-Light 400 light meter that displays lighting levels in foot-candles. Lighting levels were generally inadequate.

Table 5-1: Light Survey

Location	Results – (Foot candles)	Met Standard (Y/N)	Standard*
Foyer	19.2	Y	10
Drill Hall	33.9	Y	10
Recruiter Office	28.7	N	50
Office	29.6	N	50
Physical Fitness Area	16.8	N	30
Classroom	35.0	Y	30
Administrative Corridor	14.4	Y	5
Former Fire Range (Conference Room)	40.2	Y	30
Kitchen	74.5	Y	50
Former Fire Range (Support Ops Office)	46.6	N	50
Boiler Room	15.1	N	30
Office	59.2	Y	50
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI/IESNA RP-7-01)			

6.0 Evaluation of Attached Garage

There is no attached garage associated with the Sellersville Readiness Center.

7.0 Conclusions and Limitations

AECOM has conducted this survey in accordance with applicable OSHA methods and standard industrial hygiene practice. The following conclusions were based on the observations and assessments of activities that occurred during the on-site evaluation:

Housekeeping is performed regularly at the Sellersville Readiness Center.

AECOM did not observe any damaged, suspect asbestos-containing materials at the Sellersville Readiness Center.

AECOM did not observe peeling paint at the Sellersville Readiness Center.

AECOM did not observe evidence of water intrusion at the Sellersville Readiness Center.

Some lighting levels measured throughout the facility were inadequate as per ANSI/IESNA RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

AECOM provided these services consistent with the level and skill ordinarily exercised by members of the profession currently providing similar services under similar circumstances at the time the services were provided. This statement is in lieu of other statements either expressed or implied. This report is intended for the sole use of National Guard Bureau – Army National Guard. The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, and use or re-use of this document, the findings, conclusions, or recommendations is at the risk of said user.

As with all such surveys, the results of the sampling represent conditions found on the date of the survey and may not represent conditions found at other times. Additionally, this survey was limited with respect to the specific parameters indicated above and should not be construed to be a comprehensive evaluation or a definitive representation of conditions within the facility. The information presented in this report is intended to be used as a guide to evaluate the need for further investigation or the need for modifications to the processes or procedures surveyed.

The Client recognizes and agrees that all testing and remediation methods have reliability limitations, no method nor number of sampling locations can guarantee that a condition will be discovered within the performance of the services as authorized by the Client. Additionally, the passage of time may result in a change in the environmental characteristics at this site. This report does not warrant against future operations or conditions that could affect the recommendations made. The results, findings, conclusions, and recommendations expressed in this report are based only on conditions that were observed during AECOM's inspection of the site.

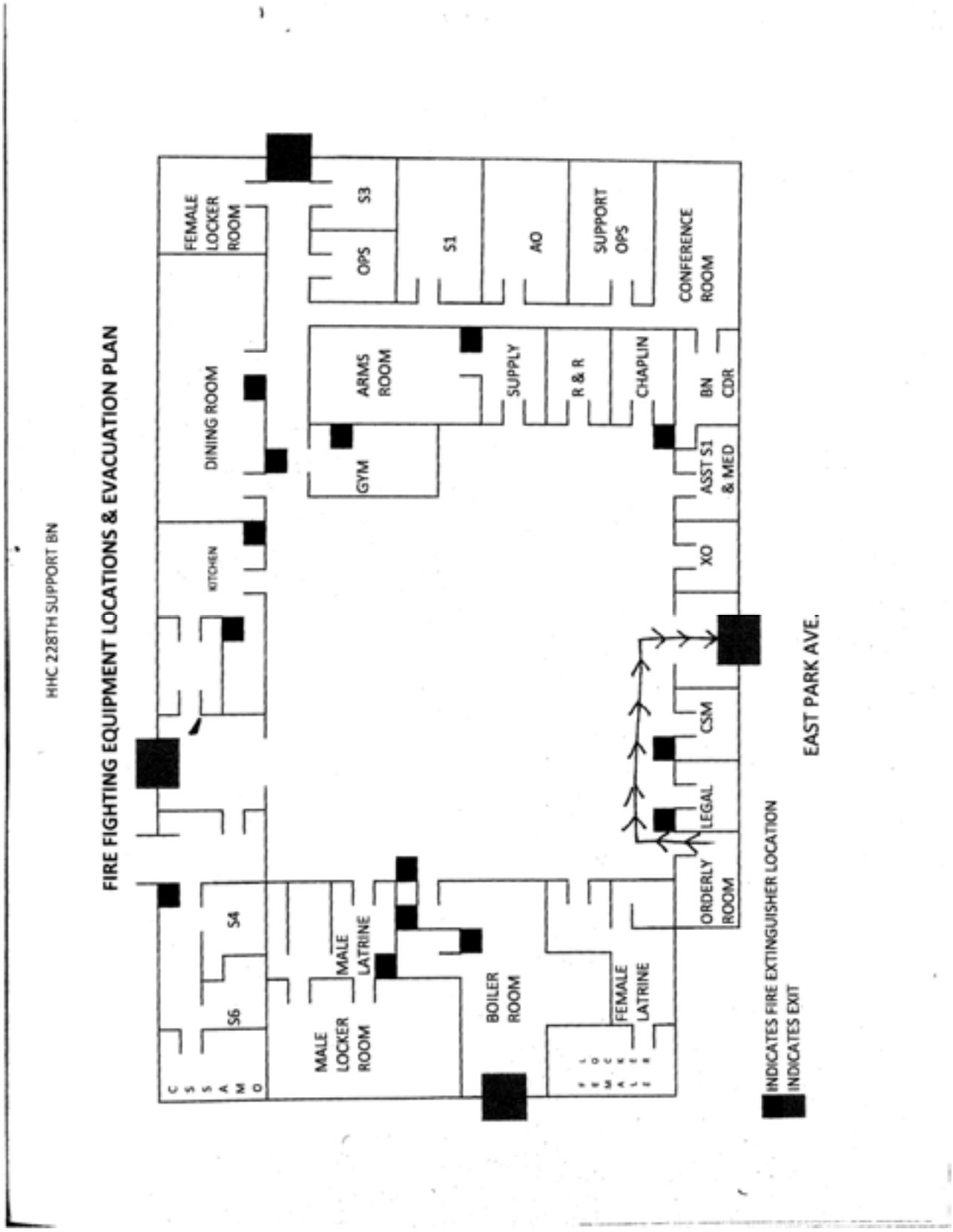
Appendix A

Sellersville Readiness Center Facility Layout

AECOM

HHC 228TH SUPPORT BN

FIRE FIGHTING EQUIPMENT LOCATIONS & EVACUATION PLAN



Appendix B

Sellersville Readiness Center Photographs

Photograph 1

View of Building Exterior
Photograph 2

View of Assembly Hall

AECOM

Photograph 3

View of Physical Fitness Area

Photograph 4

View of Administrative Office

Photograph 5

View of Conference Room
Photograph 6

View of Kitchen

AECOM

Photograph 7

View of Administrative Office Area

Photograph 8

View of Boiler Room

Appendix C

Analytical Results

AECOM

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	Not Provided	Chain Of Custody:	50463?		
Address:	301-80 Old Bay Lane, Attn: ARNG-CG-P, Stats Military Reservation	Job Location:	Sellersville RC	Date Submitted:	11/30/2012		
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM		
		P.O. Number:	W912S6-09-A-0003	Date Analyzed:	12/9/2012	Report Date:	12/9/2012

Attention: Non-Responsive

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		Total ug	Final Result		Comments
12038567	Wipe-001	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
12038568	Wipe-002	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
12038569	Wipe-003	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
12038570	Wipe-004	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
12038571	Wipe-005	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
12038572	Wipe-006	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	
12038573	Wipe-007	Flame	Wipe	****	0.111	110	ug/ft²	<12	<110	ug/ft²	

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7092; Water: SM-3113B

See QC Summary for analytical results of quality control samples associated with these samples.

N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)

%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)

Note: All samples were received in good condition unless otherwise noted.

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results

Final results for air and wipe samples are based on client supplied information nor verified by this laboratory.

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

Analyst: Non-Responsive

Technical Manager: Non-Responsive

An AIHA (#100479) and NY ELAP (#10920) Accredited Laboratory

4475 Forbes Blvd. · Lanham, MD. 20706 · (301) 459-2640 · Toll Free (800) 346-0961 · Fax (301) 459-2643

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Focused on Results www.amalab.com
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4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 345-0061 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This Number For Inquiries) 514637

Mailing/Billing Information:

1. Client Name: National Guard Bureau
2. Address 1: 301-H Old Bay Lane
3. Address 2: Attn: NGB-AVN-SI, State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:

1. (Project)
2. (Location) Sellersville PA
3. Job #: P.O. #: W912K6-09-A-0003
4. Contact Person: [redacted] @ phone#
5. Submitted by: AECOM (Signature) [redacted]

Reporting Info (Results provided as soon as technically feasible). If no TAT/Reporting Info is provided, AMA will assign defaults of 5-Day and contacts on file.

TURNAROUND	NORMAL BUSINESS HOURS	REPORT TO
Immediate / Date/Time / Other	Immediate / Next Day / 2 Day / 3 Day / 5 Day (checked) / Other: 12/7/12 / Results Required By	Include COC/Field Data Sheets with Report; Email: [illegible]@aecom.com; Fax: [illegible]; Verbal: [illegible]

Asbestos Analysis

PCM Air – Please Indicate Filter Type: NIOSH 7400 ___ (QTY); Fiberglass ___ (QTY)
TEM Air – Please Indicate Filter Type: AHERA ___ (QTY); NIOSH 7402 ___ (QTY); Other (specify ___) ___ (QTY)
PLM Bulk: EPA 600 – Visual Estimate ___ (QTY); EPA Point Count ___ (QTY); NY State Friable 198.1 ___ (QTY); Grav. Reduction ELAP 198.6 ___ (QTY); Other (specify ___) ___ (QTY)
MISC: Vermiculite; Asbestos Soil ...
*It is recommended that bulk samples be submitted with air and surface samples.

TEM Bulk: ELAP 198.4/Chatfield ___ (QTY); NY State PLM/TEM ___ (QTY); Residual Ash ___ (QTY)
TEM Dust: Qual. (presence) Vacuum/Dust ___ (QTY); Quan. (sheets) Vacuum D5755-95 ___ (QTY); Quan. (sheets) Dust D6480-99 ___ (QTY)
TEM Water: Qual. (yes/no) ___ (QTY); ELAP 198.2/EPA 100.2 ___ (QTY); EPA 100.1 ___ (QTY)

☒ All samples received in good condition unless otherwise noted. (TEM Water samples: ___ °C)

Other Analysis: Pb Paint Chip ___ (QTY); ☒ Pb Dust Wipe (wipe type Pace Wipe) 7 (QTY); Pb Air ___ (QTY); Pb Soil/Solid ___ (QTY); Pb TCLP ___ (QTY); Drinking Water Pb ___ (QTY) Cu ___ (QTY) As ___ (QTY); Waste Water Pb ___ (QTY) Cu ___ (QTY) As ___ (QTY); Pb Furnace (Media ___) ___ (QTY)

Microbiology: Collection Apparatus for Spore Trap/Air Samples: ___; Collection Media: ___; Spore Trap ___ (QTY); Surface Vacuum Dust ___ (QTY); Surface Swab ___ (QTY); Culturable ID Genus (Media ___) ___ (QTY); Surface Tape ___ (QTY); Culturable ID Species (Media ___) ___ (QTY); Other (Specify ___) ___ (QTY)

CLIENT ID #	SAMPLE LOCATION ID	DATE/TIME	VOL/L/V Wipe Area	ANALYSIS / MATRIX	CLIENT CONTACT (LABORATORY STAFF ONLY)
Wipe-001	D Hall table	11/4	[illegible]	X (Lead)	Date/Time: Contact: By:
Wipe-002	Kitchen counter				
Wipe-003	F. Range office desk				
	SEE ATTACHED FIELD DATA SHEETS				
Wipe-004	F. Range office shelf				Date/Time: Contact: By:
Wipe-005	F. Range office Broom				
Wipe-006	D Hall Floor				
Wipe-007	Admin office desk				
					Date/Time: Contact: By:

LABORATORY STAFF ONLY (CUSTODY):
1. Date/Time RCVD: 11/30/12 @ 1000 Via: FEDEX By: [redacted]
2. Date/Time Analyzed: ___ / ___ / ___ @ ___ By (Init): ___ Sign: ___
3. Results Reported To: ___ Via: ___ Date: ___ Time: ___ Initials: ___
4. Comments: 7941 7604 5331

Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. http://www.osha.gov/comp-links.html

2. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998. http://www.dtic.mil/whs/directives/corres/pdf/605501p.pdf

3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF

4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://armypubs.army.mil/epubs/pdf/R40_5.PDF

5. AR 385-10, The Army Safety Program, 23 August 2007; Rapid Action Revision (RAR) issue date: 4 October 2011. http://armypubs.army.mil/epubs/pdf/R385_10.PDF

6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://armypubs.army.mil/epubs/pdf/P40_501.pdf

7. DA PAM 40-11, Preventive Medicine, 22 July 2005, RAR issue date: 19 October 2009. http://armypubs.army.mil/epubs/pdf/p40_11.pdf

8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://armypubs.army.mil/epubs/pdf/P40_503.PDF

9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf

10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current Ed.

11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.

12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.

13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.

14. ANSI/ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality.

15. RP-1-2004, Office Lighting, ANSI/IESNA.

16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.

17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.

18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.

19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf

INDUSTRIAL HYGIENE SURVEY

CO A 3/103RD ARMOR BN
CO B 3/103RD ARMOR BN
SUNBURY, PA

April 29, 2003

OPERATIONAL TECHNOLOGIES
CORPORATION

CO A / CO B 3/103RD ARMOR BN
SUNBURY, PENNSYLVANIA
INDUSTRIAL HYGIENE SURVEY

1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Armory in Sunbury, Pennsylvania on April 29, 2003. NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. Non-Responsive from OpTech, completed this survey. Non-Responsive a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the IH Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D.

RECOMMENDATIONS

1. ILLUMINATION

1.1. Illumination levels were below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

2. WIPE SAMPLES

2.1. Four of six wipe sampling results for inorganic lead collected in the former indoor firing range exceeded the 200 micrograms per square foot criteria. The contamination is apparently from former range activities. Recommend that the former indoor firing range and adjacent areas be wet-wiped/mopped or cleaned using a high efficiency particulate air (HEPA) vacuum. This method of cleaning should be repeated during routine housekeeping duties.

2.0. EXECUTIVE SUMMARY

2.1. No significant indoor air quality problems were noted. Indoor temperatures were below recommended comfort levels in most areas.

2.2. Illumination levels were below recommended minimum standards in most areas of the facility.

2.3. Wipe samples for inorganic lead were collected. Four of six samples taken in the former indoor firing range exceeded recommended levels. Lower levels were detected in the assembly hall.

2.4. Air sampling for inorganic lead was taken. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	CO A / CO B 3/103RD ARMOR BN		
ADDRESS	109 Infantry Road		
	PO Box 342, RD 1		
	Sunbury, PA 17801		
CONTACT	SFC Non-Responsive		
PHONE	570-988-5510		
DATE BUILT	1938	FACILITY SIZE	18,490 sq.ft.
INDOOR FIRING RANGE	CLOSED		2 floors plus basement
ASSISTED	Non-Responsive - State Maintenance		
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	5		
TRADITIONAL (MIL)	73		
CHILD ACTIVITIES	Facility rented out 3 to 5 times per year		
ADULT ACTIVITIES			

3.1.1. The exterior of the building is brick and appears to be in good condition. The interior has been kept in good condition. The former indoor firing range has been cleaned and is used for mobilization storage. The building utilizes steam heat.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity (RH) in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 Indoor Air Quality Standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ASHRAE 62-2001, Section 6.1.3, states that concentrations up to 700 ppm CO_2, above outdoor concentrations will achieve an acceptable level of indoor air quality.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ASHRAE 55-1992 recommends that temperature ranges be 75 to 79 degrees Fahrenheit (°F) during the summer and 68 to 74°F during the winter. Relative humidity levels be maintained between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE 1
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO_2 (ppm)	Temp. (°F)	RH (%)
0825	Outdoors – Background	0.0	565	63.5	98.0
0840	Drill Floor	0.0	585	65.4	53.3
0845	Kitchen	0.0	556	66.0	51.8
0850	CO A Commander's Office (occupied)	0.0	593	66.5	49.8
0855	Training Office (occupied)	0.0	580	67.1	49.2
0900	Latrine (occupied)	0.0	647	67.8	48.9
0905	CO B Commander's Office	0.0	551	68.3	48.2
0910	2nd Floor Classroom	0.0	613	69.0	42.7
0915	2nd Floor Pubs Room	0.0	574	70.0	38.1
0920	Basement	0.0	542	69.0	47.0
0925	Boiler Room	0.0	538	67.3	53.5
0930	Supply Area – East Side of Assembly Hall	0.0	538	65.8	55.9

3.2.5. No significant indoor air quality problems were noted. Indoor temperatures were below recommended comfort levels in most areas.

3.3. ILLUMINATION

3.3.1. Illumination levels were measured in most areas of the facility. Sunlight was excluded, as much as possible for this survey, by closing doors and blocking windows. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 – 463). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
1ST FLOOR				
Assembly Hall	30 – 46	38	75	NO
Kitchen	20 – 30	26	75	NO
CO A Commander's Office	28 – 76	51	70	NO
Desk	54	54	70	NO
Training Office	32 – 66	50	70	NO
Desk	36	36	70	NO
Latrine	12 – 24	18	40	NO
Recruiting Office	22 – 44	35	70	NO
Desk	24	25	70	NO
CO B Commander's Office	22 – 32	26	70	NO
Desk	24	24	70	NO
Corridor	4 – 38	23	7.5	YES
2ND FLOOR				
Corridor	20 – 28	24	7.5	YES
Classroom	10 – 48	27	75	NO
Pubs Room	18 – 32	24	75	NO
BASEMENT				
Storage	14 – 22	19	30	NO
Latrine	26 – 28	27	40	NO
Shower	18 – 20	19	20	NO
Boiler Room	10 – 28	21	15	YES
1ST FLOOR – EAST SECTION				
Supply Office	12 – 40	26	70	NO
Desk	18	18	70	NO
Storage	6 – 30	18	30	NO
Latrine	16 – 22	20	40	NO

3.3.2. Levels were below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3.4. WIPE SAMPLES

3.4.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples were taken at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot ($\mu g/ft^2$) and are listed in Table 3. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
LEAD WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead ($\mu g/ft^2$)
PA Sun-03119-03	CO B – Training Room	39
PA Sun-03119-04	CO A – Commander's Office	BDL
PA Sun-03119-05	Kitchen	BDL
PA Sun-03119-06	Assembly Hall – East End – Floor	37
PA Sun-03119-07	Former Range – Floor	150
PA Sun-03119-08	BLANK Sample	BDL

$\mu g/ft^2$ = micrograms per square foot BDL = Below Detection Limits

3.4.2. CLOSED FIRING RANGE WIPE SAMPLING

3.4.2.1. Additional wipe samples were collected in the former indoor firing range. This range has been cleaned and is presently being utilized for storage. The laboratory analysis results are listed below in Table 4.

TABLE 4
FORMER FIRING RANGE LEAD WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead ($\mu g/ft^2$)
PA Sun-03119-09	Bullet Trap Floor	1736
PA Sun-03119-10	Locker – ⅓ Way Down Range	222
PA Sun-03119-11	Pipe – ¼ Way Down Range	2727
PA Sun-03119-12	Firing Line Floor	224
PA Sun-03119-13	Outside Range	76
PA Sun-03119-14	BLANK Sample	BDL

$\mu g/ft^2$ = micrograms per square foot BDL = Below Detection Limits

3.4.3. ADDITIONAL LEAD SAMPLING

3.4.3.1. Additional wipe samples were collected during this survey. These samples were taken to further analyze the extent of contamination should the initial samples indicate a possible

hazard. Since the samples taken in the former indoor firing range exceeded the recommended criteria (see Section 3.4.4.), the additional samples were analyzed. The results are listed below in Table 5.

TABLE 5
ADDITIONAL LEAD WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Sun-03119-15	East Area – Storage	BDL
PA Sun-03119-16	Assembly Hall	BDL
PA Sun-03119-17	2nd Floor Classroom	BDL
PA Sun-03119-18	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.4. WIPE SAMPLING RESULTS

3.4.4.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 µg/ft^2. This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. (See memorandum in Attachment E, Recommendations for Surface Lead Dust in Armories.) Four of six samples taken in the former indoor firing range exceeded the 200 µg/ft^2 criteria. Lower levels of lead were detected in the assembly hall.

3.4.5. AIR SAMPLING

3.4.5.1. Air Sampling for inorganic lead was performed during this survey. Table 6 lists the results of these samples, and is reported in milligrams per cubic meter (mg/m³) of air.

TABLE 6
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
[redacted]	PA Sun-03119-01	Lead	<0.002 mg/m³	0.05 mg/m³	YES
Area – Assembly Hall	PA Sun-03119-02	Lead	<0.002 mg/m³	0.05 mg/m³	YES

mg/m³ = milligrams per cubic meter < = less than (below detection limits)

3.4.5.2. Air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this building.

3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION DAMAGE

3.5.1.1. No water intrusion problems were reported or observed within the building.

3.5.2. PROGRAMS

3.5.2.1. There are no designated confined space areas within this facility. A need has not been established for a HAZCOM program, the need for personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.3. HOUSEKEEPING

3.5.3.1. The facility is impressively clean, orderly and is being kept in very good condition.

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

E – Recommendations for Surface Lead in Armories

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
Sunbury, PA	PENNSYLVANIA ARNG ARMORY	Sunbury Armory

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR (Initials)
29 April 2003	JSS

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	NA	SFC [redacted]

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
570-988-5510	CO A + CO B 3/103RD ARMOR BN	3	9

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
5	73			

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	CONROLS 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			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	½ FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	¼ 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 WEATHR BOOTS/MATS	/
FULL FACE SHIELD	/	EARPLUGS	/	COLD WEATHR 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	/		

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	3	C

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

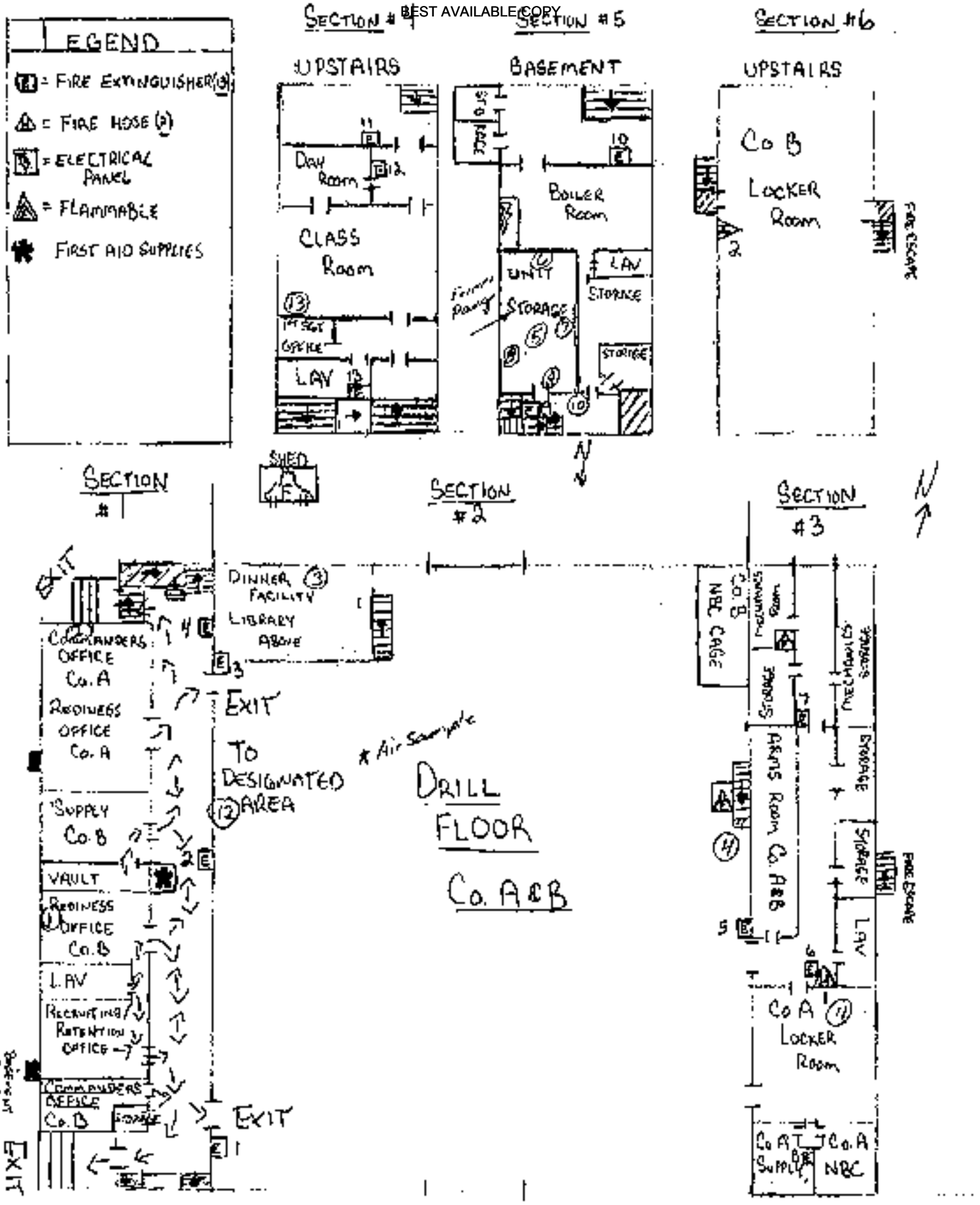
SECTION 6. COMMENTS

☐ No comments ☐ See attached sheet

PRIVACY ACT STATEMENT

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

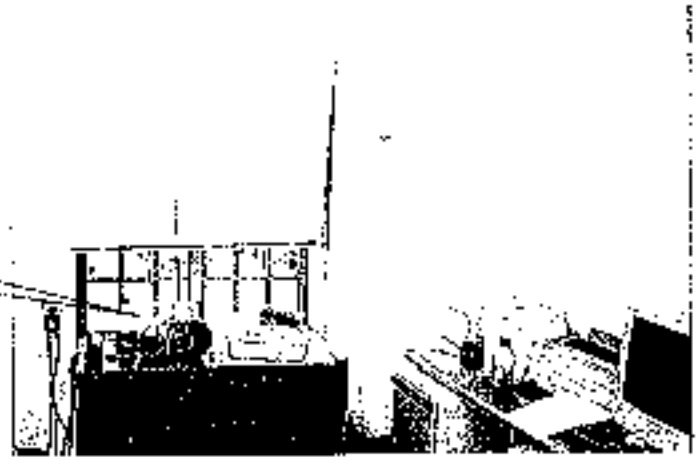
Disclosure of your Social Security Number is not mandatory; however, nondisclosures may result in untimely provision of proper medical monitoring.



SECTION #1 EGRESS

CO A / CO B 3/103rd ARMOR BN
SUNBURY, PENNSYLVANIA
WIPE SAMPLING POINTS

(1) PA Sun-03119-03
CO B – Training Room



(2) PA Sun-03119-04
CO A – Commander's Office

(3) PA Sun-03119-05
Kitchen

Attachment B

(4) PA Sun-03119-06
Assembly Hall - East Side

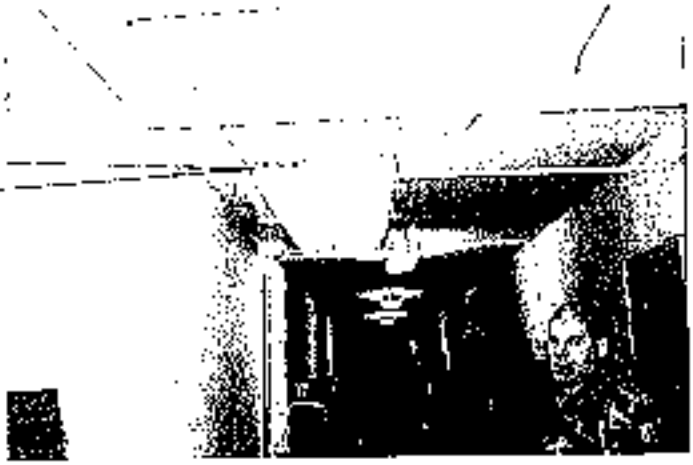
(5) PA Sun-03119-07
Former Range - Floor

CLOSED RANGE SAMPLES

(6) PA Sun-03119-09
Backstop Floor

(7) PA Sun-03119-10
Locker – ¼ Way Down Range

(8) PA Sun-03119-11
Pipe – ¼ Way Down Range



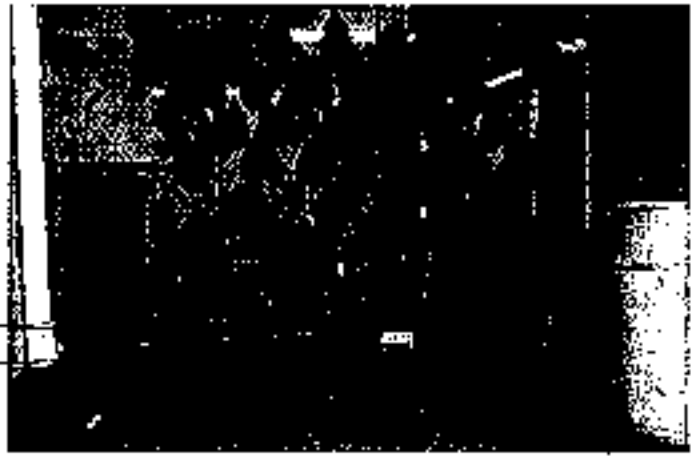
Attachment B

(9) PA Sun-03119-12
Behind Firing Line

(10) PA Sun-03119-13
Outside Former Range
No Photograph

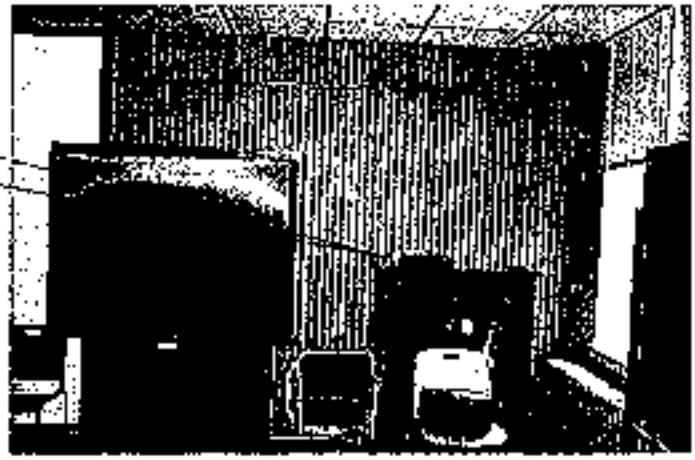
ADDITIONAL SAMPLES

(11) PA Sun-03119-15
Storage Area – East of Assembly Hall



(12) PA Sun-03119-16
Assembly Hall – West Wall

(13) PA Sun-03119-17
2nd Floor - Classroom



Attachment B

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
AIHA Certificate of Accreditation #480 LAB ID 101533

TABLE I. ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	RES 92699-1
Client:	Operational Technologies, Corp.
Client Project Number / P.O.:	DS 01
Client Project Description:	Armories/Pennsylvania
Date Samples Received:	May 8, 2003
Analysis Type:	USEPA SW846 3050B / AA(7420)
Turnaround:	3-5 Day
Date Samples Analyzed:	May 13, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA LOC-03118-05	EM 767335	0.11	BDL	23	BDL
PA LOC-03118-06	EM 767336	0.11	5.0	23	45
PA LOC-03118-07	EM 767337	0.11	7.6	23	69
PA LOC-03118-08	EM 767338	0.11	37.0	23	336
PA LOC-03118-09	EM 767339	0.11	BDL	23	BDL
PA LOC-03118-10	EM 767340	0.11	BDL	23	BDL
PA LOC-03118-11	EM 767341	0.11	2.7	23	25
PA LOC-03118-12	EM 767342	0.11	BDL	23	BDL
PA LOC-03118-13	EM 767343	0.11	BDL	23	BDL
PA LOC-03118-14	EM 767344	0.11	8.3	23	75
PA LOC-03118-15	EM 767345	0.11	3.2	23	29
PA LOC-03118-16	EM 767346	0.11	BDL	23	BDL
PA LEW-03118-24	EM 767347	0.11	BDL	23	BDL
PA LEW-03118-25	EM 767348	0.11	6.3	23	57
PA LEW-03118-26	EM 767349	0.11	8.0	23	73
PA LEW-03118-27	EM 767350	0.11	BDL	23	BDL
PA LEW-03118-28	EM 767351	0.11	10.0	23	91
PA LEW-03118-29	EM 767352	0.11	BDL	23	BDL
PA SUN-03119-03	EM 767353	0.11	4.3	23	39
PA SUN-03119-04	EM 767354	0.11	BDL	23	BDL
PA SUN-03119-05	EM 767355	0.11	BDL	23	BDL
PA SUN-03119-06	EM 767356	0.11	4.1	23	37
PA SUN-03119-07	EM 767357	0.11	16.5	23	150
PA SUN-03119-08	EM 767358	0.11	BDL	23	BDL
PA SUN-03119-09	EM 767359	0.11	191.0	23	1736
PA SUN-03119-10	EM 767360	0.11	24.4	23	222
PA SUN-03119-11	EM 767361	0.11	300.0	23	2727
PA SUN-03119-12	EM 767362	0.11	24.6	23	224
PA SUN-03119-13	EM 767363	0.11	8.4	23	76
PA SUN-03119-14	EM 767364	0.11	BDL	23	BDL

BDL = Below Detection Limit

Data Qa

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m³
PA Loc-03118-02	03-17870	599.6	ND	<0.002
PA Loc-03118-03	03-17871	541.0	ND	<0.002
PA Loc-03118-04	03-17872	531.7	ND	<0.002
PA Lew-03118-22	03-17873	295.2	ND	<0.003
PA Lew-03118-23	03-17874	279.7	ND	<0.004
PA Sun-03119-01	03-17875	410.4	ND	<0.002
PA Sun-03119-02	03-17876	411.6	ND	<0.002
PA Lew-03119-19	03-17877	411.6	ND	<0.002
PA Lew-03119-20	03-17878	398.9	ND	<0.003
PA Lew-03119-21	03-17879	373.4	ND	<0.003
PA Hun-03120-01	03-17880	350.2	ND	<0.003
PA Hun-03120-02	03-17881	341.8	ND	<0.003
PA Joh-03134-01	03-17882	395.3	ND	<0.003
PA Joh-03134-02	03-17883	380.9	ND	<0.003
PA Joh-03134-03	03-17884	349.1	ND	<0.003
PA Joh-03135-01	03-17885	450.7	ND	<0.002
PA Joh-03135-02	03-17886	405.0	ND	<0.002
PA Joh-03135-03	03-17887	381.4	ND	<0.003
PA But-03136-01	03-17888	362.5	ND	<0.003
PA But-03136-02	03-17889	348.3	ND	<0.003
	Prep Blank 6		ND	
% Recovery	LCS 11		96.	
% Recovery	LCS 12		98.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client:	National Guard Bureau	Job Name:	Pennsylvania Armories	Chain Of Custody:	117502
Address:	301-311 Old Bay Lane, Attn: NGB-AVN-SI, State Military Reservation	Job Location:	Not Provided	Date Analyzed:	9/11/2003
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	[redacted]
		P.O. Number:	Not Provided	Report Date:	12-Sep-03

Attention: [redacted]

Page 2 of 3

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft^2)	Reporting Limit		Final Result			Comments
0366431	PAAk-03113-43	Flame	Wipe	****	0.111	108.00	ug/ft^2	<	110	ug/ft^2	
0366432	PAAk-03113-44	Flame	Wipe	****	0.111	108.00	ug/ft^2	<	110	ug/ft^2	
0366433	PATye-03114-10	Flame	Wipe	****	0.111	108.00	ug/ft^2	<	110	ug/ft^2	
0366434	PATye-03114-11	Flame	Wipe	****	0.111	108.00	ug/ft^2	<	110	ug/ft^2	
0366435	PATyr-03114-12	Flame	Wipe	****	0.111	108.00	ug/ft^2	<	110	ug/ft^2	
0366436	PATyr-03114-13	Flame	Wipe	****	0.111	108.00	ug/ft^2	<	110	ug/ft^2	
0366437	PATye-03114-14	Flame	Wipe	****	0.111	108.00	ug/ft^2		530	ug/ft^2	
0366438	PATyr-03114-15	Flame	Wipe	****	0.111	108.00	ug/ft^2	<	110	ug/ft^2	
0366439	PAWH-03115-10	Flame	Wipe	****	0.111	108.00	ug/ft^2	<	110	ug/ft^2	
0366440	PAWH-03115-11	Flame	Wipe	****	0.111	108.00	ug/ft^2	<	110	ug/ft^2	
0366441	PAWH-03115-12	Flame	Wipe	****	0.111	108.00	ug/ft^2	<	110	ug/ft^2	
0366442	PAWH-03115-13	Flame	Wipe	****	0.111	108.00	ug/ft^2	<	110	ug/ft^2	
0366443	PAWH-03115-14	Flame	Wipe	****	0.111	108.00	ug/ft^2	<	110	ug/ft^2	
0366444	PAWH-03115-15	Flame	Wipe	****	0.111	108.00	ug/ft^2	<	110	ug/ft^2	
0366445	PASun-03119-15	Flame	Wipe	****	0.111	108.00	ug/ft^2	<	110	ug/ft^2	
0366446	PASun-03119-16	Flame	Wipe	****	0.111	108.00	ug/ft^2	<	110	ug/ft^2	
0366447	PASun-03119-17	Flame	Wipe	****	0.111	108.00	ug/ft^2	<	110	ug/ft^2	
0366448	PASun-03119-18	Flame	Wipe	****	0.111	108.00	ug/ft^2	<	110	ug/ft^2	
0366449	PALew-03119-35	Flame	Wipe	****	0.111	108.00	ug/ft^2		250	ug/ft^2	
0366450	PALew-03119-36	Flame	Wipe	****	0.111	108.00	ug/ft^2	<	110	ug/ft^2	

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non-Responsive @md.ngb.army.mil

Attachment D

REFERENCE LIST INDEX

1. General Regulations and National Consensus Standards
2. Specific Regulations and Guidance
   a. Abrasive Blasting
   b. Asbestos
   c. Battery Charging Room
   d. Bird and Bat Manure
   e. Bloodborne Pathogens
   f. Chemical Agent Resistant Coating (CARC) Paint
   g. Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE)
   h. Confined Space Entry Program
   i. Design Review
   j. Ergonomics
   k. Flammable Storage Room
   l. Hazard Communication
   m. Hearing Conservation
   n. Indoor Air Quality
   o. Indoor Firing Ranges
   p. Lead
   q. Lighting
   r. Occupational Vision
   s. Paint Spray Booth
   t. Personal Protection
   u. Radiation Protection
   v. Respiratory Protection
   w. Sanitation
   x. Smoking
   y. Vehicle Exhaust
   z. Welding Operation

GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REFERENCE LIST

1. General Regulations and National Consensus Standards
   a. DODI 6055.1, DOD SOH Program, 19 August 1998.
   b. DODI 6055.5, DOD OEH. *[DRAFT]*
   c. DOD 6055.5-M, DOD Occupational Health Surveillance Manual, 13 May 1987.
   d. DODI 6050.5, DOD Hazard Communication, 29 Oct 90. Change 1, 6 May 1996.
   e. AR 40-5, Preventive Medicine, 15 October 1990. [05/2002 Being Updated]
   f. DA PAM 40-5, Preventive Medicine. *[DRAFT]*
   g. AR 385-10, The Army Safety Program, 29 February 2000.
   h. NGR 385-10, ARNG SOH Program, 7 October 1988, Change 1, 29 December 1989.
   i. Title 29, Part 1910, Occupational Safety and Health Standards. [Current Date]
   j. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 2002.
   k. ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th edition, 2001.
   l. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.
   m. TG 141, USACHPPM Industrial Hygiene Sampling Guide, November 1997.
   n. National Safety Council, Fundamentals of Industrial Hygiene, 5th Edition, 2002.
   o. NIOSH, Pocket Guide to Chemical Hazards, 2001.
   p. NFC, A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. [Current date]
   q. ASHRAE Standards. [Current Dates]
   r. ANSI Standards. [Current Dates]

2. Specific Regulations/Guidance
   a. **ABRASIVE BLASTING**
      (1) ANSI Z9.4 1997, Abrasive Blasting Operations - Ventilation and Safe Practices.
      (2) 29 CFR 1910.94 Ventilation
      (3) 42 CFR 84

   b. **ASBESTOS**
      (1) AR 40-5, Preventive Medicine, 15 October 1990. *[05/2002 Being Updated]*
      (2) AR 200-1, Environmental Protection and Enhancement, Chapter 8, 21 February 1997.
      (3) TB MED 513, Guidelines for the Evaluation and Control of Asbestos Exposure, 15 December 1986. *[05/2000 Under Revision as DA PAM 40-513]*
      (4) TG 157, USAEHA, The Installation Asbestos Management Program Assessment Checklists, July 1994.
      (5) 29 CFR 1910.1001
      (6) 29 CFR 1926.58 (prior to 1994 CFR)
      (7) 29 CFR 1926.1101

(8) MEMORANDUM SGPS-PSP, OTSG, subject: AMEDD Role Supporting Asbestos Abatement/Asbestos Management Programs, 19 Jan 89.

(9) EPA, Guidance for Controlling Asbestos-Containing Materials in Buildings, June 1985.

(10) DD Form 2493-1 (Asbestos Exposure, Part I--Initial Medical Questionnaire)

(11) DD Form 2493-2 (Asbestos Exposure, Part II--Periodic Medical Questionnaire)

(12) EPA NESHAPS Asbestos Regulation (40 CFR 61, Subpart M).

c. **BATTERY CHARGING ROOM**

(1) TG 022, USAEHA, page 81, Industrial Hygiene Evaluation Guide, October 1975. *[Out of Print]*

(2) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

d. **BIRD AND BAT MANURE**

(1) TG 142, USAEHA, Managing Health Hazards Associated with Bird and Bat Excrement, Dec 1992.

e. **BLOODBORNE PATHOGENS**

(1) 29 CFR 1910.1030

(2) TG 190, USAEHA, Guide to Managing Occupational Exposure to Bloodborne Pathogens, Jan 94.

f. **CHEMICAL AGENT RESISTANT COATING (CARC) PAINT**

(1) TG 144, USAEHA, Guidelines for Controlling Health Hazards in Painting Operations, 24 August 1987.

(2) DA LTR, USAEHA, HSHB-MI-WR, subject: Respiratory Protection When Spraying CARC, 19 November 1992.

(3) TM 43-0139, Painting Instructions for Army Material, 27 July 1988I Aug 86.

(4) MEMORANDUM SGPS-PSP, OTSG, subject AMEDD, Occupational Health Requirements in Support of Painting in the Army, 22 February 1985.

(5) AR 750-1, Army Materiel Maintenance Policy and Retail Maintenance Operations (Prohibits welding on CARC paint) 1 July 1996.

g. **CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR, EXPLOSIVE (CBRNE)**

(1) DODI 2000.gg, DOD Installation CBRNE Emergency Response Guidelines.

(2) DHHS, NIOSH Pub No. 2002 139, Guidance for Protecting Building Environments from Airborne Chemical, Biological, or Radiological Attacks, May 2002.

(3) TG 275, USACHPPM, Personal Protective Equipment Guide for Medical Treatment Facility Personnel Handling Casualties from Weapons of Mass Destruction and Terrorism Events. *[Draft]*

h. **CONFINED SPACE**

(1) 29 CFR 1910.146 (Confined Space Entry)
(2) 29 CFR 1910.147 (Lockout/Tagout)
(3) ANSI Z117.1-Safety Requirements for Confined Spaces, 1995.
(4) SOP for ARNG Confined Space Entry Program, 25 April 1991.
(5) Letter, US Dept of Labor (DOL) addressed to Vanessa Char, 22 Apr 1994.
(6) OSHA Instruction STD 1-7.3, US DOL, subject: 29 CFR 1910.147, the Control of Hazardous Energy (Lockout/Tagout)--Inspection Procedures and Interpretive Guidance, 11 Sep 90.
(7) DHHS, NIOSH Pub No. 87113, A Guide to Safety in Confined Spaces, July 1987.
(8) Confined Space Entry Program for Helicopters, 2003.

i. **DESIGN REVIEW**

(1) DG 415-1, Design Guide for Armories, current.
(2) DG 415-2, Design Guide for Logistics Facilities, current.
(3) DG 415-3, Design Guide for Training Site Facilities, current.
(4) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.
(5) TI-300, 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.
(6) UFGS 15940A, Overhead Vehicle Tailpipe (and welding Fume) Exhaust Removal Systems, December 2001.
(7) ASHRAE, Standard 62-2002, Ventilation for Acceptable Indoor Air Quality.
(8) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

j. **ERGONOMICS**

(1) DA PAM 40-21, Medical Services, Ergonomics Program, 15 May 2000.
(2) ANSI Z-365, Management of Work Related Musculoskeletal Disorders, 2000.
(3) 29 CFR 1910. *[PROPOSED STANDARD]*

k. **FLAMMABLE STORAGE ROOM**

(1) 29 CFR 1910.106
(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

l. **HAZARD COMMUNICATION**

(1) 29 CFR 1910.1200
(2) NGR 385-10, Chapter 6

m. **HEARING CONSERVATION**

(1) DA PAM 40-501, Medical Services, Hearing Conservation Program, 10 December 1998.

(2) TG 181, USAEHA, Noise Dosimetry and Risk Assessment, May 1999.

(3) TG 175, USAEHA, Readiness thru Hearing Conservation: Guide for Unit Commanders and Supervisors, June 1999.

(4) 29 CFR 1910.95

n. **INDOOR AIR QUALITY (IAQ)**

(1) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

(2) USACERL Technical Report P-91/42, IAQ Management for Operations and Maintenance Personnel, September 1991.

(3) EPA 400/1-91/003 or DHHS, NIOSH, Publication No. 91-114, Building IAQ, A Guide for Building Owners and Facility Managers, December 1991.

(4) ASHRAE, Standard 62-2002, Ventilation for Acceptable IAQ.

(5) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

(6) NIOSH, IAQ Selected References, Sep 1989.

(7) OSHA Instruction CPL 2-2.20B CH-1, Directorate of Technical Support, 13 Nov 90.

(8) DA PAM 25-52, Mail Facility Security and Handling Suspicious Mail, 6 November 2001.

(9) ASTM, D 5952-96, 10 May 1996.

o. **INDOOR FIRING RANGES**

(1) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(2) NGR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges, 30 March 1990. *[11/02 Under Revision]*

(3) CEHND 1110-1-18, USACE Design Manual for Indoor Firing Range, June 1990.

(4) HQDA LTR, Office of the Adjutant General, DACS-SF, subject: Inspection and Evaluation of US Army Indoor Firing Ranges, 26 March 1993.

(5) Departments of the Army and Air Force, NGB-ADE-OM, subject: All State Log Number (I920323) Indoor Range Clean-up at State Owned Armories, 28 July 1992.

(6) NIOSH, Technical Information, December 1975, subject: Lead Exposure and Design Considerations for Indoor Firing Ranges.

(7) All-States Ltr P01-0075, 5 December 2001.

(8) Information Paper, Alternative Ammunition, 15 March 1996.

(9) Information Paper, Bullet Traps, 26 April 1996.

(10) Information Paper, ARNG IFR Action Plan, 28 January 2002.

p. **LEAD**

(1) 29 CFR 1910.1025

(2) 29 CFR 1926.62

(3) 24 CFR 35.61 (HUD, Percentage of Lead in Paint)

(4) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(5) OSHA Instruction CPL 2-2.58, Office of Health Compliance Assistance, 13 December 1993.

(6) Federal Register, 18 April 1990, Vol. 55, No. 75, HUD, Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing, as amended, September 1990, Office of Public and Indian Housing, Department of Housing and Urban Development, 451 Seventh Street, SW, Washington, DC 20410.

(7) NIOSH, Request for Assistance in Preventing Lead Poisoning in Construction Workers, April 1992.

(8) EPA, Strategy for Reducing Lead Exposures, 21 Feb 91.

q. **LIGHTING**

(1) RP-1-1993, Office Lighting, ANSI/IESNA.

(2) RP-7-2001, Industrial Lighting, IES.

r. **OCCUPATIONAL VISION**

(1) DA PAM 40-506, Medical Services, The Army Vision Conservation and Readiness Program, 20 July 2001.

(2) ANSI Z87.1, Practice for Occupational and Educational Eye and Face Protection, 1989, Change A, REAF 1998.

(3) ANSI Z358.1 for Emergency Eyewash and Shower Equipment, 1998.

(4) OTSG Memorandum SGPS-PSP, subject: Acanthamoeba Keratitis and Eyewash Stations, 8 May 89.

(4) 29 CFR 1910.133

s. **PAINT SPRAY BOOTH**

(1) NFPA No. 33, Standard for Spray Application Using Flammable and Combustible Materials, 1995.

(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

(3) 29 CFR 1910.94

(4) 29 CFR 1910.107

(5) ANSI Z9.3-1995 for Exhaust Systems - Spray Finishing Operations - Safety Code for Design, Construction, and Ventilation.

(6) ANSI Z9.2-2001, Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems.

t. **PERSONAL PROTECTIVE EQUIPMENT**

(1) Quick Selection Guide to Chemical Protective Clothing, 2nd edition, Forsberg, K and Mansdorf, S., 1993.

(2) Chemical Protective Clothing, Vol 1 and 2, Johnson, J. and Anderson, K., American Industrial Hygiene Association, 1990.

(3) Guidelines for the Selection of Chemical Protective Clothing, 3rd Edition, ACGIH, Inc., Feb 1987.

u. **RADIATION PROTECTION PROGRAM**

(1) NGR 385-11, Safety, Ionizing and Nonionizing Radiation Protection, 18 February 1999.

(2) AR 11-9, Army Radiation Safety Program, 28 May 1999.

(3) 29 CFR 1910.96

(4) 29 CFR 1910.97

v. **RESPIRATORY PROTECTION**

(1) AR 11-34, The Army Respiratory Protection Program, 15 February 1990. *[11/02 Being Updated]*

(2) 29 CFR 1910.134

(3) 42 CFR 84

(4) TB MED 502, Respiratory Protection Program, February 1992. *[11/02 Being Updated as DA PAM 40-502]*

(5) ANSI/CGA G-7.1-1997, Commodity Specification for Air.

(6) ANSI Z88.2-1992, Standard for Respiratory Protection.

w. **SANITATION**

(1) ANSI Z4.1-1986, Change REAF 1995, Sanitation in Places of Employment-Minimum Requirements.

(2) 29 CFR 1910.141

x. **SMOKING**

(1) AR 600-63, Army Health Promotion, 28 April 1996.

(2) DODI 1010.15, Smoke-Free DOD Facilities, 2 January 2001.

(3) DODD1010.10, Health Promotion, 11 March 1986.

y. **VEHICLE EXHAUST**

(1) ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th Edition, 2001.

(2) TI-300f 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

z. **WELDING OPERATION**

(1) 29 CFR 1910.252

(2) 29 CFR 1910.253

(3) 29 CFR 1910.254

(4) ANSI/AWS Z49.1-1999, Safety in Welding and Cutting and Allied Processes.

(5) TM 5-805-7, Welding Design, Procedures and Inspection, 20 May 85.

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(b)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 $\mu g/ft^2$) and windowsills (250 $\mu g/ft^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of 200 $\mu g/ft^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 $\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 $\mu g/ft^2$ on floors and 250 $\mu g/ft^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

Industrial Hygiene Survey

CO B 2/103rd ARMOR BN

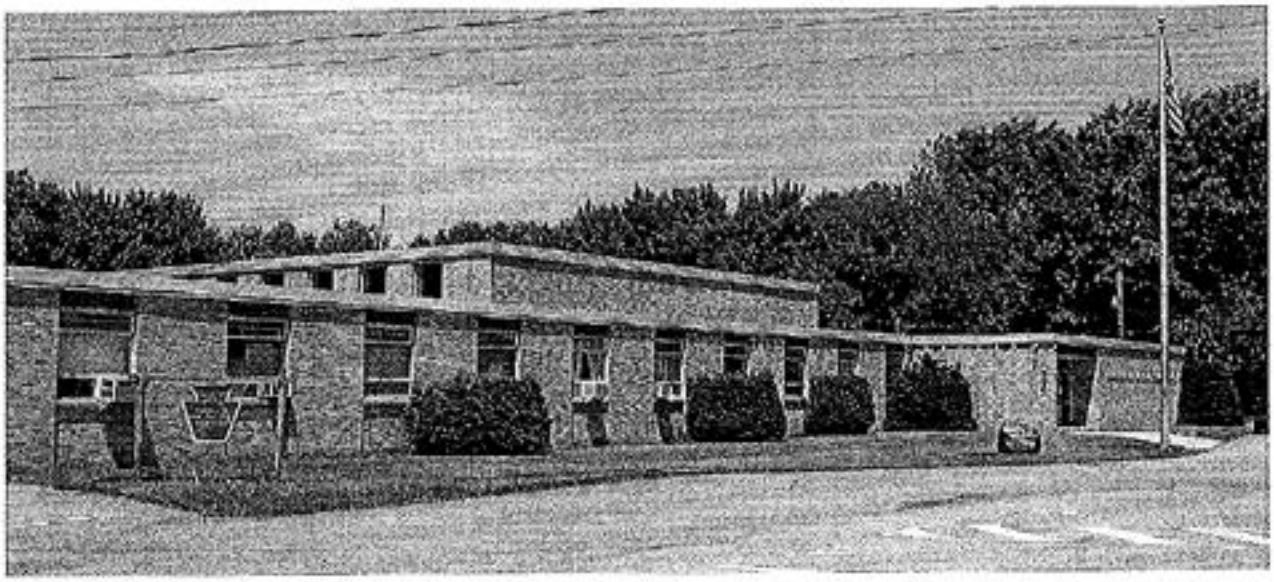
TAMAQUA, PENNSYLVANIA

June 19, 2003

OPTECH

OPERATIONAL TECHNOLOGIES
CORPORATION

CO B 2/103rd ARMOR BN
TAMAQUA, PENNSYLVANIA
INDUSTRIAL HYGIENE SURVEY



1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Armory in Tamaqua, Pennsylvania on June 19, 2003. The NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. Non-Responsive from OpTech, completed this survey. Non-Responsive a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the IH Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D.

RECOMMENDATIONS

1. INDOOR AIR QUALITY

1.1. Carbon monoxide and carbon dioxide levels were within recommended ranges. Indoor temperatures were slightly higher than recommended comfort ranges the kitchen. Relative humidity levels were above the 60% recommended limit in almost all areas of the facility. Humidity should be maintained below 60% relative humidity for occupant comfort and controlling mold growth. No mold was observed during the survey.

2. ILLUMINATION

2.1. Illumination levels were below recommended minimum standards in some areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3. LEAD

3.1. Wipe samples for inorganic lead were collected throughout the facility. All results were below the 200 $\mu g/ft^2$ criteria; however, lower levels were detected throughout the facility. Suspect that lead dust from former firing range activities has migrated throughout the facility. Recommend that the facility be wet-wiped/mopped and/or cleaned with a high efficiency particulate air (HEPA) vacuum during routine housekeeping duties to further reduce lead dust levels.

2.0. EXECUTIVE SUMMARY

2.1. Carbon monoxide and carbon dioxide levels were within recommended ranges. Indoor temperatures were slightly higher than recommended comfort ranges the kitchen. Relative humidity levels were above the 60% recommended limit in almost all areas of the facility. Humidity should be maintained below 60% relative humidity for occupant comfort and controlling mold growth. No mold was observed during the survey.

2.2. Illumination levels were below recommended minimum standards in some areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

2.3. Wipe samples for inorganic lead were collected throughout the facility. All results were below the 200 $\mu g/ft^2$ criteria; however, lower levels were detected throughout the facility. Suspect that lead dust from former firing range activities has migrated throughout the facility.

2.4. Air sampling for inorganic lead was taken. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	CO B 2/103RD ARMOR BN		
ADDRESS	106 Ardmore Ave		
	Tamaqua, PA 18252		
CONTACT	SFC [redacted]		
PHONE	570-668-1850		
DATE BUILT	1963	FACILITY SIZE	15,679 sq. ft.
INDOOR FIRING RANGE	CLOSED		1-floor
ASSISTED			
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	2		
TRADITIONAL (MIL)	70		
CHILD ACTIVITIES	This facility has had the circus as well as other public held events.		
ADULT ACTIVITIES			

3.1.1. The exterior is brick and appears to be in good condition. The interior has been kept in good condition. A steam furnace provides heat. Window air conditioning units are used for cooling.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity (RH) in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 Indoor Air Quality Standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ASHRAE 62-2001, Section 6.1.3, states that concentrations up to 700 ppm CO_2, above outdoor concentrations will achieve an acceptable level of indoor air quality.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ASHRAE 55-1992 recommends that temperature ranges be 73 to 79 degrees Fahrenheit (°F) during the summer and 68 to 74°F during the winter. Relative humidity levels be maintained between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE 1
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO2 (ppm)	Temp. (°F)	RH (%)
1355	Outdoors – Background	0.0	482	80.2	63.5
1415	Break Room (occupied)	0.0	540	73.8	58.0
1418	Assembly Hall	0.0	530	75.6	59.2
1422	Kitchen	0.0	526	82.3	65.7
1425	Locker Room	0.0	518	76.6	63.4
1431	Male Latrine	0.0	522	75.4	64.1
1434	State Maintenance	0.0	518	74.1	63.2
1438	Classroom	0.0	526	73.8	62.1
1442	Lobby Room	0.0	524	74.5	62.4
1446	Female Latrine	0.0	520	73.9	63.1
1449	Day Room	0.0	518	74.6	63.2
1450	Office # 6 (occupied)	0.0	545	73.4	58.4
1453	Office # 5	0.0	536	74.5	61.2
1456	Former Indoor Firing Range	0.0	521	73.3	62.8
1459	Hallway	0.0	522	72.1	63.4

3.2.5. Carbon monoxide and carbon dioxide levels were within recommended ranges. Indoor temperatures were slightly higher than recommended comfort ranges the kitchen. Relative humidity levels were above the 60% recommended limit in almost all areas of the facility. Humidity should be maintained below 60% relative humidity for occupant comfort and controlling mold growth. No mold was observed during the survey.

3.3. ILLUMINATION

3.3.1. Illumination levels were measured in most areas of the facility. Sunlight was excluded, as much as possible for this survey, by closing doors and blocking windows. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 - 463). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
Locker Room	32 – 44	40	40	YES
Male Latrine	42 – 56	50	40	YES
Kitchen	46 – 62	51	75	NO
State Maintenance	40 - 46	43	15	YES
Classroom	34 46	40	75	NO
Female Latrine	36 – 40	39	40	NO
Day Room	42 – 58	50	30	YES
Office # 5	46 – 52	49	70	NO
Office # 6	48 52	50	70	NO
Hallway	28 - 42	37	30	YES
Former Indoor Firing Range	38 – 46	42	40	YES

3.3.2. Levels were below recommended minimum standards in some areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3.4. WIPE SAMPLES

3.4.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples were taken at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot ($\mu g/ft^2$) and are listed in Table 3. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead ($\mu g/ft^2$)
PA Tam-03170-03	Break Room - pipe	38
PA Tam-03170-04	Assembly Hall	27
PA Tam-03170-05	Kitchen Top of refrigerator	105
PA Tam-03170-06	Hallway Heater	26
PA Tam-03170-07	SGT Holmes' Office	41
PA Tam-03170-08	BLANK Sample	BDL

$\mu g/ft^2$ - micrograms per square foot BDL - Below Detection Limits

3.4.2 Additional wipe samples were collected during this survey. These samples were collected to further analyze the extent of contamination should the first five samples indicate a possible hazard. Since the first five analyzed, samples did not exceed the 200 µg/ft^2 criterion (see Section 3.4.4 below), these additional samples were not analyzed.

3.4.3. CLOSED FIRING RANGE WIPE SAMPLING

3.4.3.1. Additional wipe samples were collected in the former indoor firing range. This area is presently being utilized for storage. Cleaning of the range was completed the day prior to this survey. The laboratory analysis results are listed in Table 4.

TABLE 4
FORMER FIRING RANGE WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Tam-03170-15	Hand Rail	132
PA Tam-03170-16	Storage Cage	168
PA Tam-03170-17	Floor	BDL
PA Tam-03170-18	Wall Bracket	BDL
PA Tam-03170-19	Table (stored equipment)	50
PA Tam-03170-20	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.4. WIPE SAMPLING RESULTS

3.4.2.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 µg/ft^2. This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. (See memorandum in Attachment E, Recommendations for Surface Lead Dust in Armories.) All results were below the 200 µg/ft^2 criteria; however, lower levels were detected throughout the facility. Suspect that lead dust from former firing range activities has migrated throughout the facility.

3.4.5. AIR SAMPLING

3.4.5.1. Air Sampling for inorganic lead was performed during this survey. Table 5 lists the results of these samples, and is reported in milligrams per cubic meter (mg/m^3) of air.

TABLE 5
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
[redacted]	PA Tam-03170-01	Lead	<0.004 mg/m³	0.05 mg/m³	YES
Area – Kitchen	PA Tam-03170-02	Lead	<0.004 mg/m³	0.05 mg/m³	YES

mg/m³ = milligrams per cubic meter < = less than (below detection limits)

3.4.4.2. Air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this building.

3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION DAMAGE

3.5.1.1. No water damage was reported or observed.

3.5.2. PROGRAMS

3.5.4.1. There are no designated confined space areas within this facility. There are no exhaust ventilation systems to control a hazard. No chemicals besides normal cleaning materials are present. Therefore, a need has not been established for a HAZCOM program, the need for personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.3. HOUSEKEEPING

3.5.3.1. The facility is kept impressively clean and orderly.

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

E – Recommendations for Surface Lead in Armories

F – Field Notes
- Equipment Listing

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
Tamaqua, PA	PENNSYLVANIA ARNG ARMORY	Tamaqua Armory

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR (initials)
19 June 2003	JSS

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	NA	SFC Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
570-668-1850	Co B 2/103 ARMOR BN	3	9

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
2	70			

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	CONROLS 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			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	½ FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	¼ 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 WEATHR 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	/		

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	3	C

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

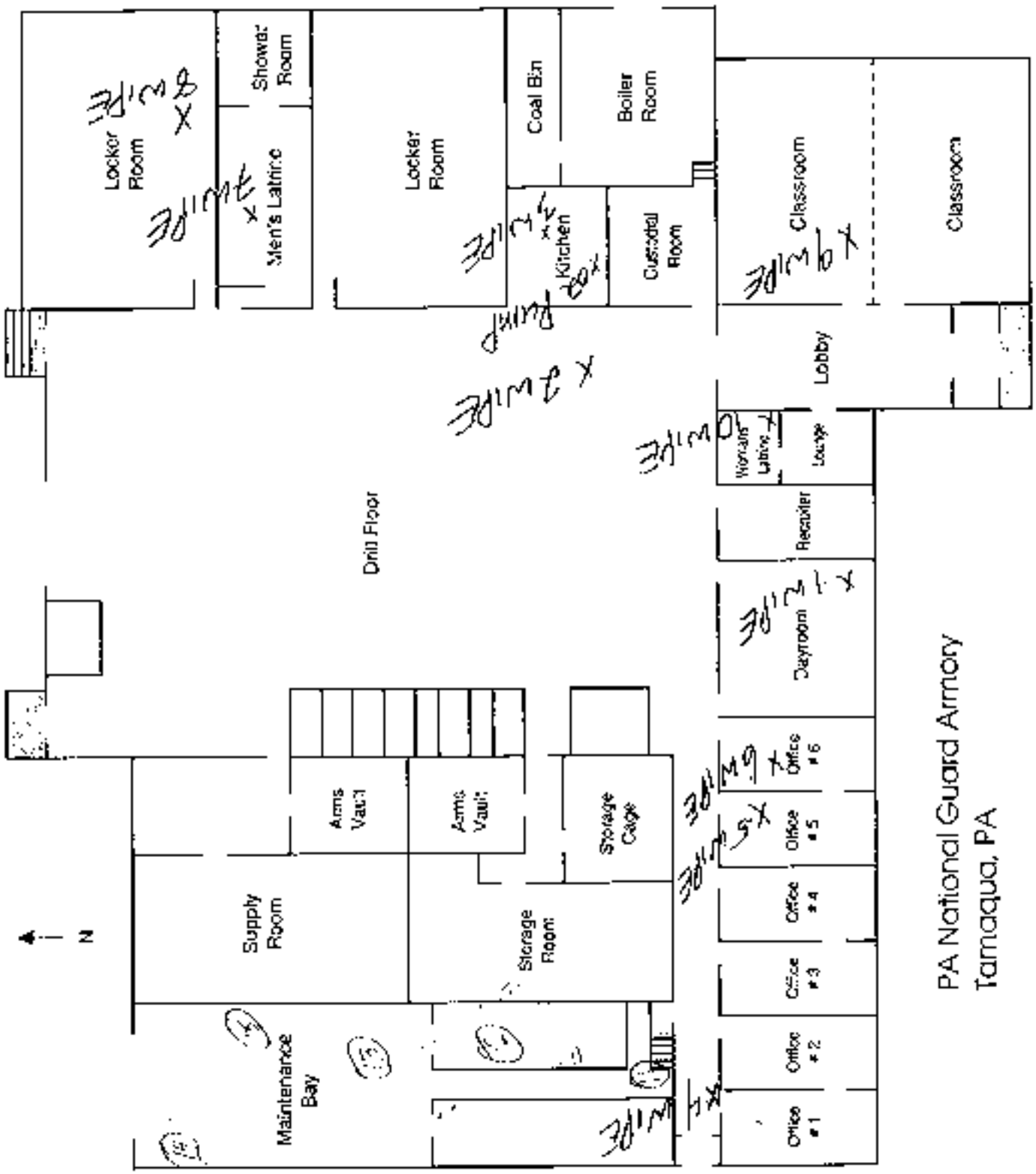
SECTION 6. COMMENTS

☐ No comments ☐ See attached sheet

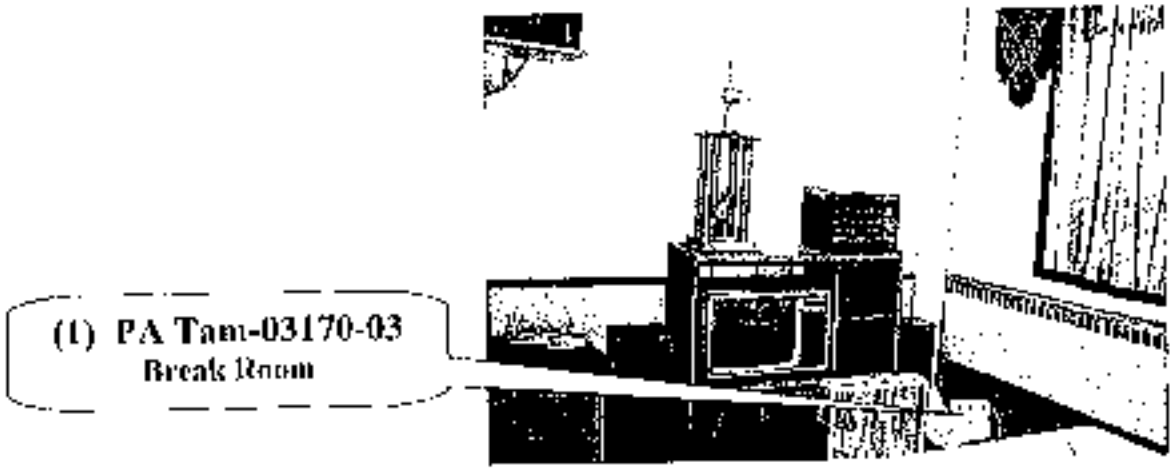
PRIVACY ACT STATEMENT

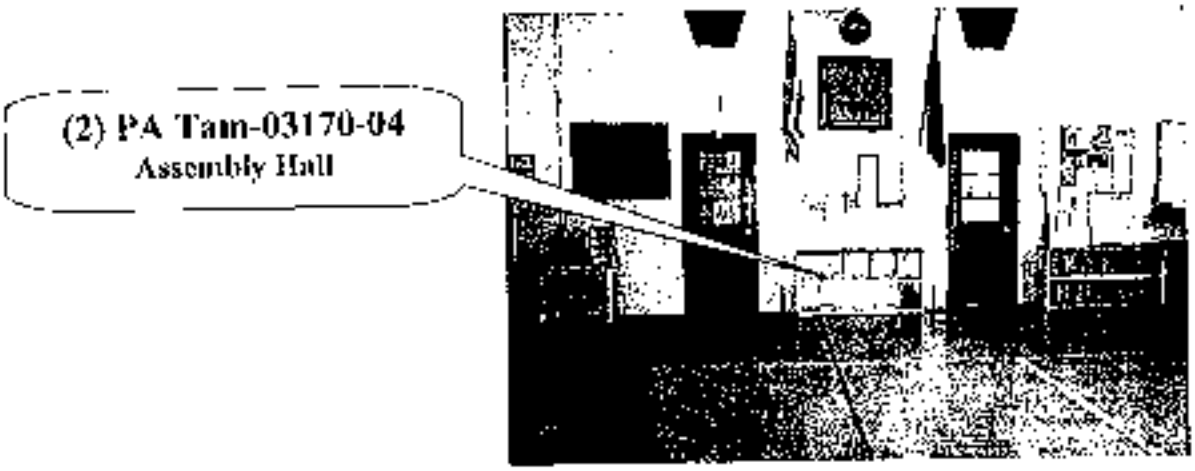
Title 5 US Code, Section 301; Executive Order 9397 authorized the use of your Social Security Number as an identification number. The purpose of this information is to identify and monitor data relating each DA civilian and military employee exposed to a hazardous workplace or operation. The use of this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

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

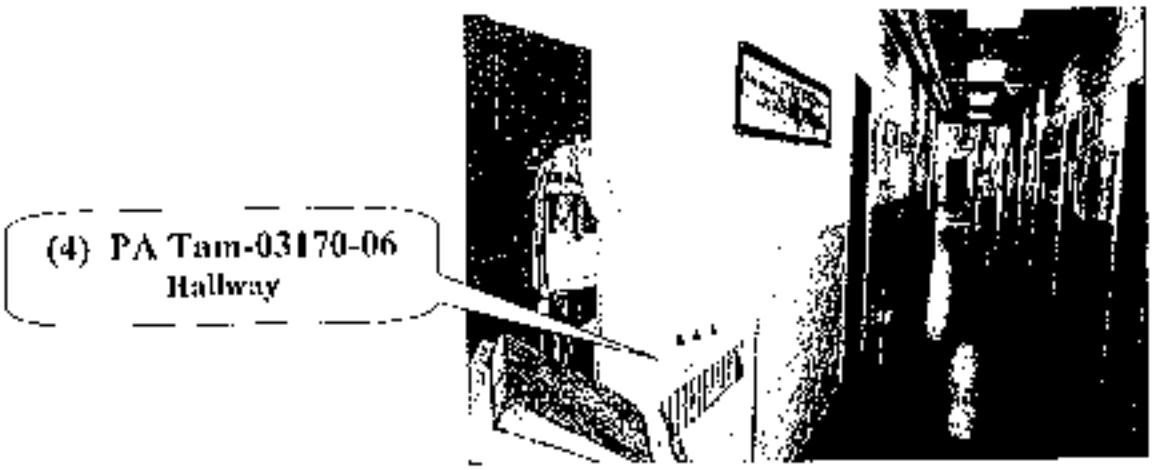


CO B 2/103RD ARMOR BN
TAMAQUA, PENNSYLVANIA

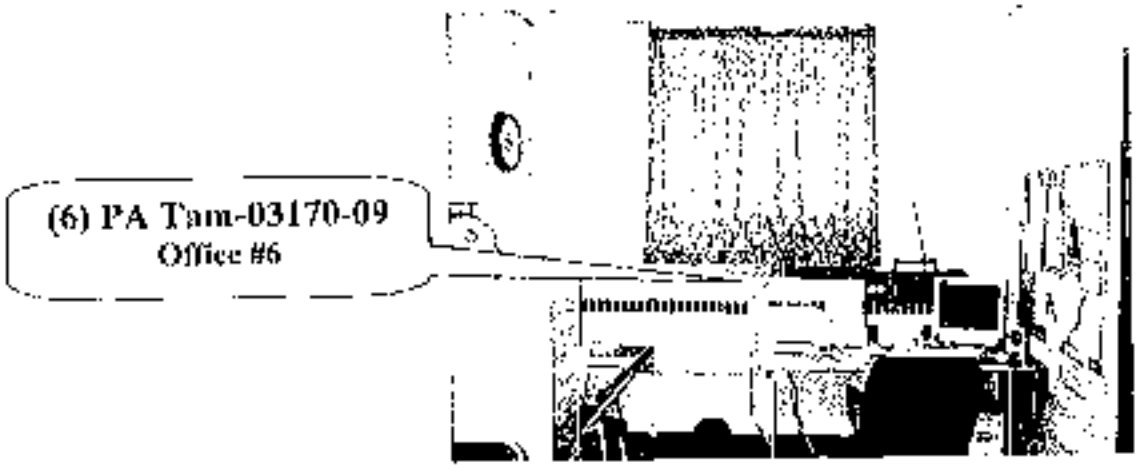




Attachment B

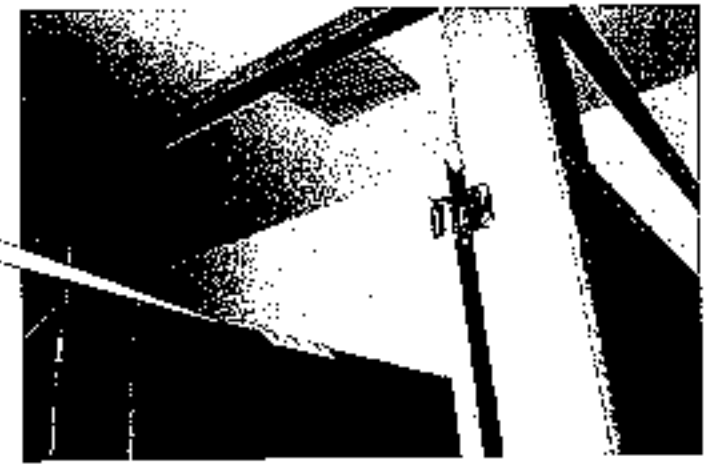


Additional Samples

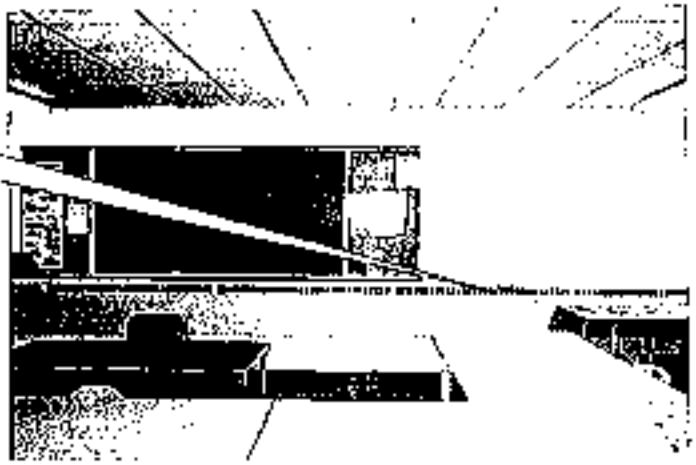


Attachment B

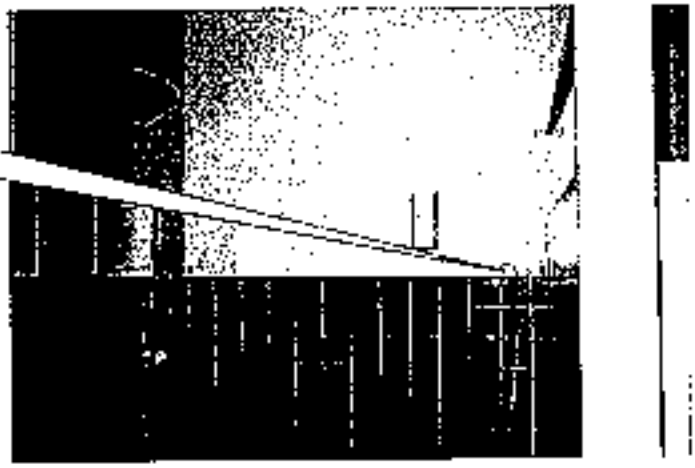
(7) PA Tam-03170-10
Male Latrine



(9) PA Tam-03170-12
Classroom

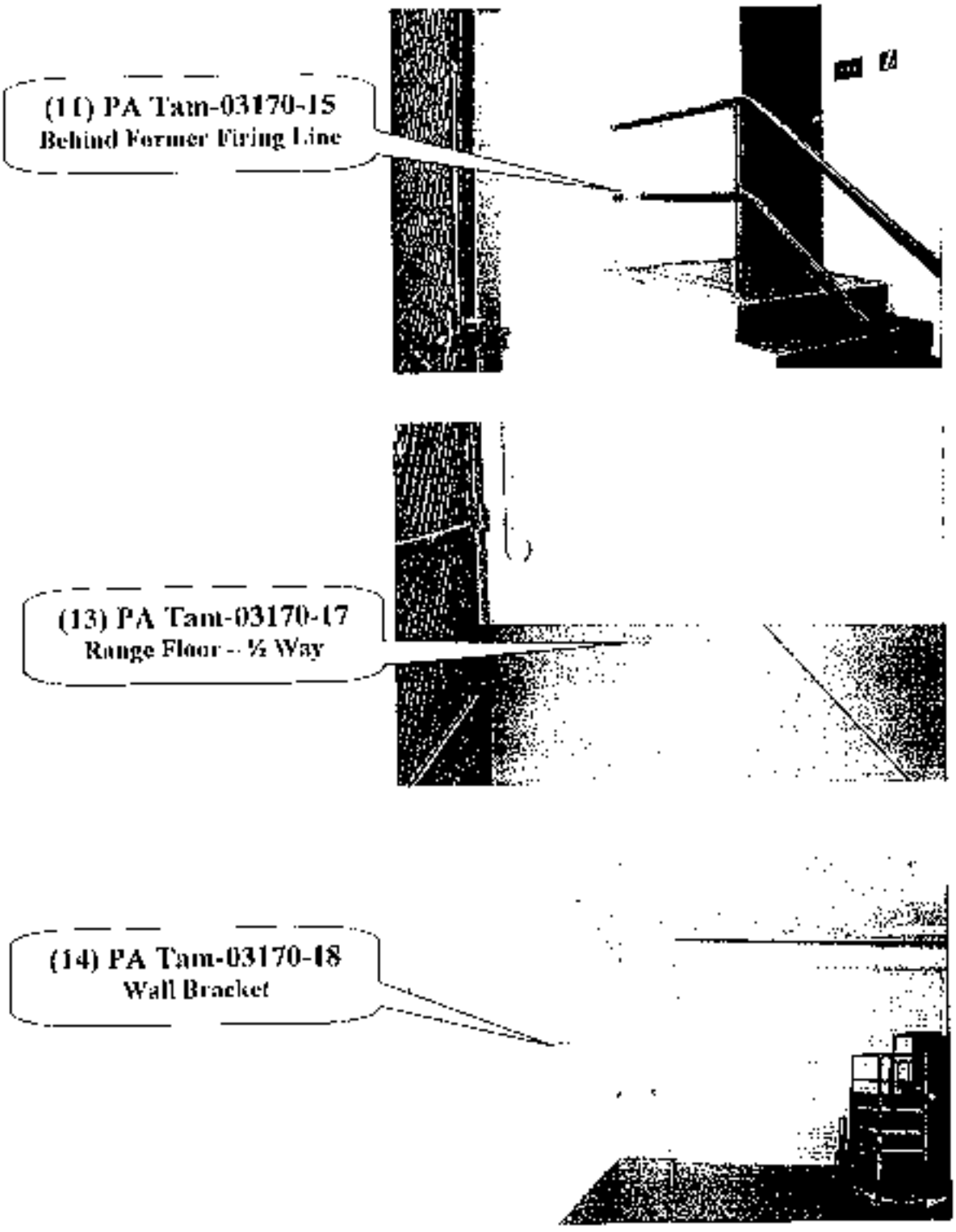


(10) PA Tam-03170-13
Female Latrine

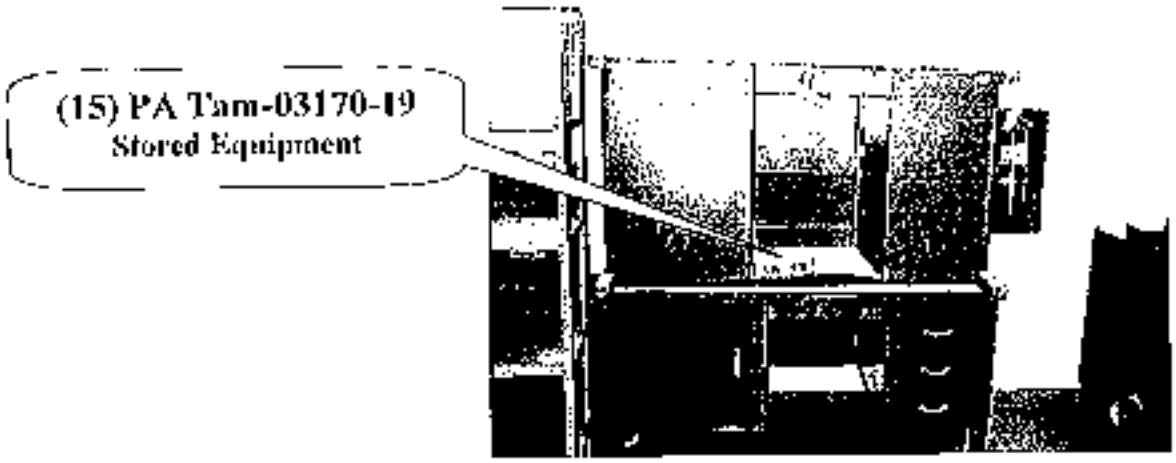


Attachment B

Former Indoor Firing Range Samples



Attachment B



Attachment 19

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
ABIA Certificate of Accreditation #4801.A(3)0 101533

TABLE ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	RES 95335-1
Client:	Operational Technologies, Corp.
Client Project Number / P.O.:	06 03
Client Project Description:	Anamortes/ Pennsylvania
Date Samples Received:	July 11, 2003
Analysis Type:	USEPA SW846 3050B / AA(7420)
Turnaround:	3-5 Day
Date Samples Analyzed:	July 15, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA TAM-03170-03	EM 794490	0.11	4.2	23	38
PA TAM-03170-04	EM 794491	0.11	3.0	23	27
PA TAM-03170-05	EM 794492	0.11	11.5	23	105
PA TAM-03170-06	EM 794493	0.11	2.9	23	26
PA TAM-03170-07	EM 794494	0.11	4.5	23	41
PA TAM-03170-08	EM 794495	0.11	BDL	23	BDL
PA TAM-03170-15	EM 794496	0.11	14.5	23	132
PA TAM-03170-16	EM 794497	0.11	18.5	23	168
PA TAM-03170-17	EM 794498	0.11	BDL	23	BDL
PA TAM-03170-18	EM 794499	0.11	BDL	23	BDL
PA TAM-03170-19	EM 794500	0.11	5.5	23	50
PA TAM-03170-20	EM 794501	0.11	BDL	23	BDL
PA POT-03170-24	EM 794502	0.11	5.3	23	48
PA POT-03170-25	EM 794503	0.11	20.5	23	186
PA POT-03170-26	EM 794504	0.11	8.2	23	75
PA POT-03170-27	EM 794505	0.11	5.0	23	45
PA POT-03170-28	EM 794506	0.11	282.0	23	2564
PA POT-03170-29	EM 794507	0.11	BDL	23	BDL
PA POT-03170-36	EM 794508	0.11	558.0	23	5073
PA POT-03170-37	EM 794509	0.11	15.9	23	145
PA POT-03170-38	EM 794510	0.11	4.3	23	39
PA POT-03170-39	EM 794511	0.11	6.7	23	61
PA POT-03170-40	EM 794512	0.11	4.5	23	41
PA POT-03170-41	EM 794513	0.11	BDL	23	BDL
PA BER-03171-03	EM 794514	0.11	4.6	23	42
PA BER-03171-04	EM 794515	0.11	8.0	23	73
PA BER-03171-05	EM 794516	0.11	8.1	23	74
PA BER-03171-06	EM 794517	0.11	38.0	23	345
PA BER-03171-07	EM 794518	0.11	6.0	23	55
PA BER-03171-08	EM 794519	0.11	BDL	23	BDL

BDL = Below Detection Limit

Data Qa

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m³
PA Scr-03162-01	03-20684	260.9	ND	<0.004
PA Scr-03162-02	03-20685	251.7	ND	<0.004
PA Hon-03162-22	03-20686	248.7	ND	<0.004
PA Hon-03162-23	03-20687	237.0	ND	<0.004
PA Ply-03163-01	03-20688	378.1	ND	<0.003
PA Ply-03163-02	03-20689	381.3	ND	<0.003
PA Nan-03163-22	03-20690	351.2	ND	<0.003
PA Nan-03163-23	03-20691	336.9	ND	<0.003
PA All-03168-01	03-20692	503.8	ND	<0.002
PA All-03168-02	03-20693	478.0	ND	<0.002
PA Bet-03168-22	03-20694	276.5	ND	<0.004.
PA Bet-03168-23	03-20695	282.1	ND	<0.004
PA Eas-03169-01	03-20696	297.9	ND	<0.003
PA Eas-03169-02	03-20697	279.3	ND	<0.004
PA Eas-03169-16	03-20698	234.7	ND	<0.004
PA Eas-03169-17	03-20699	226.7	ND	<0.004
PA Tam-03170-01	03-20700	249.6	ND	<0.004
PA Tam-03170-02	03-20701	241.5	ND	<0.004
PA Pot-03170-22	03-20702	420.5	ND	<0.002
PA Pot-03170-23	03-20703	413.6	ND	<0.002
	Prep Blank		ND	
% Recovery	LCS 3		99.	
% Recovery	LCS 4		101.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

[redacted]
Analyst

[redacted]
Reviewed

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non-Responsive@md.ngb.army.mil

Attachment D

REFERENCE LIST INDEX

1. General Regulations and National Consensus Standards
2. Specific Regulations and Guidance
   a. Abrasive Blasting
   b. Asbestos
   c. Battery Charging Room
   d. Bird and Bat Manure
   e. Bloodborne Pathogens
   f. Chemical Agent Resistant Coating (CARC) Paint
   g. Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE)
   h. Confined Space Entry Program
   i. Design Review
   j. Ergonomics
   k. Flammable Storage Room
   l. Hazard Communication
   m. Hearing Conservation
   n. Indoor Air Quality
   o. Indoor Firing Ranges
   p. Lead
   q. Lighting
   r. Occupational Vision
   s. Paint Spray Booth
   t. Personal Protection
   u. Radiation Protection
   v. Respiratory Protection
   w. Sanitation
   x. Smoking
   y. Vehicle Exhaust
   z. Welding Operation

GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REFERENCE LIST

1. General Regulations and National Consensus Standards
   a. DODI 6055.1, DOD SOH Program, 19 August 1998.
   b. DODI 6055.5, DOD OEH. *[DRAFT]*
   c. DOD 6055.5-M, DOD Occupational Health Surveillance Manual, 13 May 1987.
   d. DODI 6050.5, DOD Hazard Communication, 29 Oct 90. Change 1, 6 May 1996.
   e. AR 40-5, Preventive Medicine, 15 October 1990. [05/2002 Being Updated]
   f. DA PAM 40-5, Preventive Medicine. *[DRAFT]*
   g. AR 385-10, The Army Safety Program, 29 February 2000.
   h. NGR 385-10, ARNG SOH Program, 7 October 1988, Change 1, 29 December 1989.
   i. Title 29, Part 1910, Occupational Safety and Health Standards. [Current Date]
   j. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 2002.
   k. ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th edition, 2001.
   l. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.
   m. TG 141, USACHPPM Industrial Hygiene Sampling Guide, November 1997.
   n. National Safety Council, Fundamentals of Industrial Hygiene, 5th Edition, 2002.
   o. NIOSH, Pocket Guide to Chemical Hazards, 2001.
   p. NFC, A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. [Current date]
   q. ASHRAE Standards. [Current Dates]
   r. ANSI Standards. [Current Dates]

2. Specific Regulations/Guidance
   a. **ABRASIVE BLASTING**
      (1) ANSI Z9.4 1997, Abrasive Blasting Operations - Ventilation and Safe Practices.
      (2) 29 CFR 1910.94 Ventilation
      (3) 42 CFR 84

   b. **ASBESTOS**
      (1) AR 40-5, Preventive Medicine, 15 October 1990. *[05/2002 Being Updated]*
      (2) AR 200-1, Environmental Protection and Enhancement, Chapter 8, 21 February 1997.
      (3) TB MED 513, Guidelines for the Evaluation and Control of Asbestos Exposure, 15 December 1986. *[05/2000 Under Revision as DA PAM 40-513]*
      (4) TG 157, USAEHA, The Installation Asbestos Management Program Assessment Checklists, July 1994.
      (5) 29 CFR 1910.1001
      (6) 29 CFR 1926.58 (prior to 1994 CFR)
      (7) 29 CFR 1926.1101

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(9) EPA, Guidance for Controlling Asbestos-Containing Materials in Buildings, June 1985.

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(5) AR 750-1, Army Materiel Maintenance Policy and Retail Maintenance Operations (Prohibits welding on CARC paint) 1 July 1996.

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(3) ANSI Z117.1-Safety Requirements for Confined Spaces, 1995.
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(8) Confined Space Entry Program for Helicopters, 2003.

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(5) TI-300, 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.
(6) UFGS 15940A, Overhead Vehicle Tailpipe (and welding Fume) Exhaust Removal Systems, December 2001.
(7) ASHRAE, Standard 62-2002, Ventilation for Acceptable Indoor Air Quality.
(8) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

j. **ERGONOMICS**

(1) DA PAM 40-21, Medical Services, Ergonomics Program, 15 May 2000.
(2) ANSI Z-365, Management of Work Related Musculoskeletal Disorders, 2000.
(3) 29 CFR 1910. *[PROPOSED STANDARD]*

k. **FLAMMABLE STORAGE ROOM**

(1) 29 CFR 1910.106
(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

l. **HAZARD COMMUNICATION**

(1) 29 CFR 1910.1200
(2) NGR 385-10, Chapter 6

m. **HEARING CONSERVATION**

(1) DA PAM 40-501, Medical Services, Hearing Conservation Program, 10 December 1998.

(2) TG 181, USAEHA, Noise Dosimetry and Risk Assessment, May 1999.

(3) TG 175, USAEHA, Readiness thru Hearing Conservation: Guide for Unit Commanders and Supervisors, June 1999.

(4) 29 CFR 1910.95

n. **INDOOR AIR QUALITY (IAQ)**

(1) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

(2) USACERL Technical Report P-91/42, IAQ Management for Operations and Maintenance Personnel, September 1991.

(3) EPA 400/1-91/003 or DHHS, NIOSH, Publication No. 91-114, Building IAQ, A Guide for Building Owners and Facility Managers, December 1991.

(4) ASHRAE, Standard 62-2002, Ventilation for Acceptable IAQ.

(5) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

(6) NIOSH, IAQ Selected References, Sep 1989.

(7) OSHA Instruction CPL 2-2.20B CH-1, Directorate of Technical Support, 13 Nov 90.

(8) DA PAM 25-52, Mail Facility Security and Handling Suspicious Mail, 6 November 2001.

(9) ASTM, D 5952-96, 10 May 1996.

o. **INDOOR FIRING RANGES**

(1) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(2) NGR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges, 30 March 1990. *[11/02 Under Revision]*

(3) CEHND 1110-1-18, USACE Design Manual for Indoor Firing Range, June 1990.

(4) HQDA LTR, Office of the Adjutant General, DACS-SF, subject: Inspection and Evaluation of US Army Indoor Firing Ranges, 26 March 1993.

(5) Departments of the Army and Air Force, NGB-ADE-OM, subject: All State Log Number (I920323) Indoor Range Clean-up at State Owned Armories, 28 July 1992.

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(8) Information Paper, Alternative Ammunition, 15 March 1996.

(9) Information Paper, Bullet Traps, 26 April 1996.

(10) Information Paper, ARNG IFR Action Plan, 28 January 2002.

p. **LEAD**

(1) 29 CFR 1910.1025

(2) 29 CFR 1926.62

(3) 24 CFR 35.61 (HUD, Percentage of Lead in Paint)

(4) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

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(7) NIOSH, Request for Assistance in Preventing Lead Poisoning in Construction Workers, April 1992.

(8) EPA, Strategy for Reducing Lead Exposures, 21 Feb 91.

q. **LIGHTING**

(1) RP-1-1993, Office Lighting, ANSI/IESNA.

(2) RP-7-2001, Industrial Lighting, IES.

r. **OCCUPATIONAL VISION**

(1) DA PAM 40-506, Medical Services, The Army Vision Conservation and Readiness Program, 20 July 2001.

(2) ANSI Z87.1, Practice for Occupational and Educational Eye and Face Protection, 1989, Change A, REAF 1998.

(3) ANSI Z358.1 for Emergency Eyewash and Shower Equipment, 1998.

(4) OTSG Memorandum SGPS-PSP, subject: Acanthamoeba Keratitis and Eyewash Stations, 8 May 89.

(4) 29 CFR 1910.133

s. **PAINT SPRAY BOOTH**

(1) NFPA No. 33, Standard for Spray Application Using Flammable and Combustible Materials, 1995.

(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

(3) 29 CFR 1910.94

(4) 29 CFR 1910.107

(5) ANSI Z9.3-1995 for Exhaust Systems - Spray Finishing Operations - Safety Code for Design, Construction, and Ventilation.

(6) ANSI Z9.2-2001, Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems.

t. **PERSONAL PROTECTIVE EQUIPMENT**

(1) Quick Selection Guide to Chemical Protective Clothing, 2nd edition, Forsberg, K and Mansdorf, S., 1993.

(2) Chemical Protective Clothing, Vol 1 and 2, Johnson, J. and Anderson, K., American Industrial Hygiene Association, 1990.

(3) Guidelines for the Selection of Chemical Protective Clothing, 3rd Edition, ACGIH, Inc., Feb 1987.

u. **RADIATION PROTECTION PROGRAM**

(1) NGR 385-11, Safety, Ionizing and Nonionizing Radiation Protection, 18 February 1999.

(2) AR 11-9, Army Radiation Safety Program, 28 May 1999.

(3) 29 CFR 1910.96

(4) 29 CFR 1910.97

v. **RESPIRATORY PROTECTION**

(1) AR 11-34, The Army Respiratory Protection Program, 15 February 1990. *[11/02 Being Updated]*

(2) 29 CFR 1910.134

(3) 42 CFR 84

(4) TB MED 502, Respiratory Protection Program, February 1992. *[11/02 Being Updated as DA PAM 40-502]*

(5) ANSI/CGA G-7.1-1997, Commodity Specification for Air.

(6) ANSI Z88.2-1992, Standard for Respiratory Protection.

w. **SANITATION**

(1) ANSI Z4.1-1986, Change REAF 1995, Sanitation in Places of Employment-Minimum Requirements.

(2) 29 CFR 1910.141

x. **SMOKING**

(1) AR 600-63, Army Health Promotion, 28 April 1996.

(2) DODI 1010.15, Smoke-Free DOD Facilities, 2 January 2001.

(3) DODD1010.10, Health Promotion, 11 March 1986.

y. **VEHICLE EXHAUST**

(1) ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th Edition, 2001.

(2) TI-300f 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

z. **WELDING OPERATION**

(1) 29 CFR 1910.252

(2) 29 CFR 1910.253

(3) 29 CFR 1910.254

(4) ANSI/AWS Z49.1-1999, Safety in Welding and Cutting and Allied Processes.

(5) TM 5-805-7, Welding Design, Procedures and Inspection, 20 May 85.

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 $\mu g/ft^2$) and windowsills (250 $\mu g/ft^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of 200 $\mu g/ft^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 $\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 $\mu g/ft^2$ on floors and 250 $\mu g/ft^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

CO B-2-103 ARMOR ~~BEST AVAILABLE COPY~~

AA 682

106 ARDMORE AVE

INDUSTRIAL HYGIENE SURVEY
PENNSYLVANIA

		SURVEY DATE	6-19-03
FACILITY	CO B 2/103D ARMOR BN		
ADDRESS	~~RD 2, Box 152 B~~ 106 ARDMORE AVE		
	Tamaqua, PA 18252		
CONTACT	SFC [redacted]		
PHONE	570-668-1850		
DATE BUILT	1963	FACILITY SIZE	15679 SqFt
RANGE	Inactive		
ASSISTED			

DRILL 2 RENTAL - CIRCUS
STAFF 70

PAINT CONDITION:		
INDOORS	BLOCK	Sample?
OUTDOORS	BRICK	Sample?

ASBESTOS		
Area/condition	NO	
Area/condition	NO	

WATER DAMAGE		
Area/condition	NO	
Area/condition	NO	

HOUSEKEEPING	GOOD

TIME	AREA	CO	CO_2	TEMP	RH
1355	OUTSIDE	0.0	482	80.2°F	63.5%
1415	BREAK RM occupied	0.0	540	73.8°F	58.0%
1418	DRILL FLR	0.0	530	75.6°F	59.2%
1422	KITCHEN	0.0	586	82.3°F	65.7%
1425	LOCKER RM	6.0	518	76.6°F	63.4%
1431	M) LATRINE	6.0	522	75.4°F	64.1%
1434	JANITORS RM	0.0	518	74.1°F	63.2%
1438	CLASSRM	0.0	526	73.8°F	62.1%
1442	LOBBY	0.0	524	74.5°F	62.4%
1446	W) LATRINE	0.0	520	73.9°F	63.1%
1449	DAY ROOM	0.0	518	74.6°F	63.2%
1450	OFF #6 occupied	6.0	545	73.4°F	58.4%
1453	OFF #5	0.0	536	74.5°F	61.2%
1456	RANGE	0.0	521	73.3°F	62.8%
1459	HALLWAY	0.0	522	72.8°F	63.4%
				°F	%
				°F	%

INDUSTRIAL HYGIENE SURVEY
PENNSYLVANIA

WIPE SAMPLES		ARMORY	Picture #
PA Tam-03	03	~~HVAC supply side of filter~~ BREAKRM PIPE	1
PA Tam-03	04	~~HVAC on fan side of filter~~ DRILL FLR	2
PA Tam-03	05	~~Assembly Hall~~ KITCHEN FIDGE TOP	3
PA Tam-03	06	~~Kitchen~~ HALL WAY HEATER	4
PA Tam-03	07	~~Supply air grille in occupied office~~ 56 HOLMES	5
PA Tam-03	08	BLANK	
PA Tam-03	09	OFF #6 WINDOW SILL	6
PA Tam-03	10	(M) LATRINE STALL DIVIDER	7
PA Tam-03	11	LOCKER RM FLR	8
PA Tam-03	12	CLASS RM HEATER VENTS	9
PA Tam-03	13	(W) LATRINE	10
PA Tam-03	14	BLANK	
PA Tam-03			
PA Tam-03			
PA Tam-03			
PA Tam-03			
PA Tam-03			
PA Tam-03		BLANK	

AIR SAMPLING

Sample #	Pump #	Person/Area	Precal lpm	Postcal lpm	Time On	Time Off	Run Time	Volume (Liters)
PA Tam-03	01	647669 PERSON	3.21	3.180	1410	1630	80	249.6
PA Tam-03	02	1647627 KITCHEN	3.184	3.086	1411	1629	78	241.5
PA Tam-03								

RANGE FINISHED YESTERDAY

INDUSTRIAL HYGIENE SURVEY
PENNSYLVANIA

CONVERTED INDOOR FIRING RANGE WIPE SAMPLES		
PA Tam-03 (10 15)	~~Inside any containing ventilation~~ ductwork HAND RAIL	11
PA Tam-03 " 16	~~Exhaust ventilation system~~ STORAGE CAGE	12
PA Tam-03 " 17	~~Bullet trap~~ FLOOR	13
PA Tam-03 " 18	~~Light fixtures~~ BRACKET WALL	14
PA Tam-03 " 19	~~Overhead heaters~~ TABLE	15
PA Tam-03 " 20	~~Stored items~~ BLANK	—
PA Tam-03	Floor	
PA Tam-03	Outside the range	
PA Tam-03	Blank	

HVAC SYSTEM: evaluate maintenance schedule and quality of maintenance for HVAC syst.

PROGRAMS	
CONFINED SPACES?	Y – N
HEARING CONSERVATION?	Y – N
RESPIRATORY PROTECTION?	Y – N
HAZCOM?	Y – N
PPE?	Y – N
TRAINING?	Y – N

VENTILATION:

NOISE:

LOCKER RM
44, 40, 38, 32, 44 — 39.6 Rating

MENS LATRINE
52, 48, 42, 50, 56 — 49.6

KITCHEN
62, 50, 48, 46, 50 — 51.2

JANITORS RM.
42, 40, 46 — 42.6

CLASS RM
44, 46, 40, 38, 34 — 40.4

W) LATRINE
38, 40, 36, 40 — 38.5

DAY RM
44, 58, 60, 42, 46 — 50.0

OFF #5
50, 46, 52, 48 — 49.0

OFF #6
52, 48, 50, 48 — 49.5

HALLWAY
28, 38, 40, 42, 38 — 37.2

RANGE
44, 46, 40, 38, 40 — 41.6

PENNSYLVANIA ARMORY
INDUSTRIAL HYGIENE SURVEY
EQUIPMENT LISTING

Air Sampling Pumps
SKC Aircheck Samplers 224-44XR
S/N: 647609, 647610, 647626, 647627, 647654, 648324, 648349, 648393

Air Pump Calibrator
DryCal Base m: DC-1B Rev 2.86F S/N B 1827
DryCal Med Cell: m: DC-MC-1 Rev E S/N 1745

Indoor Air Quality
TSI Q-Trak m: 8550 S/N 11050
Metrosonics Carbon Monoxide Logger m: pm7700 S/N 1129
Metrosonics CO Sensor m: gs 7701 S/N 5073

Noise
Quest Sound Level Meter m: 2800 S/N HS4090023
Quest Octave Filter Set m: OB-300 S/N HV4070020
Quest Acoustic Calibrator m: QC-10 S/N QE4090140
Metrosonics db-3080 Noise Dosimeters S/N 4667, 4685
Microphones

ATTACHMENT 1

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland




Industrial Hygiene Survey
for PAARNG – Tamaqua Readiness Center
106 Ardmore Avenue
Tamaqua, Pennsylvania 18252

AECOM
January 2013
Document No.: 60276421.1/Tamaqua Readiness Center

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland

Industrial Hygiene Survey
for PAARNG – Tamaqua Readiness Center
106 Ardmore Avenue
Tamaqua, Pennsylvania 18252

Non-Responsive
Industrial Hygienist

Non-Responsive
Project Manager

Non-Responsive
Northeast District Health & Safety Manager

AECOM
January 2013
Document No.: 60276421.1/Tamaqua Readiness Center

AECOM

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Executive Summary

On November 19, 2012, AECOM conducted an Industrial Hygiene (IH) survey of the Tamaqua Readiness Center facility located at 106 Ardmore Avenue in Tamaqua, Pennsylvania. Non-Responsive, SSG was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Tamaqua Readiness Center operations.

The industrial hygiene survey was generally conducted in accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings", dated January 2012.

The Tamaqua Readiness Center is currently staffed by three personnel. Some of the personnel were not present at the time of the survey due to active duty assignments or other off-site responsibilities. The facility is configured as an administrative area and an assembly hall.

Personnel at the facility were undertaking normal daily activities, which are primarily administrative in nature, at the time of the survey.

The activities undertaken during the Industrial Hygiene survey included facility descriptions, lead wipe/air sampling, evaluation of housekeeping, illumination studies, ventilation system evaluation, and a review of the physical building condition.

The Tamaqua Readiness Center is housed in a one-story masonry building, and consists of approximately 70% administrative space and 30% Assembly Hall.

Lighting levels measured throughout the facility were generally inadequate as per American National Standards Institute (ANSI)/Illuminating Engineering Society of North America (IESNA) RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

Wipe samples collected for lead-containing dust throughout the facility did not indicate lead levels above the ARNG action level.

No peeling lead-based paint was observed at the Tamaqua Readiness Center during this survey.

No visible damaged suspect asbestos-containing material (ACM) was observed.

No visible water damaged or visible signs of mold growth were observed.

There is no Heating, Ventilation & Air Conditioning (HVAC) system in the building. Natural gas boilers feed radiant heaters throughout the building including storage areas, the assembly hall, as well as provide heat for the facilities domestic water.

1.0 Facility Description and Operations

The Tamaqua Readiness Center, constructed in 1960, is a one-story administrative facility slab on-grade masonry structure. The building consists primarily of offices, training/classroom, locker/shower rooms, storage and administrative areas, and is finished with sheetrock walls, lay-in ceiling tiles and floor tile. The assembly hall area, located in the center of the building, is finished with painted block walls and a concrete floor. According to site personnel there is an indoor firing range at the facility that is presently used for storage. The former fire range was cleaned and renovated approximately 30 years ago and has been used as a storage area since its conversion.

The primary activity at the Tamaqua Readiness Center is routine administrative duties and occasional use by units for support and training of soldiers. The Assembly Hall is rented out for limited civic activities such as group meetings, community polling center, trade shows and to other related local groups and organizations. The Tamaqua Readiness Center is currently staffed by three personnel. Vehicle maintenance activities are not undertaken at the facility.

2.0 Sampling in Readiness Centers

2.1.1 Wipe Sampling

Wipe sampling for lead was conducted in the Assembly Hall and administrative areas following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost wipes. Samples were collected in areas that are not frequently cleaned and showed signs of dust whenever possible.

The following table presents the results of the lead wipe sampling conducted at the facility.

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
WIPE – 001	Dining Hall - cage	<110 ug/ft^2
WIPE – 002	Kitchen - table	<110 ug/ft^2
WIPE – 003	SSG Office - desk	<110 ug/ft^2
WIPE – 004	Break Room	<110 ug/ft^2
WIPE – 005	Corridor - floor	<110 ug/ft^2
WIPE - 006	Bullet Trap Area (current storage area) - shelf	<110 ug/ft^2
WIPE - 007	Firing Range (current storage area) - floor	<110 ug/ft^2
WIPE - 008	Drill Hall - floor	<110 ug/ft^2

ug/ft^2 = Micrograms per square foot.

Wipe samples collected in association with the administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 Code of Federal Regulations (CFR) 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of the U. S. Housing and Urban Development (HUD's) acceptable decontamination level of 200 micrograms per square foot (ug/ft^2) for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

The wipe samples collected throughout the facility did not detect levels of lead in excess of the ARNG action level of 200 micrograms per square foot (ug/ft^2). Former firing ranges shall be converted in accordance with NGB-PAM 420-15. Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

Per Shirley Chapman of NGB-IH, the requirement for Lead air sampling has been removed from the Statement of Work. It was reported that historically, air samples collected at administrative facilities are typically below the limit of detection.

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls appeared to be generally in good condition. Concrete flooring was generally tiled or unpainted. AECOM did not observe damaged or peeling paint during this evaluation.

3.1.2 Suspect Asbestos Containing Materials

AECOM did not observe damaged, friable suspect asbestos containing materials (ACM) in readily accessible areas of the Tamaqua Readiness Center during this survey. Thermal system piping observed throughout the facility is typically covered in typical fiberglass insulation with associated fittings and appeared in good condition.

Other typical miscellaneous suspect building materials observed throughout the facility but not sampled include floor tiles and associated mastic, cove base and associated mastic, ceiling tiles, window glazing compound and caulks.

3.1.3 Water Damage/Mold

AECOM did not observe evidence of water intrusion during this survey.

3.1.4 Housekeeping

The Tamaqua Readiness Center was observed to be generally clean and orderly during this assessment. AECOM did not observe dust accumulation on readily accessible horizontal surfaces within areas commonly used in the facility.

3.1.5 Indoor Air Quality/ Ergonomics

The administration section of the building contains general office space. The administration section is generally utilized by all of the Tamaqua Readiness Center staff members including a recruiter. No Indoor Air Quality concerns were noted by the Tamaqua Readiness Center personnel.

Tamaqua Readiness Center personnel did not report any ergonomics issues or concerns. Office furniture and accessories designed to promote ergonomically correct behaviors were observed.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (^{o} Fahrenheit), and relative humidity (as percentage) are presented in the following table.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (^{o}F)	Relative Humidity (%)
Outside	0.4	296	58.7	47.1
Administrative Corridor	1.0	384	60.2	48.6
CO Office	1.1	413	61.9	47.5
Service Bay (former fire range)	1.8	352	62.5	37.3
Commanders Office	1.5	322	63.7	42.3
Office	1.3	372	64.7	40.5

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (^{o}F)	Relative Humidity (%)
NCO Office	1.3	340	64.8	41.2
Break Room	1.2	369	66.8	39.2
Drill Hall	1.2	376	66.5	38.5
Foyer	1.3	327	66.1	38.1
State Maintenance Storage	1.1	351	67.2	39.4
Boiler Room	1.2	353	72.3	23.7
Kitchen	1.8	334	70.9	24.2
Men's Restroom/Shower	1.5	330	70.7	32.0

Table 3-1 Guidelines:
Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard. OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.
Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.
Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 5.10.1).
Temperature: Winter (clothing insulation = 1.0 clo) Relative humidity 30-60% - Temp - 68 – 75°F
Summer Temp - 73 – 79°F. (Derived from ASHRAE Standard 55-2010)

4.0 Ventilation and HVAC System

4.1.1 Ventilation Systems and Potential for Contamination of Clean Air Sources

There is no Field Maintenance Shop (FMS) facility located at the Tamaqua Readiness Center. As such, no potential for contamination of clean air sources was observed at the facility.

4.1.2 HVAC Maintenance

There is no HVAC system associated with the building.

5.0 Lighting

Lighting levels in all areas were measured utilizing a Cal-Light 400 light meter that displays lighting levels in foot-candles. Lighting levels were generally inadequate.

Table 5-1: Light Survey

Location	Results – (Foot candles)	Met Standard (Y/N)	Standard*
Administrative Corridor	49.7	Y	5
CO Office	42.5	N	50
Storage (former firing range)	23.7	N	30
Commanders Office	21.8	N	50
Office	27.9	N	50
NCO Office	28.1	N	50
Break Room	48.3	Y	10
Drill Hall	17.6	Y	10
Foyer	39.7	Y	10
State Maintenance Storage	7.5	N	30
Boiler Room	7.4	N	30
Kitchen	27.4	N	50
Men's Restroom/Shower	19.8	Y	5
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI/IESNA RP-7-01)			

6.0 Evaluation of Attached Garage

There is no attached garage associated with the Tamaqua Readiness Center.

7.0 Conclusions and Limitations

AECOM has conducted this survey in accordance with applicable OSHA methods and standard industrial hygiene practice. The following conclusions were based on the observations and assessments of activities that occurred during the on-site evaluation:

Housekeeping is performed regularly at the Tamaqua Readiness Center.

AECOM did not observe any damaged, suspect asbestos-containing materials at the Tamaqua Readiness Center.

AECOM did not observe peeling paint at the Tamaqua Readiness Center.

AECOM did not observe evidence of water intrusion at the Tamaqua Readiness Center.

Lighting levels measured throughout the facility were generally inadequate as per ANSI/IESNA RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

AECOM provided these services consistent with the level and skill ordinarily exercised by members of the profession currently providing similar services under similar circumstances at the time the services were provided. This statement is in lieu of other statements either expressed or implied. This report is intended for the sole use of National Guard Bureau – Army National Guard. The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, and use or re-use of this document, the findings, conclusions, or recommendations is at the risk of said user.

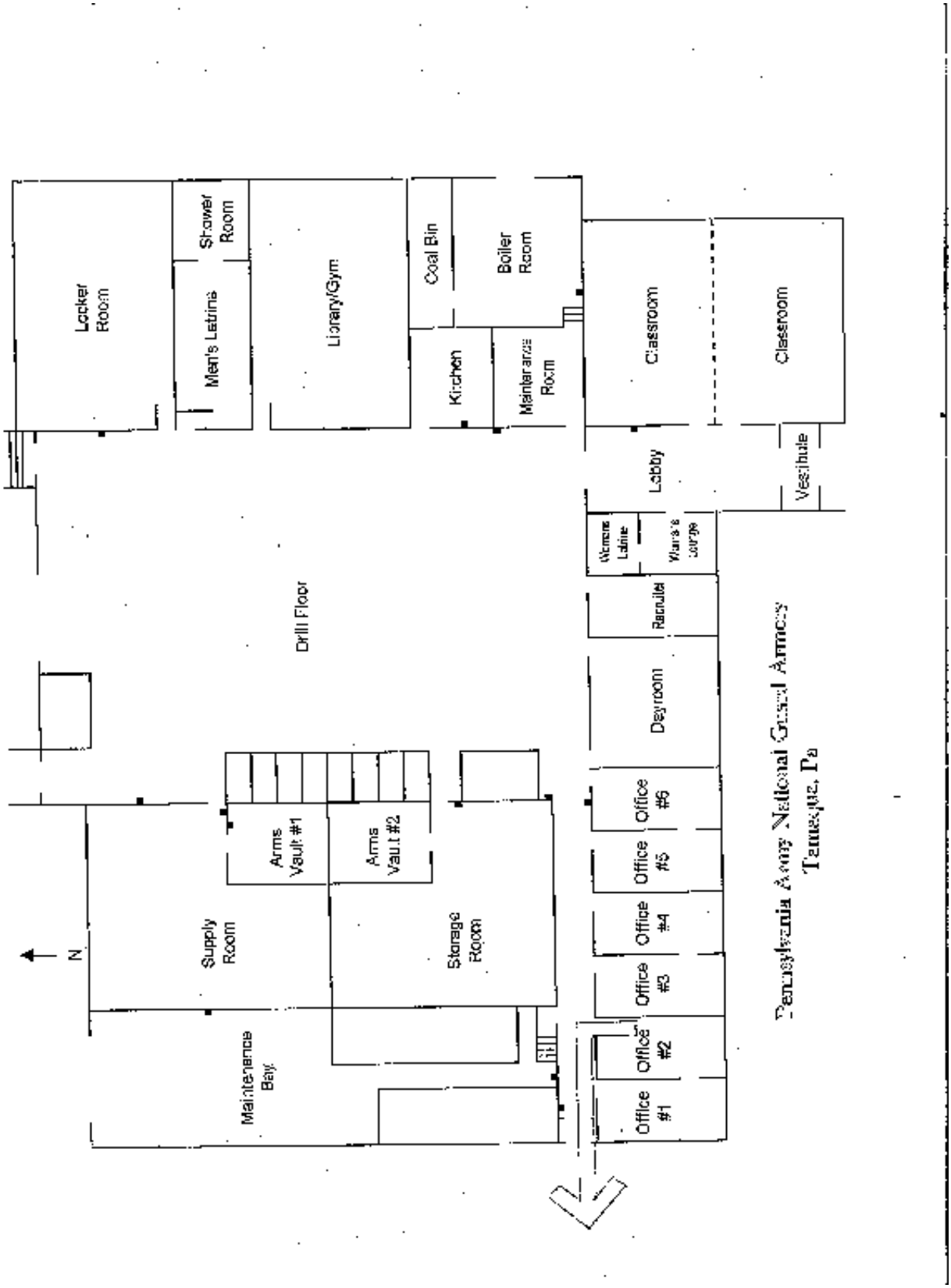
As with all such surveys, the results of the sampling represent conditions found on the date of the survey and may not represent conditions found at other times. Additionally, this survey was limited with respect to the specific parameters indicated above and should not be construed to be a comprehensive evaluation or a definitive representation of conditions within the facility. The information presented in this report is intended to be used as a guide to evaluate the need for further investigation or the need for modifications to the processes or procedures surveyed.

The Client recognizes and agrees that all testing and remediation methods have reliability limitations, no method nor number of sampling locations can guarantee that a condition will be discovered within the performance of the services as authorized by the Client. Additionally, the passage of time may result in a change in the environmental characteristics at this site. This report does not warrant against future operations or conditions that could affect the recommendations made. The results, findings, conclusions, and recommendations expressed in this report are based only on conditions that were observed during AECOM's inspection of the site.

Appendix A

Tamaqua Readiness Center Facility Layout

AECOM



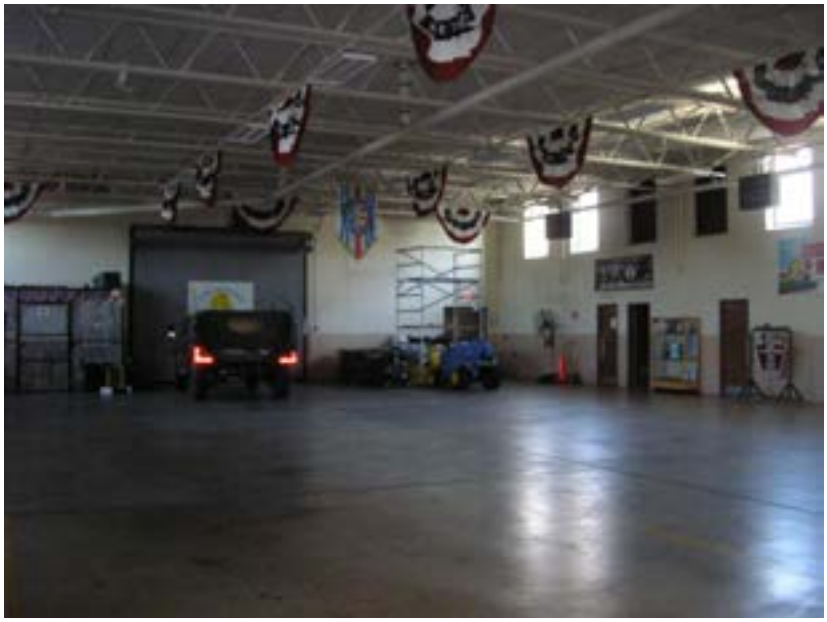
Appendix B

Tamaqua Readiness Center Photographs

Photograph 1

View of Building Exterior
Photograph 2

View of Foyer

Photograph 3

View of Assembly Hall
Photograph 4

View of Air Conditioning Unit in Office

Photograph 5

View of Boiler Room

Photograph 6

View of Break Room

Photograph 7

View of Kitchen

Photograph 8

View of Recruiter's Office

Photograph 9

View of Service Bay
Photograph 10

View of Radiant Heat in Service Bay

AECOM

Photograph 11

View of State Maintenance Storage
Photograph 12

View of Administrative Corridor

Appendix C

Analytical Results

AECOM

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	Not Provided	Chain Of Custody:	514658		
Address:	301-81 Old Bay Lane, Attn: ATZNG-CIG-P, State Military Reservation	Job Location:	Tamaqua, PA	Date Submitted:	11/30/2012		
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM		
		P.O. Number:	W912S6-09-A-0303	Date Analyzed:	12/6/2012	Report Date:	12/7/2012

Attention: Non-Responsive

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	Total ug	Final Result	Comments
1301R746	Wipe-001	Flame	Wipe	****	0.111	180 ug/ft²	<12	<110 ug/ft²	
1301R747	Wipe-002	Flame	Wipe	****	0.111	180 ug/ft²	<12	<110 ug/ft²	
1301R748	Wipe-003	Flame	Wipe	****	0.111	180 ug/ft²	<12	<110 ug/ft²	
1301R749	Wipe-004	Flame	Wipe	****	0.111	180 ug/ft²	<12	<110 ug/ft²	
1301R750	Wipe-005	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
1301R751	Wipe-006	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
1301R752	Wipe-007	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
1301R753	Wipe-008	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	

An AIHA (#100478) and NY ELAP (#10920) Accredited Laboratory

4475 Forbes Blvd. · Lanham, MD, 20706 · (301) 459-3640 · Toll Free (800) 346-0961 · Fax (301) 459-2643

AECOM

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

APHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	Not Provided	Chain Of Custody:	514158		
Address:	301-81 Old Boy Lane, Attn: ARNG-CIG-P, State Military Reservation	Job Location:	Tamaqua, PA	Date Submitted:	11/30/2012		
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM		
		P.O. Number:	W912G6-09-A-0030	Date Analyzed:	12/6/2012	Report Date:	12/7/2012

Attention: Non-Responsive

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	Total ug	Final Result	Comments

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B

See QC Summary for analytical results of quality control samples associated with these samples.

N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)

%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)

Note: All samples were received in good condition unless otherwise noted.

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results

Final results for air and wipe samples are based on client supplied information not verified by this laboratory.

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

Analyst: Non-Responsi

Technical Manager: Non-Responsive

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4475 Forbes Blvd. · Lanham, MD, 20706 · (301) 459-2640 · Toll Free (800) 346-0961 · Fax (301) 459-2643

AECOM

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(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This Number For Inquiries)

514658

Mailing/Billing Information:

1. Client Name: National Guard Bureau
2. Address 1: 301-8H Old Bay Lane
3. Address 2: Attn: NGB-AVN-SI, State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:

1. (Job Name)
2. (Job Location) TAMAQUA PA
3. Job #: P.O. #: W912K8-09-A-0003
4. Contact Person [redacted] @ phone #
5. Submitted by: AECOM [redacted]

Reporting Info (Results provided as soon as technically feasible). If no TAT/Reporting Info is provided, AMA will assign defaults of 5-Day and Results to contacts on file.

AFTER HOURS	NORMAL BUSINESS HOURS		REPORT TO:
☐ Immediate Date Due ☐ 24 Hours Time Due Comments	☐ Immediate ☐ Next Day ☐ 2 Day	☐ 3 Day ☒ 5 Day + Date Due 12/7/12 ☐ Results Required By Noon	☒ Include ☒ Email ☐ Fax ☐ Verbal [redacted]

Asbestos Analysis

*PCM Air – Please Indicate Filter Type:
☐ NIOSH 7400 ____ (QTY)
☐ Fiberglass ____ (QTY)
TEM Air* – Please Indicate Filter Type:
☐ AHERA ____ (QTY)
☐ NIOSH 7402 ____ (QTY)
☐ Other (specify ____) ____ (QTY)
PLM Bulk:
☐ EPA 600 – Visual Estimate ____ (QTY)
☐ EPA Point Count ____ (QTY)
☐ NY State Friable 198.1 ____ (QTY)
☐ Grav. Reduction ELAP 198.6 ____ (QTY)
☐ Other (specify ____) ____ (QTY)
MISC
☐ Vermiculite
☐ Asbestos Soil PLM__ (Qual) PLM__ (Qual) PLM/TEM__ (Qual) PLM/TEM__ (Qual)
*It is recommended that blank samples be submitted with all air and other samples

TEM Bulk:
☐ ELAP 198.4/Chatfield ____ (QTY)
☐ NY State PLM/TEM ____ (QTY)
☐ Residual Ash ____ (QTY)
TEM Dust*
☐ Qual. (possible) Vacuum/Dust ____ (QTY)
☐ Quan. (Micro) Vacuum D5755-95 ____ (QTY)
☐ Quan. (Micro) Dust D5480-96 ____ (QTY)
TEM Water
☐ Qual. (possible) ____ (QTY)
☐ ELAP 198.2/EPA 100.2 ____ (QTY)
☐ EPA 100.1 ____ (QTY)

☒ All samples received in good condition unless otherwise noted.
(TEM Water samples ____ °C)
If field data sheets are submitted, there is no need to complete bottom section.

Metals Analysis
☐ Pb Paint Chip ____ (QTY)
☒ *Pb Dust Wipe (wipe type Ghost) 8 (QTY)
☐ *Pb Air ____ (QTY)
☐ Pb Soil/Solid ____ (QTY)
☐ Pb TCLP ____ (QTY)
☐ Drinking Water ☐ Pb ____ (QTY) ☐ Cu ____ (QTY) ☐ As ____ (QTY)
☐ Waste Water ☐ Pb ____ (QTY) ☐ Cu ____ (QTY) ☐ As ____ (QTY)
☐ Pb Pressure (Media ____) ____ (QTY)

Fungal Analysis
Collection Apparatus for Spore Trap/Air Sampling:
Collection Media:
☐ *Spore-Trap ____ (QTY) ☐ Surface Vacuum Dust ____ (QTY)
☐ *Surface Swab ____ (QTY) ☐ Culturable ID Genus (Media ____) ____ (QTY)
☐ *Surface Tape ____ (QTY) ☐ Culturable ID Species (Media ____) ____ (QTY)
☐ Other (Specify ____) ____ (QTY)

SAMPLE INFORMATION

CLIENT ID #	SAMPLE LOCATION/ID	DATE/TIME	VOL. &/# Wipe Area	ANALYSIS / MATRIX	CLIENT CONTACT (LABORATORY STAFF ONLY)
Wipe-001	D.Hall - cage	11/29	Ready	X	Date/Time: Contact: By:
Wipe-002	Rifle 4 table				
Wipe-003	SSG - desk				
	SEE ATTACHED FIELD DATA SHEETS				
Wipe-004	~~SSG~~ desk Breaker				
Wipe-005	Corridor floor				Date/Time: Contact: By:
Wipe-006	Bullet trap area				
Wipe-007	FRange floor				
Wipe-008	D.Hall - floor	↓	↓	↓	
					Date/Time: Contact: By:

LABORATORY STAFF ONLY: (CUSTODY)

1. Date/Time RCVD: 11 / 30 / 12 1000 Via FEDEX By: [redacted]
2. Date/Time Analyzed: ____ / ____ / ____ @ ____ By: ____
3. Results Reported To: ____ Via: ____ Date: ____ / ____ / ____ Time: ____ Initials: ____
4. Comments: 7941 7694 5331

Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. http://www.osha.gov/comp-links.html

2. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998. http://www.dtic.mil/whs/directives/corres/pdf/605501p.pdf

3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF

4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://armypubs.army.mil/epubs/pdf/R40_5.PDF

5. AR 385-10, The Army Safety Program, 23 August 2007; Rapid Action Revision (RAR) issue date: 4 October 2011. http://armypubs.army.mil/epubs/pdf/R385_10.PDF

6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://armypubs.army.mil/epubs/pdf/P40_501.pdf

7. DA PAM 40-11, Preventive Medicine, 22 July 2005, RAR issue date: 19 October 2009. http://armypubs.army.mil/epubs/pdf/p40_11.pdf

8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://armypubs.army.mil/epubs/pdf/P40_503.PDF

9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf

10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current Ed.

11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.

12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.

13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.

14. ANSI/ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality.

15. RP-1-2004, Office Lighting, ANSI/IESNA.

16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.

17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.

18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.

19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf

Industrial Hygiene Survey

CO B 1/111th INF (MECH)

WEST CHESTER, PENNSYLVANIA

June 27, 2003
&
December 10, 2003

OPERATIONAL TECHNOLOGIES
CORPORATION

INDUSTRIAL HYGIENE SURVEY
CO B 1/111th INF (MECH)
WEST CHESTER, PENNSYLVANIA

1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Armory in West Chester, Pennsylvania on June 27, 2003, with a return visit on December 10, 2003. The NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. [redacted] and [redacted], from OpTech, completed this survey. [redacted], a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the IH Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D.

RECOMMENDATIONS

1. INDOOR AIR QUALITY

1.1. Indoor temperatures were above recommended comfort ranges in most areas of the facility. Relative humidity was above the acceptable range in all areas. Humidity should be maintained below 60% relative humidity for occupant comfort and controlling mold growth.

2. ILLUMINATION

2.1. Illumination levels were below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3. LEAD WIPE SAMPLES

3.1. Wipe samples for inorganic lead were collected throughout the facility. Sample results in the assembly hall, male latrine, Fox room, copy room, basement male latrine, maintenance closet, and the 2nd Floor office exceeded the 200 $\mu g/ft^2$ criterion. Four of the five samples taken in the former firing range plus four of five samples in the assembly hall also exceeded the criterion. Lower levels were detected in other areas of the building. The source of lead contamination is apparently from the inactive indoor firing range and lead paint. Recommend that the facility be wet-wiped/mopped and/or vacuumed with a high efficiency particulate air (HEPA) vacuum. This method of cleaning should be repeated during routing housekeeping duties, to further reduce lead dust levels.

4. LEAD PAINT

4.1. A paint chip sample was collected from peeling paint in the kitchen and analyzed for lead content. Analysis results exceeded the EPA's 0.5 percent by weight criteria. Therefore, the pant in the kitchen is considered lead-contaminated.

2.0. EXECUTIVE SUMMARY

2.1. Carbon monoxide and carbon dioxide readings were within recommended levels. Indoor temperatures were above recommended comfort ranges in all areas of the facility. Relative humidity was above the acceptable range in all areas. Humidity should be maintained below 60% relative humidity for occupant comfort and controlling mold growth.

2.2. Illumination levels were below recommended minimum standards in most areas of the facility.

2.3. Wipe samples for inorganic lead were collected throughout the facility. Sample results in the assembly hall, male latrine, Fox room, copy room, basement male latrine, maintenance closet, and the 2nd Floor office exceeded the 200 $\mu g/ft^2$ criterion. Four of the five samples taken in the former firing range plus four of five samples in the assembly hall also exceeded the criterion. Lower levels were detected in other areas of the building. The source of lead contamination is apparently from the inactive indoor firing range and lead paint.

2.4. Air sampling for inorganic lead was accomplished. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building.

2.5. A paint chip sample was collected from peeling paint in the kitchen and analyzed for lead content. Analysis results exceeded the EPA's 0.5 percent by weight criteria. Therefore, the paint in the kitchen is considered lead-contaminated.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	CO B 1/111th INF (MECH)		
ADDRESS	226 North High Street		
	West Chester, PA 19380		
CONTACT	SFC [redacted]		
PHONE	610- 696-3136		
DATE BUILT	1916	FACILITY SIZE	10,950 sq. ft.
INDOOR FIRING RANGE	CLOSED		2-floors plus basement
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	3		
TRADITIONAL (MIL)	130		
CHILD ACTIVITIES	The facility is available for rental but currently no activities have been conducted or are planned.		
ADULT ACTIVITIES			

3.1.1. The exterior is brick and appears to be in good condition. The wood trim and paint is severely deteriorating. Overall, the interior has been kept in good condition, although some areas were dirty and cluttered. The facility is heated by a steam furnace and cooled by window air conditioners. The facility is scheduled for replacement in 2007.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity (RH) in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 Indoor Air Quality Standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ASHRAE 62-2001, Section 6.1.3, states that concentrations up to 700 ppm CO_2, above outdoor concentrations will achieve an acceptable level of indoor air quality.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ASHRAE 55-1992 recommends that temperature ranges be 73 to 79 degrees Fahrenheit (°F) during the summer and 68 to 74°F during the winter. Relative humidity levels be maintained between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE 1
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO_2 (ppm)	Temp. (°F)	RH (%)
0920	Outdoors – Background	0.0	472	85.6	66.4
0935	Assembly Hall	0.0	550	89.2	74.2
0938	Break room	0.0	530	88.8	73.8
0944	Orderly Room	0.0	528	84.2	72.0
0948	Kitchen	0.0	522	85.5	70.9
0951	Locker Room	0.0	518	84.4	69.8
0954	Classroom	0.0	526	83.3	68.7
0959	Latrine	0.0	524	90.0	74.9
1004	Balcony	0.0	518	88.1	73.2
1009	2nd Floor – Classroom	0.0	521	84.1	72.1
1013	2nd Floor – Commander's Office	0.0	522	82.3	74.1
1016	Male Latrine	0.0	524	81.4	73.8
1021	Fax Room	0.0	520	78.4	72.1

3.2.5. Carbon monoxide and carbon dioxide readings were within recommended levels. Indoor temperatures were above recommended comfort ranges in all areas of the facility. Relative humidity was above the acceptable range in all areas. Humidity should be maintained below 60% relative humidity for occupant comfort and controlling mold growth.

3.3. ILLUMINATION

3.3.1. Illumination levels were measured in most areas of the facility. Sunlight was excluded, as much as possible for this survey, by closing doors and blocking windows. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 - 463). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
Assembly Hall	38 – 72	52	75	NO
Orderly Room	44 – 58	50	70	NO
Club (Fox) Room	40 – 52	45	30	YES
Male Latrine	22 – 42	36	40	NO
Kitchen	38 – 42	40	75	NO
Former Range Area	32 – 40	37	40	NO
Locker Room	36 – 40	30	40	NO
Commander's Office	40 – 60	54	70	NO
Classroom	48 – 60	54	70	NO
Stairwell	38 – 46	42	30	YES
Balcony	32 – 40	36	70	NO

3.3.2. Levels were below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3.4. WIPE SAMPLES

3.4.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples were collected at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot (µg/ft²) and are listed in Table 3. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Wes-03178-03	Assembly Hall – Window	2,055
PA Wes-03178-04	Male Latrine - Window Sill	127
PA Wes-03178-05	Fox Room AC Vent	342
PA Wes-03178-06	Office Copy Room Wall Trim	510
PA Wes-03178-07	Kitchen - Top of Stove	73
PA Wes-03178-08	BLANK Sample	32

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.2. Additional wipe samples were collected during this survey. These samples were collected to further analyze the extent of contamination should the first five samples indicate a possible hazard. Since the samples collected in assembly hall, Fox room and copy rooms exceeded the 200 $\mu g/ft^2$ criterion (see Section 3.4.5); these additional samples were analyzed. The results are presented in Table 4.

TABLE 4
ADDITIONAL WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead ($\mu g/ft^2$)
PA Wes-03178-09	Male Latrine – Window Sill	4,300
PA Wes-03178-10	Maintenance Closet Shelf	1,700
PA Wes-03178-11	2nd Floor – Classroom – Mantle	160
PA Wes-03178-12	2nd Floor – Office – Window Sill	23,000
PA Wes-03178-13	Balcony	340
PA Wes-03178-14	BLANK Sample	BDL

$\mu g/ft^2$ – micrograms per square foot BDL – Below Detection Limits (LOD $\mu g/ft^2$)

3.4.3. CLOSED FIRING RANGE WIPE SAMPLING

3.4.3.1. Additional wipe samples were take in the former indoor firing range. This area is presently being utilized for storage. The laboratory analysis results are listed in Table 5.

TABLE 5
FORMER FIRING RANGE WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead ($\mu g/ft^2$)
PA Wes-03178-15	Floor	546
PA Wes-03178-16	Floor	175
PA Wes-03178-17	Pipe	541
PA Wes-03178-18	Top of Locker	358
PA Wes-03178-19	Circuit Breaker Box	7,500
PA Wes-03178-20	BLANK Sample	BDL

$\mu g/ft^2$ – micrograms per square foot BDL – Below Detection Limits

3.4.4. ADDITIONAL WIPE SAMPLES

3.4.4.1. Due to significant levels of lead dust detected throughout the facility, a second visit was scheduled to collect additional wipe samples in the assembly hall. The laboratory results are listed in Table 6.

TABLE 6
SECOND VISIT WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Wes-03344-01	Assembly Hall – NE Corner – Floor	**3,300**
PA Wes-03344-02	Assembly Hall – NW Corner – Floor	140
PA Wes-03344-03	Assembly Hall – SW Corner – Floor	**600**
PA Wes-03344-04	Assembly Hall – SE Corner – Floor	**410**
PA Wes-03344-05	Assembly Hall – Balcony	**580**
PA Wes-03344-06	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.5. WIPE SAMPLING RESULTS

3.4.5.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 µg/ft^2. This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. (See memorandum in Attachment E, Recommendations for Surface Lead Dust in Armories.) Sample results in the assembly hall, male latrine, Fox room, copy room, basement male latrine, maintenance closet, and the 2nd Floor office exceeded the 200 µg/ft^2 criterion. Four of the five samples taken in the former firing range plus four of five samples in the assembly hall also exceeded the criterion. Lower levels were detected in other areas of the building. The source of lead contamination is apparently from the inactive indoor firing range and lead paint.

3.4.6. AIR SAMPLING

3.4.6.1. Air Sampling for inorganic lead was performed during this survey. Table 7 lists the results of these samples, and is reported in milligrams per cubic meter (mg/m^3) of air.

TABLE 7
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
Non-[redacted]	PA Wes-03178-01	Lead	<0.003 mg/m³	0.05 mg/m³	YES
Area – Kitchen	PA Wes-03178-02	Lead	<0.003 mg/m³	0.05 mg/m³	YES

mg/m³ = milligrams per cubic meter < = less than (below detection limits)

3.4.4.2. Air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this building.

3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION DAMAGE

3.5.1.1. There was no current observed or reported water intrusion in the facility. Slight roof damage from a fallen tree was reported during the second visit. The damage had been reported and were awaiting repairs.

3.5.2. LEAD PAINT

3.5.2.1. Chipping paint was noted in the kitchen. A sample was collected and analyzed for lead content. Laboratory results are listed in Table 8.

TABLE 8
PAINT CHIP SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (percent)
PA Wes-03344-07	Kitchen Wall Paint	5.9%

BDL – Below Detection Limits

3.5.2.2. The Environmental Protection Agency (EPA) considers paint with a lead content equal to or greater than 0.5% by weight as contaminated. Therefore, the paint on the kitchen wall is considered lead-contaminated.

3.5.3. ASBESTOS

3.5.3.1. Asbestos insulation is reported to be present on the steam pipes. All observed areas appeared to be in good condition.

3.5.4. PROGRAMS

3.5.4.1. There are no designated confined space areas within this facility. There are no exhaust ventilation systems to control a hazard. No chemicals besides normal cleaning materials are present. Therefore, a need has not been established for a HAZCOM program, the need for personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.5. HOUSEKEEPING

3.5.5. The full time occupied areas were clean and orderly. Some areas (balcony and latrine) were dusty and cluttered.

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

E – Recommendations for Surface Lead in Armories

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
West Chester, PA	PENNSYLVANIA ARNG ARMORY	West Chester Armory

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR (Initials)
27 June / 10 December 2003	JSS

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	NA	SFC Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
610-696-3136	Co B 1/111 INF (mech)	3	9

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
3	60-130			

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	CONROLS 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			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	½ FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	¼ 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 WEATHR BOOTS/HATS	/
FULL FACE SHIELD	/	EARPLUGS	/	COLD WEATHR 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	/		

AEHA Form 271-R (Test), 1 Jan 92 (HSHB-MI-I)

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	3	C

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

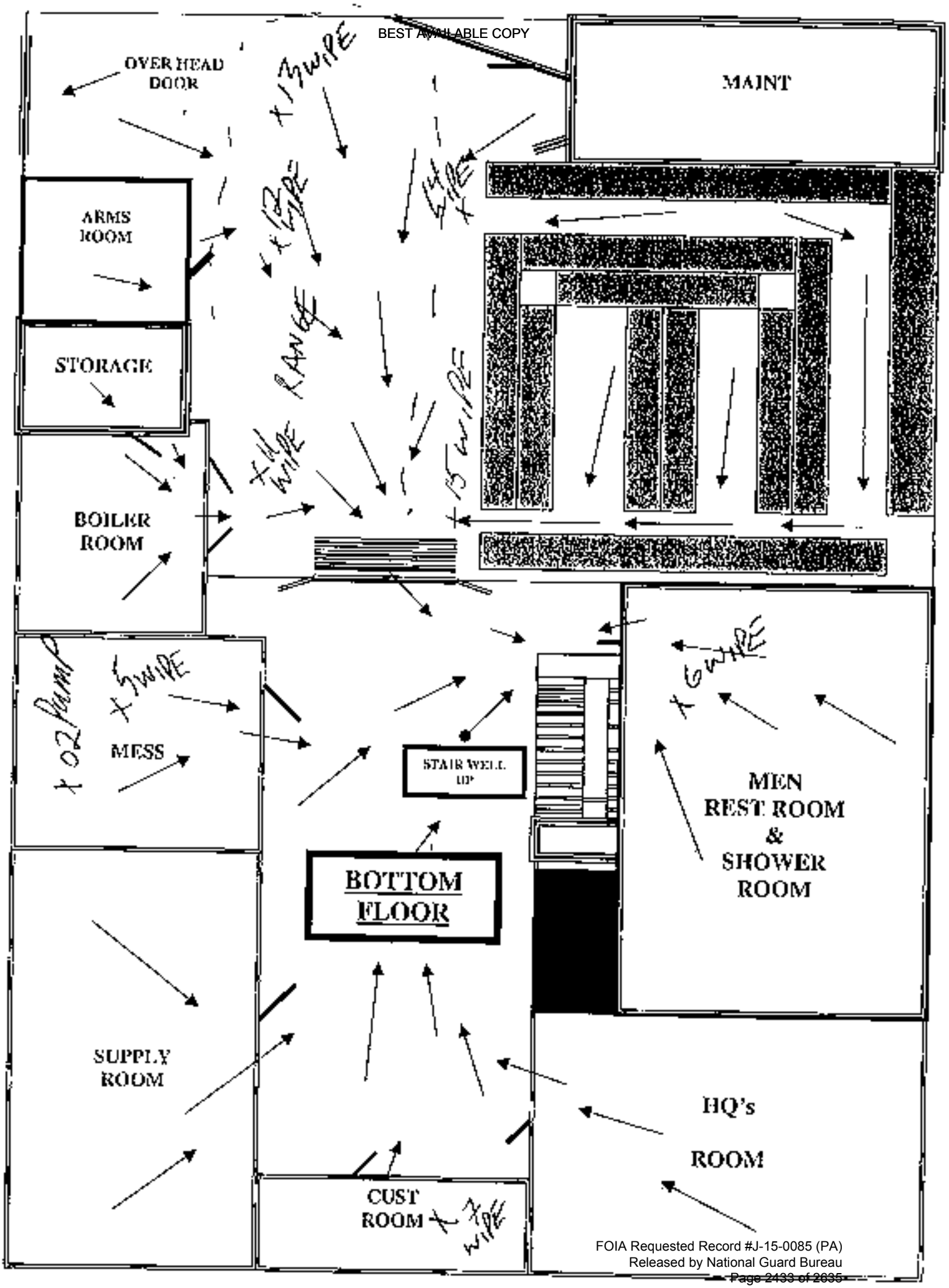
SECTION 6. COMMENTS

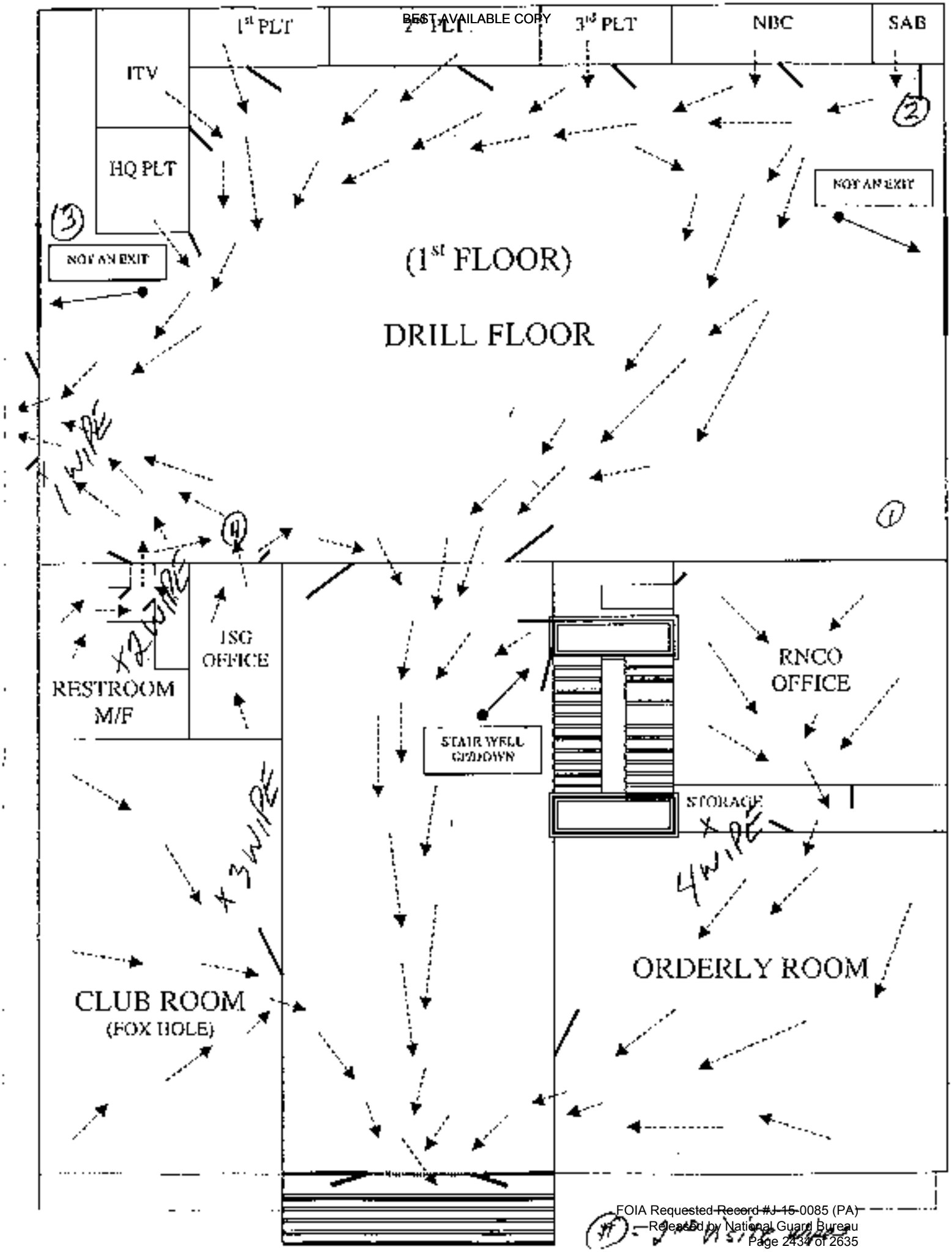
☐ No comments ☐ See attached sheet

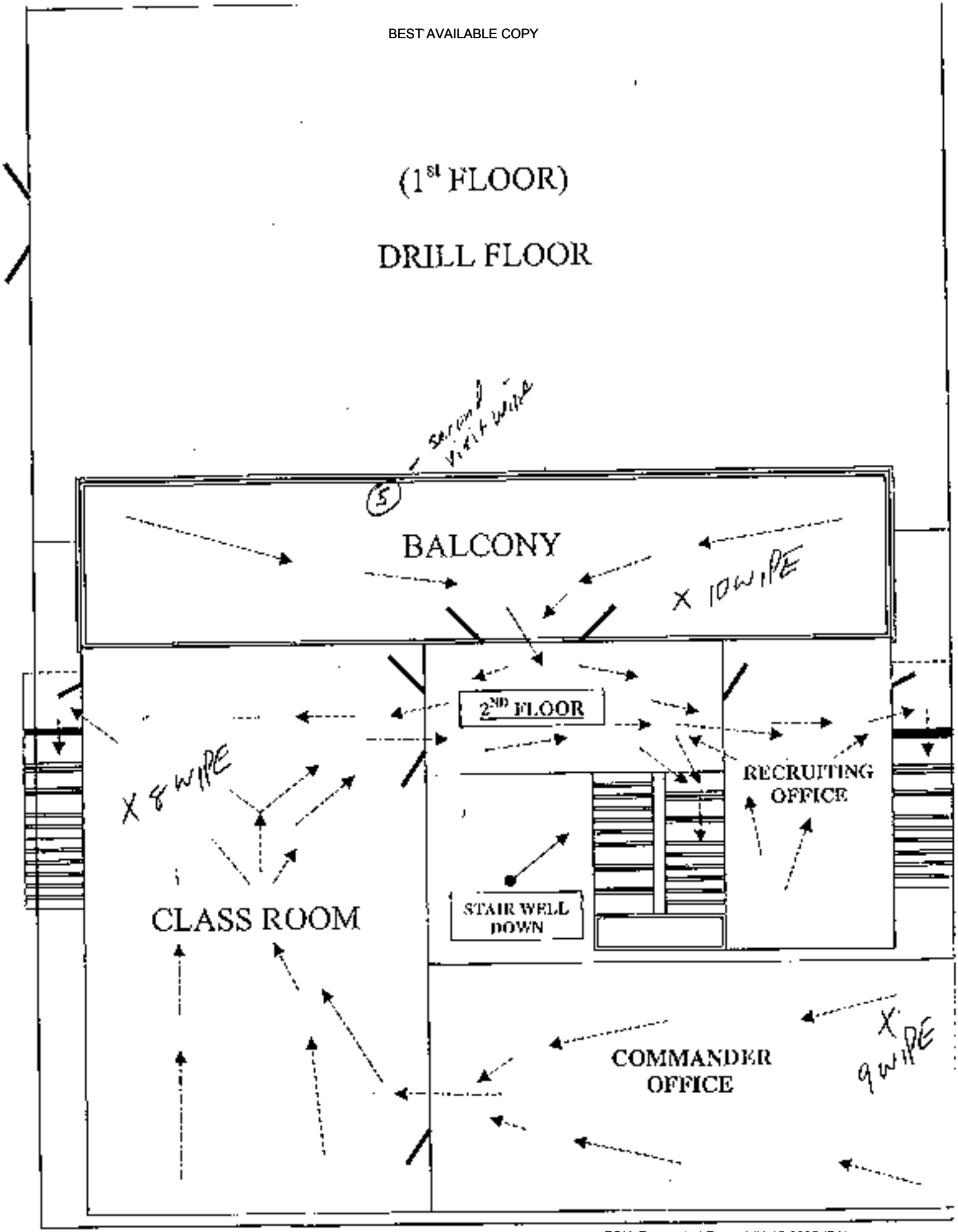
PRIVACY ACT STATEMENT

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

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





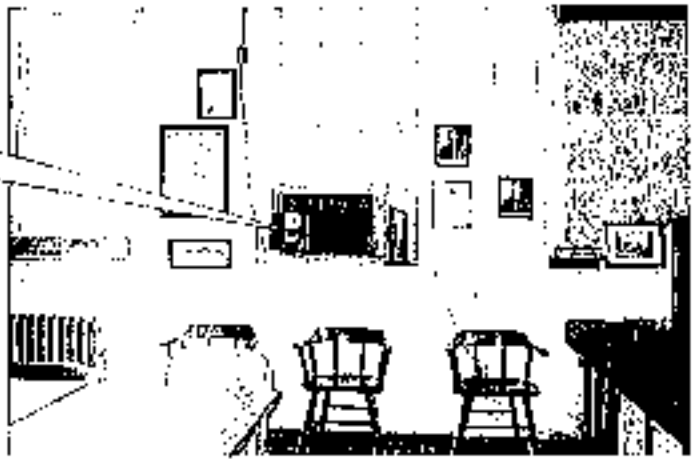


CO B 1/111TH INF (MECH)
West Chester, PENNSYLVANIA

(1) PA Wes-03178-03
Assembly Hall
Window Sill

(2) PA Wes-03178-04
Men's Latrine

(3) PA Wes-03178-05
Fox Room

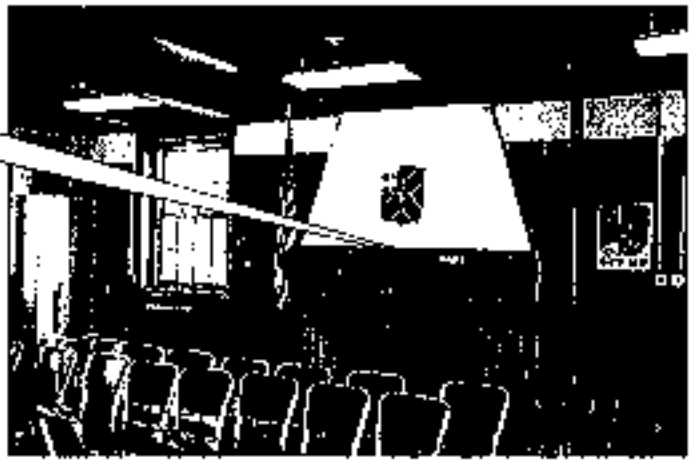


(4) PA Wes-03178-06
Copy Room

(5) PA Wes-03178-07
Kitchen

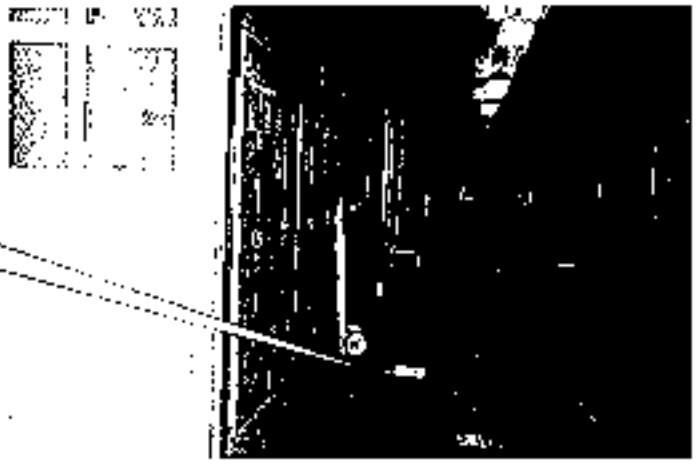
(6) PA Wes-03 178-09
Men's Latrine

(8) PA Wes-03178-11
Classroom



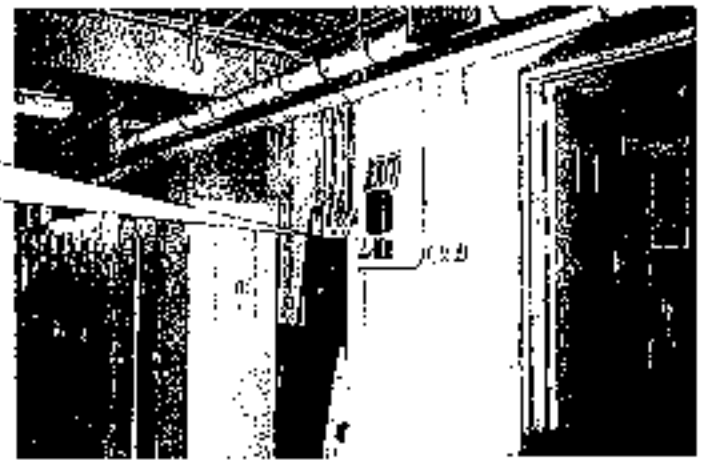
(10) PA Wes-03178-13
Balcony

(11) PA Wes-03178-15
Former Firing Range



(12) PA Wes-03178-16
Former Firing Range
½ Way Down Range

(15) PA Wes-03178-19
Former Firing Range
Behind Firing Line

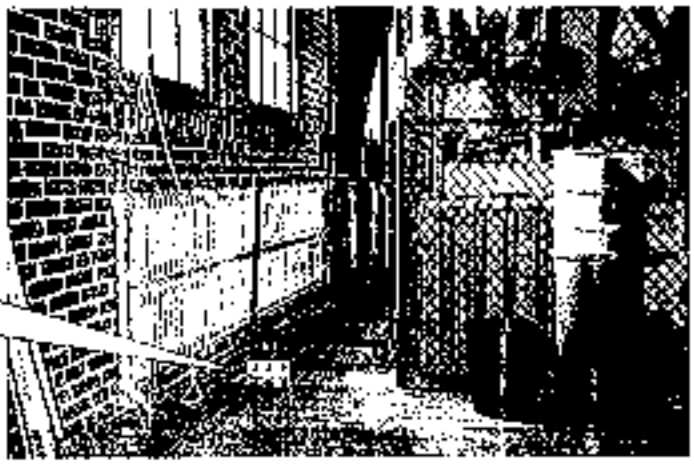


2nd Visit Wipe Samples

(1) PA Wes-03344-01
Assembly Hall
NE Corner

(2) PA Wes-03344-02
Assembly Hall
NW Corner

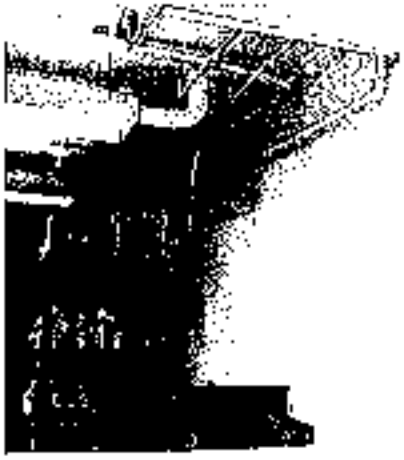
(3) PA Wes-03344-03
Assembly Hall
SW Corner



(4) PA Wes-03344-04
Assembly Hall
SE Corner

(5) PA Wes-03344-05
Assembly Hall
Balcony Floor

Exterior Deteriorating
Wood and Paint



Peeling Paint in Kitchen

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
AIHA Certificate of Accreditation #480 LAP ID 101533

TABLE ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	RES 95353-1R
Client:	Operational Technologies, Corp.
Client Project Number / P.O.:	06 03
Client Project Description:	Armories//Pennsylvania
Date Samples Received:	July 11, 2003
Analysis Type:	USEPA SW846 3050B / AA(7420)
Turnaround:	3-5 Day
Date Samples Analyzed:	July 15, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA WES-03178-03	BM 794725	0.11	226.0	23	2055
PA WES-03178-04	BM 794726	0.11	14.0	23	127
PA WES-03178-05	BM 794727	0.12	37.6	23	342
PA WES-03178-06	BM 794728	0.11	56.1	23	510
PA WES-03178-07	BM 794729	0.11	8.0	23	73
PA WES-03178-08	BM 794730	0.11	3.5	23	33
PA WES-03178-15	BM 794731	0.11	60.1	23	546
PA WES-03178-16	BM 794732	0.11	19.2	23	175
PA WES-03178-17	BM 794733	0.11	59.5	23	541
PA WES-03178-18	BM 794734	0.11	39.4	23	358
PA WES-03178-19	BM 794735	0.11	825.0	23	7500
PA WES-03178-20	BM 794736	0.11	BDL	23	BDL
PA SEL-03181-03	BM 794737	0.11	14.3	23	130
PA SEL-03181-04	BM 794738	0.11	8.0	23	73
PA SEL-03181-05	BM 794739	0.11	34.5	23	314
PA SEL-03181-06	BM 794740	0.11	223.0	23	2027
PA SEL-03181-07	BM 794741	0.11	16.6	23	151
PA SEL-03181-08	BM 794742	0.11	BDL	23	BDL
PA SEL-03181-15	BM 794743	0.11	561.0	23	5100
PA SEL-03181-16	BM 794744	0.11	245.0	23	2227
PA SEL-03181-17	BM 794745	0.11	9.0	23	82
PA SEL-03181-18	BM 794746	0.11	15.0	23	136
PA SEL-03181-19	BM 794747	0.11	44.0	23	400
PA SEL-03181-20	BM 794748	0.11	BDL	23	BDL
PA LEH-03182-03	BM 794749	0.11	BDL	23	BDL
PA LEH-03182-04	BM 794750	0.11	BDL	23	BDL
PA LEH-03182-05	BM 794751	0.11	BDL	23	BDL
PA LEH-03182-06	BM 794752	0.11	8.5	23	77
PA LEH-03182-07	BM 794753	0.11	3.3	23	30
PA LEH-03182-08	BM 794754	0.11	BDL	23	BDL

BDL = Below Detection Limit

Data Qa

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client:	National Guard Bureau	**Job Name:**	Pennsylvania Armories-West Chester	**Chain Of Custody:**	117538
Address:	301-IR Old Bay Lane, Attn: NGB-AVN-SI, State Military Reservation	**Job Location:**	Not Provided	**Date Analyzed:**	9/22/2003
	Havre de Grace, Maryland 21078	**Job Number:**	Not Provided	**Person Submitting:**	[redacted]
		P.O. Number:	Not Provided	**Report Date:**	22-Sep-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
0367590	PA-Wes-03178-09	Flame	Wipe	****	0.111	108.01	ug/ft²	4300	ug/ft²	
0367591	PA-Wes-03178-10	Flame	Wipe	****	0.111	108.01	ug/ft²	1700	ug/ft²	
0367592	PA-Wes-03178-11	Flame	Wipe	****	0.111	108.01	ug/ft²	160	ug/ft²	
0367593	PA-Wes-03178-12	Flame	Wipe	****	0.111	108.01	ug/ft²	23000	ug/ft²	
0367594	PA-Wes-03178-13	Flame	Wipe	****	0.111	108.01	ug/ft²	340	ug/ft²	
0367595	PA-Wes-03178-14	Flame	Wipe	****	0.111	108.01	ug/ft²	< 110	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.

Analyst: [redacted] Technical Manager: [redacted]

An AIHA (#8863), NVLAP (# 101143), & New York ELAP (#10920) Accredited Laboratory

4475 Forbes Blvd. • Lanham, MD 20706 • (301) 459-2640 • Toll Free (800) 346-0961 • Fax (301) 459-2643

AMA Analytical Services, Inc.
A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client:	National Guard Bureau	**Job Name:**	Pennsylvania Armories	**Chain Of Custody:**	121313
Address:	301-IH Old Bay Lane, Attn: NGB-AVN-SI, State Military Reservation	**Job Location:**	Westchester	**Date Analyzed:**	12/31/2003
	Havre de Grace, Maryland 21078	**Job Number:**	Not Provided	**Person Submitting:**	[redacted]
		P.O. Number:	12-02	**Report Date:**	02-Jan-04
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
0414442	PA Wes-03344-01	Flame	Wipe	****	0.111	108.01	ug/ft²	3300	ug/ft²	
0414443	PA Wes-03344-02	Furnace	Wipe	****	0.111	67.51	ug/ft²	140	ug/ft²	
0414444	PA Wes-03344-03	Flame	Wipe	****	0.111	108.01	ug/ft²	600	ug/ft²	
0414445	PA Wes-03344-04	Flame	Wipe	****	0.111	108.01	ug/ft²	410	ug/ft²	
0414446	PA Wes-03344-05	Flame	Wipe	****	0.111	108.01	ug/ft²	580	ug/ft²	
0414447	PA Wes-03344-06	Furnace	Wipe	****	0.111	2.70	ug/ft²	4.7	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.

Analyst: [redacted]

Technical Manager: [redacted]

An AIHA (#8863), NVLAP (# 101143), & New York ELAP (#10920) Accredited Laboratory
4475 Forbes Blvd. • Lanham, MD 20706 • (301) 459-2640 • Toll Free (800) 346-0961 • Fax (301) 459-2643

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m³
PA Wes-03178-01	03-20724	343.0	ND	<0.003
PA Wes-03178-02	03-20725	394.0	ND	<0.003
PA Sel-03181-01	03-20726	213.5	ND	<0.005
PA Sel-03181-02	03-20727	219.2	ND	<0.005
PA Leh-03182-01	03-20728	277.8	ND	<0.004
PA Leh-03182-02	03-20729	291.4	ND	<0.003
PA Leh-03182-22	03-20730	232.7	ND	<0.004
PA Leh-03182-23	03-20731	196.7	ND	<0.005
PA Haz-03182-37	03-20732	178.7	ND	<0.006
PA Haz-03182-38	03-20733	188.9	ND	<0.005
PA Joh-03183-01	03-20734	202.7	ND	<0.005
PA Joh-03183-02	03-20735	212.3	ND	<0.005
PA Joh-03183-16	03-20736	258.1	ND	<0.004
PA Joh-03183-17	03-20737	271.6	ND	<0.004
	Prep Blank		ND	
% Recovery	LCS 7		96.	
% Recovery	LCS 8		97.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

[redacted]
Analyst

[redacted]
Reviewer

Results
Lead

Client #	DCL #	mg/Kg (ppm)	% by weight
PA Rid-03342-01	03-35904	1200.	0.12
PA Cle-03342-10	03-35905	170.	0.017
PA Pot-03343-13	03-35906	4600.	0.46
PA Pot-03343-14	03-35907	54000.	5.4
PA Pot-03343-15	03-35908	160000.	16.
PA Pot-03343-16	03-35909	110000.	11.
PA Pot-03343-17	03-35910	110000.	11.
PA Wes-03344-07	03-35911	59000.	5.9
	Prep Blank	ND	
% Recovery	LCS	87.	
% Recovery	MS	94.	
% Recovery	MSD	94.	
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

Analyst

Non-Responsive

Reviewer

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non-[redacted]@md.ngb.army.mil

Attachment D

REFERENCE LIST INDEX

1. General Regulations and National Consensus Standards
2. Specific Regulations and Guidance
   a. Abrasive Blasting
   b. Asbestos
   c. Battery Charging Room
   d. Bird and Bat Manure
   e. Bloodborne Pathogens
   f. Chemical Agent Resistant Coating (CARC) Paint
   g. Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE)
   h. Confined Space Entry Program
   i. Design Review
   j. Ergonomics
   k. Flammable Storage Room
   l. Hazard Communication
   m. Hearing Conservation
   n. Indoor Air Quality
   o. Indoor Firing Ranges
   p. Lead
   q. Lighting
   r. Occupational Vision
   s. Paint Spray Booth
   t. Personal Protection
   u. Radiation Protection
   v. Respiratory Protection
   w. Sanitation
   x. Smoking
   y. Vehicle Exhaust
   z. Welding Operation

GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

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Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 $\mu g/ft^2$) and windowsills (250 $\mu g/ft^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of 200 $\mu g/ft^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 $\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 $\mu g/ft^2$ on floors and 250 $\mu g/ft^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

Attachment 5

Industrial Hygiene Survey Report

National Guard Facility
West Chester Armory

Prepared For:	**National Guard Bureau Region North IH** **301-IH Old Bay Lane** **Havre de Grace, MD 21078**
Survey Location:	**West Chester Armory** **226 North High Street** **West Chester, PA 19380**
Prepared By:	**ALS Environmental** **3544 North Progress Avenue** **Suite 100** **Harrisburg, PA 17110**
Survey Date:	**July 8, 2011**
Report Date:	**October 12, 2011**
ALS Project #:	**1107450**

Non-Responsive [redacted]

Director, Industrial Hygiene Services

ADDRESS 3544 North Progress Avenue, Suite 100, Harrisburg, PA 17110 PHONE +1 717 540 3424 FAX +1 717 540 3428
Analytical Laboratory Services, Inc. Part of the ALS Group A Campbell Brothers Limited Company
Environmental www.alsglobal.com

Table of Contents

Section 1.0
Executive Summary

Section 1.0 Executive Summary

An industrial hygiene survey was conducted on July 8, 2011, at the West Chester Armory located at 226 North High Street, West Chester, PA 19380. The survey was performed by Mr Non-Responsive CIH and Ms Non-Responsive

1. Lead surface, air and bulk samples were collected. Surface levels of lead exceeded 200 micrograms per square foot (ug/ft^2) in seven locations. Five locations were associated with the firing range and two were general areas. Cleaning procedures should be improved to maintain lead levels below 200 ug/ft^2. The firing range area should be professionally abated and access to this area should be restricted to properly trained and protected personnel.

2. Lighting levels did not meet the minimum recommended guideline in six locations. Lighting should be improved in these areas.

3. Indoor air quality parameters of temperature, relative humidity, carbon monoxide and carbon dioxide (ventilation) were evaluated during the assessment. Temperature levels in some areas were above than the American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) recommended guideline. For comfort, we recommend that temperature levels be kept between 68-79 F in occupied areas. Relative humidity levels in most areas were above The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation recommendation of 30-60 %. Relative humidity should be maintained between 30-60% in occupied areas.

4. A few areas of water damage were observed through out the facility. Visible fungal growth was observed on the exterior wall and on the pipe insulation in the vault area. All sources of water infiltration should be identified and repaired. Fungal growth should be properly remediated.

5. Some suspect asbestos containing pipe insulation and pipe fittings was observed to be in poor condition. The pipe insulation should be properly abated and/or repaired.

Section 2.0
Operation Description & Observations

Section 2.0 Operation Description & Observations

The West Chester Armory is mainly an administrative facility with offices, training and storage areas. There were approximately four full-time employees stationed at this facility at the time of this survey.

The building was initially constructed in 1916. It has been renovated. The exterior is brick and masonry. The interior walls are primarily concrete block and plaster. The floors are concrete with vinyl floor tile or carpet. The drill hall has a wooden floor.

There is no central heating, ventilating, and air conditioning system (HVAC) present. Window air-conditioners are present and utilized. Heat is provided via a boiler-fired heating system with radiators.

There is an area in the basement that was used as a firing range but it has been converted into a locker room and storage area. Some components of the firing range still remain.

There is no child-care facility in the building.

Overall housekeeping was fair with room for improvement.

No ergonomic concerns were reported. Office areas have computer work stations. Work stations appeared properly designed. Personnel had supportive chairs.

Section 3.0
Lead Testing

Section 3.0 Lead Testing

Due to the age of the building there is the potential for lead based paint to be present. Chipping and peeling paint was observed in numerous areas of the building. Various surfaces within the facility were screened for lead using surface wipe samples. Surface wipe samples were collected in accordance with the ASTM E 1792 protocols. Bulk samples were collected of peeling paint. Air samples were collected using 0.8 um mixed cellulose ester (MCE) filter cassettes attached to low volume air sampling pumps. Blank samples were submitted to the laboratory for quality control purposes. Samples were sent to AMA Analytical Services, Inc., in Lanham, Maryland, for lead analysis using EPA Method 600 R-93 200 (M)-7420. A copy of the laboratory analysis report can be found in Appendix A.

Lead Testing Results Summary

Sample #	Location	Air ug/m³	Surface ug/ft²	Paint Chip %Pb
1	Drill Hall	<5.5	*	*
2	Foxhole Break Room	<5.6	*	*
3	Blank	<3 (ug)	*	*
4	Drill Hall Floor (By MGS Cage)	*	580	*
5	Drill Hall - Floor (By 2nd PLT Cage)	*	120	*
6	Drill Hall – Floor (By Exit Door - West)	*	<110	*
7	Drill Hall – Floor (By Training Board)	*	<110	*
8	Drill Hall – Floor (Center of Hall)	*	<110	*
9	1st Floor Orderly Room - Window Sill	*	<110	*
10	Kitchen Annex-Storage Room Floor	*	3,900	*
11	Converted Firing Range - Bullet Trap Floor	*	550,000	*
12	Converted Firing Range - Stored Item (Parts Container)	*	430	*
13	Converted Firing Range - Overhead Heater	*	31,000	*
14	Converted Firing Range - Light Fixture	*	6,900	*
15	Outside Firing Range Floor By Emergency Generator	*	2,500	*
16	Blank	*	<12(ug)	*
17	2nd Floor- Resource Room (Wall)	*	*	0.024
18	Kitchen Storage Shelf	*	<110	*
19	1st Floor Supply Office- File Cabinet	*	120	*
Criteria		**50**	**200**	**0.5**

Key: **Bolded** results exceed listed criteria

Source: Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) & U.S. Department of Housing and Urban Development (HUD).

The National Guard Bureau currently utilizes 200 ug/ft^2 as a benchmark for identifying lead-contaminated surfaces. This guideline is referenced in NG PAM 420-15 "Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges" as a satisfactory surface contamination level unless the facility is utilized as a childcare facility. In such cases, U. S. Department of Housing and Urban Development (HUD) limit of 40 ug/ft^2 on floors and 250 ug/ft^2 on windowsills should be observed. There is no child care provided at this facility.

Lead surface, air and bulk samples were collected.

- Surface levels of lead exceeded 200 ug/ft^2 in the following areas:

  - Drill Hall Floor (By MGS Cage)
  - Kitchen Annex Storage Room Floor
  - Converted Firing Range - Bullet Trap Floor
  - Converted Firing Range - Stored Item (Parts Container)
    Converted Firing Range - Overhead Heater
  - Converted Firing Range - Light Fixture
  - Outside Firing Range Floor By Emergency Generator

- Cleaning procedures should be improved to maintain lead levels on surfaces below 200 ug/ft^2. The firing range area should be professionally abated and access to this area should be restricted to properly trained and protected personnel.

- Air samples for lead were below the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit of 50 ug/m^3. In fact, no detectable level of lead was identified in the air samples collected.

- Deteriorated paint was observed in a few locations throughout the facility. Delaminated paint was mostly due to water leaks, age and prolonged exposure to elevated relative humidity levels. Bulk samples were collected from instance where paint was peeling and in poor condition. This paint was found to be 0.03-1% lead. The bulk sample laboratory analysis result was below the HUD definition of lead-based paint (0.5%). Peeling and chipping paint should be repaired.

Section 4.0
Lighting

Section 4.0 Lighting

A lighting assessment was conducted throughout the facility. Measurements were collected using a Cooke Cal-Light 400L Precision Light Meter (Serial No. K070155). The light meter was last calibrated on September 10, 2011. Measurements collected were compared to ANSI/IESNA RP-7-01 Lighting Industrial Facilities and RP-1-04 Office Lighting.

Light Survey Assessment Summary

Location	Foot Candles	Recommended Lighting	Sufficient Lighting
Drill Hall	25.0	30-50	Yes
Foxhole Break Room	54.5	30	Yes
Orderly Room (office)	124.0	30-50	Yes
Sergeant Leitsenring Office	40.0	30-50	Yes
2nd Floor Classroom (current recruiting office)	23.7	30-50	No
Resource Room (office)	106.1	30-50	Yes
Kitchen	54.0	50	Yes
Supply Office	14.9	30-50	No
COMMO Room (Storage)	22.2	30	No
Kitchen Annex (Storage)	67.0	30	Yes
Latrine (men's)	8.6	5	Yes
Boiler Room	9.0	30	No
Locker Area	33.0	7	Yes
Arms Room (Storage)	13.3	30	No
Converted Firing Range (Storage)	7.0	30	No

Lighting levels did not meet the minimum recommended guidelines in the following locations:

- 2nd Floor Classroom (current recruiting office)
- Supply Office
- COMMO Room (Storage)
- Boiler Room
- Arms Room
- Converted Firing Range (Storage)

Lighting should be improved in these areas.

Section 5.0
Indoor Air Quality

Section 5.0 Indoor Air Quality

Survey measurements were made for ventilation and comfort parameters (carbon dioxide, temperature, carbon monoxide and relative humidity). The air quality measurements were collected using direct reading instrumentation for comfort parameters using a QTRAK IAQ Meter, Model 7565 (Serial #7565X0839017). The IAQ Meter was last calibrated in February 11, 2011.

The American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) have developed indoor air quality guidelines for mechanically ventilated office buildings and commercial settings (ASHRAE standard 62.1-2010). ASHRAE specifies temperature and relative humidity ranges for human comfort (ASHRAE 55-2010). The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation, recommends maintaining a relative humidity range between 30 to 60% in occupied areas.

The following table summarizes the measurements collected.

IAQ Assessment Summary

Location	Temperature (°F)	Relative Humidity (%)	Carbon Dioxide (ppm)	Carbon Monoxide (ppm)
Outdoors	84.5	71.8	480	0.8
Drill Hall	**84.5**	**66.0**	395	1.0
Foxhole/Break Room	76.6	**65.4**	**434**	0.8
Orderly Room (Office)	78.1	52.9	650	0.4
Sergeant Leinsetzung Office	76.4	47.3	606	1.0
2nd Floor Classroom (Current Recruiting Office)	76.2	49.9	432	0.5
Resource Room (Office)	**79.7**	**70.0**	409	0.3
Kitchen	**82.4**	**67.0**	478	0.4
Supply Office	**84.7**	**66.0**	421	0.6
COMMO Room (Storage)	**79.5**	**72.2**	418	0.9
Kitchen Annex (Storage)	77.9	**76.0**	552	1.0
Latrine (Men's)	76.6	**75.7**	693	0.7
Boiler Room	76.9	**79.3**	455	0.5
Locker Area	77.4	**79.0**	433	0.6
Arms Room (Vault)	77.6	**68.5**	662	0.5
Converted Firing Range (Storage)	78.3	77.1	437	0.8
Criteria	**68.0-79.0**	**30-60**	**<1,100**	**<9.0**

Key: **Bolded** results exceed listed criteria

Source: The American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) 55-2010 & The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation.

Summary of findings and recommendations:

- Temperature levels in some areas were above the ASHRAE recommendation. For comfort we recommend that temperature levels be maintained between 68-79F in occupied areas.

- Relative humidity in most areas were above the recommended criteria of 30-60%. Maintain RH levels between 30-60%.

- Carbon dioxide levels did not exceed the recommended ceiling of 1,100 ppm. This suggests that outdoor air ventilation is adequate in all areas.

- Carbon monoxide levels were less than the recommended ceiling of 9 ppm.

- A visual inspection was conducted throughout visually accessible portions of the facility. The visual inspection was conducted to assess sources or pathways of factors potentially deleterious to IAQ. Visible fungal growth was observed on the exterior wall and on pipe insulation in the vault area. All sources of water infiltration should be identified and repaired. Fungal growth should be properly remediated

Section 6.0

Suspect Asbestos Containing Building Materials

Section 6.0 Suspect Asbestos Containing Building Materials

Based on the age of the building asbestos containing materials (ACM) could be present in the building. General notes and observations were made at the time of the survey. Inaccessible areas were not inspected. No samples were collected. Inaccessible areas were not inspected.

The following findings were made regarding suspect ACM at the time of this survey:

1. Pipe insulation and associated pipe fittings were observed through out the facility. There is an estimated 300 Linear Feet (LF) of pipe insulation.

2. A few small areas of pipe insulation in the vault, near the ramp entrance, and in the emergency generator room were observed to be damaged and in poor condition. This damaged pipe insulation should be properly abated or repaired.

Section 7.0
Limitations

Section 7.0 Limitations

This report summarizes our evaluation of the conditions observed at the above referenced location. Our findings are based upon our observations and sampling results obtained at the facility at the time of our visit. The report, results, and subsequent recommendations reported herein are also limited to the information available at the time it was prepared and investigated. Conditions may have been in effect prior to the sampling events that have changed over time and which cannot be predicted within the scope of this limited investigation. Any conditions discovered which deviate from the data contained in this report should be presented to us for our evaluation.

This report is intended for the exclusive use of the client. This report and the findings herein shall not, in whole or in part, be relied upon by any other parties, disseminated or conveyed to any other party without prior written consent of the National Guard Bureau, and ALS Environmental. The findings are relative to the dates of our site visits and should not be relied upon for substantially later dates.

Appendix A
Laboratory Analysis Report

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	RC-West Chester	Chain Of Custody:	510761
Address:	301-H Old Bay Lane, Attn: ARNG-CIG-P, State Military Reservation	Job Location:	West Chester, PA	Date Submitted:	7/12/2011
	Havre de Grace, Maryland 21078	Job Number:	RC-West Chester	Person Submitting:	[redacted]
		P.O. Number:	NGB-JHNE	Date Analyzed:	7/19/2011 Report Date: 7/19/2011

Attention: [redacted]

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft^2)	Reporting Limit		Total ug	Final Result		Comments
1179264	1107450-1	Flame	Air	541	N/A	5.5	ug/m^3	<3	<5.5	ug/m^3	
1179265	1107450-2	Flame	Air	534	N/A	5.6	ug/m^3	<3	<5.6	ug/m^3	
1179266	1107450-3	Flame	Air Blank	0	N/A	3	ug/m^3		<3	ug	
1179267	1107450-4	Flame	Wipe	****	0.108	110	ug/ft^2	63	580	ug/ft^2	
1179268	1107450-5	Flame	Wipe	****	0.108	110	ug/ft^2	13	120	ug/ft^2	
1179269	1107450-6	Flame	Wipe	****	0.108	110	ug/ft^2	<12	<110	ug/ft^2	
1179270	1107450-7	Flame	Wipe	****	0.108	110	ug/ft^2	<12	<110	ug/ft^2	
1179271	1107450-8	Flame	Wipe	****	0.108	110	ug/ft^2	<12	<110	ug/ft^2	
1179272	1107450-9	Flame	Wipe	****	0.108	110	ug/ft^2	<12	<110	ug/ft^2	
1179273	1107450-10	Flame	Wipe	****	0.108	110	ug/ft^2	420	3900	ug/ft^2	
1179274	1107450-11	Flame	Wipe	****	0.108	110	ug/ft^2	59000	550000	ug/ft^2	
1179275	1107450-12	Flame	Wipe	****	0.108	110	ug/ft^2	46	430	ug/ft^2	
1179276	1107450-13	Flame	Wipe	****	0.108	110	ug/ft^2	3400	31000	ug/ft^2	
1179277	1107450-14	Flame	Wipe	****	0.108	110	ug/ft^2	740	6900	ug/ft^2	
1179278	1107450-15	Flame	Wipe	****	0.108	110	ug/ft^2	270	2500	ug/ft^2	
1179279	1107450-16	Flame	Wipe Blank	****	N/A	12	ug		<12	ug	
1179280	1107450-17	Flame	Paint Chip	****	N/A	0.01	%Pb		0.024	%Pb	
1179281	1107450-18	Flame	Wipe	****	0.108	110	ug/ft^2	<12	<110	ug/ft^2	
1179282	1107450-19	Flame	Wipe	****	0.108	110	ug/ft^2	13	120	ug/ft^2	

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AMA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	RC-West Chester	Chain Of Custody:	510761
Address:	301-IH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation	Job Location:	West Chester, PA	Date Submitted:	7/12/2011
	Havre de Grace, Maryland 21078	Job Number:	RC-West Chester	Person Submitting:	[redacted]
		P.O. Number:	NGB-IHNE	Date Analyzed:	7/19/2011 Report Date: 7/19/2011

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	Total ug	Final Result	Comments

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B

N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)

%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)

Note: All samples were received in good condition unless otherwise noted.

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results

Final results for air and wipe samples are based on client supplied information nor verified by this laboratory.

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

See QC Summary for analytical results of quality control samples associated with these samples.

Analyst: [redacted]

Technical Manager: [redacted]

AMA Analytical Services, Inc.
Focused on Results www.amalab.com
AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)
4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

Page 1 of 2

(Please Refer To This Number For Inquiries)

510761

Mailing/Billing Information:
1. Client Name: National Guard Bureau
2. Address 1: 301-IH Old Bay Lane
3. Address 2: Attn: NGB-AVN-SI, State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:
1. Job Name: RC - West Chester
2. Job Location: West Chester, PA
3. Job #: RC - West Chester P.O. #: NGB - IHNE
4. Contact Person: [redacted]
5. Submitted by: [redacted]

Reporting Information (Results will be provided as soon as technically feasible):

AFTER HOURS (must be pre-scheduled)	NORMAL BUSINESS HOURS	REPORT TO:
☐ Immediate Date Due: ☐ 24 Hours Time Due: Comments:	☐ Immediate ☐ Next Day ☐ 3 Day ☐ 4 Day ☒ 5 Day + Date Due: 7/19/11 ☐ Results Required By Noon (Every Attempt Will Be Made to Accommodate)	[redacted] ...with Report ...@us.army.mil ...@us.army.mil .com

Asbestos Analysis
PCM Air – Please Indicate Filter Type: ☐ NIOSH 7400 ___ (QTY) ☐ Fiberglass ___ (QTY)
TEM Air – Please Indicate Filter Type: ☐ AHERA ___ (QTY) ☐ NIOSH 7402 ___ (QTY) ☐ Other (specify ___) ___ (QTY)
PLM Bulk: ☐ EPA (all – Visual Estimate) ___ (QTY) ☐ EPA Point Count ___ (QTY) ☐ NY State Friable 198.1 ___ (QTY) ☐ Grav. Reduction ELAP 198.6 ___ (QTY) ☐ Other (specify ___) ___ (QTY)
MISC: ☐ Vermiculite ☐ Asbestos Soil PLM ...

TEM Bulk: ☐ ELAP 198.4 (Chatfield) ___ (QTY) ☐ NY State PLM/TEM ___ (QTY) ☐ Residual Ash ___ (QTY)
TEM Dust: ☐ Qual. (presence) Vacuum/Wipe ___ (QTY) ☐ Quant. (Microvac) Vacuum D5755-95 ___ (QTY) ☐ Quant. (Wipe) D6480-99 ___ (QTY)
TEM Water: ☐ Qual. (presence) ___ (QTY) ☐ ELAP 198.2/EPA 100.2 ___ (QTY) ☐ EPA 100.1 ___ (QTY)

☒ All samples received in good condition unless otherwise noted. (TEM Water samples ___ °C)

Metals Analysis
☒ Pb Paint Chip 1 (QTY)
☒ Pb Dust Wipe (wipe type: Ghost) 15 (QTY)
☒ Pb Air 3 (QTY)
☐ Pb Soil/Solid ___ (QTY)
☐ Pb TCLP ___ (QTY)
☐ Drinking Water: ☐ Pb ___ (QTY) ☐ Cu ___ (QTY) ☐ As ___ (QTY)
☐ Waste Water: ☐ Pb ___ (QTY) ☐ Cu ___ (QTY) ☐ As ___ (QTY)
☐ Pb Remove (Metals ___) ___ (QTY)

Fungal Analysis
Collection Apparatus for Spore Traps/Air Samples: ___
Collection Media: ___
☐ Spore Trap ___ (QTY) ☐ Surface Vacuum Dust ___ (QTY)
☐ Surface Swab ___ (QTY) ☐ Culturable ... ___ (QTY)
☐ Surface Tape ___ (QTY) ☐ Culturable ID Species ... ___ (QTY)
☐ Other (Specify ___) ___ (QTY)

CLIENT ID SUB/RPR	SAMPLE INFORMATION SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPE AREA	ANALYSIS		MATRIX
1107450-1		7/8	544		X	X	
1107450-2		↓	534		X	X	
1107450-3			0		X	X	
1107450-4				100cm²	X		X
1107450-5				↓	X		X
1107450-6					X		X
1107450-7					X		X
1107450-8					X		X
1107450-9					X		X
1107450-10					X		X
1107450-11					X		X
1107450-12		↓		↓	X		X

CLIENT CONTACT (LABORATORY STAFF ONLY)
Date/Time: ___ Contact: ___ By: ___
Date/Time: ___ Contact: ___ By: ___
Date/Time: ___ Contact: ___ By: ___

LABORATORY STAFF ONLY (CUSTODY)
1. Date/Time RCVD: 7/12/11 @900 Via: FedEx UPS By (Print): [redacted]
2. Date/Time Analyzed: __/__/__ @ ___ By (Print): ___ Sign: ___
3. Results Reported To: ___ Via: ___ Date: __/__/__ Time: ___ Initials: ___
4. Comments: ___

AMA Analytical Services, Inc.
Focused on Results www.amalab.com
AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)
4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This Number For Inquires) 510761

Mailing/Billing Information:
1. Client Name: National Guard Bureau
2. Address 1: 301-IH Old Bay Lane
3. Address 2: Attn: NGB-AVN-SL State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0256

Submittal Information:
1. Job Name: RC- West Chester
2. Job Location:
3. Job #: P.O. #: W912K0-09-A-0003
4. Contact Person: [redacted] & phone # (410) 942-0273
5. Submitted by: Signature:

Reporting Information (Results will be provided as soon as technically feasible):

AFTER HOURS (must be pre-scheduled): ☐ Immediate ☐ 24 Hours Date Due: Time Due: Comments:

NORMAL BUSINESS HOURS: ☐ Immediate ☐ Next Day ☐ 2 Day ☐ 3 Day ☐ 5 Day + Date Due: ☐ Results Required By Noon (Every Attempt Will Be Made to Accomodate)

REPORT TO: ☒ Include COC/Field Data Sheets with Report [redacted] @us.army.mil @us.army.mil

Asbestos Analysis
PCM Air – Please Indicate Filter Type: ☐ NIOSH 7400 (QTY) ☐ Fiberglass (QTY)
TEM Air – Please Indicate Filter Type: ☐ AHERA (QTY) ☐ NIOSH 7402 (QTY) ☐ Other (specify) (QTY)
PLM Bulk: ☐ EPA 600 – Visual Estimate (QTY) ☐ EPA Point Count (QTY) ☐ NY State Friable 198.1 (QTY) ☐ Grav. Reduction ELAP 198.6 (QTY) ☐ Other (specify) (QTY)
MISC: ☐ Vermiculite ☐ Asbestos Soil PLM ... Bulk PLM ... TEM ...

TEM Bulk: ☐ ELAP 198.4/Chatfield (QTY) ☐ NY State PLM/TEM (QTY) ☐ Residual Ash (QTY)
TEM Dust: ☐ Qual. (microvac) Vacuum/Dust (QTY) ☐ Quan. (microvac) Vacuum D5755-95 (QTY) ☐ Quan. (microvac) Dust D6480-99 (QTY)
TEM Water: ☐ Qual. (presence) (QTY) ☐ ELAP 198.2/EPA 100.2 (QTY) ☐ EPA 100.1 (QTY)

☐ All samples received in good condition unless otherwise noted. (TEM Water samples °C)

Metals Analysis: ☐ Pb Paint Chip (QTY) ☐ Pb Dust Wipe (wipe type) (QTY) ☐ Pb Air (QTY) ☐ Pb Soil/Solid (QTY) ☐ Pb TCLP (QTY) ☐ Drinking Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY) ☐ Waste Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY) ☐ Pb Finance (Media) (QTY)
Fungal Analysis: Collection Apparatus for Spore Trap/Air Samples: Collection Media: ☐ Spore Trap (QTY) ☐ Surface Swab (QTY) ☐ Surface Tape (QTY) ☐ Other (Specify) (QTY) ☐ Surface Vacuum Dust (QTY) ☐ Culturable Air General Media (QTY) ☐ Culturable Air Specific Media (QTY)

SAMPLE INFORMATION / ANALYSIS / MATRIX

CLIENT ID NUMBER	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPE AREA	Analysis 1	Analysis 2	Analysis 3	Analysis 4	Analysis 5	Matrix 1	Matrix 2	Matrix 3	Matrix 4	Matrix 5	Matrix 6	Matrix 7
1107450-13		7/8		100cm²				X				X				
1107450-14								X				X				
1107450-15				↓				X				X				
1107450-16				Ocm²				X			X	X				
1107450-17			—	—				X			X					
1107450-18				100cm²				X				X				
1107450-19		↓		↓				X				X				

CLIENT CONTACT (LABORATORY STAFF ONLY)
Date/Time: Contact: By:
Date/Time: Contact: By:
Date/Time: Contact: By:

LABORATORY STAFF ONLY: (CUSTODY)
1. Date/Time RCVD: / / @ Via: By (Print): Sign:
2. Date/Time Analyzed: / / @ By (Print): Sign:
3. Results Reported To: Via: Date: / / Time: Initials:
4. Comments:

BEST AVAILABLE COPY

Appendix B
Photographs

Photo #1 RC West Chester Exterior of Building

Photo #2 RC West Chester – Exterior of Building

Photo #3 RC West Chester Drill Hall

Photo #4 RC West Chester Water Damage and Chipping/Peeling Paint in Resource Room

Photo #5 RC West Chester- Chipping/ Peeling Paint Recruitment Office

Photo #6 RC West Chester Suspect Asbestos Containing Pipe Insulation – Drill Hall

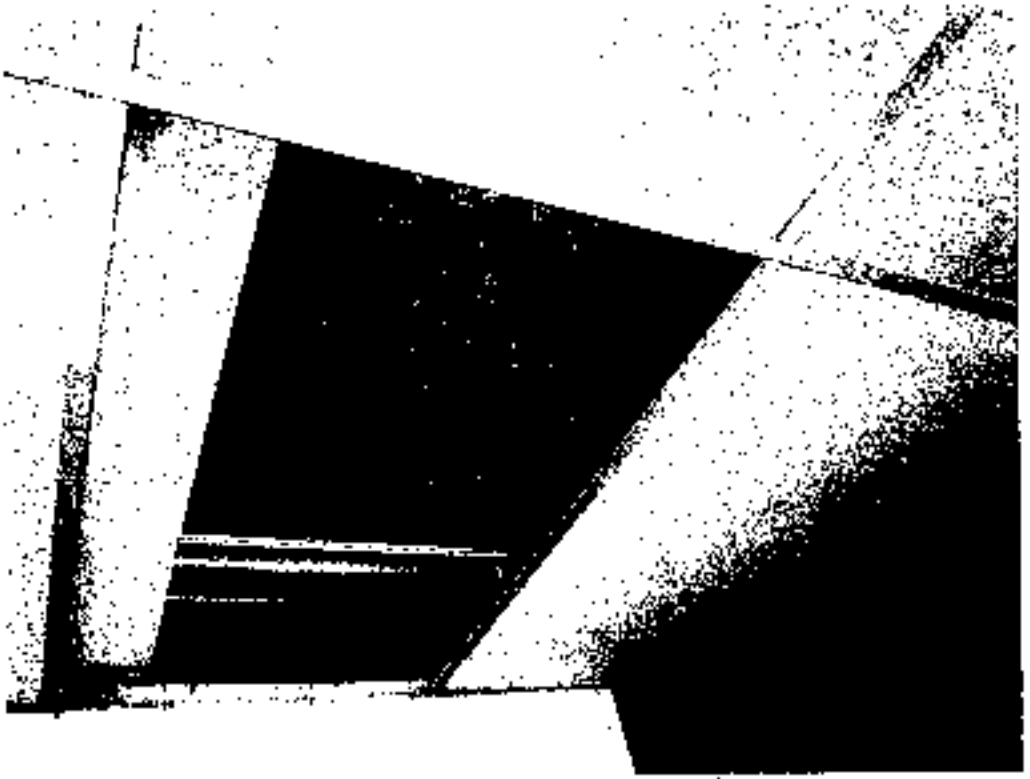


Photo #7 RC West Chester – Chipping/ Peeling Paint 1st Floor Bathroom

Photo #8 RC West Chester – Water Damage in Basement Storage Room

Photo #9 RC West Chester Locker Area Basement

Photo #10 RC West Chester Suspect Asbestos Containing Pipe Insulation Locker Area- Basement

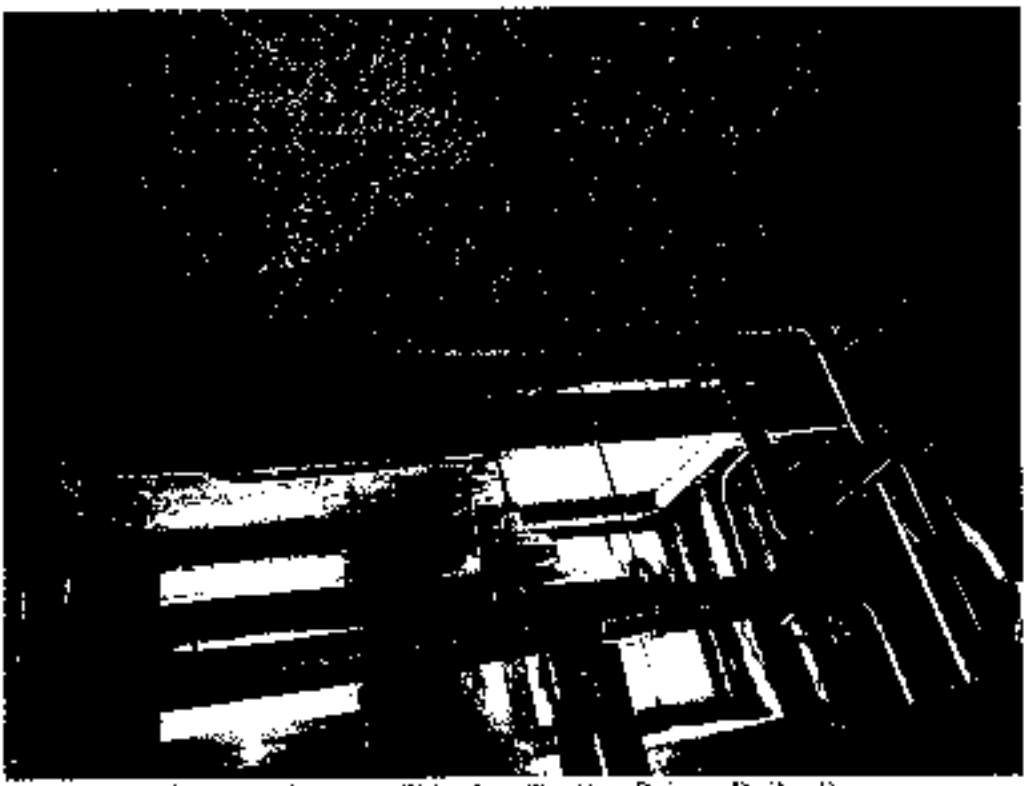


Photo #11 RC West Chester – Chipping Peeling Paint - Boiler Room

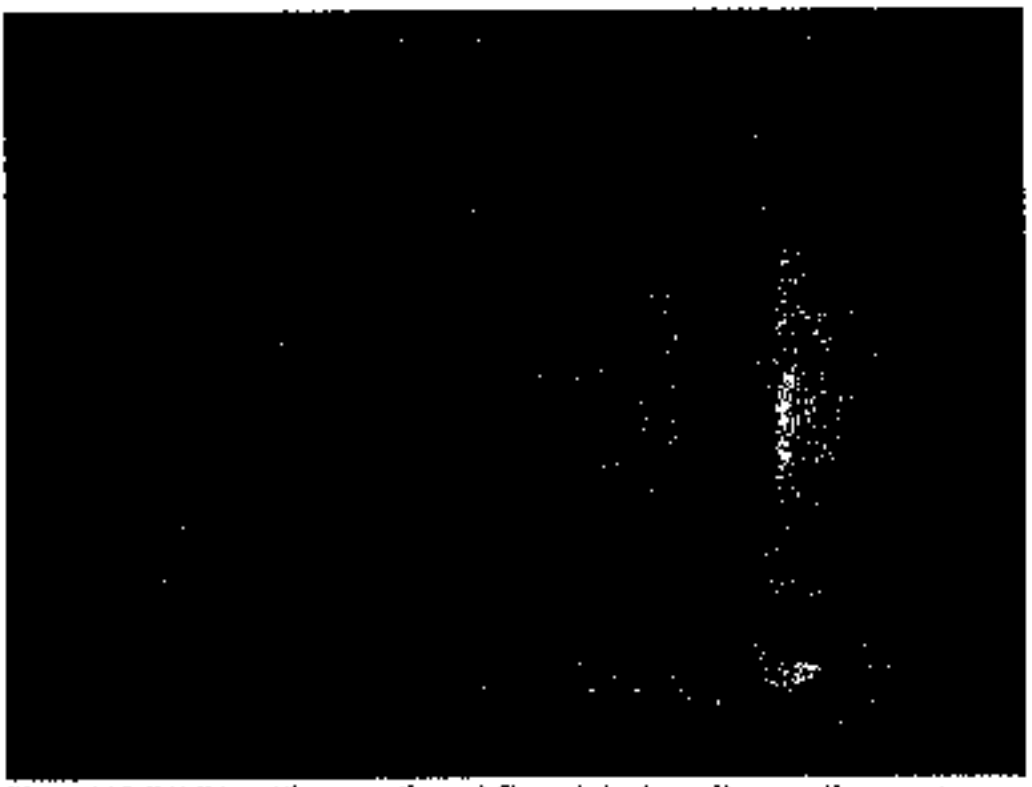


Photo #12 RC West Chester – Fungal Growth in Arms Room Basement

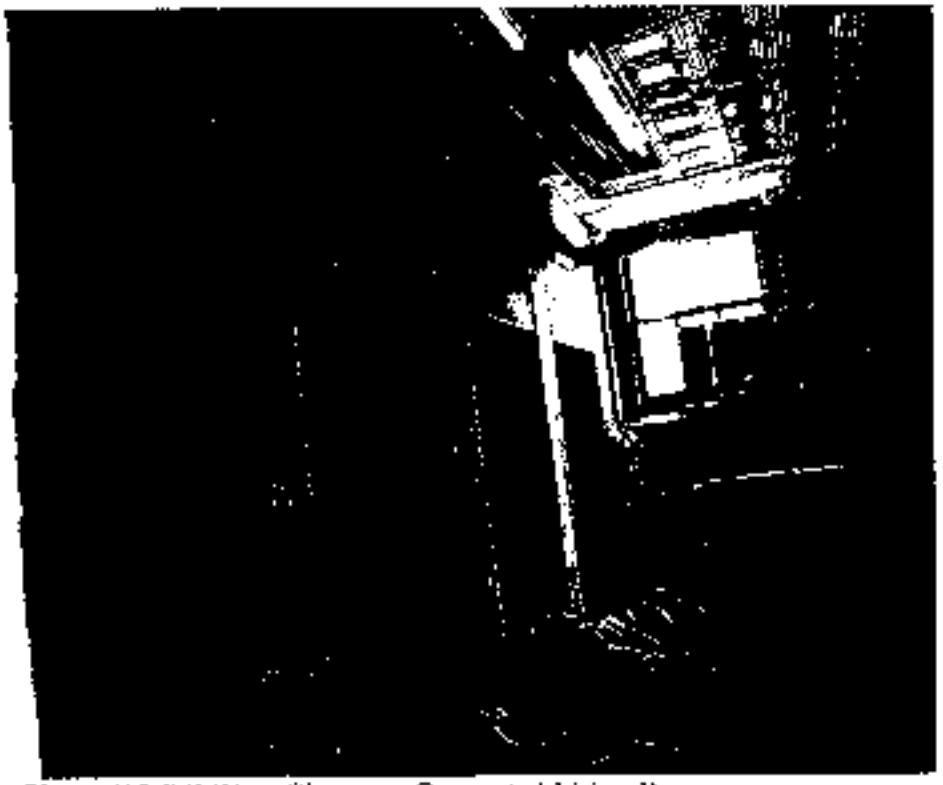


Photo #13 RC West Chester - Converted Firing Range

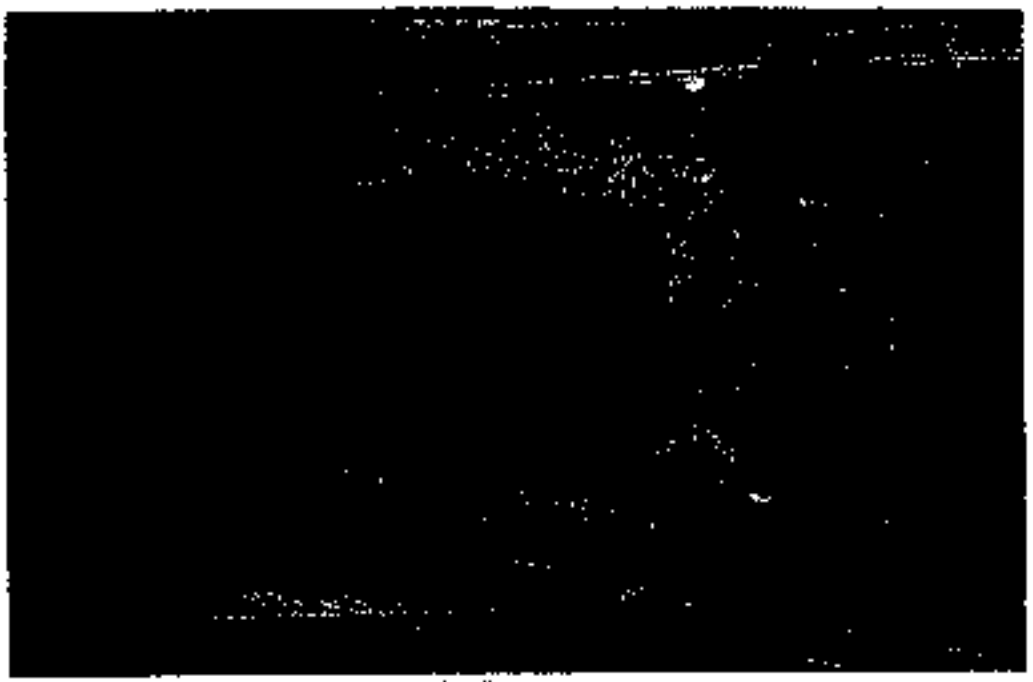
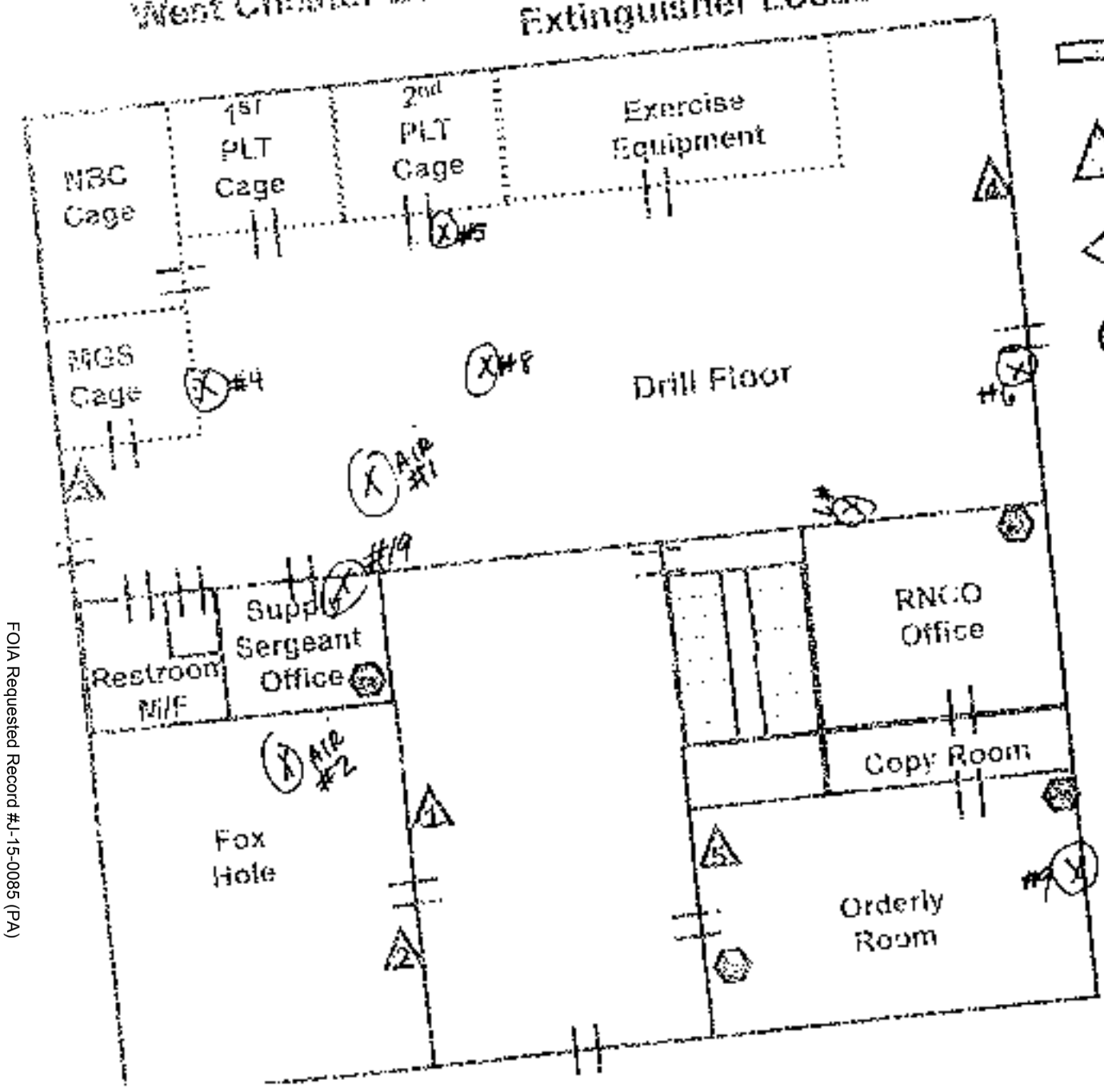


Photo #14 RC West Chester - Bullet Trap

Appendix C
Floor Plan

Lead wipes / air

West Chester Evacuation Plan, Fire Alarm, Fire Hose Access and Fire Extinguisher Location Plan



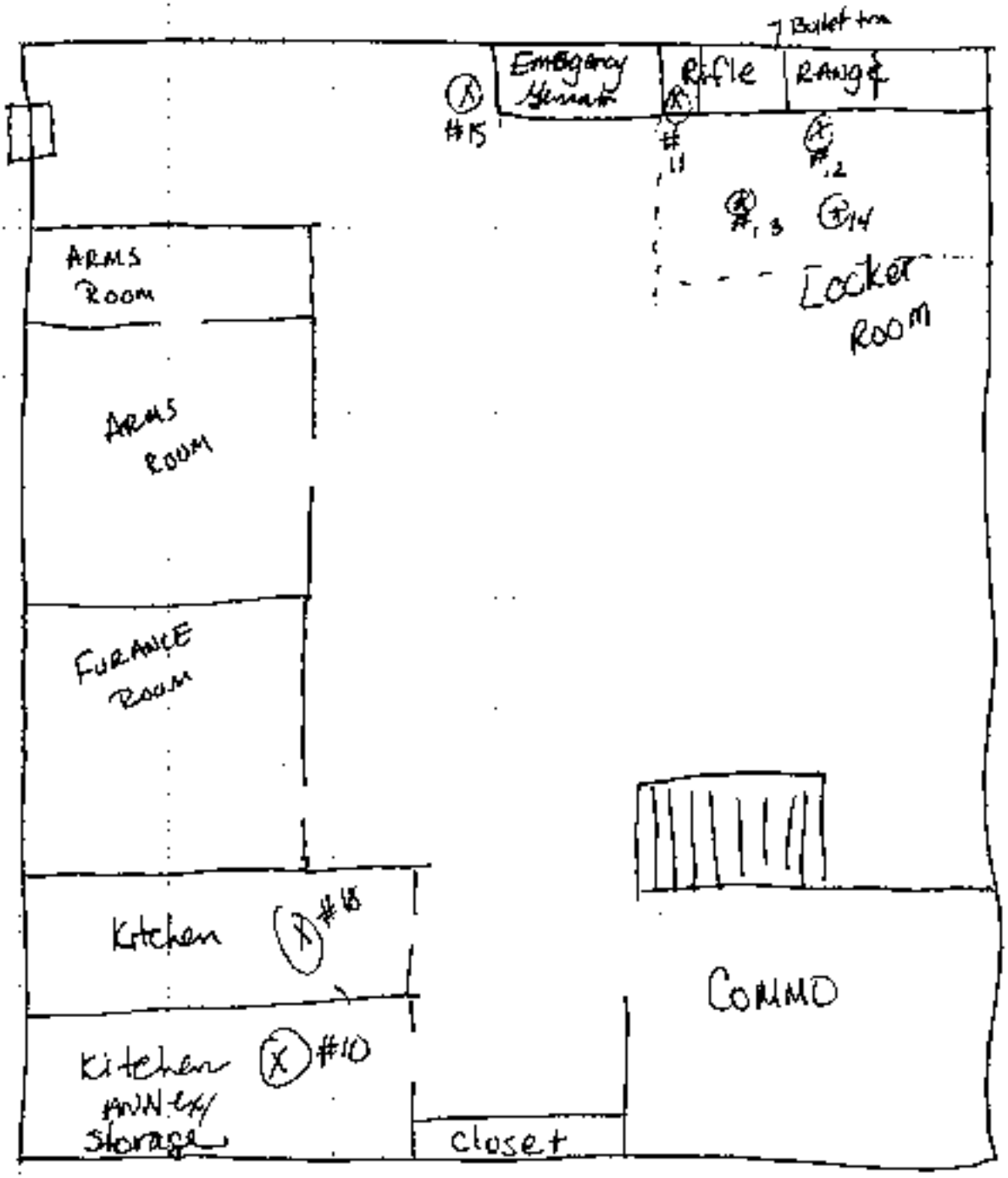
Fire 610-431-7565
Ambulance 610-431-5478
Police 610-344-0741

ALS Environmental
3544 North Progress Ave. • Ste. 100 • Harrisburg, PA 17110
TEL: 717-540-3424 • FAX: 717-540-3248

Subject: RC West Chester Basement

Prepared by: Cas Date:

LEAD Wipe/Air



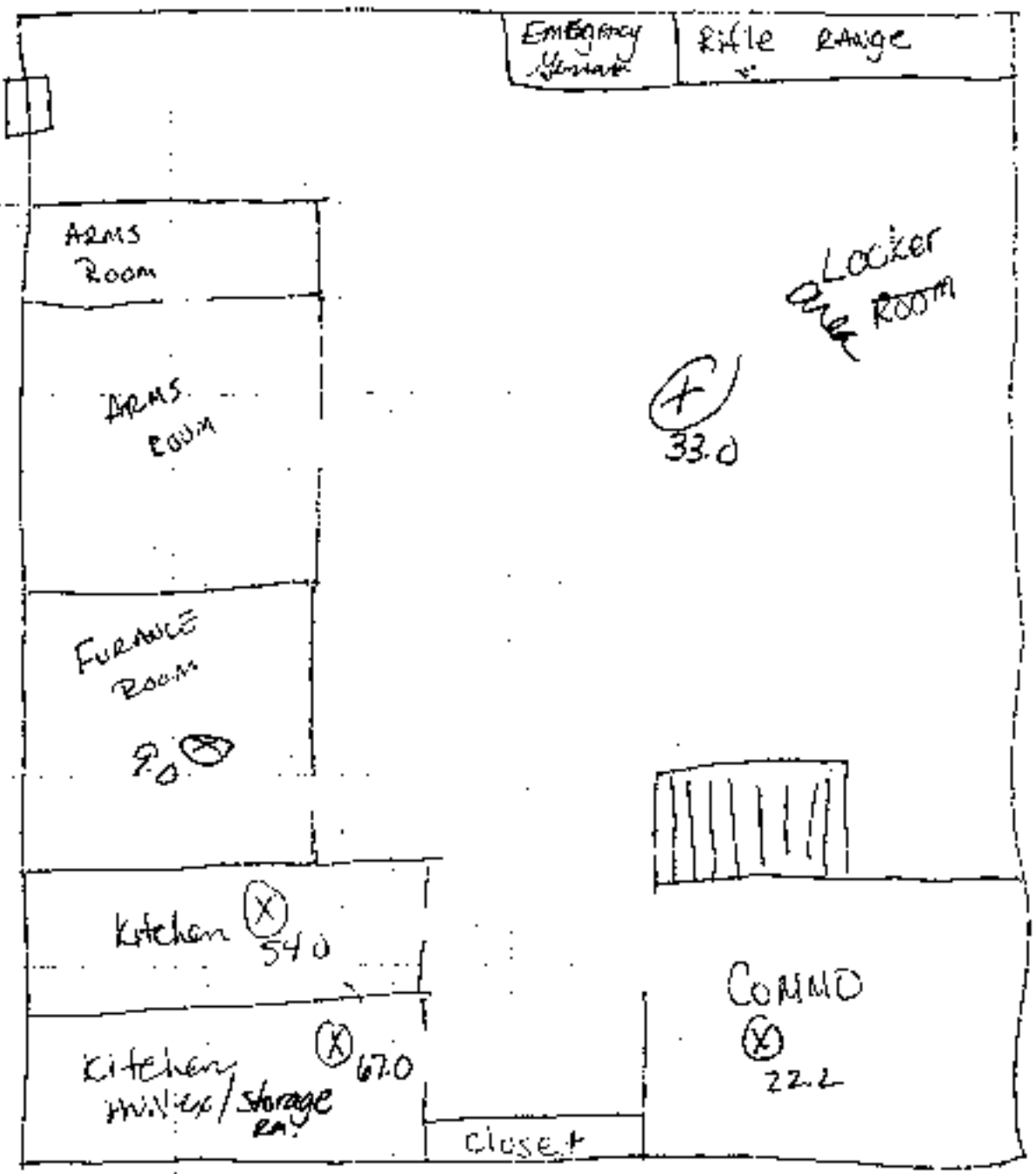
ALS Environmental

Subject: RC West Chester Basement

3544 North Progress Ave. • Ste. 105 • Harrisburg PA 17110
TEL: 717-540-3622 • FAX: 717-540-2248

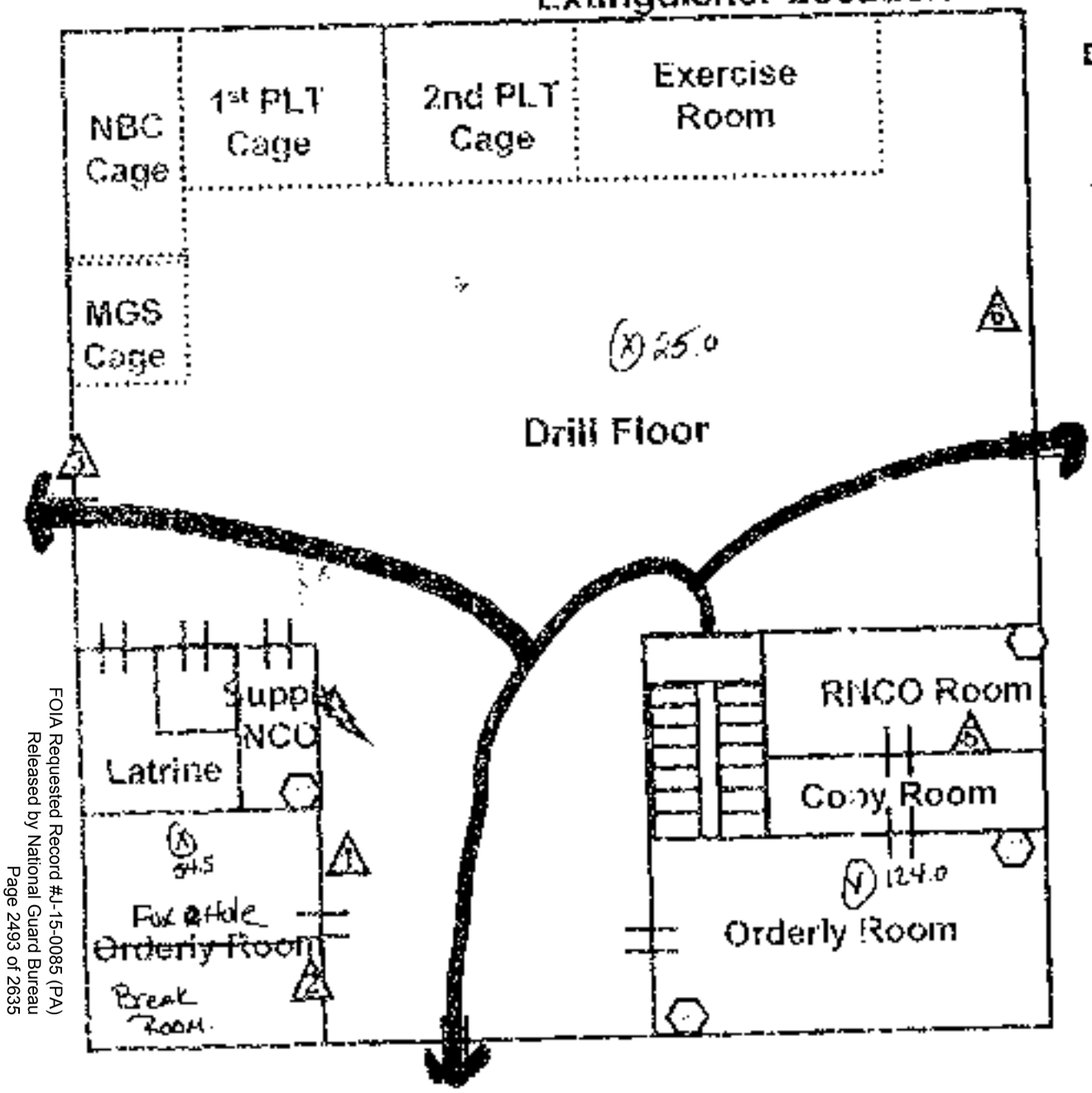
Prepared By: Date:

Lighting



lighting

West Chester Evacuation Plan, Fire Alarm, Fire Hose Access and Fire Extinguisher Location Plan



Evacuation Route

Fire Extinguisher

Fire Alarm

Fire Hose Access

Phone

Power

North

Fire 610-431-7565
Ambulance 610-431-5478
Police 610-344-0741

ALS Environmental
3544 North Progress Ave. • Ste. 100 • Harrisburg, PA 17110
TEL: 717-540-3424 • FAX: 717-540-3248

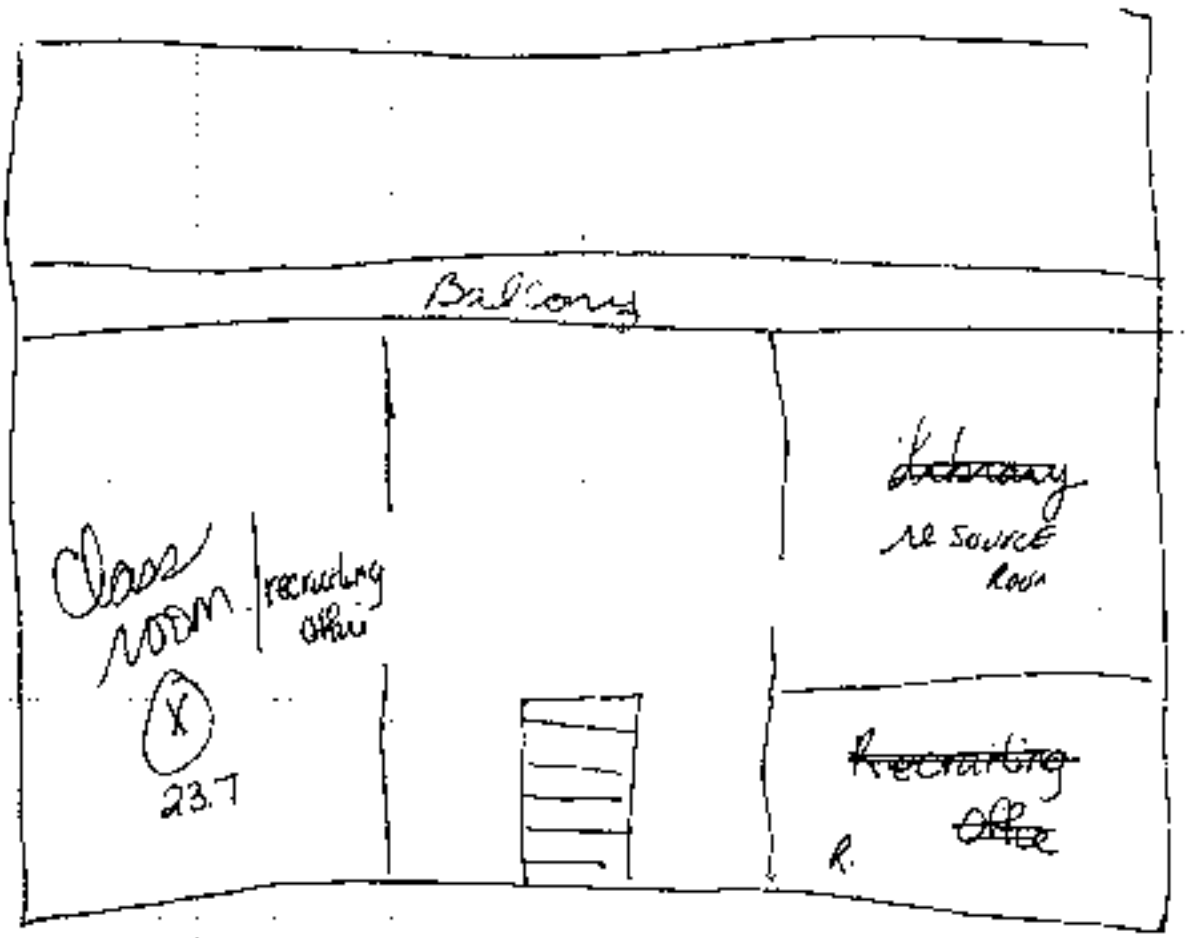
Subject: RC West Chester

Prepared by: Cas

Date 7-8-11

2nd floor

lighting



Appendix D
References

Appendix D. References

1. Title 29 Code of Federal Regulations (CFR), Part 1910.1025, Occupational Safety and Health Administration, Occupational Exposure to Lead

2. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values and Biological Exposure Indices, 2011 Edition

3. Industrial Ventilation: A Manual of Recommended Practice for Design, 27th Edition

4. American Society of Heating, Refrigerating and Air-Conditioning Engineers, Ventilation for Acceptable Indoor Air Quality, 62.1-2010

5. RP-1-2004, Industrial Lighting, Illuminating Engineering Society of North America ANSI

6. RP-7-2001, Industrial Lighting, Illuminating Engineering Society of North America ANSI

7. National Emission Standard Hazardous Air Pollutants (NESHAP) – The standards for asbestos are contained in 40 CFR 61.140 through 61.157.

8. Environmental Protection Agency (EPA) standards [40 Code of Federal Regulations (CFR) 745.227(h)(3)]

9. Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the U.S Army Center for Health Promotion and Preventive Medicine (USACHPPM)

10. The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation.

11. NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 NOV 06.

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland




Industrial Hygiene Survey
for PAARNG – West Chester Readiness Center
226 North High Street
West Chester, Pennsylvania 19380

AECOM
January 2013
Document No.: 60276421.1/West Chester Readiness Center

Prepared for:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
Havre De Grace, Maryland

Industrial Hygiene Survey
for PAARNG – West Chester Readiness Center
226 North High Street
West Chester, Pennsylvania 19380

Non-Responsive
Industrial Hygienist

Non-Responsive
Project Manager

Non-Responsive
Northeast District Health & Safety Manager

AECOM
January 2013
Document No.: 60276421.1/West Chester Readiness Center

AECOM

Contents

List of Appendices

List of Tables

Executive Summary

On November 13, 2012, AECOM conducted an Industrial Hygiene (IH) survey of the West Chester Readiness Center facility located at 226 North High Street in West Chester, Pennsylvania. Non-Responsive, SFC was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the West Chester Readiness Center operations.

The industrial hygiene survey was generally conducted in accordance with the scope of work as described in the "Statement of Work – Industrial Hygiene Services for National Guard Bureau Industrial Hygiene Region North – Baseline Surveys for Readiness Centers and Administrative Buildings", dated January 2012.

The West Chester Readiness Center is currently staffed by seven personnel. Some of the personnel were not present at the time of the survey due to active duty assignments or other off-site responsibilities. The facility is configured as an administrative area and a Drill/Assembly Hall.

Personnel at the facility were undertaking normal daily activities, which are primarily administrative in nature, at the time of the survey.

The activities undertaken during the Industrial Hygiene survey included facility descriptions, lead wipe/air sampling, evaluation of housekeeping, illumination studies, ventilation system evaluation, and a review of the physical building condition.

The West Chester Readiness Center is housed in a one-story masonry building, and consists of approximately 70% administrative space and 30% Assembly Hall.

Approximately half of the lighting levels measured throughout the facility were inadequate as per ANSI/IESNA RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

Wipe samples collected for lead-containing dust throughout the facility did not indicate lead levels above the ARNG action level.

Peeling lead-based paint was observed at the West Chester Readiness Center during this survey. The peeling paint was observed in the restroom near the assembly hall, men's restroom in basement, the boiler room, the second floor stairwell, and a meeting room on the second floor. Bulk samples of these peeling paints were collected for analysis.

AECOM observed visible damaged friable asbestos-containing material (ACM) in the service bay. A bulk sample was collected for analysis.

Water damaged was observed in the first floor break room and the second floor meeting room. AECOM observed visible mold growth in both areas.

There is no Heating, Ventilation & Air Conditioning (HVAC) system that provides fresh air from the building exterior in administrative areas.

1.0 Facility Description and Operations

The West Chester Readiness Center, constructed in 1916, is a two-story administrative facility with a full basement. The building is constructed primarily of brick and exterior stone block. Administrative offices are located in the front portion of the building on both floors and the locker room, boiler room; service bay and restroom/showers are located on the basement level. The administrative area is finished with sheetrock walls; lay-in ceiling tiles and floor tile. The two-story Assembly/Drill Hall area, located in the rear section of the building, is finished with painted block walls and a concrete floor. According to site personnel there is no firing range at the facility.

The primary activity at the West Chester Readiness Center is routine administrative duties and occasional use by units for support and training of soldiers. The Assembly Hall is not rented out for civic activities. The West Chester Readiness Center is currently staffed by seven personnel. No vehicle maintenance activities are undertaken at the facility.

2.0 Sampling in Readiness Centers

2.1.1 Wipe Sampling

Wipe sampling for lead was conducted in the Assembly Hall and administrative areas following the Occupational Safety & Health Administration (OSHA) wipe sampling method and using Ghost wipes. Samples were collected in areas that are not frequently cleaned and showed signs of dust whenever possible.

The following table presents the results of the lead wipe sampling conducted at the facility.

Table 2-1: Lead Wipe Sample Results

Sample Number	Sample Location	Lead Concentration
Wipe – 001	Assembly Hall - shelf	<110 ug/ft^2
Wipe – 002	Break Room - table	<110 ug/ft^2
Wipe – 003	Administrative Office - desk top	<110 ug/ft^2
Wipe – 004	Recruiter Office - table	<110 ug/ft^2
Wipe – 005	Foyer - floor	<110 ug/ft^2

ug/ft^2 = Micrograms per square foot.

The wipe samples collected throughout the facility did not detect levels of lead in excess of the ARNG action level of 200 micrograms per square foot (ug/ft^2). Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

Per Shirley Chapman of NGB-IH, the requirement for Lead air sampling has been removed from the Statement of Work. It was reported that historically, air samples collected at administrative facilities are typically below the limit of detection.

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint. The paint on the walls appeared to be generally in good condition with the exception of the Assembly Hall restroom, basement restroom, boiler room, second floor stairwell, and second floor meeting room. Concrete flooring was generally tiled or unpainted. Samples of paint chips from these areas were collected and analyzed. The sample results indicate that the damaged/peeling paint was lead-containing. Approximately 140 square feet of damaged lead-based paint is present in the Assembly Hall restroom, 800 square feet of damaged lead-based paint is present in the basement bathroom, approximately 1,900 square feet of damaged lead-based paint is present in the boiler room, approximately 700 square feet of damaged lead-based paint is present in the second floor stair well, and approximately 500 square feet of damaged lead-based paint is present in the second floor meeting room. Analytical results are presented in Appendix C.

Sample Number	Sample Location	Lead Concentration
Chip – 006	Second Floor Meeting Room	0.024 %PB
Chip – 007	Men's Bathroom	0.26 %PB
Chip – 008	Drill Hall Restroom	0.83 %PB
Chip – 009	Boiler Room	0.013 %PB
Chip – 010	Second Floor Stairs	22 %PB

3.1.2 Suspect Asbestos Containing Materials

AECOM did observe an area (approximately 5 linear feet) of damaged, friable suspect asbestos containing materials (ACM) in a readily accessible area of the West Chester Readiness Center during this survey. A bulk sample of pipe insulation was collected from a damaged pipe located in the service bay and determined to be asbestos-containing. Analytical results are presented in Appendix C.

Sample Number	Sample Location	Asbestos Concentration
ACM - TSI	Service Bay	5 % Chrysotile

Other typical miscellaneous building materials observed but not sampled include floor tiles and associated mastic, cove base and associated mastic, ceiling tiles, and window glazing compound and caulks.

3.1.3 Water Damage/Mold

AECOM observed evidence of water intrusion and mold in the first floor break room (approximately 200 square feet) and the second floor meeting room (approximately 150 square feet) at the time of the survey. According to site personnel the interior water leaks are due to a leaking roof system. Site personnel indicated that the roof system was repaired; however, water intrusion issues still persist. Water intrusion is a mold growth risk factor.

3.1.4 Housekeeping

The West Chester Readiness Center was observed to be generally clean and orderly during this assessment. AECOM did not observe dust accumulation on readily accessible horizontal surfaces within areas commonly used in the facility.

3.1.5 Indoor Air Quality/ Ergonomics

The administration section of the building contains general office space. The administration section is generally utilized by all of the West Chester Readiness Center staff members. There is no recruiter at the West Chester Readiness center. No Indoor Air Quality concerns were noted by the West Chester Readiness Center personnel.

West Chester Readiness Center personnel did not report any ergonomics issues or concerns. Office furniture and accessories designed to promote ergonomically correct behaviors were observed.

Instantaneous real-time reading for carbon monoxide and carbon dioxide (parts per million or ppm), temperature (^{o} Fahrenheit), and relative humidity (as percentage) are presented in the following table.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (^{o}F)	Relative Humidity (%)
Outside	0.0	364	73.8	25.3
Foyer	0.2	412	72.6	24.1
Break Room	0.2	386	72.7	26.2
Assembly Hall	0.2	441	72.1	26.7
Assembly Hall Restroom	0.3	427	72.4	25.2
Administrative Office	0.2	418	74.1	25.7
Stairwell	0.2	514	71.0	25.6
Basement Corridor	0.0	317	71.4	24.8
Locker Room	0.0	384	72.6	24.2
Boiler Room	0.4	318	75.7	26.4
Service Bay	0.1	433	70.2	26.1
Maintenance Area/Closet	0.2	442	71.3	23.2
Basement Restroom	0.2	405	72.7	26.6
Second Floor Corridor	0.0	397	71.6	24.7
Recruiter Office	0.0	366	72.4	25.6
Storage Room	0.0	413	72.3	25.2
Second Floor Meeting Rm.	0.0	422	72.8	25.4

Table 3-1 Guidelines:
Carbon Monoxide: Office/Warehouse Space – 9 ppm based on United States Environmental Protection Agency's National Ambient Air Quality Standard. OSHA Permissible Exposure Limit (PEL) = 50 ppm. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit value (TLV) = 25, ppm.
Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 62.1-2010). Not Applicable to warehouse and vehicle maintenance bays.
Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2010 – 5.10.1).
Temperature: Winter (clothing insulation = 1.0 clo) Relative humidity 30-60% - Temp - 68 – 75°F
Summer Temp - 73 – 79°F. (Derived from ASHRAE Standard 55-2010)

4.0 Ventilation and HVAC System

4.1.1 Ventilation Systems and Potential for Contamination of Clean Air Sources

There is no Field Maintenance Shop (FMS) facility located at the West Chester Readiness Center. As such, no potential for contamination of clean air sources was observed at the facility.

The West Chester Readiness Center is heated by a radiant heating system fed by a natural gas boiler located in the boiler room. Supply and return air is not provided by mechanical means. Outdoor air is provided in the building through open windows and doors. As such, no potential for contamination of clean air sources was observed at the facility.

4.1.2 HVAC Maintenance

There is no HVAC system at the West Chester Readiness Center.

5.0 Lighting

Lighting levels in all areas were measured utilizing a Cal-Light 400 light meter that displays lighting levels in foot-candles. Lighting levels were generally inadequate.

Table 5-1: Light Survey

Location	Results – (Foot candles)	Met Standard (Y/N)	Standard*
Foyer	2.8	N	10
Break Room	6.9	N	10
Assembly Hall	8.6	N	10
Assembly Hall Restroom	47.5	Y	5
Administrative Office	35.7	N	50
Stairwell	36.1	Y	5
Basement Corridor	37.5	Y	5
Locker Room	32.9	Y	7
Boiler Room	5.3	N	30
Service Bay	8.2	N	30
Maintenance Area/Closet	23.8	Y	10
Basement Restroom	12.2	Y	5
Second Floor Corridor	14.0	Y	5
Recruiter Office	16.5	N	50
Storage Room	33.4	Y	10
Second Floor Meeting Rm.	39.9	N	50
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI RP-7-01)			

6.0 Evaluation of Attached Garage

There is no attached garage associated with the West Chester Readiness Center.

7.0 Conclusions and Limitations

AECOM has conducted this survey in accordance with applicable OSHA methods and standard industrial hygiene practice. The following conclusions were based on the observations and assessments of activities that occurred during the on-site evaluation:

Housekeeping is performed regularly at the West Chester Readiness Center.

AECOM did observe approximately 5 linear feet of damaged, suspect asbestos-containing materials at the West Chester Readiness Center. A bulk sample of pipe insulation was collected from a damaged pipe located in the service bay and determined to be asbestos-containing.

AECOM observed damaged and peeling paint in the Assembly Hall restroom, basement restroom, boiler room, second floor stairwell, and second floor meeting room. The sample results indicated that the damaged/peeling paint was lead-containing.

Evidence of water intrusion and mold was observed in the first floor break room and the second floor meeting room. Water intrusion is a mold growth risk factor.

Approximately half of the lighting levels measured throughout the facility were inadequate as per ANSI/IESNA RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

Wipe samples collected in association with the administrative areas indicated lead levels below the Occupational Safety and Health Administration's (OSHA's) Clarification of "as free as practicable" and lead contamination under 29 CFR 1926.62, The Compliance Directive for the Interim Standard for Lead in Construction, CPL 2-2.58. OSHA recommends the use of HUD's acceptable decontamination level of 200 ug/ft^2 for floors in evaluating the cleanliness of change areas, storage facilities, and lunchrooms/eating areas.

AECOM provided these services consistent with the level and skill ordinarily exercised by members of the profession currently providing similar services under similar circumstances at the time the services were provided. This statement is in lieu of other statements either expressed or implied. This report is intended for the sole use of National Guard Bureau – Army National Guard. The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, and use or re-use of this document, the findings, conclusions, or recommendations is at the risk of said user.

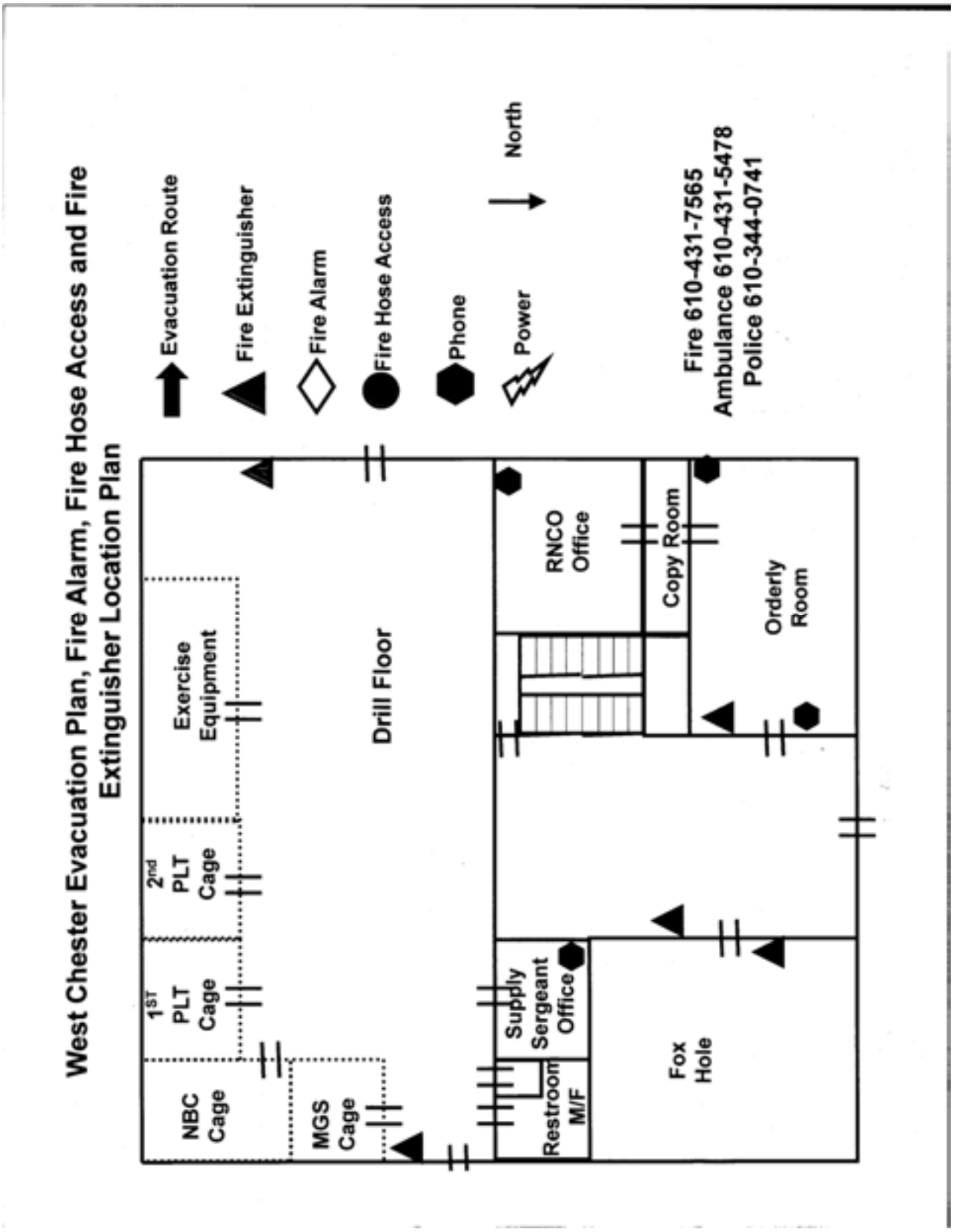
As with all such surveys, the results of the sampling represent conditions found on the date of the survey and may not represent conditions found at other times. Additionally, this survey was limited with respect to the specific parameters indicated above and should not be construed to be a comprehensive evaluation or a definitive representation of conditions within the facility. The information presented in this report is intended to be used as a guide to evaluate the need for further investigation or the need for modifications to the processes or procedures surveyed.

The Client recognizes and agrees that all testing and remediation methods have reliability limitations, no method nor number of sampling locations can guarantee that a condition will be discovered within the performance of the services as authorized by the Client. Additionally, the passage of time may result in a change in the environmental characteristics at this site. This report does not warrant against future operations or conditions that could affect the recommendations made. The results, findings, conclusions, and recommendations expressed in this report are based only on conditions that were observed during AECOM's inspection of the site.

Appendix A

West Chester Readiness Center Facility Layout

AECOM



Appendix B

West Chester Readiness Center Photographs

AECOM

Photograph 1

View of Building Exterior

Photograph 2

View of Break Room

AECOM

Photograph 3

View of Water Damage in Break room

Photograph 4

View of Assembly Hall

Photograph 5

View of Radiant Heat System in Assembly Hall

Photograph 6

View of Physical Fitness Area in Assembly Hall

Photograph 7

View of Caged Storage Area in Assembly Hall

Photograph 8

View of Peeling Paint – Assembly Hall Restroom

Photograph 9

View of Service Bay

Photograph 10

View of Damaged Pipe Insulation – Service Bay

Photograph 11

View of Peeling Paint – men's basement restroom

Photograph 12

View of Recruiter/Meeting Room – 2nd floor

Photograph 13

View of Peeling Paint - Boiler Room

Photograph 14

View of Peeling Paint – 2nd floor stairway

Photograph 15

View of Peeling Paint – 2nd floor meeting room
Photograph 16

View of Water Damage – 2nd floor meeting room

Appendix C

Analytical Results

AECOM

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	Not Provided	Chain Of Custody:	514653
Address:	301-81 Old Bay Lane, Attn: ARNG-CIG-?, State Military Reservation	Job Location:	West Chester, PA	Date Submitted:	11/30/2012
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM
		P.O. Number:	W912K6-05-A-3033	Date Analyzed:	12/7/2012

Report Date: 12/7/2012

Attention: Non-Responsive

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	Total ug	Final Result	Comments
1301E704	Wipe-001	Flame	Wipe	****	0.111	10 ug/ft²	<2	<10 ug/ft²	
1301E705	Wipe-002	Flame	Wipe	****	0.111	10 ug/ft²	<2	<10 ug/ft²	
1301E706	Wipe-003	Flame	Wipe	****	0.111	10 ug/ft²	<2	<10 ug/ft²	
1301E707	Wipe-004	Flame	Wipe	****	0.111	10 ug/ft²	<2	<10 ug/ft²	
1301E708	Wipe-005	Flame	Wipe	****	0.111	10 ug/ft²	<2	<10 ug/ft²	
1301E709	Chip-006	Flame	Paint Chip	****	N/A	0.0263 %Pb		0.024 %Pb	
1301E710	Chip-007	Flame	Paint Chip	****	N/A	0.0389 %Pb		0.26 %Pb	
1301E711	Chip-008	Flame	Paint Chip	****	N/A	0.0383 %Pb		0.83 %Pb	
1301E712	Chip-009	Flame	Paint Chip	****	N/A	0.0392 %Pb		0.163 %Pb	
1301E713	Chip-010	Flame	Paint Chip	****	N/A	0.0372 %Pb		22 %Pb	

An AIHA (#100478) and NY ELAP (#10920) Accredited Laboratory

4475 Forbes Blvd. · Lanham, MD, 20706 · (301) 459-2640 · Toll Free (800) 346-0961 · Fax (301) 459-2643

AECOM

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

AIHA LAP, LLC ACCREDITED LABORATORY

Client:	National Guard Bureau	Job Name:	Not Provided	Chain Of Custody:	514653		
Address:	501-81 Old Bay Lane, Attn: ATSO-CIG-IP, State Military Reservation	Job Location:	West Chester, PA	Date Submitted:	11/30/2012		
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM		
		P.O. Number:	W912K6-09-A-3003	Date Analyzed:	12/7/2012	Report Date:	12/7/2012

Attention: [redacted]

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (SF)	Reporting Limit	Total ug	Final Result	Comments

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7210; Water: SM-3113B

See QC Summary for analytical results of quality control samples associated with these samples.

N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)

%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)

Note: All samples were received in good condition unless otherwise noted.

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results

Final results for air and wipe samples are based on client supplied information nor verified by this laboratory.

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

Analyst: [redacted]

Technical Director: [redacted]

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AECOM

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP 101143-0

Client:	National Guard Bureau	Job Name:	Not Provided	Chain Of Custody:	514653
Address:	301-H Old Bay Lane, Attn: ARNG-CIG-P, State Military Reservation	Job Location:	West Chester, PA	Date Analyzed:	12/3/2012
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	AECOM
		P.O. Number:	W912KI-09-A-0003		

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 Type	Sample Color	Homogeneity	Analyst ID	Comments
13018714	ACM-TSI	5	5	--	--	--	--	--	11	--	--	80	TSI	White	Homogeneous	STF	

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"

Uncertainty: For samples containing asbestos in range of 1-10% the CV is 0.43, 11-35% CV=0.55, >35 CV=0.23

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

[redacted]

Technical Director [redacted]   Analyst(s)

NVLAP (101143-0) Accredited Laboratory

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AECOM

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Focused on Results www.amalab.com
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4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This Number For Inquiries)

514653

Mailing/Billing Information:

1. Client Name: National Guard Bureau
2. Address 1: 301-IH Old Bay Lane
3. Address 2: Attn: NGB-AVN-SL State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:

(1) [illegible]
(2) [illegible] West Chester PA
3. Job #: P.O. #: W912K8-00-A-0003
4. Contact Person: [redacted]
5. Submitted by: [redacted]

Reporting Info (Results provided as soon as technically feasible). If no TAT/Reporting Info is provided, AMA will assign defaults of 5-Day [redacted] on file.

NORMAL BUSINESS HOURS — Other: 12/4/12

REPORT TO: [illegible]

PLM/Asb: Dust Wipe — Pb Paint Chip 5 (QTY); Pb Dust Wipe (wipe type: [illegible]) 15 (QTY)

EPA Point Count 1 (QTY)

All samples received in good condition unless otherwise noted.

CLIENT ID #	SAMPLE LOCATION	DATE/TIME	VOL/AREA	ANALYSIS / MATRIX	CLIENT CONTACT
wipe-001	D Hall Shelf	11/13	1sqft	X	Date/Time: 12/3/12 Contact: By:
wipe-002	Break Room table				No field data sheets attached
wipe-003	Office desk				
	SEE ATTACHED FIELD DATA SHEETS				
wipe-004	Reception table				
wipe-005	Foyer floor	↓	↓	↓	Date/Time: Contact: By:
AAM-PSI	Service Bay	11/13		5 ✓	
Chip-006	2nd Fl. Meeting Rm	11/13	7/6	X X	
Chip-007	Mens Bathroom			X X	
chip-008	1st Flr Restroom			X X	Date/Time: Contact: By:
chip-009	Boiler Room			X X	
chip-010	2nd Floor Stairs	↓		X	[redacted]

LABORATORY STAFF ONLY: CUSTODY: 1) [illegible] 12/3 [illegible] [redacted] 2) [redacted] 3) [redacted] 4) Comments: 15 [illegible] 533

Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. http://www.osha.gov/comp-links.html

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3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://armypubs.army.mil/epubs/pdf/R11_34.PDF

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5. AR 385-10, The Army Safety Program, 23 August 2007; Rapid Action Revision (RAR) issue date: 4 October 2011. http://armypubs.army.mil/epubs/pdf/R385_10.PDF

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9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, change 4, January 2010. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf

10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current Ed.

11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.

12. American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z358.1-2009, Emergency Eyewash and Shower Equipment.

13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010, Thermal Environmental Conditions for Human Occupancy.

14. ANSI/ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality.

15. RP-1-2004, Office Lighting, ANSI/IESNA.

16. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.

17. OSHA Instruction Letter 02-02-058, Lead Exposure in Construction, Office of Health Compliance Assistance, 13 December 1993.

18. OSHA Standard Interpretation, Clarification of “as free as practicable” and lead contamination under 29 CFR 1926.62, dated January 13, 2003.

19. NG PAM 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006. http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf

Industrial Hygiene Survey

CO A 2/103rd ARMOR

WEST PITTSON, PENNSYLVANIA

June 20, 2003

OPTECH

OPERATIONAL TECHNOLOGIES
CORPORATION

CO A 2/103rd ARMOR
WEST PITTSON, PENNSYLVANIA
INDUSTRIAL HYGIENE SURVEY

1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Armory in West Pittston, Pennsylvania on June 20, 2003. The NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. Non-R Non-Respons from OpTech, completed this survey. Non-Responsive a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the IH Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D.

RECOMMENDATIONS

1. INDOOR AIR QUALITY

1.1. Relative humidity levels were above the recommended 60% level. Humidity should be maintained below 60% relative humidity for occupant comfort and controlling mold growth. No mold was observed during the survey.

2. ILLUMINATION

2.1. Illumination levels were slightly below recommended minimum standards in some areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3. LEAD WIPE SAMPLES

3.1. All inorganic lead wipe sample results were below the recommended 200 $\mu g/ft^2$ criteria. Lower levels of lead were detected in many areas of the facility. Suspect that lead dust from former firing range activities has migrated throughout the facility. Contamination may also be from lead paint. Recommend that the facility be wet-wiped/mopped or cleaned using a high efficiency particulate air (HEPA) vacuum during routine housekeeping duties to further reduce lead dust levels.

2.0. EXECUTIVE SUMMARY

2.1. Carbon monoxide and carbon dioxide levels were within recommended levels. The temperature in the day room was slightly higher than recommended comfort levels. Relative humidity levels were above the recommended 60% level. Humidity should be maintained below 60% relative humidity for occupant comfort and controlling mold growth. No mold was observed during the survey.

2.2. Illumination levels were below recommended minimum standards in some areas of the facility.

2.3. Wipe samples for inorganic lead were collected throughout the facility. All samples were below the recommended 200 $\mu g/ft^2$ criteria. Lower levels of lead were detected in many areas of the facility. Suspect that lead dust from former firing range activities has migrated throughout the facility. Contamination may also be from lead paint.

2.4. Air sampling for inorganic lead was accomplished. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	CO A 2/103rd ARMOR		
ADDRESS	1308 Susquehanna Ave.		
	West Pittston, PA 18643		
CONTACT	SSG Non-Responsive		
PHONE	570- 654-6451		
DATE BUILT	1957	FACILITY SIZE	15,215 sq. ft.
INDOOR FIRING RANGE	CLOSED		2-floors plus basement
ASSISTED			
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	2		
TRADITIONAL (MIL)	60		
CHILD ACTIVITIES	This facility has not been rented to the general public.		
ADULT ACTIVITIES			

3.1.1. The exterior of the building is brick and appears to be in good condition. The interior of the facility has been well maintained. The facility is heated with a natural gas steam furnace and is cooled with window air conditioners.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity (RH) in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 Indoor Air Quality Standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ASHRAE 62-2001, Section 6.1.3, states that concentrations up to 700 ppm CO_2, above outdoor concentrations will achieve an acceptable level of indoor air quality.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ASHRAE 55-1992 recommends that temperature ranges be 73 to 79 degrees Fahrenheit (°F) during the summer and 68 to 74°F during the winter. Relative humidity levels be maintained between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE 1
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO_2 (ppm)	Temp. (°F)	RH (%)
1400	Outdoor – Background	0.0	503	83.4	68.3
1417	Day Room	0.0	568	78.8	64.6
1420	Female Latrine	0.0	561	75.4	63.1
1425	Orderly Room (occupied)	0.0	550	72.1	63.3
1428	Kitchen	0.0	540	73.8	64.1
1431	Office Room 2	0.0	530	73.6	65.2
1433	Office Room 3	0.0	518	74.1	63.1
1437	Locker Room	0.0	520	72.8	62.8
1441	2nd Floor Office	0.0	540	73.6	63.2
1445	2nd Floor Male Latrine	0.0	532	74.1	63.4
1448	Boiler Room	0.0	526	75.0	64.1
1452	Basement Hallway	0.0	520	74.4	63.9
1458	Supply Room	0.0	526	73.9	63.7
1501	Lobby	0.0	521	73.8	63.1
1503	Conference Room	0.0	518	74.1	62.9
1505	Stairwell	0.0	519	74.4	62.8
1508	Former Range	0.0	524	73.8	62.7

3.2.5. Carbon monoxide and carbon dioxide levels were within recommended levels. The temperature in the day room was slightly higher than recommended comfort levels. Relative humidity levels were above the recommended 60% level. Humidity should be maintained below 60% relative humidity for occupant comfort and controlling mold growth. No mold was observed during the survey.

3.3. ILLUMINATION

3.3.1. Illumination levels were measured in most areas of the facility. Sunlight was excluded, as much as possible for this survey, by closing doors and blocking windows. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 – 463). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
Supply Room	42 - 70	55	40	YES
Arms Room	38 - 72	54	40	YES
Female Latrine	28 - 46	40	40	YES
Assembly Hall	36 – 48	41	75	NO
Orderly Room	28 - 46	36	70	NO
Locker Room	26 42	36	40	NO
Wash Room	38 – 64	53	40	YES
Former Range Area	30 – 46	40	40	YES
Office Area	28 - 40	34	70	NO

3.3.2. Levels were below recommended minimum standards in some areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3.4. WIPE SAMPLES

3.4.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples were taken at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot ($\mu g/ft^2$) and are listed in Table 3. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Wes-03171-18	Lobby - Heater Vent	29
PA Wes-03171-19	Kitchen – Vent	32
PA Wes-03171-20	Assembly Hall – Table	BDL
PA Wes-03171-21	Break Room - Heater Vent	50
PA Wes-03171-22	Female Latrine - Towel Dispenser	32
PA Wes-03171-23	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.2. Additional wipe samples were collected during this survey. These samples were collected to further analyze the extent of contamination should the first five samples indicate a possible hazard. Since the first samples collected did not exceed the 200 µg/ft² criterion (see Section 3.4.4 below), these additional samples were not analyzed.

3.4.3. CLOSED FIRING RANGE WIPE SAMPLING

3.4.3.1. Additional wipe samples were collected in the former indoor firing range. This area is presently being utilized as a classroom. The laboratory analysis results are listed in Table 5.

TABLE 5
FORMER FIRING RANGE WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Wes-03171-30	Floor	BDL
PA Wes-03171-31	Floor	BDL
PA Wes-03171-32	Light Fixture	45
PA Wes-03171-33	Pipe	BDL
PA Wes-03171-34	Floor	92
PA Wes-03171-35	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.4. WIPE SAMPLING RESULTS

3.4.4.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 µg/ft². This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. (See memorandum in Attachment E, Recommendations for Surface Lead Dust in Armories.) All samples were below the recommended 200 µg/ft² criteria. Lower levels of lead were detected in many areas of the facility. Suspect that lead dust from former firing range activities has migrated throughout the

facility. Contamination may also be from lead paint.

3.4.5. AIR SAMPLING

3.4.5.1. Air Sampling for inorganic lead was performed during this survey. Table 6 lists the results of these samples, and is reported in milligrams per cubic meter (mg/m^3) of air.

TABLE 6
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
Non-Responsive	PA Wes-03171-16	Lead	<0.002 mg/m^3	0.05 mg/m^3	YES
Area – Kitchen	PA Wes-03171-17	Lead	<0.002 mg/m^3	0.05 mg/m^3	YES

mg/m^3 = milligrams per cubic meter < = less than (below detection limits)

3.4.4.2. Air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this building.

3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION DAMAGE

3.5.1.1. There was no visible water intrusion damage in the facility.

3.5.2. LEAD PAINT

3.5.2.1. No peeling paint was observed and no samples for lead were collected.

3.5.3. ASBESTOS

3.5.3.1. Personnel stated that no known asbestos exists in the facility. No suspected asbestos containing material was noted.

3.5.4. PROGRAMS

3.5.4.1. There are no designated confined space areas within this facility. There are no exhaust ventilation systems to control a hazard. No chemicals besides normal cleaning materials are present. Therefore, a need has not been established for a HAZCOM program, the need for personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.5. HOUSEKEEPING

3.5.5.1. The facility has been kept impressively clean and orderly.

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

E – Recommendations for Surface Lead in Armories

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
West Pittston, PA	PENNSYLVANIA ARNG ARMORY	West Pittston Armory

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR (initials)
20 June 2003	JSS

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	NA	556 Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
570-654-6451	CO A 2/103D AVIAT	3	9

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
2	60			

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	CONROLS 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			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	½ FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	¼ 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 WEATHR 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	/		

AEHA Form 271-R (Test), 1 Jan 92 (HSHB-MI-I)

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	3	C

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

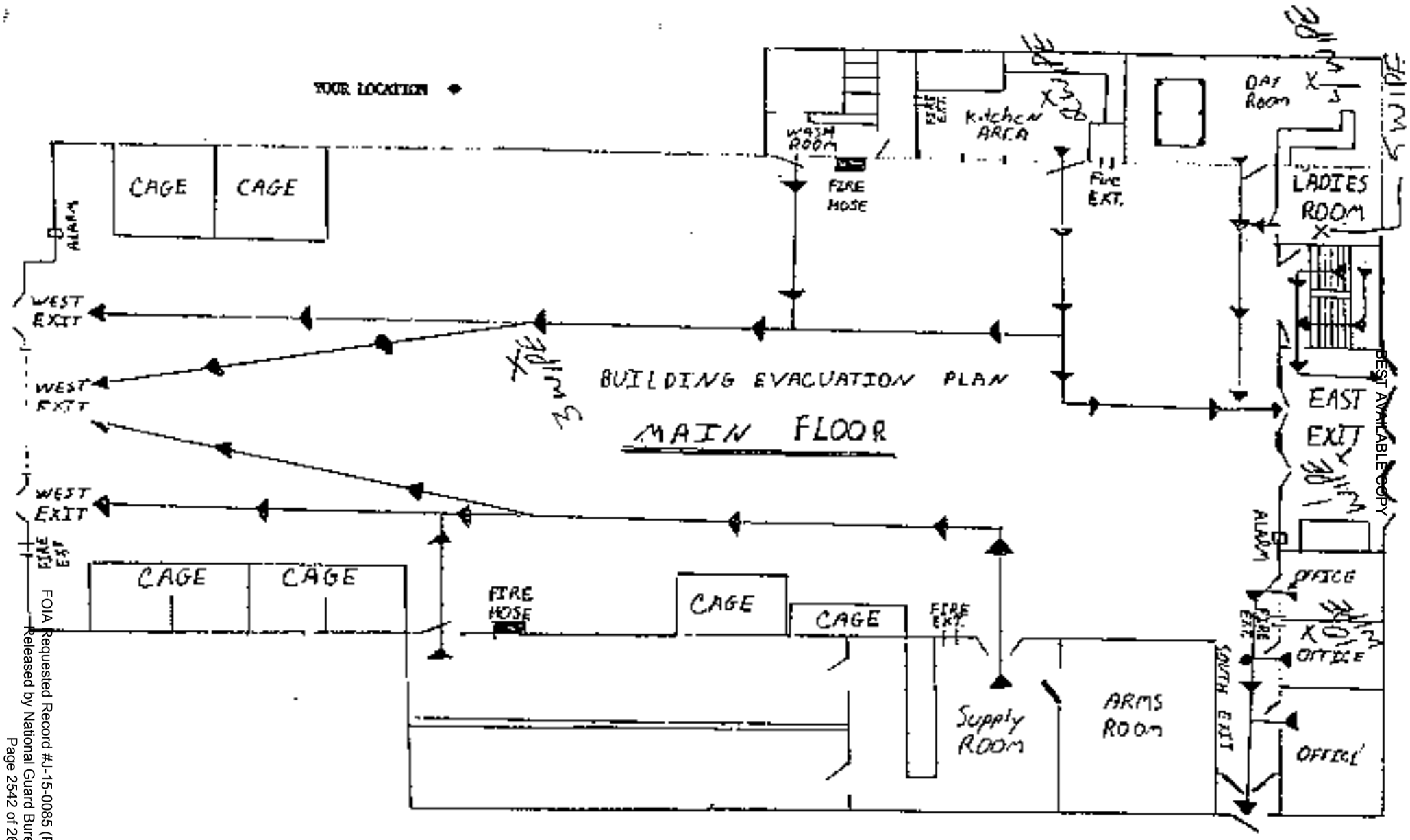
SECTION 6. COMMENTS

☐ No comments ☐ See attached sheet

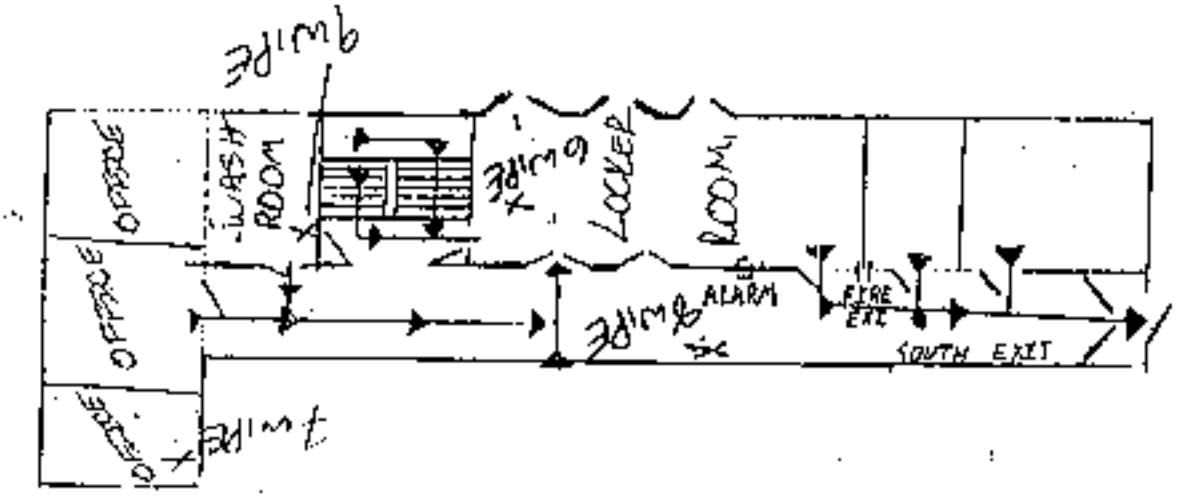
PRIVACY ACT STATEMENT

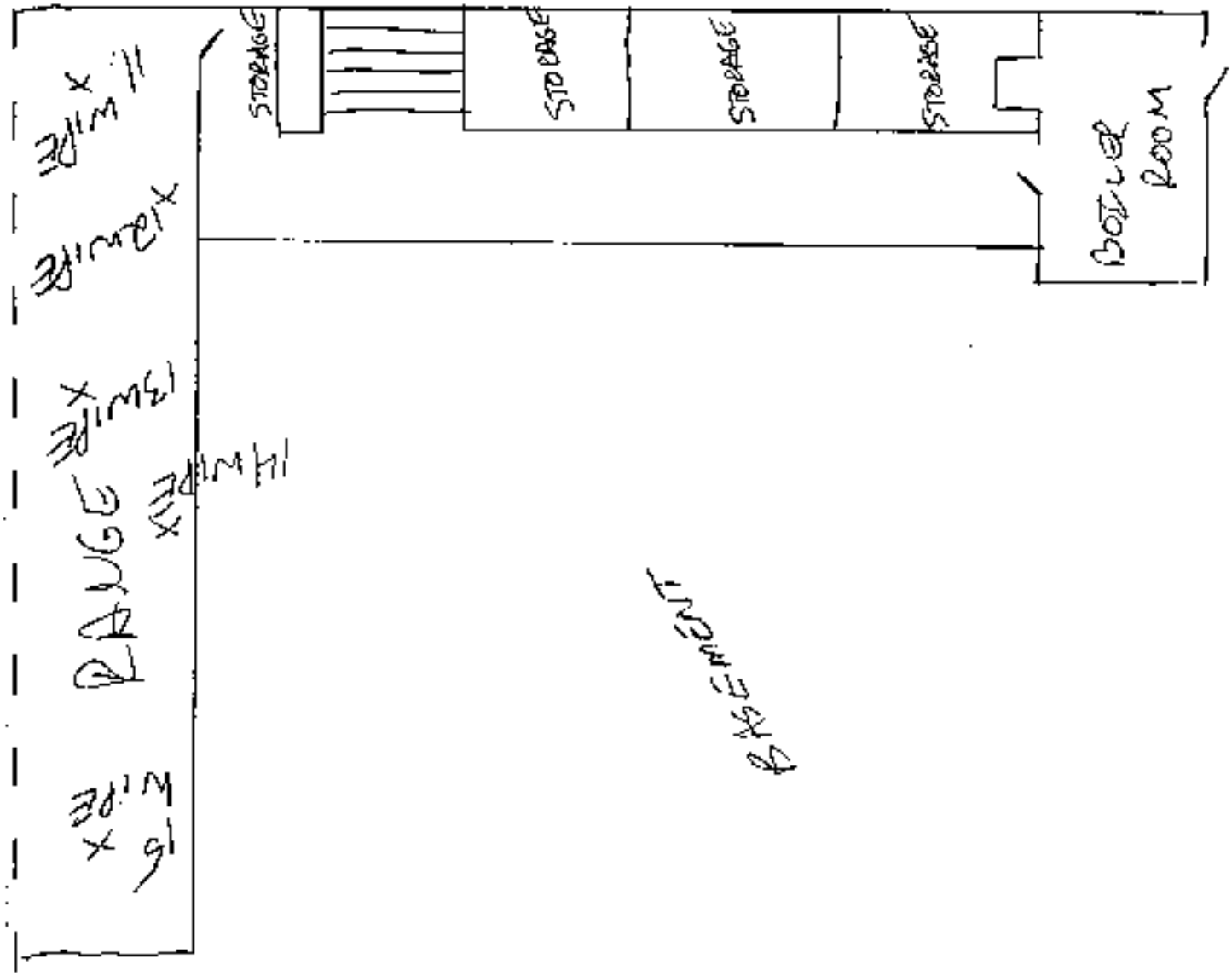
Title 5 US Code, Section 301; Executive Order 9397 authorized the use of your Social Security Number as an identification number. The purpose of this information is to identify and monitor data relating each DA civilian and military employee exposed to a hazardous workplace or operation. The use of this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

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



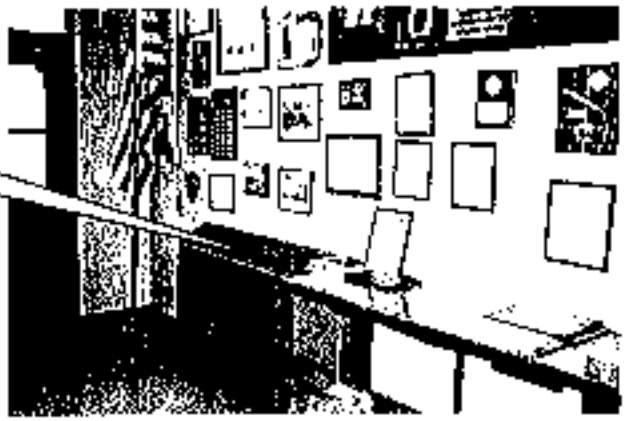
1st Floor





CO A 2/103RD ARMOR
West Pittston, PENNSYLAVANIA

(1) PA Wes-03171-18
Lobby

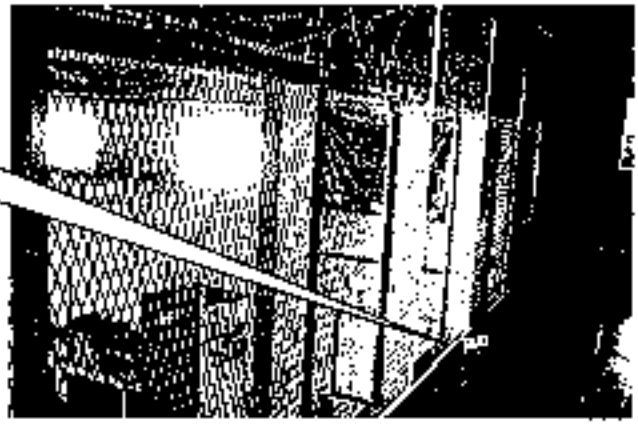


(2) PA Wes-03171-19
Kitchen

(3) PA Wes-03171-20
Drill floor

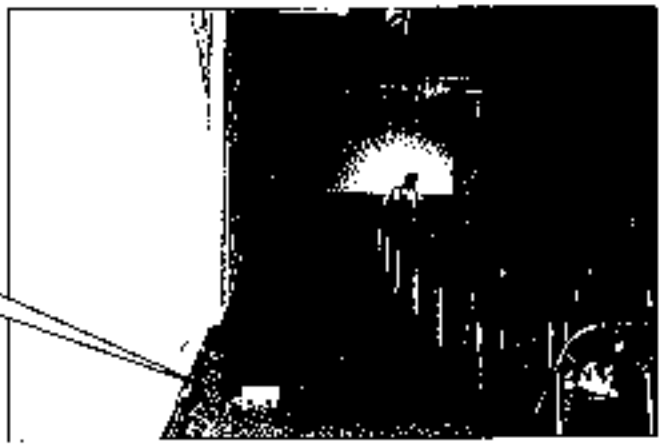
(7) PA Wes-03171-25
Classroom

(8) PA Wes-03171-26
Hallway

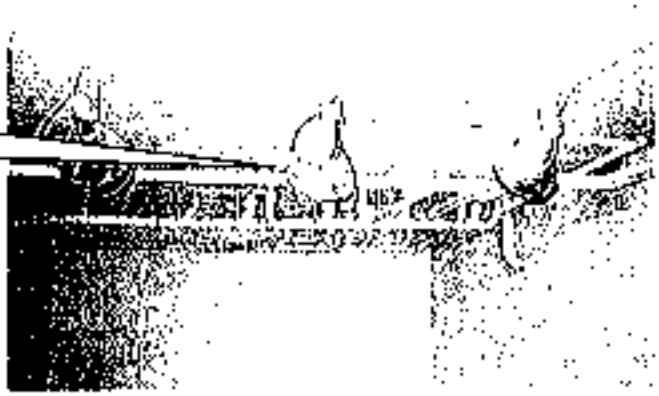


(9) PA Wes-03171-27
Men's latrine

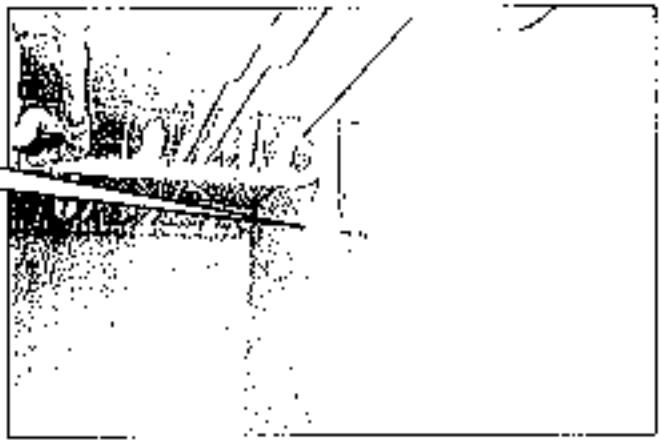
(11) PA Wes-03171-30
Classroom/old firing range

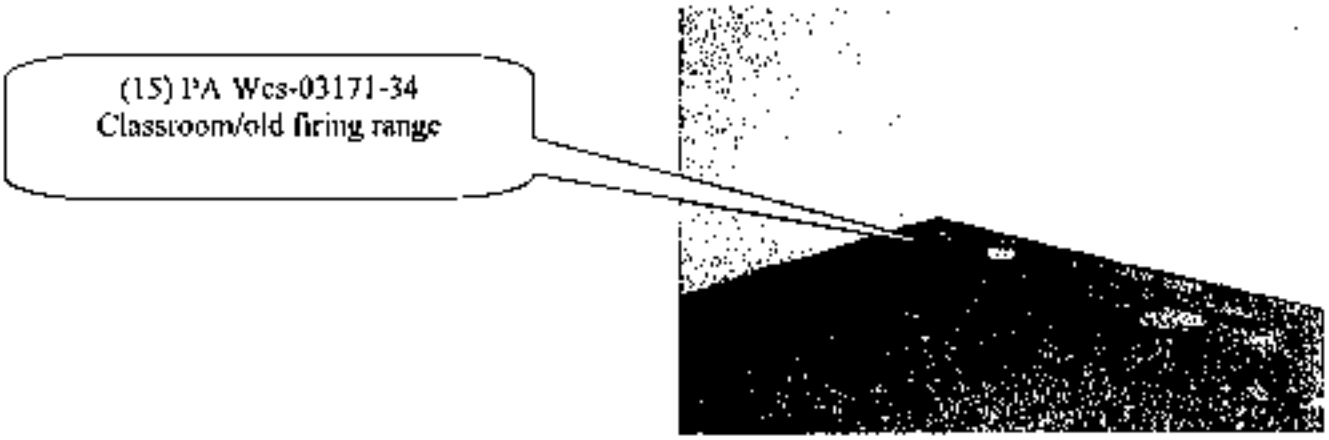


(13) PA Wes-03171-32
Classroom/old firing range



(14) PA Wes-03171-33
Classroom/old firing range





RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
AIHA Certificate of Accreditation #480 LAP ID 101533

TABLE ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	RES 95335-1
Client:	Operational Technologies, Corp.
Client Project Number / PO:	06 03
Client Project Description:	Armories/ Pennsylvania
Date Samples Received:	July 11, 2003
Analysis Type:	USEPA SW846 3050B / AA(7420)
Turnaround:	3-5 Day
Date Samples Analyzed:	July 15, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq-ft.)
PA WES-03171-18	EM 794520	0.11	3.2	23	29
PA WES-03171-19	EM 794521	0.11	3.5	23	32
PA WES-03171-20	EM 794522	0.11	BDL	23	BDL
PA WES-03171-21	EM 794523	0.11	5.5	23	50
PA WES-03171-22	EM 794524	0.11	3.5	23	32
PA WES-03171-23	EM 794525	0.11	BDL	23	BDL
PA WES-03171-30	EM 794526	0.11	BDL	23	BDL
PA WES-03171-31	EM 794527	0.11	BDL	23	BDL
PA WES-03171-32	EM 794528	0.11	5.0	23	45
PA WES-03171-33	EM 794529	0.11	BDL	23	BDL
PA WES-03171-34	EM 794530	0.11	10.1	23	92
PA WES-03171-35	EM 794531	0.11	BDL	23	BDL
PA KUT-03174-03	EM 794532	0.11	6.5	23	59
PA KUT-03174-04	EM 794533	0.11	6.4	23	58
PA KUT-03174-05	EM 794534	0.11	10.3	23	94
PA KUT-03174-06	EM 794535	0.11	3.3	23	30
PA KUT-03174-07	EM 794536	0.11	BDL	23	BDL
PA KUT-03174-08	EM 794537	0.11	BDL	23	BDL
PA KUT-03174-15	EM 794538	0.11	40.4	23	367
PA KUT-03174-16	EM 794539	0.11	75.0	23	682
PA KUT-03174-17	EM 794540	0.11	22.5	23	205
PA KUT-03174-18	EM 794541	0.11	72.8	23	662
PA KUT-03174-19	EM 794542	0.11	172.0	23	1564
PA KUT-03174-20	EM 794543	0.11	BDL	23	BDL
PA HAM-03174-24	EM 794544	0.11	13.5	23	123
PA HAM-03174-25	EM 794545	0.11	30.7	23	279
PA HAM-03174-26	EM 794546	0.11	20.0	23	182
PA HAM-03174-27	EM 794547	0.11	43.5	23	395
PA HAM-03174-28	EM 794548	0.11	10.8	23	98
PA HAM-03174-29	EM 794549	0.11	BDL	23	BDL

BDL = Below Detection Limit

Date Qa

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m³
PA Ber-03171-01	03-20704	338.4	ND	<0.003
PA Ber-03171-02	03-20705	327.0	ND	<0.003
PA Wes-03171-16	03-20706	423.5	ND	<0.002
PA Wes-03171-17	03-20707	414.8	ND	<0.002
PA Kut-03174-01	03-20708	467.4	ND	<0.002
PA Kut-03174-02	03-20709	463.1	ND	<0.002
PA Ham-03174-22	03-20710	333.0	ND	<0.003
PA Ham-03174-23	03-20711	323.8	ND	<0.003
PA Rea-03175-01	03-20712	158.6	ND	<0.006
PA Rea-03175-02	03-20713	162.1	ND	<0.006
PA Ann-03175-16	03-20714	159.6	ND	<0.006
PA Ann-03175-17	03-20715	147.5	ND	<0.007
PA Ann-03175-31	03-20716	147.5	ND	<0.007
PA Ann-03175-32	03-20717	142.7	ND	<0.007
PA Pot-03176-01	03-20718	281.9	ND	<0.004
PA Pot-03176-02	03-20719	266.8	ND	<0.004
PA Sel-03177-01	03-20720	382.4	ND	<0.003
PA Sel-03177-02	03-20721	377.2	ND	<0.003
PA Pho-03177-16	03-20722	354.4	ND	<0.003
PA Pho-03177-17	03-20723	348.6	ND	<0.003
	Prep Blank		ND	
% Recovery	LCS 5		97.	
% Recovery	LCS 6		98.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

[redacted]
Analyst

[redacted]
Reviewer

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non-Responsive @md.ngb.army.mil

Attachment D

REFERENCE LIST INDEX

1. General Regulations and National Consensus Standards
2. Specific Regulations and Guidance
   a. Abrasive Blasting
   b. Asbestos
   c. Battery Charging Room
   d. Bird and Bat Manure
   e. Bloodborne Pathogens
   f. Chemical Agent Resistant Coating (CARC) Paint
   g. Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE)
   h. Confined Space Entry Program
   i. Design Review
   j. Ergonomics
   k. Flammable Storage Room
   l. Hazard Communication
   m. Hearing Conservation
   n. Indoor Air Quality
   o. Indoor Firing Ranges
   p. Lead
   q. Lighting
   r. Occupational Vision
   s. Paint Spray Booth
   t. Personal Protection
   u. Radiation Protection
   v. Respiratory Protection
   w. Sanitation
   x. Smoking
   y. Vehicle Exhaust
   z. Welding Operation

GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REFERENCE LIST

1. General Regulations and National Consensus Standards
   a. DODI 6055.1, DOD SOH Program, 19 August 1998.
   b. DODI 6055.5, DOD OEH. *[DRAFT]*
   c. DOD 6055.5-M, DOD Occupational Health Surveillance Manual, 13 May 1987.
   d. DODI 6050.5, DOD Hazard Communication, 29 Oct 90. Change 1, 6 May 1996.
   e. AR 40-5, Preventive Medicine, 15 October 1990. [05/2002 Being Updated]
   f. DA PAM 40-5, Preventive Medicine. *[DRAFT]*
   g. AR 385-10, The Army Safety Program, 29 February 2000.
   h. NGR 385-10, ARNG SOH Program, 7 October 1988, Change 1, 29 December 1989.
   i. Title 29, Part 1910, Occupational Safety and Health Standards. [Current Date]
   j. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 2002.
   k. ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th edition, 2001.
   l. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.
   m. TG 141, USACHPPM Industrial Hygiene Sampling Guide, November 1997.
   n. National Safety Council, Fundamentals of Industrial Hygiene, 5th Edition, 2002.
   o. NIOSH, Pocket Guide to Chemical Hazards, 2001.
   p. NFC, A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. [Current date]
   q. ASHRAE Standards. [Current Dates]
   r. ANSI Standards. [Current Dates]

2. Specific Regulations/Guidance
   a. **ABRASIVE BLASTING**
      (1) ANSI Z9.4 1997, Abrasive Blasting Operations - Ventilation and Safe Practices.
      (2) 29 CFR 1910.94 Ventilation
      (3) 42 CFR 84

   b. **ASBESTOS**
      (1) AR 40-5, Preventive Medicine, 15 October 1990. *[05/2002 Being Updated]*
      (2) AR 200-1, Environmental Protection and Enhancement, Chapter 8, 21 Febtuary 1997.
      (3) TB MED 513, Guidelines for the Evaluation and Control of Asbestos Exposure, 15 December 1986. *[05/2000 Under Revision as DA PAM 40-513]*
      (4) TG 157, USAEHA, The Installation Asbestos Management Program Assessment Checklists, July 1994.
      (5) 29 CFR 1910.1001
      (6) 29 CFR 1926.58 (prior to 1994 CFR)
      (7) 29 CFR 1926.1101

(8) MEMORANDUM SGPS-PSP, OTSG, subject: AMEDD Role Supporting Asbestos Abatement/Asbestos Management Programs, 19 Jan 89.

(9) EPA, Guidance for Controlling Asbestos-Containing Materials in Buildings, June 1985.

(10) DD Form 2493-1 (Asbestos Exposure, Part I--Initial Medical Questionnaire)

(11) DD Form 2493-2 (Asbestos Exposure, Part II--Periodic Medical Questionnaire)

(12) EPA NESHAPS Asbestos Regulation (40 CFR 61, Subpart M).

c. **BATTERY CHARGING ROOM**

(1) TG 022, USAEHA, page 81, Industrial Hygiene Evaluation Guide, October 1975. *[Out of Print]*

(2) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

d. **BIRD AND BAT MANURE**

(1) TG 142, USAEHA, Managing Health Hazards Associated with Bird and Bat Excrement, Dec 1992.

e. **BLOODBORNE PATHOGENS**

(1) 29 CFR 1910.1030

(2) TG 190, USAEHA, Guide to Managing Occupational Exposure to Bloodborne Pathogens, Jan 94.

f. **CHEMICAL AGENT RESISTANT COATING (CARC) PAINT**

(1) TG 144, USAEHA, Guidelines for Controlling Health Hazards in Painting Operations, 24 August 1987.

(2) DA LTR, USAEHA, HSHB-MI-WR, subject: Respiratory Protection When Spraying CARC, 19 November 1992.

(3) TM 43-0139, Painting Instructions for Army Material, 27 July 1988I Aug 86.

(4) MEMORANDUM SGPS-PSP, OTSG, subject AMEDD, Occupational Health Requirements in Support of Painting in the Army, 22 February 1985.

(5) AR 750-1, Army Materiel Maintenance Policy and Retail Maintenance Operations (Prohibits welding on CARC paint) 1 July 1996.

g. **CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR, EXPLOSIVE (CBRNE)**

(1) DODI 2000.gg, DOD Installation CBRNE Emergency Response Guidelines.

(2) DHHS, NIOSH Pub No. 2002 139, Guidance for Protecting Building Environments from Airborne Chemical, Biological, or Radiological Attacks, May 2002.

(3) TG 275, USACHPPM, Personal Protective Equipment Guide for Medical Treatment Facility Personnel Handling Casualties from Weapons of Mass Destruction and Terrorism Events. *[Draft]*

h. **CONFINED SPACE**

(1) 29 CFR 1910.146 (Confined Space Entry)

(2) 29 CFR 1910.147 (Lockout/Tagout)

(3) ANSI Z117.1-Safety Requirements for Confined Spaces, 1995.

(4) SOP for ARNG Confined Space Entry Program, 25 April 1991.

(5) Letter, US Dept of Labor (DOL) addressed to Vanessa Cher, 22 Apr 1994.

(6) OSHA Instruction STD 1-7.3, US DOL, subject: 29 CFR 1910.147, the Control of Hazardous Energy (Lockout/Tagout)--Inspection Procedures and Interpretive Guidance, 11 Sep 90.

(7) DHHS, NIOSH Pub No. 87113, A Guide to Safety in Confined Spaces, July 1987.

(8) Confined Space Entry Program for Helicopters, 2003.

i. **DESIGN REVIEW**

(1) DG 415-1, Design Guide for Armories, current.

(2) DG 415-2, Design Guide for Logistics Facilities, current.

(3) DG 415-3, Design Guide for Training Site Facilities, current.

(4) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

(5) TI-300, 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

(6) UFGS 15940A, Overhead Vehicle Tailpipe (and welding Fume) Exhaust Removal Systems, December 2001.

(7) ASHRAE, Standard 62-2002, Ventilation for Acceptable Indoor Air Quality.

(8) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

j. **ERGONOMICS**

(1) DA PAM 40-21, Medical Services, Ergonomics Program, 15 May 2000.

(2) ANSI Z-365, Management of Work Related Musculoskeletal Disorders, 2000.

(3) 29 CFR 1910. *[PROPOSED STANDARD]*

k. **FLAMMABLE STORAGE ROOM**

(1) 29 CFR 1910.106

(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

l. **HAZARD COMMUNICATION**

(1) 29 CFR 1910.1200

(2) NGR 385-10, Chapter 6

m. **HEARING CONSERVATION**

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(2) TG 181, USAEHA, Noise Dosimetry and Risk Assessment, May 1999.

(3) TG 175, USAEHA, Readiness thru Hearing Conservation: Guide for Unit Commanders and Supervisors, June 1999.

(4) 29 CFR 1910.95

n. **INDOOR AIR QUALITY (IAQ)**

(1) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

(2) USACERL Technical Report P-91/42, IAQ Management for Operations and Maintenance Personnel, September 1991.

(3) EPA 400/1-91/003 or DHHS, NIOSH, Publication No. 91-114, Building IAQ, A Guide for Building Owners and Facility Managers, December 1991.

(4) ASHRAE, Standard 62-2002, Ventilation for Acceptable IAQ.

(5) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

(6) NIOSH, IAQ Selected References, Sep 1989.

(7) OSHA Instruction CPL 2-2.20B CH-1, Directorate of Technical Support, 13 Nov 90.

(8) DA PAM 25-52, Mail Facility Security and Handling Suspicious Mail, 6 November 2001.

(9) ASTM, D 5952-96, 10 May 1996.

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(1) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(2) NGR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges, 30 March 1990. *[11/02 Under Revision]*

(3) CEHND 1110-1-18, USACE Design Manual for Indoor Firing Range, June 1990.

(4) HQDA LTR, Office of the Adjutant General, DACS-SF, subject: Inspection and Evaluation of US Army Indoor Firing Ranges, 26 March 1993.

(5) Departments of the Army and Air Force, NGB-ADE-OM, subject: All State Log Number (I920323) Indoor Range Clean-up at State Owned Armories, 28 July 1992.

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(7) All-States Ltr P01-0075, 5 December 2001.

(8) Information Paper, Alternative Ammunition, 15 March 1996.

(9) Information Paper, Bullet Traps, 26 April 1996.

(10) Information Paper, ARNG IFR Action Plan, 28 January 2002.

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(2) 29 CFR 1926.62

(3) 24 CFR 35.61 (HUD, Percentage of Lead in Paint)

(4) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(5) OSHA Instruction CPL 2-2.58, Office of Health Compliance Assistance, 13 December 1993.

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(7) NIOSH, Request for Assistance in Preventing Lead Poisoning in Construction Workers, April 1992.

(8) EPA, Strategy for Reducing Lead Exposures, 21 Feb 91.

q. **LIGHTING**

(1) RP-1-1993, Office Lighting, ANSI/IESNA.

(2) RP-7-2001, Industrial Lighting, IES.

r. **OCCUPATIONAL VISION**

(1) DA PAM 40-506, Medical Services, The Army Vision Conservation and Readiness Program, 20 July 2001.

(2) ANSI Z87.1, Practice for Occupational and Educational Eye and Face Protection, 1989, Change A, REAF 1998.

(3) ANSI Z358.1 for Emergency Eyewash and Shower Equipment, 1998.

(4) OTSG Memorandum SGPS-PSP, subject: Acanthameoba Keratitis and Eyewash Stations, 8 May 89.

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(1) NFPA No. 33, Standard for Spray Application Using Flammable and Combustible Materials, 1995.

(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

(3) 29 CFR 1910.94

(4) 29 CFR 1910.107

(5) ANSI Z9.3-1995 for Exhaust Systems - Spray Finishing Oporations - Safety Code for Design, Construction, and Ventilation.

(6) ANSI Z9.2-2001, Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems.

t. **PERSONAL PROTECTIVE EQUIPMENT**

(1) Quick Selection Guide to Chemical Protective Clothing, 2nd edition, Forsberg, K and Mansdorf, S., 1993.

(2) Chemical Protective Clothing, Vol 1 and 2, Johnson, J. and Anderson, K., American Industrial Hygiene Association, 1990.

(3) Guidelines for the Selection of Chemical Protective Clothing, 3rd Edition, ACGIH, Inc., Feb 1987.

u. **RADIATION PROTECTION PROGRAM**

(1) NGR 385-11, Safety, Ionizing and Nonionizing Radiation Protection, 18 February 1999.

(2) AR 11-9, Army Radiation Safety Program, 28 May 1999.

(3) 29 CFR 1910.96

(4) 29 CFR 1910.97

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(2) 29 CFR 1910.134

(3) 42 CFR 84

(4) TB MED 502, Respiratory Protection Program, February 1992. *[11/02 Being Updated as DA PAM 40-502]*

(5) ANSI/CGA G-7.1-1997, Commodity Specification for Air.

(6) ANSI Z88.2-1992, Standard for Respiratory Protection.

w. **SANITATION**

(1) ANSI Z4.1-1986, Change REAF 1995, Sanitation in Places of Employment-Minimum Requirements.

(2) 29 CFR 1910.141

x. **SMOKING**

(1) AR 600-63, Army Health Promotion, 28 April 1996.

(2) DODI 1010.15, Smoke-Free DOD Facilities, 2 January 2001.

(3) DODD1010.10, Health Promotion, 11 March 1986.

y. **VEHICLE EXHAUST**

(1) ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th Edition, 2001.

(2) TI-300f 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

z. **WELDING OPERATION**

(1) 29 CFR 1910.252

(2) 29 CFR 1910.253

(3) 29 CFR 1910.254

(4) ANSI/AWS Z49.1-1999, Safety in Welding and Cutting and Allied Processes.

(5) TM 5-805-7, Welding Design, Procedures and Inspection, 20 May 85.

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 $\mu g/ft^2$) and windowsills (250 $\mu g/ft^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of 200 $\mu g/ft^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 $\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 $\mu g/ft^2$ on floors and 250 $\mu g/ft^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

INDUSTRIAL HYGIENE SURVEY

DET 1 BTRY B 1ST BN 108TH FA

WAYNESBORO, PA

March 19, 2003

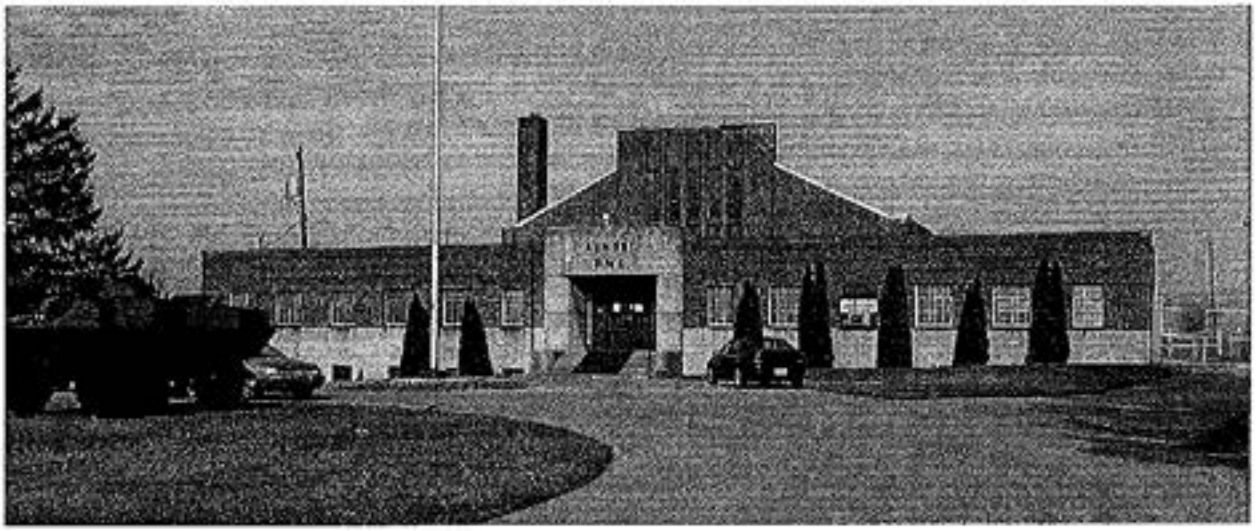
And

August 19, 2003

OPTECH

OPERATIONAL TECHNOLOGIES
CORPORATION

DET 1 BTRY B 1ST BN 108TH FA
WAYNESBORO, PENNSYLVANIA
INDUSTRIAL HYGIENE SURVEY



1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Armory in Waynesboro, Pennsylvania on March 19, 2003 with a return visit on August 19, 2003. NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. [redacted] from OpTech, completed this survey. [redacted] a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the IH Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D. A copy of the field notes and a list of industrial hygiene equipment utilized during this survey are presented in Attachment E.

RECOMMENDATIONS

1. ILLUMINATION

1.1. Illumination levels were below recommended minimum standards in a many areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

2. WIPE SAMPLES

2.1. Wipe sampling results for inorganic lead taken in the former indoor firing range and immediately outside exceeded the 200 micrograms per square foot criteria. Lower levels of lead were detected in the assembly hall and first floor classroom. The source of lead was firing range activities. The range had been cleaned two months prior to the sampling, however the steel backstop was still in place and only a portion of the range had received a coating of encapsulant paint. Acoustical tiles remained on the walls. Items were stored in the range, including a couch. Recommend that:

2.1.1. The steel backstop be removed
2.1.2. The acoustical tiles be removed
2.1.3. The range be re-cleaned, including the hallway outside the range
2.1.4. Encapsulant painted over the entire range

4. ASBESTOS

4.1. Some asbestos remains in the facility; steam line elbows, floor tiles in the assembly hall and a suspected asbestos flex-joint. All areas were in good condition during the survey. The facility should inspect these areas for damage or deterioration on a routine basis.

2.0. EXECUTIVE SUMMARY

2.1. No indoor air quality problems were noted.

2.2. Illumination levels in many areas of the facility were below recommended standards.

2.3. Wipe samples for inorganic lead were taken. Sample results in and immediately outside the former indoor firing range exceeded recommended levels.

2.4. Air sampling for inorganic lead was taken. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building.

2.5. Some asbestos is present in the facility. All known and suspected asbestos containing material is in good condition.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	DET 1 BTRY B 1ST BN 108TH FA		
ADDRESS			
	410 North Grant Street		
	Waynesboro, PA 17268		
CONTACT	SSG Non-Responsive		
PHONE	717-762-6412		
DATE BUILT	1930	FACILITY SIZE	16,426 sq.ft.
INDOOR FIRING RANGE	INACTIVE		1 main floor plus 1 partial floor and a partial basement
ASSISTED	Non-Responsive - State Maintenance		
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	3		
TRADITIONAL (MIL)	36		
CHILD ACTIVITIES	None		
ADULT ACTIVITIES	Rents facility to civilian organizations about 3 times per year. Family support cooks a dinner a few times each year.		

3.1.1. The exterior is brick and appears to be in good condition. The interior has been kept in very good condition. A steam natural gas furnace provides heat. A former indoor firing range is present. The range was cleaned between the two visits.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity (RH) in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 Indoor Air Quality Standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ASHRAE 62-2001, Section 6.1.3, states that concentrations up to 700 ppm CO_2, above outdoor concentrations will achieve an acceptable level of indoor air quality.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ASHRAE 55-1992 recommends that temperature ranges be 73 to 79 degrees Fahrenheit (°F) during the summer and 68 to 74°F during the winter. Relative humidity levels be maintained between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE 1
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO2 (ppm)	Temp. (°F)	RH (%)
0830	Outdoors – Background	0.0	419	44.3	10.2
0845	Classroom	0.0	458	73.2	27.4
0856	Orderly Room (occupied)	0.0	550	75.1	28.0
0902	Commander's Office	0.0	450	74.7	27.0
0905	Female Latrine	0.0	477	74.8	27.3
0908	Recruiter's Office	0.0	451	75.2	26.5
0912	Kitchen	1.0	582	73.4	28.0
0916	Dining Hall	0.0	488	71.3	30.2
0920	Battery Maintenance	0.0	467	70.3	30.7
0924	Supply Bay	0.0	491	69.7	31.2

TIME	AREA	CO (ppm)	CO2 (ppm)	Temp. (°F)	RH (%)
0928	2nd Floor Classroom / Locker Room	0.0	459	68.5	33.9
0935	Basement – Break Room	0.0	490	70.6	29.1
0938	Boiler Room	0.0	723	76.6	34.0
0945	Basement Latrine	0.0	465	73.5	26.5

3.2.5. No indoor air quality problems were noted. Carbon monoxide and carbon dioxide levels were within recommended ranges.

3.3. ILLUMINATION

3.3.1. Illumination levels were measured in most areas of the facility. Sunlight was excluded, as much as possible for this survey, by closing doors and blocking windows. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 -- 463). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
Classroom	74 – 104	90.3	75	YES
Mail Box Area	60 – 62	61	75	NO
Library	6 – 22	15	75	NO
Entry	16 – 30	23	15	YES
Corridor	10 – 28	16	7.5	YES
Orderly Room	52 – 72	61	70	NO
Desks	40 – 66	50	70	NO
Commander's Office	70 – 90	77	70	YES
Desk	72 – 88	80	70	YES
Female Latrine (windows blocked)	16 – 18	17	40	NO
Female Latrine with window light	100 – 120	110	40	YES
Recruiter's Office	22 – 54	39	70	NO
Desks	32 – 42	37	70	NO
Kitchen	10 – 44	28	75	NO
Dining Hall	18 – 34	22	7.5	YES
Battery Maintenance Office	12 – 30	20	70	NO
Desks	12 – 26	19	70	NO

Location	Luminance Range (fc)	Average	Standard	Standard Met
Supply Bay	18 – 48	30	30	YES
Janitor's Closet	22 – 34	28	15	YES
Basement – Break Room	4 – 42	16	30	NO
Boiler Room	6 – 16	9	15	NO
Basement Corridor	6 – 42	18	7.5	YES
Basement Latrine (luminaire out)	6 – 12	9	40	NO
Basement Showers	20 – 44	32	20	YES

3.3.2. Levels were well below recommended minimum standards in many areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting may improve some areas.

3.4. WIPE SAMPLES

3.4.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples were collected at each location. *Ghost Wipes* are made of a special material that strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot (µg/ft²) and are listed in Table 3. The initial five samples had suspected laboratory error, which was confirmed by repeat sampling and analysis. Table 3 lists the results from the second visit. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
LEAD WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Way-03231-01	Basement – Break Room	BDL
PA Way-03231-02	Basement – Floor Outside Range	590
PA Way-03231-03	Assembly Hall – Center of Floor	BDL
PA Way-03231-04	Kitchen – Floor	BDL
PA Way-03231-05	Orderly Room	BDL
PA Way-03231-06	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.2. Additional wipe samples were collected during this survey. These samples were collected to further analyze the extent of contamination should the first five samples indicate a possible hazard. Since the sample collected outside the former indoor firing range exceeded the 200

µg/ft² criteria (see Section 3.4.3 below), these additional samples were analyzed. The results are presented in Table 4.

TABLE 4
WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (µg/ft²)
PA Way-03078-09	Recruiting Office	BDL
PA Way-03078-10	2nd Floor Classroom	BDL
PA Way-03078-11	Assembly Hall – SE End – Table	127
PA Way-03078-12	Stairs to Basement – Landing	BDL
PA Way-03078-13	1st Floor Classroom – Podium	173
PA Way-03078-14	BLANK Sample	BDL

µg/ft² = micrograms per square foot BDL = Below Detection Limits

3.4.3. WIPE SAMPLING RESULTS

3.4.3.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 µg/ft². This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. (See memorandum in Attachment E, Recommendations for Surface Lead Dust in Armories.) Samples in and immediately outside the former indoor firing range significantly exceeded the 200 µg/ft² criteria. Lower levels of lead were detected on the drill floor and in the first floor classroom. The range had been cleaned two months prior to the second visit. The steel backstop is still in place and only a portion of the range has received a coat of encapsulant paint. Acoustical tiles remained on the walls at and behind the firing line. See photographs in Attachment B.

3.4.4. AIR SAMPLING

3.4.4.1. Air Sampling for inorganic lead was performed during this survey. Table 5 lists the results of these samples, and is reported in milligrams per cubic meter (mg/m³) of air.

TABLE 5
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
Area – Assembly Hall	PA Way-03078-01	Lead	<0.003 mg/m³	0.05 mg/m³	YES
Non-Responsive	PA Way-03078-02	Lead	<0.003 mg/m³	0.05 mg/m³	YES

mg/m³ = milligrams per cubic meter < = less than (below detection limits)

3.4.4.2. Air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m³ averaged over an 8-hour day. Therefore,

based on these conditions there is currently no overexposure to personnel from lead in this building.

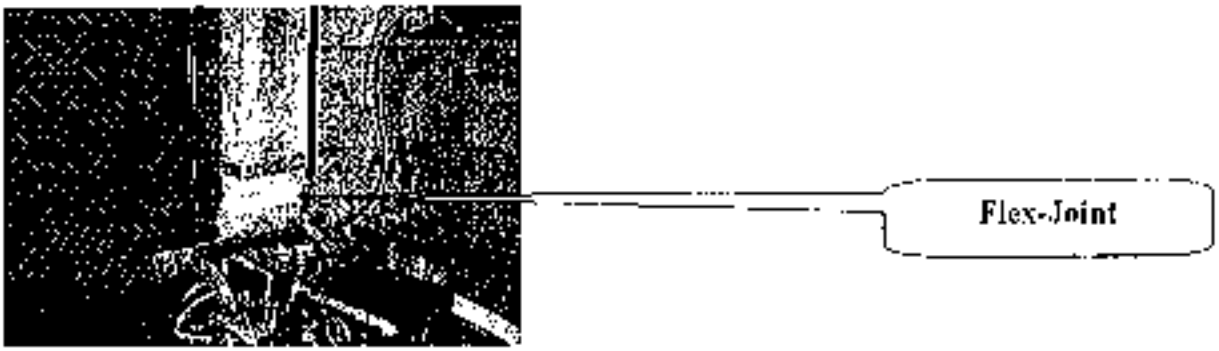
3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION DAMAGE

3.5.1.1. No water intrusion problems were reported or observed within the building.

3.5.2. ASBESTOS

3.5.2.1. Some steam pipe elbows and joints contain asbestos. These areas recently received a new layer of encapsulant. The drill floor consists of nine-inch tiles, which typically contain asbestos. These tiles were in good condition. A flex-joint located on the emergency lighting generator, located in the former firing range appears to be asbestos. The material could not be sampled with out destroying the joint. The joint is in good condition.



3.5.3. PROGRAMS

3.5.3.1. There are no designated confined space areas within this facility. A need has not been established for a HAZCOM program, the need for personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.4. HOUSEKEEPING

3.5.4.1. The facility is impressively clean, orderly and in good condition.

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
Waynesboro, PA	PENNSYLVANIA ARNG ARMORY	Waynesboro Armory

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR (initials)
19 March / 19 August 2003	JSS

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	NA	SSG Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
717-762-6412	109th FA DET 1 BTRY B 1ST BN	3	9

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
3	36			

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	CONROLS 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			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	½ FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	¼ 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 WEATHR 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	/		

AEHA Form 271-R (Test), 1 Jan 92 (HSHB-MI-I)

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	3	C
12001-29-5	Asbestos	0	C

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

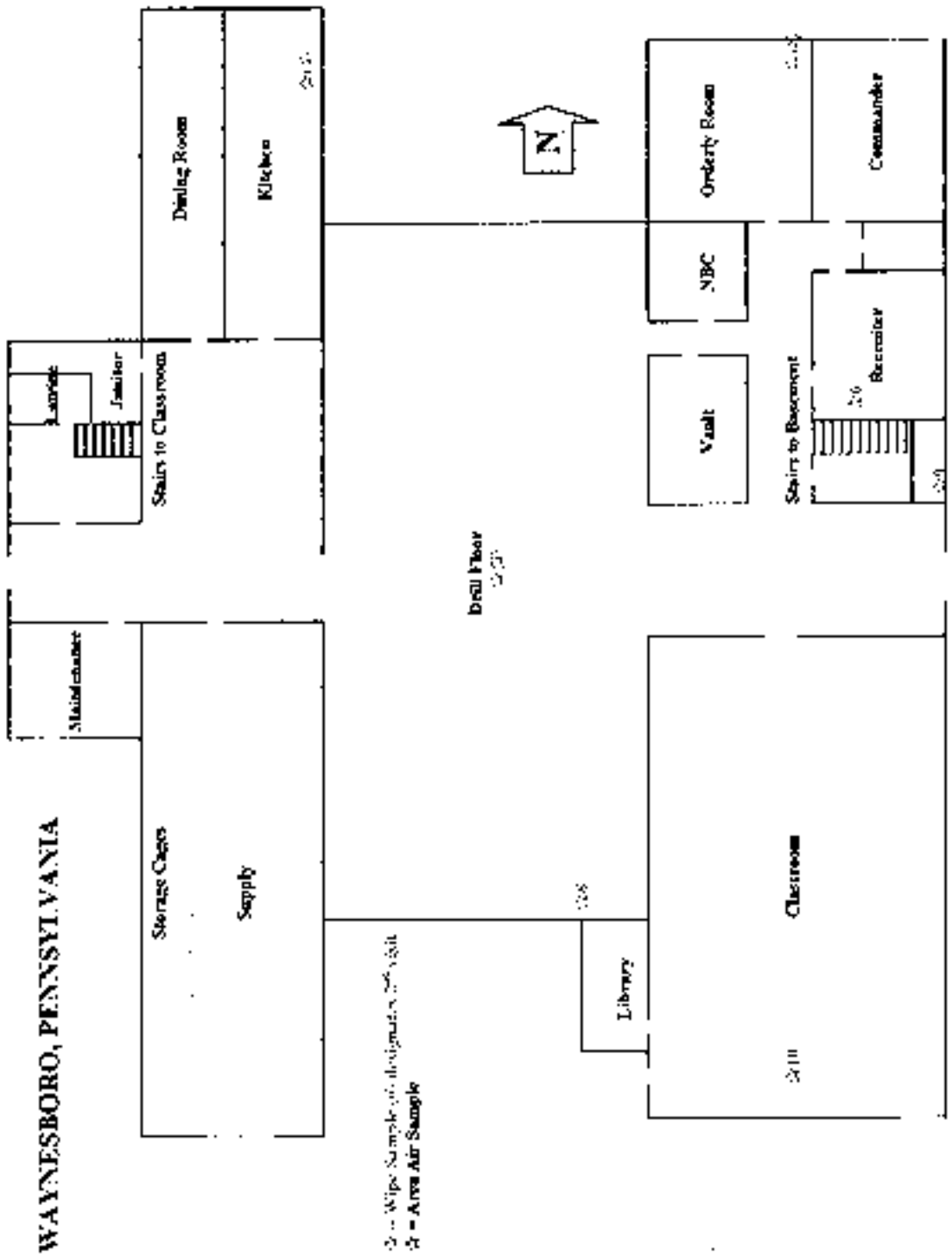
SECTION 6. COMMENTS

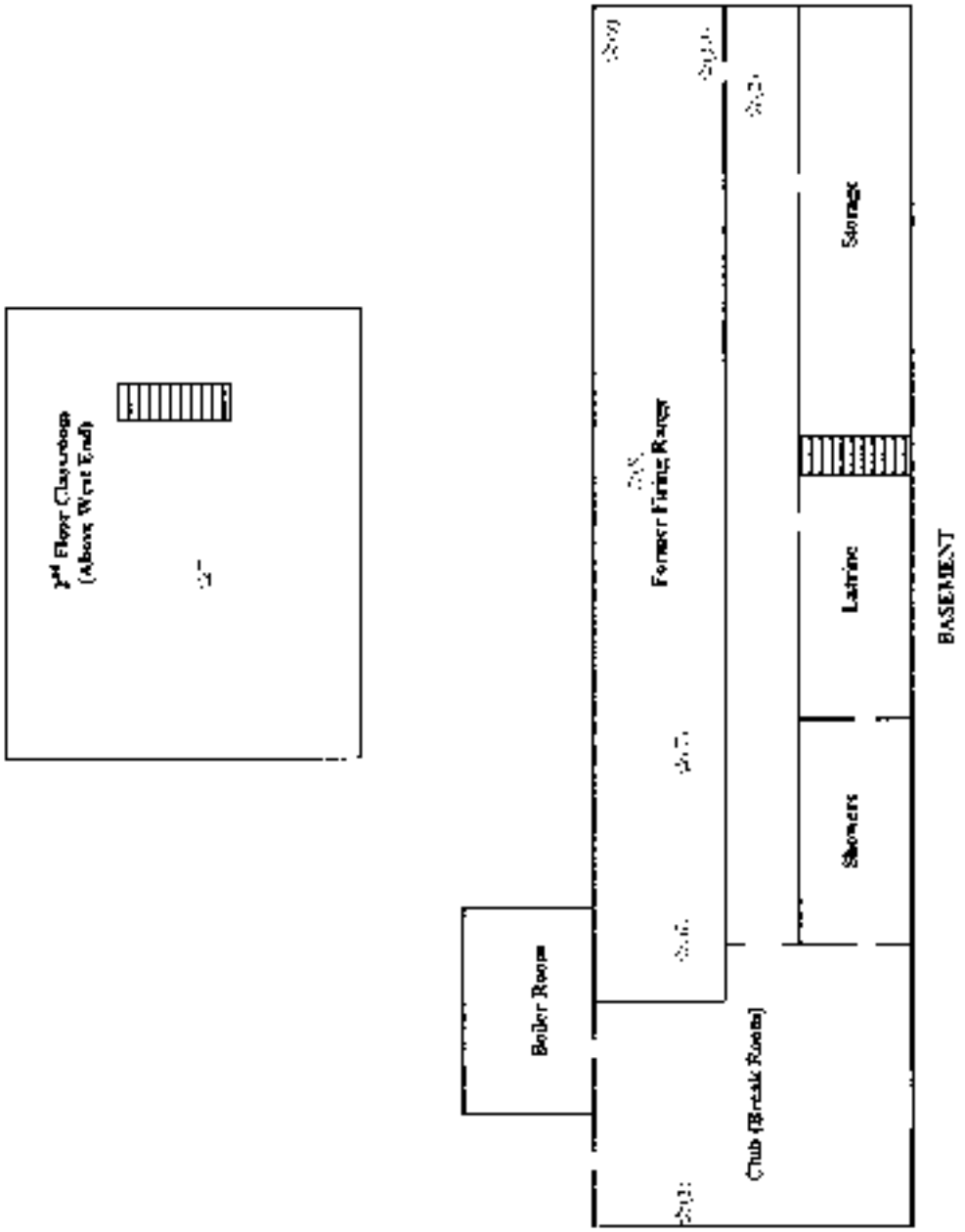
☐ No comments ☐ See attached sheet

PRIVACY ACT STATEMENT

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

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

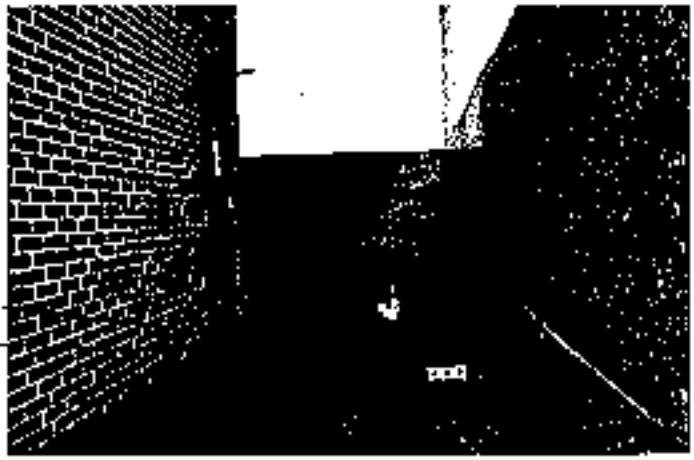




DET 1 BTRY B 1ST BN 108TH FA
WAYNESBORO, PENNSYLVANIA
WIPE SAMPLING POINTS

(1) PA Way-03231-01
Basement – Break Area
Under Counter

(2) PA Way-03231-02
Basement – Floor Outside
Range Door



(3) PA Way-03231-03
Drill Floor

Attachment B

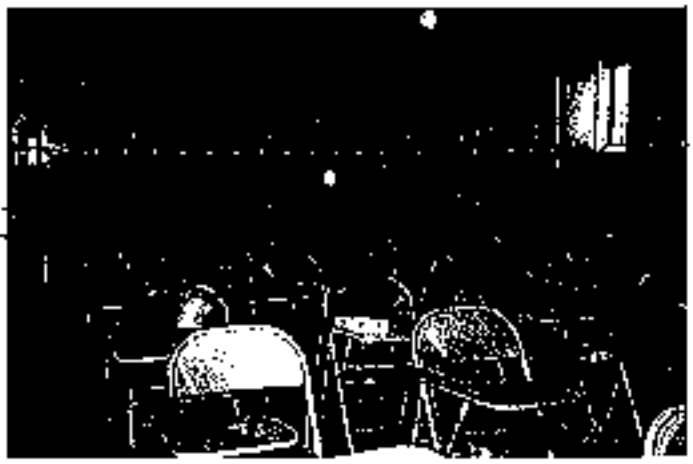
(4) PA Way-03231-04
Kitchen – Floor

(5) PA Way-03231-05
Orderly Room

ADDITIONAL WIPE SAMPLES

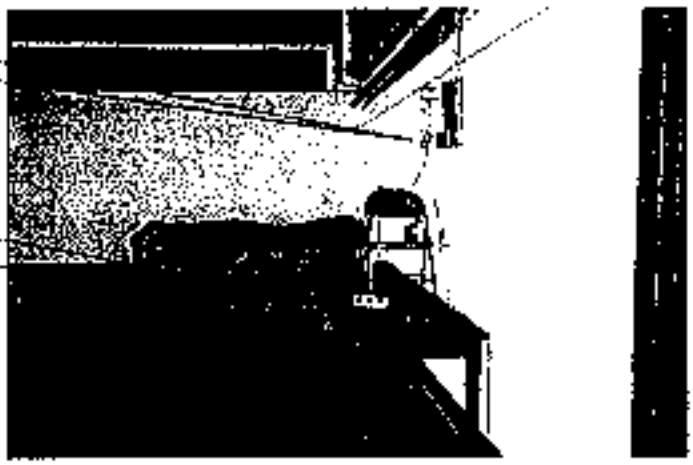
(6) PA Way-03078-09
Recruiter's Office

(7) PA Way-03078-10
2nd Floor Classroom



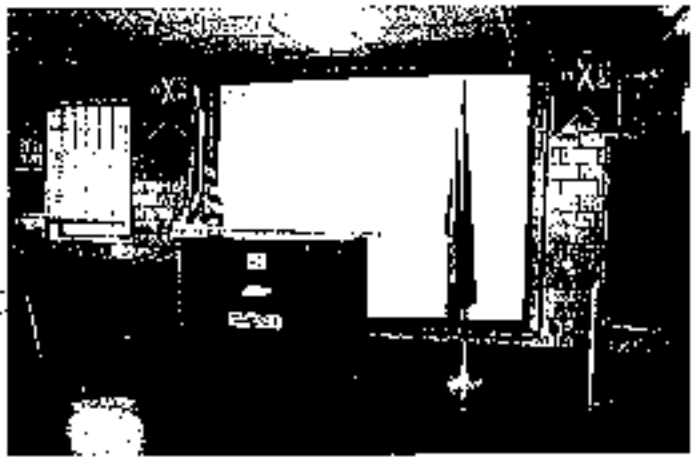
Area Air Sample

(8) PA Way-03078-11
Drill Floor – Table Top



Attachment B

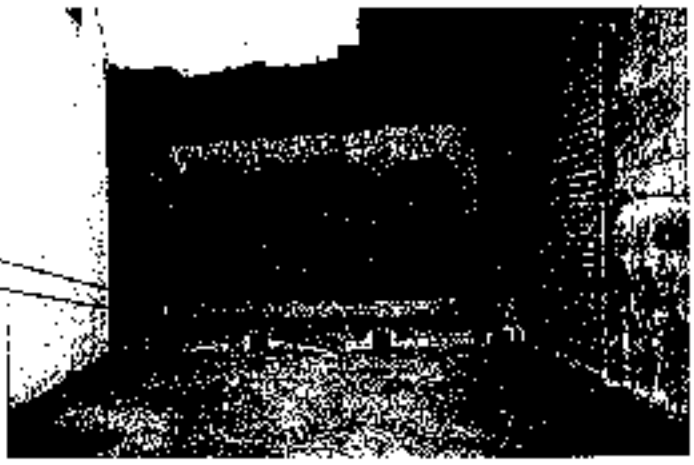
(9) PA Way-03078-12
Stairwell to Basement
(Close to Firing Range)



(10) PA Way-03078-13
Classroom

FORMER FIRING RANGE

(6) PA Way-03231-07
Backstop Area

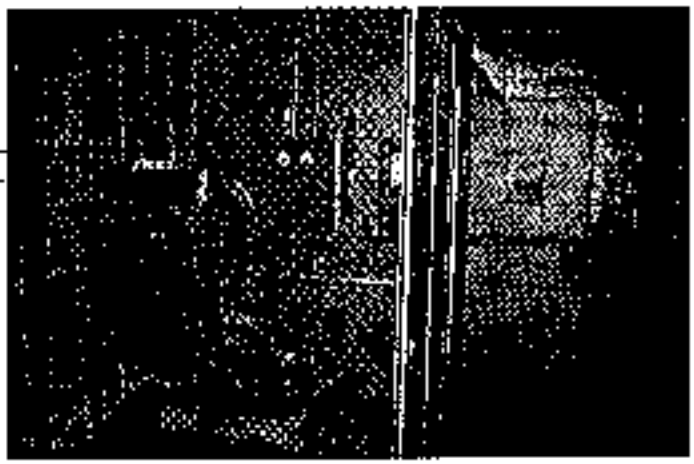


Attachment B

(7) PA Way-03231-08
¾ of the way Down Range

(8) PA Way-03231-09
Stored Equipment

(9) PA Way-03231-10
Emergency Lighting System
Behind Firing Line



Attachment B

(10) PA Way-03231-11
Door Vent

Attachment 15

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
AIHA Certificate of Accreditation #480 LAB ID 101533

TABLE I. ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	RES 92065-1
Client:	Operational Technologies, Corp.
Client Project Number / P.O.:	04 02
Client Project Description:	Armories/Pennsylvania
Date Samples Received:	April 11, 2003
Analysis Type:	USEPA SW846 3050B / AA(7420)
Turnaround:	3-5 Day
Date Samples Analyzed:	April 16, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA Way-03078-03	EM 761752	0.11	BDL	23	BDL
PA Way-03078-04	EM 761753	0.11	BDL	23	BDL
PA Way-03078-05	EM 761754	0.11	BDL	23	BDL
PA Way-03078-06	EM 761755	0.11	BDL	23	BDL
PA Way-03078-07	EM 761756	0.11	BDL	23	BDL
PA Way-03078-08	EM 761757	0.11	BDL	23	BDL
PA Cha-03078-18	EM 761758	0.11	BDL	23	BDL
PA Cha-03078-19	EM 761759	0.11	BDL	23	BDL
PA Cha-03078-20	EM 761760	0.11	BDL	23	BDL
PA Cha-03078-21	EM 761761	0.11	BDL	23	BDL
PA Cha-03078-22	EM 761762	0.11	BDL	23	BDL
PA Cha-03078-23	EM 761763	0.11	BDL	23	BDL
PA Cha-03078-24	EM 761764	0.11	BDL	23	BDL
PA Cha-03078-25	EM 761765	0.11	BDL	23	BDL
PA Cha-03078-26	EM 761766	0.11	BDL	23	BDL
PA Cha-03078-27	EM 761767	0.11	BDL	23	BDL
PA Cha-03078-28	EM 761768	0.11	BDL	23	BDL
PA Cha-03078-29	EM 761769	0.11	BDL	23	BDL
PA Cha-03078-30	EM 761770	0.11	BDL	23	BDL
PA Fri-03079-03	EM 761771	0.11	BDL	23	BDL
PA Fri-03079-04	EM 761772	0.11	BDL	23	BDL
PA Fri-03079-05	EM 761773	0.11	BDL	23	BDL
PA Fri-03079-06	EM 761774	0.11	BDL	23	BDL
PA Fri-03079-07	EM 761775	0.11	BDL	23	BDL
PA Fri-03079-08	EM 761776	0.11	BDL	23	BDL
PA Can-03080-05	EM 761777	0.11	BDL	23	BDL
PA Can-03080-06	EM 761778	0.11	BDL	23	BDL
PA Can-03080-07	EM 761779	0.11	BDL	23	BDL
PA Can-03080-08	EM 761780	0.11	BDL	23	BDL
PA Can-03080-09	EM 761781	0.11	BDL	23	BDL

BDL - Below Detection Limit

Data Qa _____

Results
Lead

Client #	DCL #	Total Area (in^2)	µg/Wipe	µg/in^2
PA Han-03076-27	03-17636	16	ND	<0.625
PA Han-03076-28	03-17637	16	ND	<0.625
PA Han-03076-29	03-17638	16	ND	<0.625
PA Han-03076-30	03-17639	16	ND	<0.625
PA Han-03076-31	03-17640	16	ND	<0.625
PA Get-03077-09	03-17641	16	ND	<0.625
PA Get-03077-10	03-17642	16	530.	33. x144 = 4752
PA Get-03077-11	03-17643	16	29.	1.8 x144 = 259.
PA Get-03077-12	03-17644	16	ND	<0.625
PA Get-03077-13	03-17645	16	ND	<0.625
PA Way-03078-09	03-17646	16	ND	<0.625
PA Way-03078-10	03-17647	16	ND	<0.625
PA Way-03078-11	03-17648	16	14.	0.88 x144 = 126.7
PA Way-03078-12	03-17649	16	ND	<0.625
PA Way-03078-13	03-17650	16	19.	1.2 x144 = 172.8
PA Way-03078-14	03-17651	16	ND	<0.625
PA Cha-03078-31	03-17652	16	ND	<0.625
PA Cha-03078-32	03-17653	16	ND	<0.625
	Prep Blank		ND	
% Recovery	LCS		88.	
% Recovery	LCS		90.	
RPL			10.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer

Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m³
PA Ann-03065-18	03-17790	186.7	ND	<0.005
PA Ann-03065-26	03-17791	206.4	ND	<0.005
PA Ann-03065-27	03-17792	215.1	ND	<0.005
PA Ann-03066-27	03-17793	158.6	ND	<0.006
PA Ann-03066-28	03-17794	168.4	ND	<0.006
PA Yor-03073-19	03-17795	448.9	ND	<0.002
PA Yor-03073-20	03-17796	436.7	ND	<0.002
PA Yor-03073-21	03-17797	460.6	ND	<0.002
PA Col-03076-01	03-17798	309.1	ND	<0.003
PA Col-03076-02	03-17799	306.5	ND	<0.003
PA Col-03076-03	03-17800	319.4	ND	<0.003
PA Han-03076-18	03-17801	370.6	ND	<0.003
PA Han-03076-19	03-17802	375.2	ND	<0.003
PA Han-03076-20	03-17803	390.9	ND	<0.003
PA Get-03077-01	03-17804	265.1	ND	<0.004
PA Get-03077-02	03-17805	284.6	ND	<0.004
PA Way-03078-01	03-17806	331.4	ND	<0.003
PA Way-03078-02	03-17807	355.8	ND	<0.003
PA Cha-03078-15	03-17808	406.1	ND	<0.002
PA Cha-03078-16	03-17809	411.3	ND	<0.002
	Prep Blank 2		ND	
% Recovery	LCS 3		110.	
% Recovery	LCS 4		108.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

Analyst

Non-Responsive

Reviewer

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client:	National Guard Bureau	Job Name:	Pennsylvania Armories-Waynesboro	Chain Of Custody:	117192
Address:	301-D Old Bay Lane, Attn: NGB-AVN-S1, State Military Reservation	Job Location:	Not Provided	Date Analyzed:	09/11/2003
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	[redacted]
Attention:	[redacted]	P.O. Number:	Not Provided	Report Date:	[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
0366607	PAWay-03231-01	Flame	Wipe	****	0.111	108.00	ug/ft²	<	110	ug/ft²	
0366608	PAWay-03231-02	Flame	Wipe	****	0.111	108.00	ug/ft²		590	ug/ft²	
0366609	PAWay-03231-03	Flame	Wipe	****	0.111	108.00	ug/ft²	<	110	ug/ft²	
0366610	PAWay-03231-04	Flame	Wipe	****	0.111	108.00	ug/ft²	<	110	ug/ft²	
0366611	PAWay-03231-05	Flame	Wipe	****	0.111	108.00	ug/ft²	<	110	ug/ft²	
0366612	PAWay-03231-06	Flame	Wipe	****	0.111	108.00	ug/ft²	<	110	ug/ft²	
0366613	PAWay-03231-07	Flame	Wipe	****	0.111	108.00	ug/ft²		430000	ug/ft²	
0366614	PAWay-03231-08	Flame	Wipe	****	0.111	108.00	ug/ft²		60000	ug/ft²	
0366615	PAWay-03231-09	Flame	Wipe	****	0.111	108.00	ug/ft²		16000	ug/ft²	
0366616	PAWay-03231-10	Flame	Wipe	****	0.111	108.00	ug/ft²		19000	ug/ft²	
0366617	PAWay-03231-11	Flame	Wipe	****	0.111	108.00	ug/ft²		14000	ug/ft²	
0366618	PAWay-03231-12	Flame	Wipe	****	0.111	108.00	ug/ft²	<	110	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.

Analyst: [redacted]   Technical Manager: [redacted]

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non-Responsive @md.ngb.army.mil

Attachment D

REFERENCE LIST INDEX

1. General Regulations and National Consensus Standards
2. Specific Regulations and Guidance
   a. Abrasive Blasting
   b. Asbestos
   c. Battery Charging Room
   d. Bird and Bat Manure
   e. Bloodborne Pathogens
   f. Chemical Agent Resistant Coating (CARC) Paint
   g. Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE)
   h. Confined Space Entry Program
   i. Design Review
   j. Ergonomics
   k. Flammable Storage Room
   l. Hazard Communication
   m. Hearing Conservation
   n. Indoor Air Quality
   o. Indoor Firing Ranges
   p. Lead
   q. Lighting
   r. Occupational Vision
   s. Paint Spray Booth
   t. Personal Protection
   u. Radiation Protection
   v. Respiratory Protection
   w. Sanitation
   x. Smoking
   y. Vehicle Exhaust
   z. Welding Operation

GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REFERENCE LIST

1. General Regulations and National Consensus Standards
   a. DODI 6055.1, DOD SOH Program, 19 August 1998.
   b. DODI 6055.5, DOD OEH. *[DRAFT]*
   c. DOD 6055.5-M, DOD Occupational Health Surveillance Manual, 13 May 1987.
   d. DODI 6050.5, DOD Hazard Communication, 29 Oct 90. Change 1, 6 May 1996.
   e. AR 40-5, Preventive Medicine, 15 October 1990. [05/2002 Being Updated]
   f. DA PAM 40-5, Preventive Medicine. *[DRAFT]*
   g. AR 385-10, The Army Safety Program, 29 February 2000.
   h. NGR 385-10, ARNG SOH Program, 7 October 1988, Change 1, 29 December 1989.
   i. Title 29, Part 1910, Occupational Safety and Health Standards. [Current Date]
   j. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 2002.
   k. ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th edition, 2001.
   l. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.
   m. TG 141, USACHPPM Industrial Hygiene Sampling Guide, November 1997.
   n. National Safety Council, Fundamentals of Industrial Hygiene, 5th Edition, 2002.
   o. NIOSH, Pocket Guide to Chemical Hazards, 2001.
   p. NFC, A Compilation of NFPA Codes, Standards, Recommended Practices and Guides. [Current date]
   q. ASHRAE Standards. [Current Dates]
   r. ANSI Standards. [Current Dates]

2. Specific Regulations/Guidance
   a. **ABRASIVE BLASTING**
      (1) ANSI Z9.4 1997, Abrasive Blasting Operations - Ventilation and Safe Practices.
      (2) 29 CFR 1910.94 Ventilation
      (3) 42 CFR 84

   b. **ASBESTOS**
      (1) AR 40-5, Preventive Medicine, 15 October 1990. *[05/2002 Being Updated]*
      (2) AR 200-1, Environmental Protection and Enhancement, Chapter 8, 21 February 1997.
      (3) TB MED 513, Guidelines for the Evaluation and Control of Asbestos Exposure, 15 December 1986. *[05/2000 Under Revision as DA PAM 40-513]*
      (4) TG 157, USAEHA, The Installation Asbestos Management Program Assessment Checklists, July 1994.
      (5) 29 CFR 1910.1001
      (6) 29 CFR 1926.58 (prior to 1994 CFR)
      (7) 29 CFR 1926.1101

(8) MEMORANDUM SGPS-PSP, OTSG, subject: AMEDD Role Supporting Asbestos Abatement/Asbestos Management Programs, 19 Jan 89.

(9) EPA, Guidance for Controlling Asbestos-Containing Materials in Buildings, June 1985.

(10) DD Form 2493-1 (Asbestos Exposure, Part I--Initial Medical Questionnaire)

(11) DD Form 2493-2 (Asbestos Exposure, Part II--Periodic Medical Questionnaire)

(12) EPA NESHAPS Asbestos Regulation (40 CFR 61, Subpart M).

c. **BATTERY CHARGING ROOM**

(1) TG 022, USAEHA, page 81, Industrial Hygiene Evaluation Guide, October 1975. *[Out of Print]*

(2) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

d. **BIRD AND BAT MANURE**

(1) TG 142, USAEHA, Managing Health Hazards Associated with Bird and Bat Excrement, Dec 1992.

e. **BLOODBORNE PATHOGENS**

(1) 29 CFR 1910.1030

(2) TG 190, USAEHA, Guide to Managing Occupational Exposure to Bloodborne Pathogens, Jan 94.

f. **CHEMICAL AGENT RESISTANT COATING (CARC) PAINT**

(1) TG 144, USAEHA, Guidelines for Controlling Health Hazards in Painting Operations, 24 August 1987.

(2) DA LTR, USAEHA, HSHB-MI-WR, subject: Respiratory Protection When Spraying CARC, 19 November 1992.

(3) TM 43-0139, Painting Instructions for Army Material, 27 July 19881 Aug 86.

(4) MEMORANDUM SGPS-PSP, OTSG, subject AMEDD, Occupational Health Requirements in Support of Painting in the Army, 22 February 1985.

(5) AR 750-1, Army Materiel Maintenance Policy and Retail Maintenance Operations (Prohibits welding on CARC paint) 1 July 1996.

g. **CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR, EXPLOSIVE (CBRNE)**

(1) DODI 2000.gg, DOD Installation CBRNE Emergency Response Guidelines.

(2) DHHS, NIOSH Pub No. 2002 139, Guidance for Protecting Building Environments from Airborne Chemical, Biological, or Radiological Attacks, May 2002.

(3) TG 275, USACHPPM, Personal Protective Equipment Guide for Medical Treatment Facility Personnel Handling Casualties from Weapons of Mass Destruction and Terrorism Events. *[Draft]*

h. **CONFINED SPACE**

(1) 29 CFR 1910.146 (Confined Space Entry)
(2) 29 CFR 1910.147 (Lockout/Tagout)
(3) ANSI Z117.1-Safety Requirements for Confined Spaces, 1995.
(4) SOP for ARNG Confined Space Entry Program, 25 April 1991.
(5) Letter, US Dept of Labor (DOL) addressed to Vanessa Char, 22 Apr 1994.
(6) OSHA Instruction STD 1-7.3, US DOL, subject: 29 CFR 1910.147, the Control of Hazardous Energy (Lockout/Tagout)--Inspection Procedures and Interpretive Guidance, 11 Sep 90.
(7) DHHS, NIOSH Pub No. 87113, A Guide to Safety in Confined Spaces, July 1987.
(8) Confined Space Entry Program for Helicopters, 2003.

i. **DESIGN REVIEW**

(1) DG 415-1, Design Guide for Armories, current.
(2) DG 415-2, Design Guide for Logistics Facilities, current.
(3) DG 415-3, Design Guide for Training Site Facilities, current.
(4) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.
(5) TI-300, 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.
(6) UFGS 15940A, Overhead Vehicle Tailpipe (and welding Fume) Exhaust Removal Systems, December 2001.
(7) ASHRAE, Standard 62-2002, Ventilation for Acceptable Indoor Air Quality.
(8) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

j. **ERGONOMICS**

(1) DA PAM 40-21, Medical Services, Ergonomics Program, 15 May 2000.
(2) ANSI Z-365, Management of Work Related Musculoskeletal Disorders, 2000.
(3) 29 CFR 1910. *[PROPOSED STANDARD]*

k. **FLAMMABLE STORAGE ROOM**

(1) 29 CFR 1910.106
(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

l. **HAZARD COMMUNICATION**

(1) 29 CFR 1910.1200
(2) NGR 385-10, Chapter 6

m. **HEARING CONSERVATION**

(1) DA PAM 40-501, Medical Services, Hearing Conservation Program, 10 December 1998.

(2) TG 181, USAEHA, Noise Dosimetry and Risk Assessment, May 1999.

(3) TG 175, USAEHA, Readiness thru Hearing Conservation: Guide for Unit Commanders and Supervisors, June 1999.

(4) 29 CFR 1910.95

n. **INDOOR AIR QUALITY (IAQ)**

(1) TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning, June 1991.

(2) USACERL Technical Report P-91/42, IAQ Management for Operations and Maintenance Personnel, September 1991.

(3) EPA 400/1-91/003 or DHHS, NIOSH, Publication No. 91-114, Building IAQ, A Guide for Building Owners and Facility Managers, December 1991.

(4) ASHRAE, Standard 62-2002, Ventilation for Acceptable IAQ.

(5) ASHRAE, Standard 55-1992, Thermal Environmental Conditions for Human Occupancy.

(6) NIOSH, IAQ Selected References, Sep 1989.

(7) OSHA Instruction CPL 2-2.20B CH-1, Directorate of Technical Support, 13 Nov 90.

(8) DA PAM 25-52, Mail Facility Security and Handling Suspicious Mail, 6 November 2001.

(9) ASTM, D 5952-96, 10 May 1996.

o. **INDOOR FIRING RANGES**

(1) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(2) NGR 385-15, Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges, 30 March 1990. *[11/02 Under Revision]*

(3) CEHND 1110-1-18, USACE Design Manual for Indoor Firing Range, June 1990.

(4) HQDA LTR, Office of the Adjutant General, DACS-SF, subject: Inspection and Evaluation of US Army Indoor Firing Ranges, 26 March 1993.

(5) Departments of the Army and Air Force, NGB-ADE-OM, subject: All State Log Number (I920323) Indoor Range Clean-up at State Owned Armories, 28 July 1992.

(6) NIOSH, Technical Information, December 1975, subject: Lead Exposure and Design Considerations for Indoor Firing Ranges.

(7) All-States Ltr P01-0075, 5 December 2001.

(8) Information Paper, Alternative Ammunition, 15 March 1996.

(9) Information Paper, Bullet Traps, 26 April 1996.

(10) Information Paper, ARNG IFR Action Plan, 28 January 2002.

p. **LEAD**

(1) 29 CFR 1910.1025

(2) 29 CFR 1926.62

(3) 24 CFR 35.61 (HUD, Percentage of Lead in Paint)

(4) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

(5) OSHA Instruction CPL 2-2.58, Office of Health Compliance Assistance, 13 December 1993.

(6) Federal Register, 18 April 1990, Vol. 55, No. 75, HUD, Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing, as amended, September 1990, Office of Public and Indian Housing, Department of Housing and Urban Development, 451 Seventh Street, SW, Washington, DC 20410.

(7) NIOSH, Request for Assistance in Preventing Lead Poisoning in Construction Workers, April 1992.

(8) EPA, Strategy for Reducing Lead Exposures, 21 Feb 91.

q. **LIGHTING**

(1) RP-1-1993, Office Lighting, ANSI/IESNA.

(2) RP-7-2001, Industrial Lighting, IES.

r. **OCCUPATIONAL VISION**

(1) DA PAM 40-506, Medical Services, The Army Vision Conservation and Readiness Program, 20 July 2001.

(2) ANSI Z87.1, Practice for Occupational and Educational Eye and Face Protection, 1989, Change A, REAF 1998.

(3) ANSI Z358.1 for Emergency Eyewash and Shower Equipment, 1998.

(4) OTSG Memorandum SGPS-PSP, subject: Acanthamoeba Keratitis and Eyewash Stations, 8 May 89.

(4) 29 CFR 1910.133

s. **PAINT SPRAY BOOTH**

(1) NFPA No. 33, Standard for Spray Application Using Flammable and Combustible Materials, 1995.

(2) NFPA No. 30, Standard for Flammable and Combustibles Liquid Code, 1996.

(3) 29 CFR 1910.94

(4) 29 CFR 1910.107

(5) ANSI Z9.3-1995 for Exhaust Systems - Spray Finishing Operations - Safety Code for Design, Construction, and Ventilation.

(6) ANSI Z9.2-2001, Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems.

t. **PERSONAL PROTECTIVE EQUIPMENT**

(1) Quick Selection Guide to Chemical Protective Clothing, 2nd edition, Forsberg, K and Mansdorf, S., 1993.

(2) Chemical Protective Clothing, Vol 1 and 2, Johnson, J. and Anderson, K., American Industrial Hygiene Association, 1990.

(3) Guidelines for the Selection of Chemical Protective Clothing, 3rd Edition, ACGIH, Inc., Feb 1987.

u. **RADIATION PROTECTION PROGRAM**

(1) NGR 385-11, Safety, Ionizing and Nonionizing Radiation Protection, 18 February 1999.

(2) AR 11-9, Army Radiation Safety Program, 28 May 1999.

(3) 29 CFR 1910.96

(4) 29 CFR 1910.97

v. **RESPIRATORY PROTECTION**

(1) AR 11-34, The Army Respiratory Protection Program, 15 February 1990. *[11/02 Being Updated]*

(2) 29 CFR 1910.134

(3) 42 CFR 84

(4) TB MED 502, Respiratory Protection Program, February 1992. *[11/02 Being Updated as DA PAM 40-502]*

(5) ANSI/CGA G-7.1-1997, Commodity Specification for Air.

(6) ANSI Z88.2-1992, Standard for Respiratory Protection.

w. **SANITATION**

(1) ANSI Z4.1-1986, Change REAF 1995, Sanitation in Places of Employment-Minimum Requirements.

(2) 29 CFR 1910.141

x. **SMOKING**

(1) AR 600-63, Army Health Promotion, 28 April 1996.

(2) DODI 1010.15, Smoke-Free DOD Facilities, 2 January 2001.

(3) DODD1010.10, Health Promotion, 11 March 1986.

y. **VEHICLE EXHAUST**

(1) ACGIH, Industrial Ventilation, A Manual of Recommended Practice, 24th Edition, 2001.

(2) TI-300f 1090, Ammerman Engineering Handbook for Automotive and Truck Exhaust Removal Systems, 1990.

z. **WELDING OPERATION**

(1) 29 CFR 1910.252

(2) 29 CFR 1910.253

(3) 29 CFR 1910.254

(4) ANSI/AWS Z49.1-1999, Safety in Welding and Cutting and Allied Processes.

(5) TM 5-805-7, Welding Design, Procedures and Inspection, 20 May 85.

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors (40 $\mu g/ft^2$) and windowsills (250 $\mu g/ft^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of 200 $\mu g/ft^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 $\mu g/ft^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 $\mu g/ft^2$ on floors and 250 $\mu g/ft^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

Attachment F

INDUSTRIAL HYGIENE SURVEY

131ST TRANS CO

WILLIAMSTOWN, PA

March 11, 2003

OPTECH

OPERATIONAL TECHNOLOGIES
CORPORATION

131ST TRANS CO
WILLIAMSTOWN, PENNSYLVANIA
INDUSTRIAL HYGIENE SURVEY

1.0. INTRODUCTION

1.1. This report summarizes the results of the Industrial Hygiene (IH) Survey conducted at the Williamstown Armory, Williamstown, Pennsylvania on March 11, 2003. The NGB Region North IH Office requested Operational Technologies Corporation (OpTech) to visit the Facility to identify and measure the existence and extent of potentially hazardous operations or conditions. [redacted] from OpTech, completed this survey. [redacted] a Certified Industrial Hygienist (CIH), reviewed this assessment report.

1.2. The following sections will provide details on how the IH Survey was conducted. A Health Hazard Information Module (HHIM) - Industrial Hygiene Survey Form (Form 271-R) is presented in Attachment A. A facility diagram showing the sampling locations plus photographs of each sampling point is presented in Attachment B. Attachment C contains sampling documentation and laboratory analysis. All pertinent Federal, DoD and Army National Guard references are listed in Attachment D.

2.0. EXECUTIVE SUMMARY

2.1. Elevated levels of carbon monoxide and carbon dioxide were discovered in the basement. Investigations determined that the natural gas heaters above the firing line in the inactive firing range were the cause of the problem. Illumination levels were below recommended minimum standards in most areas of the facility. Wipe samples for inorganic lead were taken. Three sample results exceeded recommended levels. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 $\mu g/ft^2$. This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. Air sampling for inorganic lead was taken. These sampling results were well below OSHA's permissible exposure limit for lead of 0.05 mg/m^3 average over an 8-hour day. Therefore, based on these conditions, there is currently no overexposure to personnel from lead in this building. Paint was peeling in the male latrine and in the 2nd platoon's office. Paint samples were analyzed for lead content. Lead levels were below the EPA's 0.5 percent by weight criteria.

3.0. FINDINGS AND OBSERVATIONS

3.1. FACILITY INFORMATION

FACILITY	131ST TRANS CO		
ADDRESS	PO Box B, US RT 209		
	Williamstown, PA 17098		
CONTACT	SFC Non-Responsive		
PHONE	717-647-2270		
DATE BUILT	1954	FACILITY SIZE	7613 sq.ft.
INDOOR FIRING RANGE	INACTIVE		1-floor + basement
ASSISTED	Non-Responsive - State Maintenance		
NUMBER OF PERSONNEL IN BUILDING			
FULL-TIME	4		
TRADITIONAL (MIL)	125		
CHILD ACTIVITIES	None		
ADULT ACTIVITIES	Rents building about once every 2 years, usually for member's receptions.		

3.1.1. The exterior is cement and appears to be in good condition. The interior has been kept in very good condition. Propane furnaces provide steam and hot water heat. An indoor firing range is present, which is inactive. The range is scheduled for cleaning within the next few months.

The unit was deployed during this survey. A soldier from Fort Indiantown Gap was present to monitor the building. The civilian State maintenance employee was present and very helpful during this survey.

3.2. INDOOR AIR QUALITY

A direct reading IAQ monitor was used to measure carbon monoxide (CO), carbon dioxide (CO_2), temperature, and relative humidity in various locations in the facility.

3.2.1. CARBON MONOXIDE

ANSI/ASHRAE 62-2001 Indoor Air Quality Standards recommend average levels to remain less than 9 parts per million (ppm) CO.

3.2.2. CARBON DIOXIDE

ASHRAE 62-2001, Section 6.1.3, states that concentrations up to 700 ppm CO_2, above outdoor concentrations would achieve an acceptable level of indoor air quality. However, USAF Armstrong Laboratories and other independent studies have concluded that health complaints begin at levels greater than 600 ppm, with significantly greater complaints above 800 ppm.

3.2.3. TEMPERATURE AND RELATIVE HUMIDITY

ASHRAE 55-1992 recommends that temperature ranges should be between 73 to 77 degrees Fahrenheit (°F) during the summer and 68 to 75°F during the winter. Relative humidity levels should remain between 20 to 60 percent.

3.2.4. IAQ readings throughout the facility are listed below in Table 1.

TABLE 1
INDOOR AIR QUALITY MEASUREMENTS

TIME	AREA	CO (ppm)	CO_2 (ppm)	Temp. (°F)	RH (%)
1120	Outdoors - Background	0.0	420	29.3	35.6
1134	Assembly Area – NE	0.0	585	64.7	18.8
1140	Classroom	0.0	569	66.6	16.9
1145	Orderly Room / State Maint. Office (occupied)	0.0	608	67.6	17.9
1147	Commander's Office	0.0	580	68.6	16.3
1150	Training Office (occupied)	0.0	626	71.6	15.3
1153	Assembly Area – SW	0.0	598	72.1	14.9
1155	1st PLT Office	0.0	585	71.6	15.2
1157	Recruiting Office	0.0	627	70.7	15.7

TIME	AREA	CO (ppm)	CO_2 (ppm)	Temp. (°F)	RH (%)
1200	Maintenance Office	0.0	656	70.5	15.7
1203	Supply Office	0.0	587	71.1	17.7
1206	Supply Storage	0.0	670	71.8	16.6
1210	Kitchen	0.0	606	70.6	18.1
1214	Assembly Hall NW	2.0	938	70.6	18.1
1217	Female Locker Room	0.0	1132	70.8	18.6
1222	Male Locker Room	1.0	1111	72.3	18.2
	Basement				
1226	Boiler Room	0.0	468	71.9	18.2
1229	Break Room	3.0	877	71.8	18.1
1232	2nd PLT Office	**10.0**	**1184**	70.9	20.9
1235	Range	**10.0**	**1750**	69.7	21.1
1240	Range - Under Heaters	**22.0**	**1976**	-	-
1305	Outdoors Background	0.0	443	30.0	30.1
1320	Assembly Hall N Wall	1.0	646	68.2	18.0

3.2.5. High levels of CO and CO_2 were measured in the basement. Investigation determined that the heaters above the firing line were generating these high levels. The state maintenance technician had turned on the heaters and the lighting for this survey. He will no longer activate these heaters. The indoor firing range is inactive.

3.3. ILLUMINATION

3.3.1. Illumination levels were taken in most areas of the facility. Outdoor sunlight was excluded, as much as possible for this survey, by closing doors and blocking sunlight. The survey results are presented in Table 2. Results are compared to the Lighting Handbook, Illuminating Engineering Society of North America, 8th Edition, 1993 (pages 460 – 463). Readings are in foot-candles (fc).

TABLE 2
ILLUMINATION READINGS

Location	Luminance Range (fc)	Average	Standard	Standard Met
Assembly Hall	22 - 64	41	75	NO
Classroom	32 - 92	69	75	NO
Training Aids Room (storage)	16 – 22	20	30	NO
Orderly Room & State Maint.	64 - 80	70	70	YES
Desks	40 – 74	56	70	NO

Location	Luminance Range (fc)	Average	Standard	Standard Met
Commander's Office	44 – 60	54	70	NO
Desk	54	54	70	NO
Training Office	30 – 56	41	70	NO
Desks	18 – 40	29	70	NO
Equipment (electrical) Room	38 – 50	44	15	YES
1st PLT Office	14 – 48	32	70	NO
Recruiting Office	8 – 36	22	70	NO
Desk	16	16	70	NO
Maintenance Office	6 – 38	20	70	NO
Desks	10 – 22	16	70	NO
Entry	16 – 26	21	15	YES
Supply Office	18 – 22	20	70	NO
Desk	14	14	70	NO
Supply Storage	10 – 30	22	30	NO
Vault	26 – 46	40	30	YES
Kitchen	20 – 52	40	75	NO
Kitchen Hood - Supplemental	40 – 48	44	75	NO
Female Latrine	10 – 18	15	40	NO
Female Shower	8	8	20	NO
Female Locker Room	18 - 28	23	40	NO
Janitor's Closet	40 – 40	40	15	YES
Male Locker Room	18 – 30	21	40	NO
Male Latrine	16 – 22	19	40	NO
Showers	8 - 6	7	20	NO
Basement				
Boiler Room	10 - 26	18	15	YES
Break Room	4 - 10	7	30	NO
2nd PLT Office	38 – 42	41	70	NO
Desk	28	28	70	NO
Latrine	16 - 46	33	40	NO

3.3.2. Levels were well below recommended minimum standards in most areas of the facility. Replacing burnt out luminaires, cleaning fixtures, cleaning windows, painting walls a lighter color, repositioning detailed work to higher illuminated areas, and using task lighting would improve some areas.

3.4. WIPE SAMPLES

3.4.1. Wipe sampling for lead was accomplished in various locations of the facility. *Ghost Wipe* samples were taken at each location. *Ghost Wipes* are made of a special material that

strictly adheres to ASTM E1792-96a laboratory analysis for inorganic lead. The results are presented in micrograms per square foot ($\mu g/ft^2$) and are listed below in Table 3. A facility diagram showing these sampling locations plus a photograph of each sampling point is presented in Attachment B. Laboratory analysis results are presented in Attachment C.

TABLE 3
WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead ($\mu g/ft^2$)
PA Wil-03070-17	Basement Break Room Top of Refrigerator	437
PA Wil-03070-18	Assembly Hall – Air Return Grille	336
PA Wil-03070-19	Assembly Hall - South Wall – Top of Cabinet	263
PA Wil-03070-20	Kitchen – Top of Icemaker	25
PA Wil-03070-21	Training Office	24
PA Wil-03070-22	BLANK Sample	BDL

$\mu g/ft^2$ = micrograms per square foot BDL = Below Detection Limits

3.4.2. Additional wipe samples were taken during this survey. These samples were taken to further analyze the extent of contamination should the first five samples indicate a possible hazard. Since the samples taken in assembly hall and kitchen exceeded the 200 $\mu g/ft^2$ criteria (see Section 3.4.3 below), these additional samples were analyzed. The results are presented below in Table 4.

TABLE 4
WIPE SAMPLING RESULTS

SAMPLE #	LOCATION	Lead ($\mu g/ft^2$)
PA Wil-03070-23	Basement - 2nd PLT Office	101
PA Wil-03070-24	Assembly Hall – NW Corner	32
PA Wil-03070-25	Orderly Room / State Maintenance Offices	27
PA Wil-03070-26	Supply Office	23
PA Wil-03070-27	Classroom – Shelf	BDL
PA Wil-03070-28	BLANK Sample	BDL

$\mu g/ft^2$ = micrograms per square foot BDL = Below Detection Limits

3.4.3. WIPE SAMPLING RESULTS

3.4.3.1. In armories that do not contain childcare facilities, the NGB Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 $\mu g/ft^2$. This guidance is based on professional judgment, risk assessments, adaptation of OSHA guidance, and feasibility of cleaning to a certain level. Two samples in the assembly hall plus one in the basement break room exceeded the 200 $\mu g/ft^2$ criteria. Lower levels were detected in other areas of the building. The source of lead contamination is apparently from the inactive indoor firing range.

3.4.3.1.1. EPA standards (40 CFR 745.227(e)(8)(viii)) are not directly applicable because they are developed for floors (40 µg/ft²), windowsills (250 µg/ft²) and window troughs (400 µg/ft²) in residential and childcare facilities. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards. In addition, the armories are not residential facilities and rarely have childcare activities associated with them.

3.4.3.1.2. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead. In workplaces where lead is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

3.4.3.1.3. OSHA used to cite a level of 200 µg/ft^2 in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

3.4.3.1.4. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, USACHPPM has determined that 200 µg/ft^2 is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

3.4.3.1.5. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

3.4.4. AIR SAMPLING

3.4.4.1. Air Sampling for inorganic lead was performed during this survey. Table 5 lists the results of these samples, and is reported in milligrams per cubic meter (mg/m³) of air.

TABLE 5
AIR SAMPLING RESULTS

INDIVIDUAL/AREA	Sample #	Analyte	Results	Standard	Standard Met?
Area – Assembly Hall by Kitchen	PA Wil-03070-15	Lead	<0.002 mg/m³	0.05 mg/m³	YES
[redacted]	PA Wil-03070-16	Lead	<0.002 mg/m³	0.05 mg/m³	YES

mg/m³ = milligrams per cubic meter < = less than (below detection limits)

3.4.4.2. Air samples collected in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of 0.05 mg/m^3 averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead in this

building.

3.5. OTHER OBSERVATIONS

3.5.1. WATER INTRUSION DAMAGE

3.5.1.1. Significant staining of ceiling tiles and walls was present in the firing range and adjacent office. The roof was repaired last year to correct the water intrusion. This previous intrusion has caused paint to peal on the ceiling of the 2nd Platoon's office ceiling. See Section 3.5.3 below for lead paint sampling. No other water intrusion problems were reported or observed within the building.

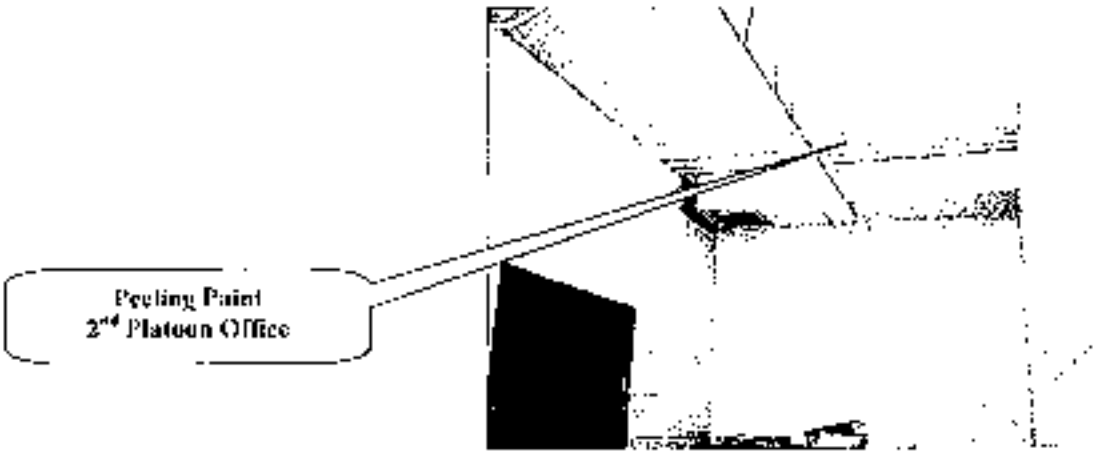
3.5.2. LEAD PAINT

3.5.2.1. Paint is chipping and peeling on ceilings in the male latrine and the 2nd Platoon office. Samples were taken and analyzed for lead content. The results are listed below in Table 4.

TABLE 4
LEAD PAINT SAMPLING RESULTS

SAMPLE #	LOCATION	Lead (percent)
PA Ann-03070-29	Paint Chips from Male Latrine Ceiling	0.0064 %
PA Ann-03070-30	Paint Chips from 2nd Platoon Office	0.0082 %

Industrial Hygiene Survey
[3F] TRANS CO
Williamstown, Pennsylvania



3.5.2.2. The Environmental Protection Agency (EPA) considers paint with a lead content equal to or greater than 0.5% by weight as contaminated. Therefore, both areas are not considered lead-contaminated paint.

3.5.3. ASBESTOS

3.5.3.1. Nine-inch floor tiles are located in most of the offices. These tiles were in good condition during this survey. Boiler room pipe insulation has stickers, which indicate that the State has previously tested these areas for asbestos content. This insulation is in good condition and not friable.

3.5.4. PROGRAMS

3.5.4.1. There are no designated confined space areas within this facility. There are no exhaust ventilation systems to control a hazard. No chemicals besides normal cleaning materials are present. No weapons or weapons cleaning materials are present. Therefore, a need has not been established for a HAZCOM program, the need for personal protective equipment, special training, nor is there a requirement for personnel to be entered into the hearing conservation program.

3.5.5. HOUSEKEEPING

3.5.5.1. The facility is impressively clean, orderly and in good condition. The State maintenance technician takes great pride in the facility. The HVAC ductwork was reasonably clean.

Industrial Hygiene Survey
131st TRANS CO
Williamstown, Pennsylvania

ATTACHMENTS

A - HHIM Form 271-R

B - Facility Diagrams
- Sampling Location Photographs

C - Sampling Documentation
- Laboratory Analysis

D - Reference List

HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM Users Guide)

SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION	BLDG/RM NO.
Williamstown Armory	PENNSYLVANIA ARNG ARMORY	Williamstown

LOCATION/CODE	OPERATION/CODE
AA	ADO

SURVEY DATE	EVALUATOR (initials)
11 March 2003	JSS

MACOM/CODE	SUBMACOM/CODE	SUPERVISOR
ARMY NATIONAL GUARD	NA	SFC Non-Responsive

TELEPHONE/DSN NO.	UNIT/ORGANIZATION	RAC	FREQUENCY (hrs/day)
717-647-2270	131ST TRANS CO	3	9

NO. CIV(S)	NO. MIL	NO. CONTRACTOR(S)	NO. LOC(S)	NO. OTHER
4	125			

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	CONROLS 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			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	½ FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	¼ 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/MATS	/
FULL FACE SHIELD	/	EARPLUGS	/	COLD WEATHR 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	/		

AEHA Form 271-R (Test), 1 Jan 92 (HSHB-MI-I)

SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
7439-92-1	Lead Dust	3	C
124-38-9	Carbon Dioxide	3	C
630-08-0	Carbon Monoxide	3	C

SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY

SECTION 6. COMMENTS

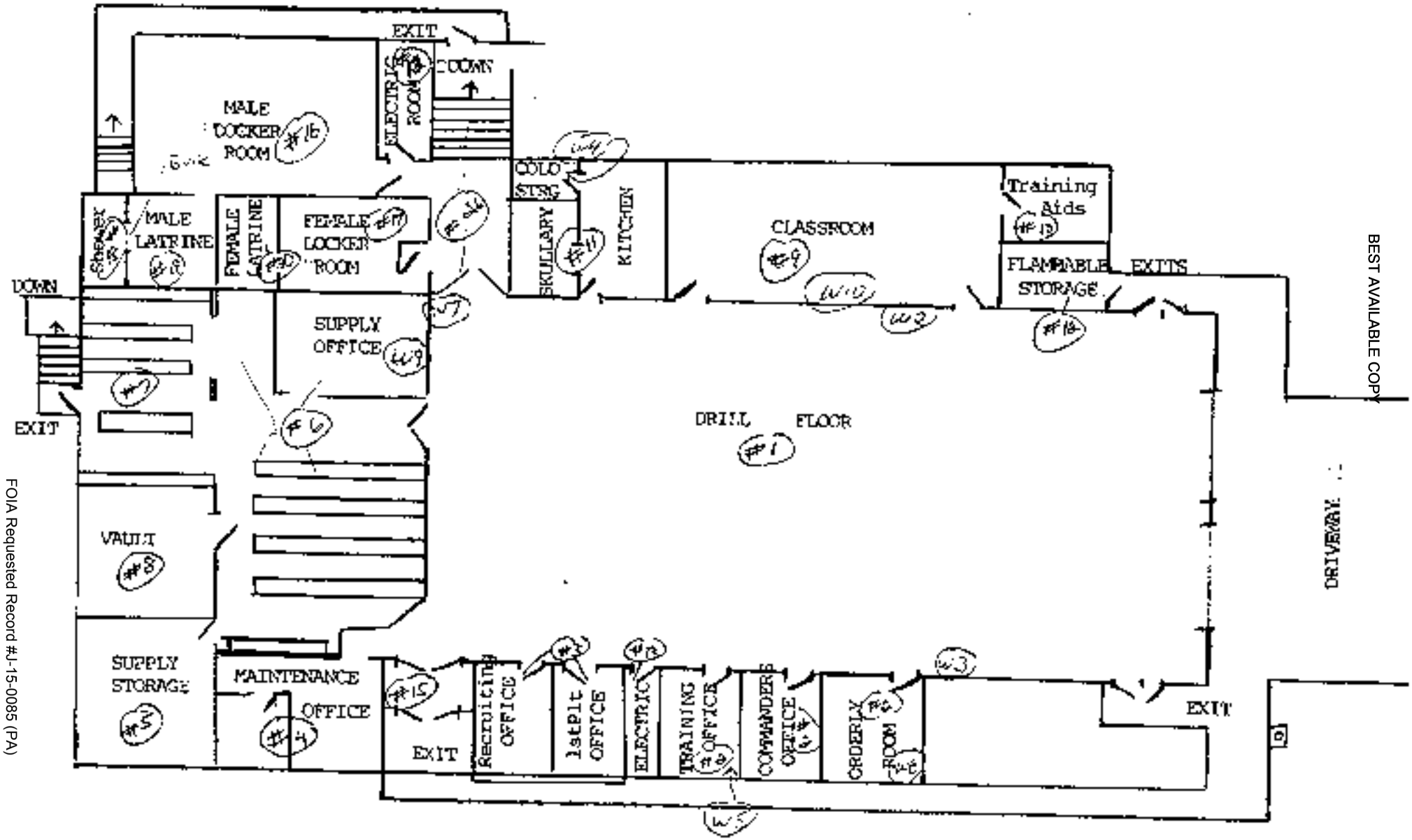
☐ No comments ☐ See attached sheet

PRIVACY ACT STATEMENT

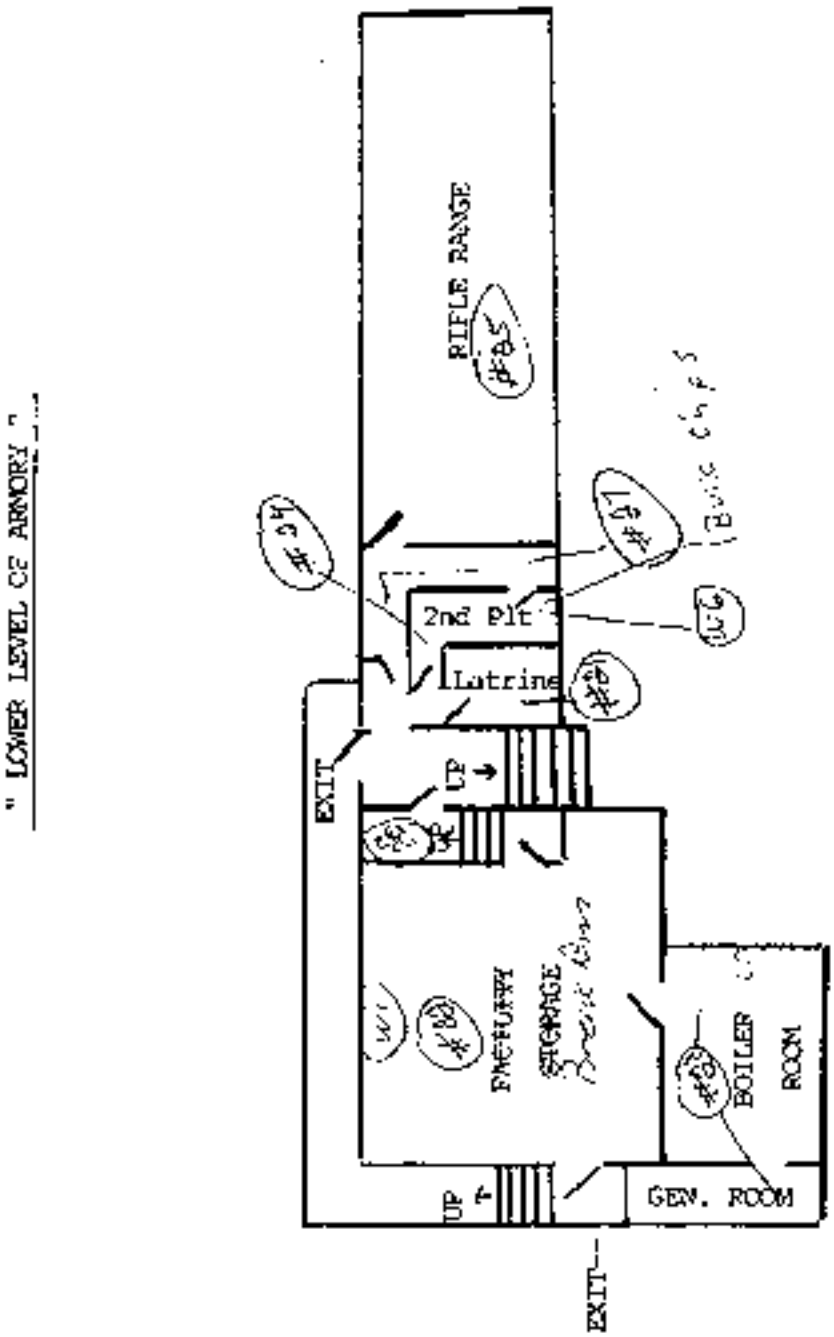
Title 5 US Code, Section 301; Executive Order 9397 authorized the use of your Social Security Number as an identification number. The purpose of this information is to identify and monitor data relating each DA civilian and military employee exposed to a hazardous workplace or operation. The use of this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

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

" UPPER LEVEL OF ARMORY "



" LOWER LEVEL OF ARMORY "



131ST TRANS CO
WILLIAMSTOWN, PENNSYLVANIA
WIPE SAMPLING POINTS

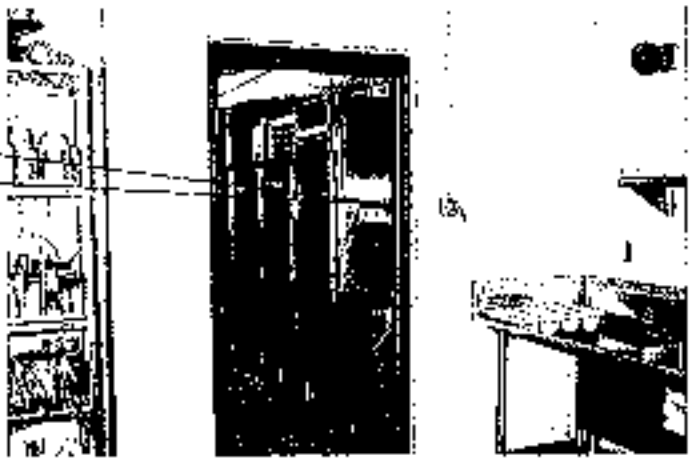
(1) PA Wil-03070-17
Basement – Break Room

(2) PA Wil-03070-18
Assembly Hall – N. Wall
Return Grille

(3) PA Wil-03070-19
Assembly Hall – S. Wall

Attachment B

(4) PA Wil-03070-20
Kitchen -- Top of Icemaker



(5) PA Wil-03070-21
Training Office
No Picture

Attachment B

ADDITIONAL SAMPLES

(6) PA Wil-03070-23
Basement – 2nd PLT Office

(7) PA Wil-03070-24
Assembly Hall - NW Corner

(8) PA Wil-03070-25
Orderly Room

Attachment B

(9) PA Wil-03070-26
Supply Office

(10) PA Wil-03070-27
Classroom

Attachment B

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
AIHA Certificate of Accreditation #480 LAB ID 101533

TABLE I. ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	RES 91661-1
Client:	Operational Technologies, Corp.
Client Project Number / P.O.:	D2 01
Client Project Description:	Armories / Pennsylvania
Date Samples Received:	March 24, 2003
Analysis Type:	USEPA SW846 3050B / AA(7420)
Turnaround:	3-5 Day
Date Samples Analyzed:	March 25, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA Her-030069-04	EM 758535	0.11	16.8	23	153
PA Her-030069-05	EM 758536	0.11	2.6	23	24
PA Her-030069-06	EM 758537	0.11	50.4	23	458
PA Her-030069-07	EM 758538	0.11	13.5	23	123
PA Her-030069-08	EM 758539	0.11	18.0	23	164
PA Her-030069-09	EM 758540	0.11	BDL	23	BDL
PA Pin-030070-03	EM 758541	0.11	11.9	23	108
PA Pin-030070-04	EM 758542	0.11	680.0	23	6182
PA Pin-030070-05	EM 758543	0.11	182.0	23	1655
PA Pin-030070-06	EM 758544	0.11	BDL	23	BDL
PA Pin-030070-07	EM 758545	0.11	BDL	23	BDL
PA Pin-030070-08	EM 758546	0.11	BDL	23	BDL
PA Wil-030070-17	EM 758547	0.11	48.1	23	437
PA Wil-030070-18	EM 758548	0.11	37.0	23	336
PA Wil-030070-19	EM 758549	0.11	28.9	23	263
PA Wil-030070-20	EM 758550	0.11	2.8	23	25
PA Wil-030070-21	EM 758551	0.11	2.6	23	24
PA Wil-030070-22	EM 758552	0.11	BDL	23	BDL
PA Ann-03071-03	EM 758553	0.11	8.5	23	77
PA Ann-03071-04	EM 758554	0.11	237.0	23	2155
PA Ann-03071-05	EM 758555	0.11	8.5	23	77
PA Ann-03071-06	EM 758556	0.11	9.8	23	89
PA Ann-03071-07	EM 758557	0.11	BDL	23	BDL
PA Ann-03071-08	EM 758558	0.11	BDL	23	BDL
PA Lan-03072-08	EM 758559	0.11	15.1	23	137
PA Lan-03072-09	EM 758560	0.11	185.0	23	1682
PA Lan-03072-10	EM 758561	0.11	405.0	23	3682
PA Lan-03072-11	EM 758562	0.11	23.4	23	213
PA Lan-03072-12	EM 758563	0.11	27.5	23	250
PA Lan-03072-13	EM 758564	0.11	BDL	23	BDL

BDL - Below Detection Limit

Data Qa

RESERVOIRS ENVIRONMENTAL SERVICES, INC.

BEST AVAILABLE COPY

2050 Bryant St., Denver CO 80211

RESI Job #: RES 91661

Due Date: 3-20/3-31

Due Time: 9:45

Phone: (303) 964-1986 Fax: (303) 477-4275 WATS: 1-866-RESI-ENV (737-4368)

PAGER, ONCALL Pager number available at Lab. Alternate Pagers: PLM/TEM 509-2187 PCM/Metals 509-2094 (AFTER HOURS USE ONLY)

SAMPLES SUBMITTED BY:

Company: Operational Technologies, Corp.
Address: 1370 N. Fairfield Road Suite A
Beavercreek, Ohio 45432
Contact: [redacted] Phone: 410-942-0273 x18 Fax: 410-942-0254 Pager
Contact: Phone: cell 937 831-3333 Fax Pager 800-951-4067
Project Number and/or P.O. #: 0201
Project Description/Location: Armories / Pennsylvania

INVOICE TO: (IF DIFFERENT)

Army National Guard NGB
301 Old Bay Ln, Havre de Grace, MD 21078

After Hours/Weekend CHARGE: Amount $________ **Authorized by:** ________

Additional fees apply for after hours and holidays for all analysis types. Samples will be analyzed during normal laboratory hours unless otherwise arranged and specified on the chain of custody. Turnaround is subject to laboratory volume. You will be notified if delays are expected.

ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm

PCM/PLM	___ 2 Hour RUSH	___ 24 hour	___ 3-5 weekdays
TEM	___ 6 Hour RUSH	___ 24 hour	___ 3-5 weekdays

Prior Notice REQUIRED for TEM 6 Hour RUSH

METALS LABORATORY HOURS: Weekdays: 8am - 5pm

AA	___ SPECIAL RUSH	___ 24 Hour	X 3-5 Day
RCRA 8	___ SPECIAL RUSH	___ 5 Day	___ 10 Day
TCLP	___ SPECIAL RUSH	___ 5 Day	___ 10 Day

Prior Notice REQUIRED for SPECIAL RUSH AA, RCRA or TCLP
RCRA and TCLP SPECIAL RUSH is 3 Day Turnaround

ANALYTICAL METHOD

AIR	[ ]	PCM 7400A 7400B, OSHA TEM AHERA Level II, 7402, ISO Counting ISO Indirect Preps Chatfield
	[ ]	AA/ICP ______ Metal ______ RCRA 8 Dust Total Respirable
BULK	[ ]	PLM Short report, Long report, Point Count TEM +/-, Quant, Semi-quant
	[# 40]	AA/ICP X Pb Paint, Soil, Dust, Wipe, TCLP (ASTM E 1792 approved wipes only)
WATER	[ ]	TEM Drinking Waste Water AA Water ______ Metal ______ RCRA 8 Drinking, Waste Water
OTHER	[ ]	Specify Wipes - Lead

Special Instructions: Contract # 78-287 Email results to kenneth.forsythe@md.ngb.army.mil

	Client Sample Number	Volume	RM #
1.	PA Her-030069-04		758535
2.	PA Her-030069-05		36
3.	PA Her-030069-06		37
4.	PA Her-030069-07		38
5.	PA Her-030069-08		39
6.	PA Her-030069-09		40
7.	PA Pin-030070-03		41
8.	PA Pin-030070-04		42
9.	PA Pin-030070-05		43
10.	PA Pin-030070-06		44
11.	PA Pin-030070-07		45
12.	PA Pin-030070-08		46
13.	PA Wil-030070-17		47
14.	PA Wil-030070-18		48
15.	PA Wil-030070-19		49

Number of samples received: 40 15 of (40) (Use as many additional sheets as needed.)

NOTE: If the package has sustained substantial damage or the custody seal is broken, stop and contact project manager and shipper. RESI will analyze incoming samples based upon information received with these samples. RESI is not responsible for errors or omissions in calculations resulting from the inaccuracy of original data. Turnaround times are based upon times of receipt by Laboratory. Call Laboratory for number of samples outstanding in staff if marquee.

Relinquished By: [redacted] Date/Time: March 17, 2003 / 1400

Laboratory Use Only [redacted]

Received By: Date/Time: 3/21/03 9:45am
Carrier:
Condition of package/custody seal upon receipt:
RESULTS: Page Phone Fax Date Time Initials

SPLITS:	Authorization By/Time: Analytical Method/Turnaround: Results Due: Results Out:	Lab Bench/Count Sheets Received By: Time: Date:

rev 5/3/01

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RESERVOIRS ENVIRONMENTAL SERVICES, INC.

RESI Job #: 911661

SAMPLES SUBMITTED BY: [redacted]

Due Date 3-27/3-31
Due Time 4:45

Company Army National Guard I-HN
Contact: [redacted]
Project Description and/or P.O. #: PENNSYLVANIA

SAMPLES: 16 - 40

No.	Client Sample Number	Volume	EM #
16	PA WF-03070-20		1585D
17	PA WF-03070-21		51
18	PA WF-03070-22		52
19	PA Ann-03071-03		53
20	PA Ann-03071-04		54
21	PA Ann-03071-05		55
22	PA Ann-03071-06		56
23	PA Ann-03071-07		57
24	PA Ann-03071-08		58
25	PA Lan-03072-08		59
26	PA Lan-03072-09		60
27	PA Lan-03072-10		61
28	PA Lan-03072-11		162
29	PA Lan-03072-12		63
30	PA Lan-03072-13		64
16	PA Lan-03072-14		65
17	PA Lan-03072-15		66
18	PA Lan-03072-16		67
19	PA Lan-03072-17		68
20	PA Lan-03072-18		69
21	PA Lan-03072-19		70
22	PA Yor-03073-04		71
23	PA Yor-03073-05		72
24	PA Yor-03073-06		73
25	PA Yor-03073-07		74
26	PA Yor-03073-08		75
27	PA Yor-03073-09		76
28	PA Yor-03073-22		77
29	PA Yor-03073-23		78
30	PA Yor-03073-24		79
31	PA Yor-03073-25		80
32	PA Yor-03073-26		81
33	PA Yor-03073-27		82
34	PA Yor-03073-34		83
35	PA Yor-03073-35		84
36	PA Yor-03073-36		85
37	PA Yor-03073-37		86
38	PA Yor-03073-38		87
39	PA Yor-03073-39		88
40	PA Yor-03073-40		89
41			
42			
43			
44			
45			
46			
47			
48			
49			
50			

Reservoirs Environmental, Inc.

2059 Bryant St. Denver, CO 80211
(303) 964-1986 Fax (303) 477-4275 Toll Free (866) RESI-ENV

March 25, 2003

Project Description:
RES 91661-1
02 01
Armories / Pennsylvania

Non-[redacted]
Operational Technologies, Corp.
1370 N. Fairfield Road, Suite A
Beavercreek OH 45432

Dear Customer,

Reservoirs Environmental, Inc. is an environmental analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the American Industrial Hygiene Association, Lab ID 101533 - Accreditation Certificate #480. The laboratory is currently proficient in both PAT & ELPAT programs respectively.

Reservoirs has analyzed the following sample(s) using Atomic Absorption (AA) / Atomic Emission Spectroscopy - Inductively Coupled Plasma (AES-ICP) per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in Table I. Results have been faxed to your office.

RES 91661-1 is the job number assigned to this study. This report is considered highly confidential and property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those authorized by the client. Samples will be disposed of after sixty days unless longer storage is requested. If you should have any questions about this report, please feel free to call me at 303-964-1986.

Sincerely,

Non-Responsive [redacted]

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Accredited Laboratory #101896
AIHA Certificate of Accreditation #480 LAP ID 101533

TABLE I. ANALYSIS: LEAD BY WIPE SAMPLING

RES Job Number:	RES 92009-1
Client:	Operational Technologies, Corp.
Client Project Number / P.O.:	05 03
Client Project Description:	Armories/Pennsylvania
Date Samples Received:	May 15, 2003
Analysis Type:	USEPA SW846 3050B / AA(7420)
Turnaround:	3-5 Day
Date Samples Analyzed:	May 19, 2003

Client ID Number	Lab ID Number	Sample Area (sq.ft.)	LEAD (µg)	Detection Limit (µg/sq.ft.)	LEAD CONCENTRATION (µg/sq.ft.)
PA Her-03069-11	EM 768934	0.11	BDL	24	BDL
PA Her-03069-12	EM 768935	0.11	24.7	23	225
PA Her-03069-13	EM 768936	0.11	142.0	23	1291
PA Her-03069-14	EM 768937	0.11	13.0	24	118
PA Her-03069-15	EM 768938	0.11	BDL	23	BDL
PA Her-03069-16	EM 768939	0.11	2.8	24	25
PA Her-03069-17	EM 768940	0.11	2.8	23	25
PA Her-03069-18	EM 768941	0.11	3.0	23	27
PA Her-03069-19	EM 768942	0.11	4.7	24	43
PA Her-03069-20	EM 768943	0.11	BDL	23	BDL
PA Her-03069-21	EM 768944	0.11	BDL	24	BDL
PA Her-03069-24	EM 768945	0.11	98.6	23	896
PA Pin-03070-09	EM 768946	0.11	33.5	23	305
PA Pin-03070-10	EM 768947	0.11	7.4	23	67
PA Pin-03070-11	EM 768948	0.11	3.7	23	34
PA Pin-03070-12	EM 768949	0.11	15.7	23	143
PA Pin-03070-13	EM 768950	0.11	BDL	23	BDL
PA Pin-03070-14	EM 768951	0.11	BDL	23	BDL
PA Wil-03070-23	EM 768952	0.11	11.1	23	101
PA Wil-03070-24	EM 768953	0.11	3.5	23	32
PA Wil-03070-25	EM 768954	0.11	3.0	23	27
PA Wil-03070-26	EM 768955	0.11	2.5	23	23
PA Wil-03070-27	EM 768956	0.11	BDL	24	BDL
PA Wil-03070-28	EM 768957	0.11	BDL	24	BDL
PA Lan-03072-20	EM 768958	0.11	6.3	23	57
PA Lan-03072-21	EM 768959	0.11	6.9	24	63
PA Lan-03072-22	EM 768960	0.11	23.2	23	211
PA Lan-03072-23	EM 768961	0.11	BDL	23	BDL
PA Lan-03072-24	EM 768962	0.11	3.3	24	30
PA Lan-03072-25	EM 768963	0.11	BDL	23	BDL

BDL = Below Detection Limit

Date Qa

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RESERVOIRS ENVIRONMENTAL SERVICES, INC.

2059 Bryant St., Denver CO 80211

RESI Job #: RES 92909
Due Date: 5/20 - 5/22
Due Time: 9:30 AM

Phone: (303) 964-1986 Fax: (303) 477-4275 WATS: 1-866-RESI ENV (737-4368)
PAGER: ONCALL Pager number available at Lab. Alternate Pagers: PLM/TEM 600-0187 PCM/Metals 609-2090 (AFTER HOURS USE ONLY)

SAMPLES SUBMITTED BY:	INVOICE TO: (IF DIFFERENT)
Company: Operational Technologies, Corp	Army National Guard IN-N
Address: 1370 N. Fairfield Road, Suite A	301-IH Old Bay Ln, Havre de Grace, MD 21078
Beavercreek, Ohio 45432	
Contact: Non-Responsive [redacted]	Phone: 410-942-0273 x18 Fax: 410-942-0254 Pager
Contact:	Phone: 602 937-831-3333 Fax: Pager 800-951-4367
Project Number and/or P.O. #: 05 03	
Project Description/Location: Armories / Pennsylvania	

After Hours/Weekend CHARGE: Amount $ ________ Authorized by: ________

Additional fees apply for after hours and holidays for all analysis types. Samples will be analyzed during normal laboratory hours unless otherwise arranged and specified on the chain of custody. Turnaround is subject to laboratory volume. You will be notified if delays are expected.

ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm

PCM/PLM	__ 2 Hour RUSH	__ 24 hour	__ 3-5 weekdays
TEM	__ 6 Hour RUSH	__ 24 hour	__ 3-5 weekdays

Prior Notice REQUIRED for TEM 6 Hour RUSH

METALS LABORATORY HOURS: Weekdays: 8am - 5pm

AA	__ SPECIAL RUSH	__ 24 Hour	X 3-5 Day
RCRA 8	__ SPECIAL RUSH	__ 5 Day	__ 10 Day
TCLP	__ SPECIAL RUSH	__ 5 Day	__ 10 Day

Prior Notice REQUIRED for SPECIAL RUSH AA, RCRA or TCLP
RCRA and TCLP SPECIAL RUSH is 3 Day Turnaround

ANALYTICAL METHOD

AIR		PCM 7400A, 7400B, OSHA
		TEM AHERA, Level II, 7402, ISO, Direct/Abs, ISO-Indirect Preps, Chatfield
		AA / ICP ___ Metal ___ RCRA 8
		Dust Total, Respirable
BULK		PLM Short report, Long report, Point Count
		TEM +/-, Quant, Semi-quant
	# 58	AA / ICP __ X PB
		Paint, Soil, Dust, Wipe, TCLP (ASTM E 1792 approved wipes only.)
WATER		TEM Drinking, Waste Water
		AA Water ___ Metal ___ RCRA 8
		Drinking, Waste Water
OTHER		Specify ___

Special Instructions: Email results to ken.forsythe@md.ngb.army.mil

#	Client Sample Number	Volume	EM #
1.	PA Ann-03049-25		768904
2.	PA Ann-03049-26		05
3.	PA Ann-03049-27		06
4.	PA Ann-03049-28		07
5.	PA Ann-03049-29		08
6.	PA Ann-03049-30		09
7.	PA Ann-03056-41		10
8.	PA Ann-03056-42		11
9.	PA Ann-03056-43		12
10.	PA Ann-03056-44		13
11.	PA Ann-03056-45		14
12.	PA Ann-03064-25		15
13.	PA Ann-03064-26		16
14.	PA Ann-03064-27		17
15.	PA Ann-03064-28		18

Number of samples received: 58 (Use as many additional sheets as needed.)

NOTE: If the package has sustained substantial damage or the custody seal is broken, stop and contact project manager and shipper. RESI will analyze incoming samples based upon information received with those samples. RESI is not responsible for errors or omissions in calculations resulting from the inaccuracy of original data. Turnaround times are based upon times of receipt by Laboratory. Call Laboratory for number of samples guaranteed in stated turnaround.

Relinquished By: Non-Responsive [redacted] 834692072009 Date/Time: May 13, 2003 / 1300

Laboratory Use Only		
Received By: [redacted]	Date/Time: 5/15/03 9:30am	
Carrier:	Condition of package/custody seal upon receipt:	
RESULTS: Contact	Page Phone Fax	Date Time Initials
SPLITS: Authorization By/Time: Analytical Method/Turnaround: Results Due:	Results Out:	Lab Bench/Count Sheets Received By: Time Date

rev 8/2/01

BEST AVAILABLE COPY

RESERVOIRS ENVIRONMENTAL SERVICES, INC.

RESI Job #: 92909

SAMPLES SUBMITTED BY: [redacted]

Company: Army National Guard I-HN
Contact: [redacted]
Project Description and/or P.O. #: PENNSYLVANIA

Due Date: 5/20 - 5/22
Due Time: 9:30 AM

SAMPLES: 16 - 50

No.		Client Sample Number	Volume	EM #
16		PA Ann-03064-29		76879
17		PA Ann-03064-30		80
18	4	PA Ann-03065-09		81
19		PA Ann-03065-10		82
20		PA Ann-03065-11		83
21		PA Ann-03065-12		84
22		PA Ann-03065-13		85
23		PA Ann-03065-14		86
24	5	PA Ann-03066-09		87
25		PA Ann-03066-10		88
26		PA Ann-03066-11		89
27		PA Ann-03066-12		90
28		PA Ann-03066-13		91
29		PA Ann-03066-14		92
30	6	PA Her-03069-10		93
16		PA Her-03069-11		94
17		PA Her-03069-12		95
18		PA Her-03069-13		96
19		PA Her-03069-14		97
20		PA Her-03069-15		98
21	7	PA Her-03069-16		99
22		PA Her-03069-17		100
23		PA Her-03069-18		101
24		PA Her-03069-19		102
25		PA Her-03069-20		103
26		PA Her-03069-21		104
27		PA Her-03069-24		105
28	8	PA Pin-03070-09		106
29		PA Pin-03070-10		107
30		PA Pin-03070-11		108
31		PA Pin-03070-12		109
32		PA Pin-03070-13		110
33		PA Pin-03070-14		111
34	9	PA Wil-03070-23		112
35		PA Wil-03070-24		113
36		PA Wil-03070-25		114
37		PA Wil-03070-26		115
38		PA Wil-03070-27		116
39		PA Wil-03070-28		117
40	10	PA Lan-03072-20		118
41		PA Lan-03072-21		119
42		PA Lan-03072-22		120
43		PA Lan-03072-23		121
44		PA Lan-03072-24		122
45		PA Lan-03072-25		123
46	11	PA Lan-03072-26		124
47		PA Lan-03072-27		125
48		PA Lan-03072-28		126
49		PA Lan-03072-29		127
50		PA Lan-03072-30		128

RESERVOIRS ENVIRONMENTAL SERVICES, INC.

RESI Job #: 92909

SAMPLES SUBMITTED B[redacted]

Due Date: 5/20-5/22
Due Time: 9:30 AM

Company: Army National Guard I-HN
Contact: [redacted]
Project Description and/or P.O. #: PENNSYLVANIA

SAMPLES: Sample number range 51-58
PO centract# 06-03

No.	Client Sample Number	Volume	EM #
51	PA Lan-03072-31		768963
52	PA Yor-03073-09		70
53	PA Yor-03073-10		71
54	PA Yor-03073-11		72
55	PA Yor-03073-12		73
56	PA Yor-03073-13		74
57	PA Yor-03073-14		75
58	PA Yor-03073-15		76
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Results
Lead

Client #	DCL #	Sample Volume (L)	µg/sample	mg/m³
PAAnn-03065-01	03-15282	359.9	ND	<0.003
PAAnn-03065-02	03-15283	384.0	ND	<0.003
PAAnn-03066-01	03-15284	338.0	ND	<0.003
PAAnn-03066-02	03-15285	355.7	ND	<0.003
PAAnn-03066-17	03-15286	217.4	ND	<0.005
PAAnn-03066-18	03-15287	231.9	ND	<0.004
PAHer-03069-01	03-15288	798.8	ND	<0.001
PAHer-03069-02	03-15289	777.7	ND	<0.001
PAHer-03069-03	03-15290	761.5	ND	<0.001
PAPin-03070-01	03-15291	298.0	ND	<0.003
PAPin-03070-02	03-15292	299.5	ND	<0.003
PAWil-03070-15	03-15293	441.5	ND	<0.002
PAWil-03070-16	03-15294	448.3	ND	<0.002
PAAnn-03071-01	03-15295	163.1	ND	<0.006
PAAnn-03071-02	03-15296	155.6	ND	<0.006
PALan-03072-01	03-15297	877.4	ND	<0.001
PALan-03072-04	03-15298	898.2	ND	<0.001
PALan-03072-05	03-15299	814.4	ND	<0.001
PAYor-03073-01	03-15300	565.5	ND	<0.002
PAYor-03073-02	03-15301	569.3	ND	<0.002
	Prep Blank		ND	
% Recovery	LCS 3		110.	
% Recovery	LCS 4		110.	
RPL			1.	

ND = not detected at or above the reporting limit (RPL).
LCS = laboratory control sample.

Non-Responsive

Analyst

Reviewer

Results
mg/Kg (ppm)

Client #	DCL #	Lead
PAHer-03069-22	03-07776	47.
PAHer-03069-23	03-07777	51.
PAWil-03070-29	03-07778	64.
PAWil-03070-30	03-07779	82.
PAAnn-03071-09	03-07780	25.
PALan-03072-34	03-07781	33000.
PALan-03072-35	03-07782	73.
PAYor-03073-16	03-07783	1000.
PAYor-03073-17	03-07784	1600.
PAYor-03073-18	03-07785	3400.
	Lab Blank	ND
% Recovery	LCS	91.
% Recovery	07782MS	92.
% Recovery	07782MSD	93.
Reporting Limit		22.

ND indicates not detected at or above the reporting limit.

Non-Responsive

Analyst

Non-Responsive

Reviewer

NGB-AVS-SI

4 December 2002

Industrial Hygiene, Occupational Health and Safety Reference List For Regulations and Standards

Please address questions, comments and corrections to:
National Guard Bureau
Army National Guard
Region North Industrial Hygiene
301-IH Old Bay Lane
Havre de Grace, MD 21078
(410) 942-0273
Non-Responsive @md.ngb.army.mil

Attachment D

REFERENCE LIST INDEX

1. General Regulations and National Consensus Standards
2. Specific Regulations and Guidance
   a. Abrasive Blasting
   b. Asbestos
   c. Battery Charging Room
   d. Bird and Bat Manure
   e. Bloodborne Pathogens
   f. Chemical Agent Resistant Coating (CARC) Paint
   g. Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE)
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   s. Paint Spray Booth
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GUIDE TO ACRONYMS USED

ACGIH	American Council of Governmental Industrial Hygienists
AMEDD	Army Medical Department
ANSI	American National Standards Institute
ANSI/AWS	American National Standards Institute/American Welding Society
ANSI/CGA	American National Standards Institute/Compressed Gas Association
AR	Army Regulation
ARNG	Army National Guard
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CARC	Chemical Agent Resistant Coating
CBRNE	Chemical, Biological, Radiological, Nuclear, Explosive
CEHND	Corps of Engineers, Huntsville Division
CFR	Code of Federal Regulations
DA LTR	Department of the Army Letter

DA PAM	Department of the Army Pamphlet
DD FORM	Department of Defense Form
DG	Design Guide
DHHS	Department of Health and Human Services
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOL	Department of Labor
EPA	Environmental Protection Agency
HQDA LTR	Headquarters, Department of the Army, Letter
HUD	Department of Housing and Urban Development
IAQ	Indoor Air Quality
IES	Illuminating Engineering Society (of North America)
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFC	National Fire Code
NFPA	National Fire Protection Association
NG PAM	National Guard Pamphlet
NGR	National Guard Regulation
NIOSH	National Institute for Occupational Safety and Health
OEH	Occupational and Environmental Health
OSHA	Occupational Health and Safety Administration
OTSG	Office of the Surgeon General
RP	Recommended Practice
SOH	Safety and Occupational Health
SOP	Standard Operating Procedure
TB MED	Technical Bulletin, Medical
TG	Technical Guide
TI	Technical Instruction
TM	Technical Manual
USACE	US Army Corps of Engineers
USACERL	US Army Corps of Engineers Construction Engineering Research Laboratory
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEHA	US Army Environmental Hygiene Agency
UFGS	Unified Facilities Guide Specification

OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE REFERENCE LIST

1. General Regulations and National Consensus Standards
   a. DODI 6055.1, DOD SOH Program, 19 August 1998.
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   c. DOD 6055.5-M, DOD Occupational Health Surveillance Manual, 13 May 1987.
   d. DODI 6050.5, DOD Hazard Communication, 29 Oct 90. Change 1, 6 May 1996.
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   j. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 2002.
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      (2) 29 CFR 1910.94 Ventilation
      (3) 42 CFR 84

   b. **ASBESTOS**
      (1) AR 40-5, Preventive Medicine, 15 October 1990. *[05/2002 Being Updated]*
      (2) AR 200-1, Environmental Protection and Enhancement, Chapter 8, 21 February 1997.
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      (4) TG 157, USAEHA, The Installation Asbestos Management Program Assessment Checklists, July 1994.
      (5) 29 CFR 1910.1001
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(8) MEMORANDUM SGPS-PSP, OTSG, subject: AMEDD Role Supporting Asbestos Abatement/Asbestos Management Programs, 19 Jan 89.

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d. **BIRD AND BAT MANURE**

(1) TG 142, USAEHA, Managing Health Hazards Associated with Bird and Bat Excrement, Dec 1992.

e. **BLOODBORNE PATHOGENS**

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f. **CHEMICAL AGENT RESISTANT COATING (CARC) PAINT**

(1) TG 144, USAEHA, Guidelines for Controlling Health Hazards in Painting Operations, 24 August 1987.

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(3) TM 43-0139, Painting Instructions for Army Material, 27 July 1988I Aug 86.

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(5) AR 750-1, Army Materiel Maintenance Policy and Retail Maintenance Operations (Prohibits welding on CARC paint) 1 July 1996.

g. **CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR, EXPLOSIVE (CBRNE)**

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h. **CONFINED SPACE**

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(3) ANSI Z117.1-Safety Requirements for Confined Spaces, 1995.
(4) SOP for ARNG Confined Space Entry Program, 25 April 1991.
(5) Letter, US Dept of Labor (DOL) addressed to Vanessa Char, 22 Apr 1994.
(6) OSHA Instruction STD 1-7.3, US DOL, subject: 29 CFR 1910.147, the Control of Hazardous Energy (Lockout/Tagout)--Inspection Procedures and Interpretive Guidance, 11 Sep 90.
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(2) ANSI Z-365, Management of Work Related Musculoskeletal Disorders, 2000.
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(1) NG PAM 385-16, Conversion of Indoor Firing Ranges to Other Uses, 31 January 1994. *[2002 Under Revision-Refer to All-States Ltr P01-0075 for current guidance]*

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(9) Information Paper, Bullet Traps, 26 April 1996.

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q. **LIGHTING**

(1) RP-1-1993, Office Lighting, ANSI/IESNA.

(2) RP-7-2001, Industrial Lighting, IES.

r. **OCCUPATIONAL VISION**

(1) DA PAM 40-506, Medical Services, The Army Vision Conservation and Readiness Program, 20 July 2001.

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s. **PAINT SPRAY BOOTH**

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(5) ANSI Z9.3-1995 for Exhaust Systems - Spray Finishing Operations - Safety Code for Design, Construction, and Ventilation.

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t. **PERSONAL PROTECTIVE EQUIPMENT**

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(2) Chemical Protective Clothing, Vol 1 and 2, Johnson, J. and Anderson, K., American Industrial Hygiene Association, 1990.

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(1) NGR 385-11, Safety, Ionizing and Nonionizing Radiation Protection, 18 February 1999.

(2) AR 11-9, Army Radiation Safety Program, 28 May 1999.

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(1) AR 11-34, The Army Respiratory Protection Program, 15 February 1990. *[11/02 Being Updated]*

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