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Industrial Hygiene Survey Report

National Guard Facility Berlin Readiness Center

Prepared For: National Guard Bureau Region North IH

301-IH Old Bay Lane

Havre de Grace, MD 21078

Survey Location: Berlin Readiness Center

2169 Riverside Drive Berlin, NH, 03570

Prepared By: Compliance Management International, Inc.

1215 Manor Drive

Suite 205

Mechanicsburg, PA 17055

Survey Date: May 15, 2013

Report Date: June 24, 2013



Manager, Industrial Hygiene Services

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Section 1.0 Executive Summary

An industrial hygiene survey was conducted on May 15, 2013, at the Berlin Readiness Center located at 2169 Riverside Drive, Berlin, NH 03570. The survey was performed by Mr. Non-Responsive.

- Lead surface and air samples were collected. Surface levels of lead exceeded 200 micrograms per square foot (ug/ft²) in two locations. See Section 3.0 for detailed sampling results.
- 2. Lighting levels met the American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IESNA) recommended guideline in all locations measured. See Section 4.0 for detailed findings.
- 3. Indoor air quality (IAQ) parameters of temperature, relative humidity, carbon monoxide and carbon dioxide (ventilation) were evaluated during the assessment.
 - a. Temperature levels met the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010 recommended guideline of 68-79 °F in the areas sampled.
 - b. The relative humidity level did not meet the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) TG 277 recommended guideline of 30-60% in one area sampled.
 - c. Carbon monoxide (CO) levels were less than the National Ambient Air Quality Standard (NAAQS) recommended ceiling of 9 ppm.
 - d. Carbon dioxide (CO₂) levels met the ASHRAE 62.1-2010 recommended guidelines for mechanically ventilated office buildings and commercial settings.

See Section 5.0 for detailed sampling results.

4. Housekeeping was good. See Section 5.0 for detailed findings.

Section 2.0 Operation Description & Observations

The Berlin Readiness Center is mainly an administrative facility with offices, classrooms, and a converted firing range area (currently a storage area). There were approximately 10 full-time employees stationed at this facility at the time of this survey.

The building is reported to have been built in the late 1950s. It is a one story structure. The exterior is brick. The interior walls are concrete block with drywall in some of the offices. The floors are concrete, and 12"x12" floor tiles.

The heating system consists of a gas-fired, forced hot water unit. There is one mini-split A/C unit, and several window A/C units that service the administrative areas.

There is no child-care facility in the building.

Housekeeping practices are good.

No ergonomic concerns were reported. Office areas have computer work stations. Work stations appeared to be properly designed. Personnel had supportive chairs.

This facility has a converted firing range (CFR) that is now used as a storage area.

Section 3.0 Lead Testing

Various surfaces within the facility were screened for lead using surface/wipe samples. Surface/wipe samples were collected in accordance with the American Society for Testing and Materials (ASTM) E 1792 protocols. Air samples were collected using 0.8 micrometer (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 Environmental Protection Agency (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/m ³	Surface ug/ft ²
1	Office 25	<6	*
2	Gym 2	<6.1	*
3	Blank	<3	*
4	Drill Hall Floor Center	*	<110
5	Drill Hall Safe Top	*	<110
6	Kitchen Microwave Top	*	<110
7	Kitchen Stove Top	*	<110
8	CFR Floor Outside Entrance	*	160
9	CFR Floor	*	6800
10	CFR Light Fixture	*	410
11	Gym 2 Window Sill	*	<110
12	Office 29 File Cabinet Top	*	<110
13	Office 25 Bookshelf Top	*	<110
14	Locker Room 9 Locker Top	*	<110
15	Blank	*	<12
_	Criteria	50	200

Table Notes:

- 1. **Bolded** results exceed listed criteria
- 2. ppm = parts per million
- 3. $ug/ft^2 = micrograms per square foot$
- 4. $ug/m^3 = micrograms per cubic meter$
- 5. $\mathbf{ug} = \text{micrograms}$

Sources:

- 1. NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges
- 2. OSHA 29CFR1910.1025 Lead Standard

The National Guard Bureau currently utilizes 200 micrograms per square foot (ug/ft²) 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/ft² on floors and 250 ug/ft² on windowsills should be observed. There is no child care provided at this facility.

Lead surface and air samples were collected. The following is a summary of the sample results from this survey.

- Surface levels of lead were above the recommended guideline of 200 ug/ft² in the following locations:
 - o CFR Floor
 - o CFR Light Fixture

Cleaning procedures should be improved so that no lead is detected on surfaces.

■ Air samples for lead were below the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit of 50 micrograms per cubic meter (ug/m³).

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. 98082EL). The light meter was last calibrated in April 2013. 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 (FC)	Recommended Lighting (FC)	Sufficient Lighting
Office 25	34.9	30-50	Yes
Conference 26	44.1	30-50	Yes
Office 24	32.4	30-50	Yes
Office 23	31.2	30-50	Yes
Classroom 21	52.0	30-50	Yes
Classroom 20	42.6	30-50	Yes
Corridor 22	11.4	5	Yes
Women's Latrine	12.2	5	Yes
Janitor's Office 18	63.5	30-50	Yes
Janitor's Office 18A	43.6	30-50	Yes
Office 27	34.5	30-50	Yes
Office 28	48.9	30-50	Yes
Office 29	31.4	30-50	Yes
Drill Hall	38.6	10	Yes
Supply Bulk	15.6	10	Yes
Gym 16	59.1	30	Yes
Kitchen Prep	66.2	50	Yes
Storage 13 Bulk	27.8	10	Yes
Locker Room 9	32.7	7	Yes
Men's Latrine	10.5	7	Yes
Storage 6 Bulk	32.6	10	Yes
Corridor 1	41.7	5	Yes
Gym 2	35.8	30	Yes
Boiler Room	37.4	30	Yes

Table Notes:

- 1. FC = Foot Candles
- 2. **Bolded** results did not meet listed criteria

Source: ANSI/IESNA RP-7-01 Lighting Industrial Facilities and RP-1-04 Office Lighting.

The lighting level met the minimum recommended guidelines in all areas measured.

Section 5.0 Indoor Air Quality

Survey measurements were made for comfort parameters and ventilation (temperature, relative humidity, carbon dioxide, and carbon monoxide). The air quality measurements were collected using direct reading instrumentation for comfort parameters using a QTRAK IAQ Meter, Model 7565 (Serial #02041015). The IAQ Meter was last calibrated in August 2012.

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 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%.

The following table summarizes the measurements collected.

IAQ Assessment Summary

Location	Temperature (°F)	Relative Humidity (%)	Carbon Dioxide (ppm)	Carbon Monoxide (ppm)
Outdoors	64.9	18.6	371	0.0
Office 25	73.0	24.7	585	0.0
Criteria	68-79	30-60	<1,071	<9

Table Notes:

- 1. **Bolded** results exceed listed criteria
- 2. **ppm** = parts per million
- 3. (%) = percent relative humidity
- 4. ${}^{\circ}\mathbf{F} = \text{degrees Fahrenheit}$

Sources: The American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) 55-2010, 62.1-2010, Environmental Protection Agency (EPA) National Ambient Air Quality Standard (NAAQS) & The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation.

Summary of findings and recommendations:

- Temperature measurements met the recommended 68-79°F in occupied areas.
- Relative humidity levels did not meet the recommended guidelines in Office 25. Low relative humidity can cause the drying of the mucous tissues and an increased susceptibility to respiratory infection. Relative humidity should be maintained at 30-60%.
- Carbon dioxide levels were measured to evaluate building ventilation or the introduction of outdoor air into the building. The recommended ceiling is obtained by adding 700 ppm to the measured outdoor carbon dioxide level (700 ppm + 371 ppm for this survey). Carbon dioxide levels did not exceed the recommended ceiling of 1,071 ppm. This is an indication that outdoor air ventilation is adequate.
- Carbon monoxide levels measured were less than the recommended ceiling of 9 ppm. The recommended ceiling of 9 ppm referenced in the above table is the National Ambient Air Quality Standard for carbon monoxide
- A visual inspection was conducted throughout accessible portions of the facility to assess sources or pathways of factors potentially deleterious to IAQ. No deleterious factors were noted.

Section 6.0 Suspect Asbestos Containing Building Materials

Suspect asbestos containing material (ACM) was noted at the time of this survey:

o Drill Hall Window Glazing. This material was intact and in good condition, therefore not sampled.

Inaccessible areas such as behind walls or crawlspaces were not inspected. ACM could potentially be present in these areas.

Section 7.0 Equipment

The following equipment was utilized during this survey. All sampling equipment was properly calibrated prior to use and verified for accuracy as applicable. See daily reports and calibrations logs for detailed information.

Equipment	Serial #	Calibration Date	Value
TSI QTrak IAQ Meter	02041015	8/2012	NA
Cal Light 400 Light Meter	98082EL	4/2013	NA
TSI 4199 Calibrator	41460827002	8/2012	NA
SKC Air Sampling Pump	647631	5/15/13	3.04 LPM
SKC Air Sampling Pump	647971	5/15/13	3.00 LPM

Section 8.0 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 Compliance Management International, Inc. 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.

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A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



LAB #100470

Client:

National Guard Bureau

Job Name:

ARNG 4h NH

Chain Of Custody:

515945

Address:

301-IH Old Bay Lane, Attn: ARNG-CJG-P,

Job Location:

Date Submitted:

5/21/2013

State Military Reservation

Not Provided

Berlin

Person Submitting:

Non-Responsive

Havre de Grace, Maryland 21078

Job Number: P.O. Number:

W912K6-09-A-0003

Date Analyzed:

5/29/2013

5/29/2013

Report Date:

Attention:

Non-Responsive

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		12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		17 0 18 18 18 18 18 18 18 18 18 18 18 18 18				Total ug	Final Res	sult	Comments
13064501	1	Flame	Air	502	N/A	6	ug/m³	<3	<6	ug/m³									
13064502	2	Flame	Air	495	N/A	6.1	ug/m³	<3	<6.1	ug/m³									
13064503	3	Flame	Air Blank	0	N/A	3	ug/m³		<3	ug									
13064504	4	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²									
13064505	5	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²									
13064506	6	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²									
13064507	7	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²									
13064508	8	Flame	Wipe	****	0.108	110	ug/ft²	18	160	ug/ft²									
13064509	9	Flame	Wipe	****	0.108	110	ug/ft²	730	6800	ug/ft²									
13064510	10	Flame	Wipe	***	0.108	110	ug/ft²	44	410	ug/ft²									
13064511	11	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²									
13064512	12	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²									
13064513	13	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²									
13064514	14	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²									
13064515	15	Flame	Wipe Blank	****	N/A	12	ug		<12	ug									

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. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AHA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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CERTIFICATE OF ANALYSIS



LAB #100470

Client:

National Guard Bureau

Job Name:

ARNG 4h NH

Chain Of Custody:

515945

Address:

301-IH Old Bay Lane, Attn: ARNG-CJG-P.

Job Location:

Date Submitted:

5/21/2013

State Military Reservation

Job Number:

P.O. Number:

Not Provided

W912K6-09-A-0003

Berlin

Person Submitting:

Havre de Grace, Maryland 21078

Date Analyzed:

associated with these

samples.

5/29/2013

5/29/2013

Attention:

Summary of Atomic Absorption Analysis for Lead

Page 2 of 2

AMA Sample

Client Sample

Analysis Type Sample Type Air Volume

Area Wiped

Reporting

Total ug

Final Result

See QC Summary for analytical results of quality control samples

Comments

Number

Number

(L)

(ft2)

Limit

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 %Pb = percent lead on a dry weight basis

ug = micrograms

mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)

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.

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Analyst:

Report Date:

Technical Manager:

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Client Name: National Guard Bureau		1. Job Name: AKNO 4V	70/1
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Address 3: Havre de Grace, Maryland 210	078	4. Contact Person	Sponsive (410) 042 0272
Phone #:(410) 942-0273 Fax	#:(410)_942-0254	5. Submitted by:_	gnature: NOTI-INESPOTISIVE
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U Other (specify)(QTY)	☐ Quan. (s/area) Vacuu	m D5755-95(QTY)	☐ Drinking Water ☐ Pb (OTY) ☐ Cu (OTY) ☐ As (OTY)
M Bulk	☐ Quan. (s/area)Dust I	06480-99(QTY)	☐ Waste Water ☐ Pb(QTY) ☐ Cu(QTY) ☐ As(QTY) ☐ Pb Furnace (Media)(QTY)
☐ EPA 600 - Visual Estimate(QTY) ☐ EPA Point Count(QTY)	TEM Water Qual (pres/abs)	(017)	Fungal Analysis
☐ NY State Friable 198.1(QTY) ☐ Grav. Reduction ELAP 198.6(QTY)	☐ ELAP 198.2/EPA 10	0.2(QTY)	Collection Apparatus for Spore Traps/Air Samples:
Grav. Reduction ELAP 198.6(QTY)	☐ EPA 100.1	(QTY)	Collection Media
Other (specify)(QTY)	☐ All samples received	in good condition unless otherwise noted.	☐ Spore-Trap(QTY) ☐ Surface Vacuum Dust(QTY) ☐ Surface Swab(QTY) ☐ Culturable ID Genus (Media)(QTY)
U Vermiculite	(TEM Water samples	°C)	☐ Surface Tape
☐ Ashestos Soil PLM_(Qual) PLM_(Quan) PLM/TEM_(Qual)	PLM/TEM(Quan)		Other (Specify)(QTY)
SAMPLE INFORMATION	ANA	LYSIS Q MATRI	CLIENT CONTACT
CLIENT ID SAMPLE LOCATION DATE IDENTIFICATION DATE	VOLUME WIPE / F / F /	THE LEE LEE LEE LEE LEE LEE LEE LEE LEE L	(LABORATORY STAFF ONLY)
OFFICE 25 BOOK Shelf TOP 5/15/	B 100cm²	7 3 3 3 3 3	
Locken Room 9 Locken TOP	7000	7	Date/Time; Contact: By:
BIANK		17	
DIAN -			
			Date/Time: Contact: By:
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Appendix B. Photographs



Berlin Armory



Boiler Room

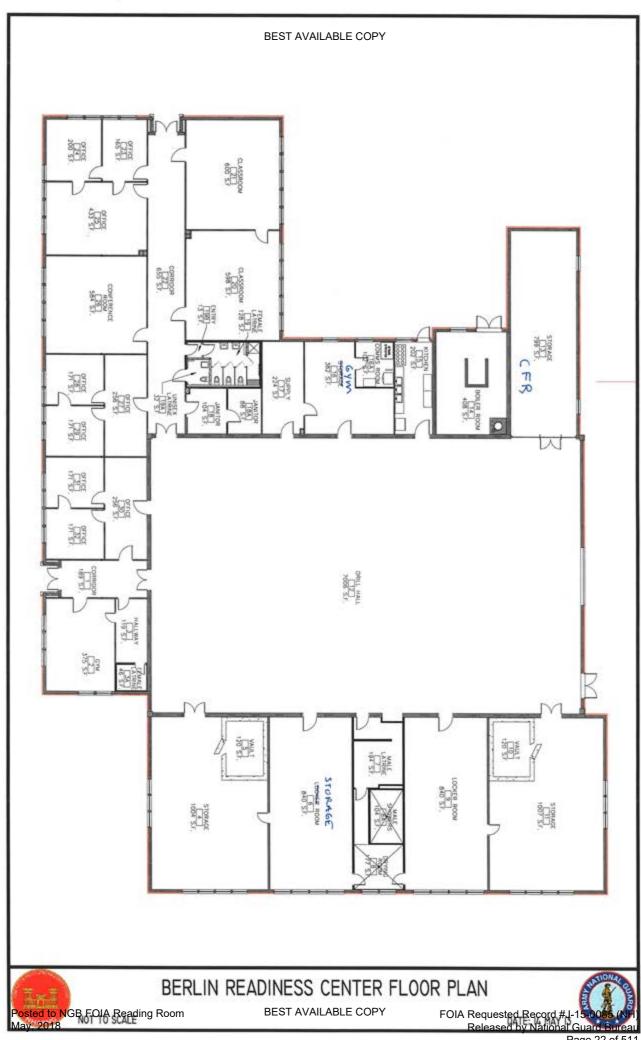


Drill Hall



Drill Hall Window Glazing

Appendix C. Floor Plan



Appendix D. References

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- 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.
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- 6. RP-7-2001, Industrial Lighting, Illuminating Engineering Society of North America/ANSI.
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- 10. Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM).
- 11. The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation, February 2002.
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- 13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), Thermal Environmental Conditions for Human Occupancy, 55-2010.

URS

Prepared For:

National Guard Bureau Army National Guard Region North Industrial Hygiene Office 301 – IH Old Bay Lane Havre De Grace, Maryland 21078

Prepared By:

URS Corporation 5 Industrial Way Salem, New Hampshire 03079

FINAL INDUSTRIAL HYGIENE SURVEY REPORT FRANKLIN READINESS CENTER FRANKLIN, NEW HAMPSHIRE

April 2006 PN: 39741509



Office Manager



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AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES (NATIONAL GUARD REGULATION 385-15 30 DECEMBER

2002)

FINDINGS AND RECOMMENDATIONS

Findings	Recommendation	Risk Assessment Code
Edicological Assessment		
Computer work stations were observed with fixed chairs, armrests, keyboards and monitors.	Ergonomic issues with the desks and chairs should be corrected by fitting the workplace to the worker (DoD, OSHA General Duty)	RAC 3
On the day of the survey the	Increase lighting in the	(2007 00) T
illuminance in the administrative area was inadequate in most offices.	administrative areas through use of task lighting. While work is in progress the administrative area shall be lighted by at least the minimum light intensities (ANSI / IESNA RP -1-04 American National Standard Practice for Office Lighting)	RAC 4
	被心 能治疗。是这种更为的特别的一种	
Lead was detected in wipe samples collected from the floor of the firing range and from the top of the flammable materials cabinet in amounts greater than 350 µg/ft ² Aspestos Exposed ends or damaged	Personnel trained in accordance with the OSHA Lead Standard should clean the former firing range where lead was detected in quantities of greater than 200 micrograms per square foot (OSHA 29 CFR 1910.1025 (h)(1)) Repair or remove exposed ends or	RAC 4
asbestos-containing pipe insulation were present in the janitor's closet, drill hall and boiler room.	damaged asbestos-containing pipe insulation. Work should be completed by personnel trained in accordance with federal regulations (OSHA 29 CFR 1910.1001 (k)(1))	RAC 3
No site specific asbestos operations and maintenance plan available.	Develop a site specific asbestos operations and maintenace plan to manage asbestos-containing materials (OSHA 29 CFR 1910.1001(j))	RAC 3
	Children and the second and the seco	在被制度的企业。
No site specific hazard communication plan available.	Develop a site specific hazard communication plan (OSHA 29 CFR 1910.1200 (e)(1)(i))	RAC 4
Chemical inventory was out of date. MSDS binder contained information on obsolete chemicals	Update chemical inventory on an annual basis. (OSHA 29 CFR 1910.1200 (e)(1)(i))	RAC 4

FINDINGS AND RECOMMENDATIONS

Findings	Recommendation	Risk Assessment Code
Exit Routes	的复数形式的自然等的自然等的自然的	第
The emergency exit in the drill floor was obstructed by a howitzer.	Keep emergency exit routes free from obstruction (OSHA 29 CFR 1910.37 (a)(3))	RAC 2
Mold Fr		
Water stains and mold where observed in the boiler room	Remove or reduce water sources and have properly trained personnel remove mold contaminated building materials where feasible and clean all remaining surfaces. (Best management practice)	RAC 4
Fire Extinguishers	PET AND DESCRIPTION OF THE PARTY OF THE PART	为为"为2.5数全国ETP
The fire extinguisher in the kitchen is partially blocked	The NH ANG must provide portable fire extinguishers and shall mount, locate and identify them so that they are readily accessible to employees without subjecting the employees to possible injury (OSHA 29 CFR1910.157 (c)(1)).	
Walking Surfaces	高於於於於於於於於於於於於於於於	\$34) FEE \$30. 300
The supply has a few housekeeping issues, which could create slips, trips and falls for personnel in the area	The NH ANG should keep storerooms clean and orderly (OSHA 29 CFR 1910.22 (a)(1)).	RAC 4

1.0 SUMMARY

At the request of the National Guard Bureau (NGB), URS Corporation (URS) conducted an industrial hygiene survey at the Readiness Center located at 300 South Main Street, Franklin, New Hampshire. This report includes an executive summary, a description of the survey protocol, a discussion of the survey evaluation and findings and a list of conclusions and recommendations.

Mr. Non-Responsive an industrial hygienist with URS, conducted the site visit at the Franklin Readiness Center on December 9, 2003. The purpose of this site visit was to conduct an industrial hygiene survey, which included the collection of air samples, bulk samples, light measurements and a review of site health and safety procedures. SFC Non-Responsive of the New Hampshire ARNG was Mr. Non-Responsive site contact for this survey.

A shop layout drawing of the facility, which shows the locations where measurements were made during this survey, is contained in Appendix A.

Mr. Non-Responsive asbestos training certifications are contained in Appendix E.

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2.0 ADMINISTRATIVE AREA

2.1 Operation Description

This area has multiple offices throughout the building with desks and computer workstations. This area also includes the kitchen, classroom, janitor's room, locker room, shower room and supply room. There were a few ergonomic issues in this area (Photo #'s 2923-4). Chairs with adjustable arms should be used in the computer stations because they can be adjusted to fit the worker, making them comfortable and reducing skeletal-muscular strain. Computer monitors are not adjusted for the person working at the station. If more than one person is using that station, then proper adjustments need to be made to accommodate each person.

2.2 Chemical and Physical Agents Sampled

2.2.1 Carbon Dioxide

On the day of the survey, carbon dioxide measurements were collected from the Readiness Center. Carbon dioxide concentrations ranged from 475 to 874 parts per million (ppm), with an average of 600 ppm. Carbon dioxide levels were measured using a direct reading TSI Q-Track (Model 8551).

2,2,2 Carbon Monoxide

Carbon monoxide was also measured in the Readiness Center. Carbon monoxide concentrations ranged from 0 to 1 parts per million (ppm), with an average of 0 ppm. Carbon monoxide was measured using a TSI Q-Track (Model 8551).

2.2.3 Lighting

Lighting in the administrative area was measured using a Sper Scientific Ltd. Light Meter (Model 840020C). Table 2-1 below shows lighting measurements and the recommended lighting requirement (ANSI / IESNA RP -1-04 American National Standard Practice for Office Lighting).

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Table 2-1
Lighting Measurements and Recommended Lighting Requirements

Losation	- Function		Recommende d Illuminarice ⇒(lux)
FDC Office # 1	Administrative Duties	424	500
Commanders Office # 2	Administrative Duties	591	500
1 ST SGTs Office # 3	Administrative Duties	503	500
Recruiters Office # 4	Administrative Duties	455	500
Orderly Room # 6 Desk 1	Administrative Duties	558	500
Orderly Room # 6 Desk 2	Administrative Duties	407	500
Janitors Room # 7	Administrative Duties	467	500
Supply Room # 15	Administrative Duties	225	500

On the day of the survey the illuminance in the administrative area was inadequate in most offices.

2.2.4 Asbestos

Bulk samples were taken in the administrative area of damaged suspect asbestos containing materials (ACM). Table 2-2 below shows the results of the semples.

Table 2-2 Samples Taken of Suspect ACM

Sample Location	ն //jate rial:Sample d ;	URS Sample Number	Total Asbestos (%)
Hallway # 10	9"x9" Floor Tile/Mastic	1209-02A	2
Hallway #10	9"x9" Floor Tile/Mastic	1209-02B	2
Classroom # 8	9"x9" Floor Tile/Mastic	1209-02C	2
Hallway #10	4" Brown Cove Base/Mastic	1209-03A	NAD
Classroom # 8	4" Brown Cove Base/Mastic	1209-03B	NAD
Ciassroom # 8	4" Brown Cove Base/Mastic	1209-03C	NAD

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NAD = No Asbestos Detected

The EPA states that any material with greater than 1% asbestos be treated as asbestos containing material.

2.2.5 Lead

Wipe testing for lead was conducted in the administrative area using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA is contained in Appendix D. Table 2-3 below shows the results of the lead sampling.

Table 2-3
Levels of Lead Dust Found in the Administrative Area

Sample Location	URS Sample Number	Area Wiped (ff)	î Result (µg/ft²)	Maximum Contamination Level (µg/ft²)
Classroom #8- Floor	1209-LW11	0.111	<12	200
Commander #2 - Floor	1209-LW12	0.111	<12	200
1st SGT #3 - Floor	1209-LW13	0.111	<12	200
Orderly Room #6 – File Cabinet	1209-LW14	0.111	<12	200
Kitchen #11 – Top Sheif Over Stove	1209-LW15	0.111	<12	200
Blank	1209-LW Blank 2	N/A	<12 μg	

An air sample for lead was collected in classroom # 8. Table 2-4 below shows the result of the lead air sample.

Table 2-4
Levels of Lead Found in the Air

Sample Location	URS Sample	Air Volume	Result	OSHA'\$
	Number	(L)	(µg/m²)	PEL(µg/m³)
Classroom # 8	1209-LA02	1032	<2.9	50.0

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On the day of the survey, the lead levels in the classroom were found to be acceptable, below OSHA's permissible exposure limit (PEL) for lead (29 CFR 1910.1025(c)) of 50.0 µg/m³ averaged over an 8-hour day.

2.3 Ventilation System Evaluation

Not applicable to this operation.

2.4 Noise Measurements

Not applicable to this operation.

2.5 Personal Protective Equipment

Not applicable to this operation.

2.6 Interpretation of Results

<u>ERGONOMICS</u>: Computer workstations generally did not have adjustable chairs, armrests, keyboards and monitors creating a workspace that is prone to skeletal-muscular strain.

CARBON DIOXIDE: Carbon dioxide is a normal constituent of the atmosphere and ranges from about 250 to 450 ppm. The major source of excess carbon dioxide in the indoor environment is people. Other sources can include open-flame heaters, fermentation processes, and motor vehicles. Carbon dioxide itself is not normally a cause of indoor air quality problems because concentrations must exceed 5,000 to 10,000 ppm before health effects such as headache, drowsiness, and increased respiration are noted. Typically, carbon dioxide is used as an indicator of the adequacy of fresh air intake. As the concentration of carbon dioxide increases, so do the background levels of other air contaminants.

<u>CARBON MONOXIDE:</u> Key sources of carbon monoxide within indoor environments include internal combustion engines, motor vehicle and forklift exhaust, tobacco smoke, space heaters, and improperly adjusted oil or gas burners. Health effects from

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exposure to elevated concentrations of carbon monoxide may include fatigue,

impairment of visual acuity, irregular heartbeat, headache, nausea, and confusion.

ASHRAE recommends that average carbon monoxide concentrations not exceed 9

ppm. Typical average concentrations found in commercial buildings range from 0 to 6

ppm.

LIGHTING: On the day of the survey the illuminance in the administrative area was

inadequate in most offices. The lighting in this area falls below the minimum lighting

requirements indicated on table 2-1. While work is in progress, the administrative area

shall be lighted by at least the minimum light intensities. Recommend increasing the

lighting in the administrative areas through use of task lighting.

ASBESTOS: The floor tile that was found throughout this area came back positive for

asbestos. The floor tile has multiple sections of damage (Photo # 2912), which is rising

and cracking in some spots. Recommend replacing the damaged tile with new, non-

asbestos tile, by an appropriate trained technician. The floor tile also needs to be

protected by at least two coats of wax.

MOLD: Water stains were found on the ceiling in clessroom #8 (Photo # 2914),

women's latrine #19 (Photo # 2922), recruiters office # 4 (Photo # 2925), janitors room #

7 (Photo # 2926) and in the kitchen #11 (Photo # 2916). These water stains could

generate mold growth. There is visible mold growth in the shower room # 17 and there

appears to be growth under the paint on the ceiling in the men's latrine # 17.

FIRE SAFETY: The fire extinguisher in the kitchen is partially blocked (Photo # 2915).

WORKING SURFACES: The supply has a few housekeeping issues, which could

create slips, trips and falls for personnel in the area (Photo # 2919).

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3.0 FORMER FIRING RANGE

3.1 Operation Description

The firing range has been dismantled and is now primarily used for storage. The area is approximately 800 square feet with cinder block walls and a concrete floor.

3.2 Chemical and Physical Agents Sampled

3.2.1 Lead

Wipe testing for lead was conducted in the former firing range using ghost wipes, which meets ASTM E 1792 standards. Table 3-1 below shows the results of the lead tests.

Table 3-1
Levels of Lead Dust Found in the Facility

Sample Location	URS Sample Number	Afréa Wipéd (ft°)	Result ()(g/ff*)	Maximum : 13 Contamination Level (µg/ff²)
Firing Range-Floor/Rear	1209-LW06	1.000	1500	200
Firing Range-Floor/Center	1209-LW07	1.000	440	200
Firing Range-Floor/Front	1209-LW08	1.000	350	200
Firing Range-Top of File Cabinet	1209-LW09	1.000	180	200
Firing Range-Top of Table	1209-LW10	1.000	41	200

An air sample for lead was collected in the former firing range. Table 3-2 below shows the result of the lead air sample.

Table 3-2 Levels of Lead Found in the Air

Sample Location	URS Sample Number	Air Volume (L)	Result (µg/m²)	GSHA's PEL(μg/m²):
Former Firing Range #14	1209-LA01	1032	<2.9	50.0

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On the day of the survey, the lead levels in the former firing range were found to be acceptable, below OSHA's permissible exposure limit (PEL) for lead (29 CFR 1910.1025(c)) of 50.0 $\mu g/m^3$ averaged over an 8-hour day.

3.3 Ventilation System Evaluation

Not applicable to this operation.

3.4 Noise Measurements

Not applicable to this operation.

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3.5 Personal Protective Equipment

Not applicable to this operation.

3.6 Interpretation of Results

LEAD: The former firing range was found to contain lead in the dust, which exceeds the maximum limit of 200 μg/ft² set by the NGB Region North Industrial Hygiene Office (See Appendix F). Recommend cleaning up the lead dust with an appropriate licensed contractor. Guidelines for the cleanup and rehabilitation of indoor firing ranges is provided in Appendix H.

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4.0 DRILL HALL

4.1 Operation Description

A 6,000 square feet area with a 30 foot high ceiling, used for assembling personnel and storing vehicles. The walls are made from cinder blocks with a concrete floor. At the time of the inspection, a Howitzer blocked the emergency exit in the drill hall (Photo # 2918).

4.2 Chemical and Physical Agents Sampled

4.2.1 Lead

Wipe testing for lead was conducted in the drill hall using ghost wipes, which meets ASTM E 1792 standards. Table 4-1 below shows the results of the lead tests.

Table 4-1
Levels of Lead Dust Found in the Facility

Sample Location	URS Sample Number	Area Wiped (ft²)	Result (µg/ft²)	Recommended Safe Surface Contamination Level (µg/ft²)
Dritt Hall #10 Floor	1209- LW01	1.000	16	200
Drill Hall #10 – Floor	1209- LW02	1.000	<12	200
Drill Hall #10 – Floor	1209- LW03	1.000	<12	200
Drill Hall #10 – Top of Flammable Chemical Cabinet	1209- LW04	1.000	460	200
Drill Hall #10 – Top of Coke Machine	1209- LW05	1.000	80	200

4.3 Ventilation System Evaluation

Not applicable to this operation.

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4.4 Noise Measurements

Not applicable to this operation.

4.5 Personal Protective Equipment

Not applicable to this operation.

4.6 Interpretation of Results

<u>LEAD</u>: The samples taken from the drill hall for lead dust were within the acceptable limits, except for the sample taken on top of the flammable chemical cabinet. Recommend having the flammable materials storage cabinet cleaned by an appropriate licensed technician.

<u>ASBESTOS</u>: Except for a few exposed pipe insulation ends (Photo # 2917), the asbestos pipe insulation is in good shape. Repairs need to be done by an appropriate trained technician.

EXIT ROUTES: At the time of the inspection, a Howitzer blocked the emergency exit in the drill hall (Photo # 2918).

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5.0 BOILER ROOM

5.1 Operation Description

A mechanical room made of cinder block walls with a concrete floor. Contains a furnace with associated piping. There is some water damage on the ceiling, which could sustain mold growth (Photo # 2909). There is visible mold growth on the wall leading to the water damage on the ceiling (Photo #'s 2910-11).

5.2 Chemical and Physical Agents Sampled . . .

5.2.1 Asbestos

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0.000

Bulk samples were taken in the boiler room of suspect asbestos containing materials (ACM) that had exposed end or were damaged. Table 5-1 below shows the results of the samples.

Table 5-1 Samples Taken of Suspect ACM

Sample Location	: Material Sampled:	⊍RS Sample Number	-Total Asbestos (%)
Boiler Room # 12	Air Cell Pipe Insulation	1209-01A	7
Boiler Room # 12	Air Cell Pipe Insulation	1209-01B	5
Boiler Room # 12	Air Cell Pipe Insulation	1209-01C	5

The EPA states that any material with greater than 1% asbestos be treated as asbestos containing material.

5.3 Ventilation System Evaluation

Not applicable to this operation.

5.4 Noise Measurements

Not applicable to this operation.

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5.5 Personal Protective Equipment

Not applicable to this operation.

5.6 Interpretation of Results

<u>ASBESTOS</u>: Pipe insulation in the boiler room had numerous exposed ends that when disturbed can release asbestos fibers to release into the air (Photo #'s 2907-08). An appropriately trained technician should repair the exposed ends.

<u>MOLD</u>: There is some water damage on the ceiling, which could sustain mold growth (Photo # 2909). There is visible mold growth on the wall leading to the water damage on the ceiling (Photo #'s 2910-11).

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SAFETY AND INDUSTRIAL HYGIENE PROGRAMS 6.0

The only safety book found at the site consists primarily of accident investigation and legal aspects of safety. A three ring binder was presented to URS at the time of the survey was a course manual that was written by Alamo Safety Organization for the Army National Guard 1st Line Supervisors. The manual, is not a written safety program. The manual is a great tool, which could be used to help write the sites written safety program.

6.1 Confined Spaces

No site specific written safety program found regarding confined spaces. No training records found on site. A site-specific confined spaces program is not required for this site.

Hearing Conservation 6.2

No site specific written safety program found regarding hearing conservation. No training records found on site. A site-specific hearing conservation program is not required for this site.

Respiratory Protection 6.3

No site specific written safety program found regarding Respiratory Protection. No training records found on site. A site-specific respiratory protection program may is not required for this site.

Hazard Communication 6.4

No site specific written safety program found regarding hazard communications. The Material Safety Data Sheets (MSDS) were in a binder, but contained sheets for chemicals that no longer existed on site. It was also unorganized, making it difficult to find anything. A table of contents is needed to help aid someone in finding the correct MSDS in a crisis. No training records found on site.

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6.5 Personal Protective Equipment

No site specific written safety program found regarding personal protective equipment.

No training records found on site. A site-specific personal protective equipment program is not required for this site.

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7.0 REFERENCES

American National Standards Institute

ANSI/ESNA RP-1-04: American National Standard Practice for Office Lighting

American Society of Heating Refrigerating and Air-Conditioning Engineers

ANSI/ASHRAE Standard 62.1-2004: Ventilation for Acceptable Indoor Air Quality

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Ergonomics Program Pamphlet 40-21 (15 August 2003)

Policy and Responsibilities For Inspection, Evaluation and Operation of Army National Guard Indoor Firing Ranges (National Guard Regulation 385-15 30 December 2002)

Department of Defense

DoD Hearing Conservation Program Standard 6055.12 April 1996

Creating an Ideal Workstation: A Step-by-Step Guide

U. S. Environmental Protection Agency

Asbestos Hazard Emergency Response Act (40 CFR Part 763)

National Emissions Standards for Hazardous Pollulants (40 CFR Part 61)

U. S. Housing and Urban Development

Guidelines for the Evaluation and Control of Lead-Basad Paint Hazards in Housing (1995, 1997)

U. S. Occupational Safety and Health Administration

Standard for General Industry: 29 CFR 1910

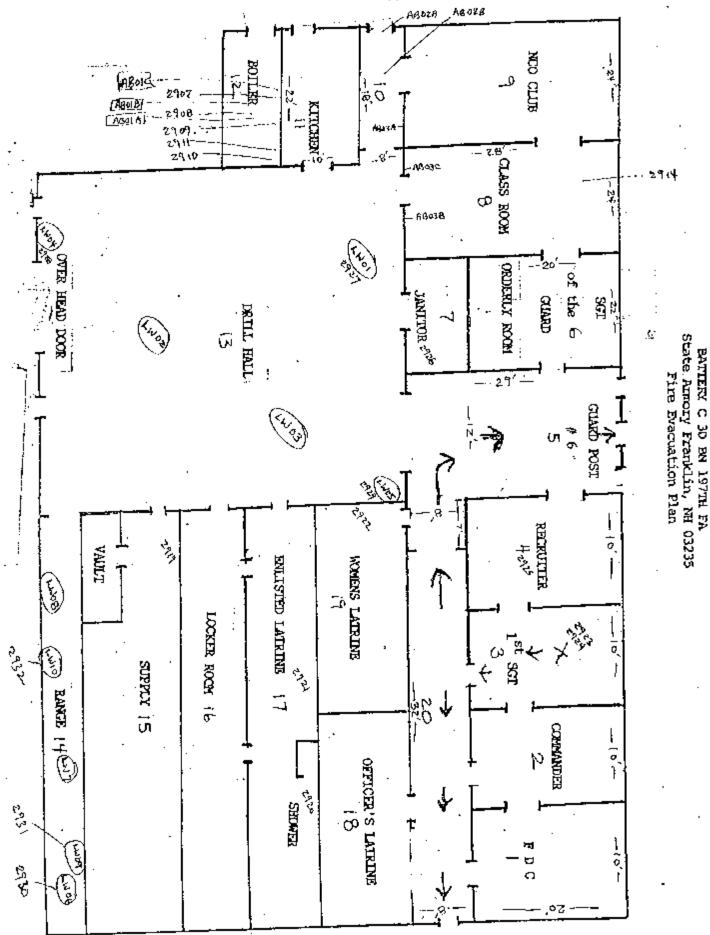
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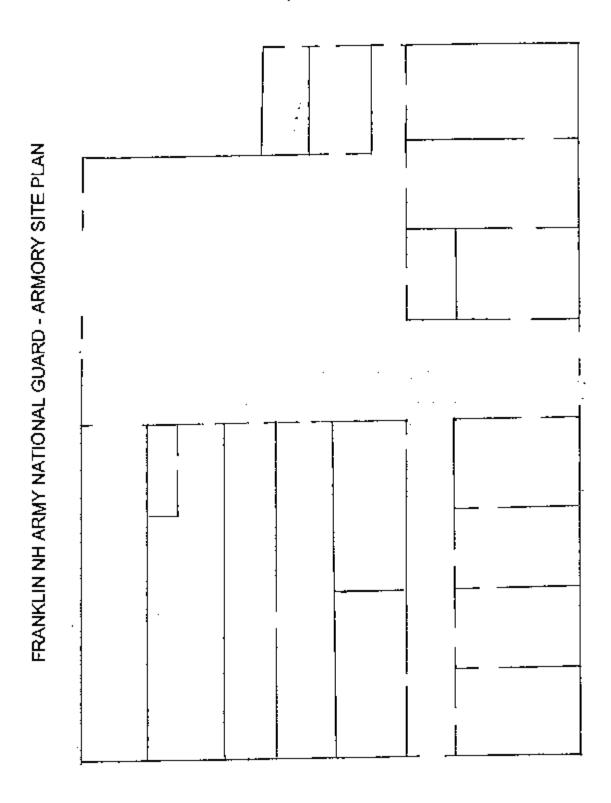
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APPENDIX A SHOP DRAWING

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APPENDIX B

PERSONNEL LIST

Name	Rank	Last 4
Non-Responsive	SFC/E-7	2505
	SSG/E-6	9523
	SGT/E-5	9678
	SGT/E-5	1580
	Custodial Engineer	

Full Time Support Roster for Btry C 2/197 FA Franklin/Lebanon, NH .



APPENDIX C

HAZARDOUS MATERIALS LIST

FRANKLIN STATE ARMORY

FRANKLIN NH 03235

GAL ALUSTINS BLEACH CAN VACUEL SOUR CLEANER CAN GLADIE SMOKE ODOR ELIMINATOR GAL VISION GLASS CLEANER WATER FLAKES FLOOR CONDITIONER & NEUTRALIZER ÓZ. WINDER GLASS CLEANER GAL. GAL 3 RS ALL PURPOSE CLEANER MOP ON MOP OFF HEAVY DUTY STRIPPER CONCENTRATE GAL NEUTRABRITE HARD SURFACE CLEANER G-191_ HOT SHOT ROACH & ANT KILLER CAN ORTHO HORNETY WASA KILLER CAN CAN REAL-KILL WASPY HORNET KILLER TRAFFIC MASTER (2020) FLOOR FINISH GAL GAL SUPER SEAL URETHANE/ACRYLIC FLOOR SEALER BEHR PORCH YFLOOR PAINT - GREEN GAL " - GREY GAL UTRA PURE WHITE - INTERIOR EGGSHELL GAL SIMPLE GREEN - ALL PURPOSE CLEANER EA SPRAY NINE - MULTI - PURPOSE CLEANER EA AJAX - OXYGEN BLEACH CLEANER CAN SAFE T BOWL -NOW ACID DISINFECTANT BATHROOM CEANUER 94 EASY PAKS - NEUTRALIZER CONditionER ٥Z DE ROAMER - SUPER CONCENTRATED GT NO-FUME - DRAIN OPENER QT F-1000 DISINFECTANT SANITIZER DEODORANT GAL REGULAR-ROCK SALT GAL WAXINE - DUST CLEANER

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Page 51 of 511

BAGS

APPENDIX D ANALYTICAL RESULTS

A Specialized Environmental Laboratory

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CERTIFICATE OF ANALYSIS

Chain Of Custody: Person Submitting: Date Analyzed: Report Date: 300 South Main St. Franklin, NH Army National Guard Not Provided Not Provided P.O. Number: Job Location: Job Number: Job Name:

2/22/2003

121354

22-Dec-03

Page I of 2

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Lype	E)	(tt)	Limit	Çimit Č				
				AND SECOND SECON							
0414341	1209-LA 01	Flame	Air	1032	N/A	2.91	ug/m³	٧	2.9	ug/m³	
0414342	1209-LA 02	Flame	Air	1032	N/A	2.91	ng/m³	٧	5.9	ug/m³	
0414343	1209-LA BLANK	Flame	Air Blank	0	N/A	3.00	ug/m³	٧	'n	ân	
0414344	1209-LW 01	Flame	Wipe	香井香味	1.000	12.00	ug/ff²		16	ng∕ff³	
0414345	1209-LW 02	Flame	Wipe	***	1.000	12.00	ug/ft²	٧	12	ng∕ff²	
0414346	1209-LW 03	Flame	Wipe	***	1.000	12.00	ng/ff²	٧	12	ug/ff²	
0414347	1209-LW 04	Flame	Wipe	**	1.000	12.00	ug/ft²		460	n g/ft s	
0414348	1209-LW 05	Flame	Wipe	***	1.000	12.00	ug/fit²		8	ng∕ft³	
0414349	1209-LW 06	Flame	Wipe	五天长春	000.1	12.00	ng/ft²		1500	ug/ff	
0414350	1209-LW 07	Flame	Wipe	***	1.000	12.00	ng/ff²		440	ng/ff²	
0414351	1209-LW 08	Flame	Wipe	***	1.000	12.00	ug/ffª		350	n⊈/ft²	
414352	1209-LW 09	Flame	Wipe	****	1.000	12.00	ug/ff²		180	ng/ft²	
414353	1209-LW 10	Flame	Wipe	****	1.000	12.00	ng/ff²		41	ng/ff²	
414354	1209-LW BLANK	Flame	Wipe	# # *	N/A	12.00	ân	٧	21	ân	
	ested Record #J										
port applies only to	to the sample, or sample, nd accepted for the excit	s, investigated and is n asive use of the client t	Sister of the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutnal protection to clients, the public and these Laboratories, any protection or samples, investigated and scened 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	we of the quality or coll and upon the condit	andition of apparently ion that it is not to be	identical or used, in whol	similar produ e or in part, in	cts. As a mu	taal prof	ection to clien ublicity matte	its, the public a er without prior

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 All rights reserved. AMA Analytical Services, Inc. applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples. Released by National Guard Bureau Page 53 of 511

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to NGB FOIA Reading Room

Address: Client

URS Corporation 5 Industrial Way Salem, New Hampshire 03079-2830

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A Specialized Environmental Laboratory

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121354	12/22/2003	von-Res	22-Dec-03	
Chain Of Custody:	Date Analyzed:	Person Submitting:	Report Date:	
Army National Guard	300 South Main St. Franklin, NH	Not Provided	Not Provided	
Job Name:	Job Location:	Job Number:	P.O. Number:	
URS Corporation	5 Industrial Way	Salem, New Hampshire 03079-2830		
Client	Address:			

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Page 2 of 2

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Reporting Limit	And the second s
 Area Wiped (ft²)	
Air Volume (L)	
Sample Type	
Client Sample Analysis Type Sample Ty Number	
Client Sample Number	
AMA Sample Number	

Analysis Method For Furrace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7421; Water: SM-31138 Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7420; Water; SM-3111B

ug = micrograms

%Pb = percent lead by weight

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mg/Kg = parts per million (ppm) by weight mg/L = parts per million (ppm) ug/L = parts per billion (ppb) Note; All results have two significant digits. Any additional digits shown should not be



DECEMBER 1997 | DECEMBER 2007 Technical Manager: considered when interpreting the result.

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 disclains 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 All rights reserved. AMA Analytical Services, Inc. An AIHA (#8863), NVLAP (# 101143), & New York ELAP (#10920) Accredited Laboratory applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples.

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NY ELA

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300 South Main St. Franklin, NH Job Location:

Army National Guard

Job Name:

URS Corporation 5 Industrial Way

Address:

ed to NGB FOIA Reading Room May, 2018

Client

Not Provided Job Number:

Not Provided

P.O. Number:

Salem, New Hampshire 03079-2830

Attention:

12/22/2003 121354 Person Submitting: Chain Of Custody: Date Analyzed:

Page 1 of 2

Summary of Polarized Light Microscopy

Mincral Fiberglass Organic Synthetic Other Particulate Sample Analyst Comments Wool Percent Percent Percent Percent Color ID Percent						-				
Analyst ID		E	83	EB	3	5	EB.	E13	EB.	8T
Sample Color		Beige	Beige	Beige	Brown	Вгочи	Brown	Brown	Brown	Brown
Particulate Percent		78	8	8	86	86	86	100	100	100
Other Percent		ı	i	1	1	ŧ	1	i	į	i
Synthetic Percent		ı	ŧ	i	1	1	l	i	ŧ	1
Organic Percent		1	1	ı	ł	1	i	ţ	f	ì
Fiberglass Percent		1	ı	ı	i	ı	í	E	ı	ı
Mineral Wool Percent		15	15	15	1	ı	ı	1	ļ	ı
Other Asbestos Percent		ı	ı	ı	ı	ı	ı	ı	ł	ŧ
Total Chrysotile Amosite Crocidolite Other Asbestos Percent Percent Asbestos Percent	į.	i	ı	ł	1	ı	ŧ	I	ŀ	:
Amosite Percent		ı	ł	1	1	ı	ŧ	ı	ì	ı
Chrysotile Percent		7	S	'n	7	73	73	i	1	ł
Total Asbestos		7	S	S	2	7	7	NAD	NAD	NAD
Client Sample#		1209-AB 01 A	1209-AB 01 B	1209-AB 01 C	1209-AB 02 A	1209-AB 02 B	1209-AB 02 C	1209-AB 03 A NAD	1209-AB 03 B NAD	1209-AB 03 C NAD
AMA Sample Number		0414355	0414356	0414357	0414358	0414359	0414360	0414361	0414362	0414363

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December 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 | 2015 |

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300 South Main St. Franklin, NH Army National Guard

Not Provided Not Provided

Job Location: Job Number:

Job Name:

URS Corporation 5 Industrial Way P.O. Number:

Chain Of Custody: Date Analyzed:

121354

2/22/2003 Person Submitting:

Page 2 of 2

Summary of Polarized Light Microscopy

								Percent	Percent					ı	
	a	Color	Percent	Percent	Percent	Percent	Percent	Wool	Asbestos	Percent	Percent	os Percent Pe	Sample# Asbestos	Sample#	Number
Comments	Analyst	Sample	Particulate	Other	Synthetic	Organic	Fiberglass	Mineral	Other	Crocidolite	Amosite	Total Chrysotile Amosite	Total	Client	AMA Sample Client
				,								The second secon			
												The second secon			

The following foomotes only apply to those samples which the total asbestos result is flagged with a note number.

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 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 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. ď

Analysis Method - EPA/600/R-93/116 dated July 1993

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



EQUAL STATE AND THE SAMPLES, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a matural protection to clients, the public and these Laboratories, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a matural protection to clients, the public and these Laboratories, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a matural protection to clients, the public and these Laboratories, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. rom 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 Zthis 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 Efrom us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collection and collection protocols are based upon the information provided by the persons submitting them and, unless collection protocols are based upon the information provided by the persons submitting them and, unless collection protocols are based upon the information provided by the persons submitting them and, unless collection protocols are based upon the information provided by the persons submitting them and, unless collection protocols are based upon the information provided by the persons submitting them and, unless collection protocols are based upon the information provided by the persons submitting them and, unless collection protocols are based upon the information provided by the persons submitting them and, unless collection protocols are based upon the information provided by the persons submitting them and unless collection protocols are passed upon the information prot 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

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AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

NYELA

5/20/2005

Date Submitted:

Franklin, NH

Job Location:

301-IH Old Bay Lane, Attn: NGB-AVN-SI,

Address

Cient

May, 2018

National Guard Bureau

State Military Reservation

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Job Name:

Nor Provided Not Provided

Job Number:

Havre de Grace, Maryland 21078

P.O. Number:

Person Submitting;

Date Analyzed:

138225

Chain Of Custody:

Report Date:

5/23/2005

23-May-05

Page 1 of 1

Summary of Atomic Absorption Analysis for Lead

Reporting

Area Wiped

Air Volume

Sample Type

Analysis Type

Client Sample

AWA Sample

Number

Number

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Comments Final Result

> ug∕ff² ÿ Sin ug/fit ug/ft²

12.00 12.00

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Wipe Wipe

Flame Flagge Flame Flame Flame

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ay/gn ug/JP ug/fitz ы \Box

See QC Summary for analytical results of quality control samples 12,00

associated with these samples.

Analysis Method For Furnace: Alt, Wipes, Paints, and SolvSolids: EPA 600/R-93/200(M)-7421; Water, SM-3113B Analysis Method for Flame: Air, Wipes, Paints, and Soil/Soilds: EPA 600/R-93/200(M)-7420; Water, SM-31118

mg/Kg = parts per million (ppm) by weight <math>mg/L = parts per million (ppm)

Wipe Blank

1209-LW Blank2

1209-LW15

1209-LW13 1209-LW14

[209-LW]] 1209-LW12

0540438

0540439 0540440 0540441 0540442

0540437

ug/L = parts per billion (ppb)

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

ug = micrograms

%Pb = percent lead by weight N/A = Not Applicable

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

Technical Manager:

This report applies only to the samples, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to elicuts, 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 palor written authorization from us. Sample types, locations and collection protected 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 truncmission electron microscopy of ARERA air samples. This report must not be used to claim, and does not imply product certification, approval, or endorsement by ANIAP, NIST, or any agency of the Pederal Government.

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Attention:

APPENDIX E TRAINING CERTIFICATES

INSTITUTE FOR

ENVIRONMENTAL EDUCATION, INC.

16 Upton Drive, Wilmington, MA 01887

(978) 658-5272

This is to certify that

has completed the requisite training, and has passed an examination for reaccreditation as:

Asbestos Inspector Refresher

pursuant to Title II of the Toxic Substance Control Act, 15 U.S.C. 2646

April 11, 2003

Course Dates

Course Location

Institute for Environmental Education 16 Upton Drive

Wilmington, MA 01887

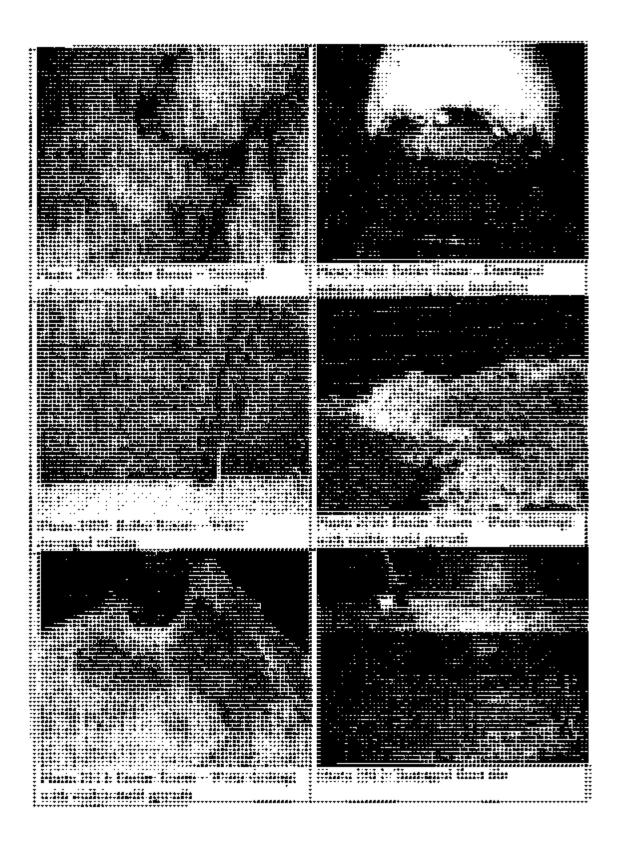
Expiration Date April 10, 2004

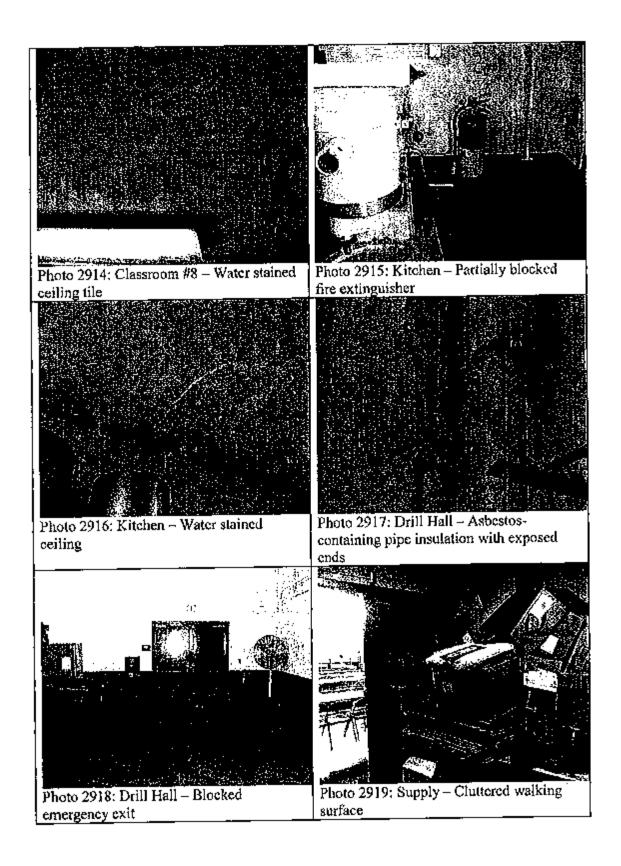
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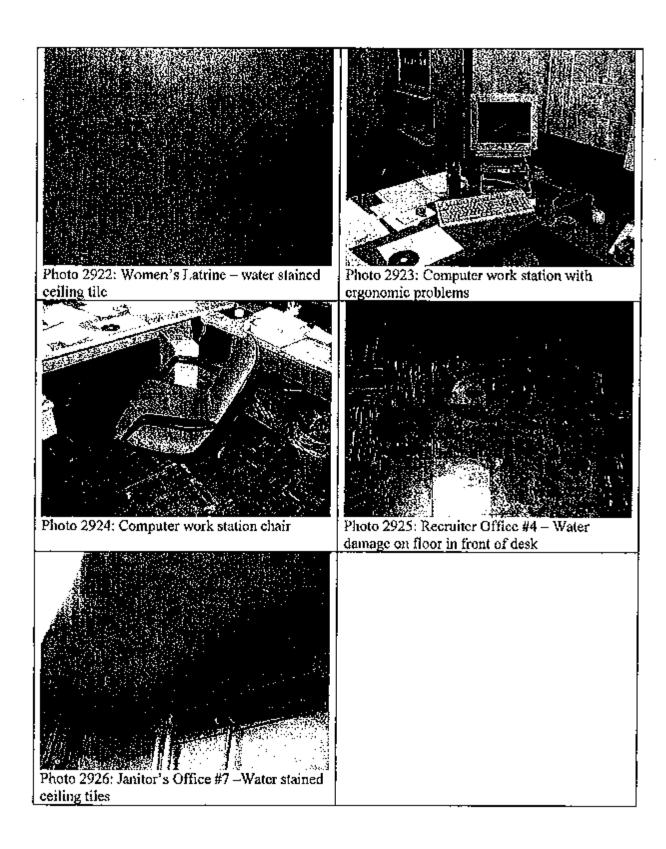
Examination Date

Certificate Number

APPENDIX F **PHOTOGRAPHS**







APPENDIX G RECOMMENDATIONS FOR SURFACE LEAD IN DUST IN ARMORIES

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 (µg/ft²). 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 µg/ft²) and windowsills (250 µg/ft²) 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 µg/ft² 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 8 years of age or under (40 μ g/ft² on floors and 250 μ g/ft² 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/m³ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

APPENDIX H

POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES (NATIONAL GUARD REGULATION 385-15 30 DECEMBER 2002)

NGB-AV8-SG

SUBJECT: 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

ADDENOUM

GUIDELINES FOR IFR REHABILITATION, CONVERSION, AND CLEANING

CONTENTS (Listed by paragraph number)

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Appendices:

Appendix A - General Procedures for Collecting Wipe Samples Appendix B - Sampling Strategy for Collection of Wine Samples Appendix C - Interpretation of Sample Results (Prior to Cleaning) Appendix D - Interpretation of Sample Results (After Cleaning) Appendix E - Recommended Sample Media and Containers Appendix F - Examples of Computation of Lead Levels from Wipe Sample Results Appendix G - Surface Wipe Sample Sheet

Appendix H - Air Sampling Sheet

Appendix I - Glossary

Purposa

1. This addendum establishes policy and procedures for robabilitation, conversion, and cleaning of ARNG indoor firing ranges.

References

Related publications are listed below.

- a. DODI 6055.1 (Department of Defense Instruction, Occupational Safety and Health (OSH) Program).
- AR 11-34 (The Army Respiratory Protection Program).
- c. AR 40-5 (Preventive Medicine).
- d. NGR 385-15 Polley, Responsibilities, and Procedures for Inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges).
 - e. 29 Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Realth Standards
 - OSHA Technical Manual, Edillon VII.
 - DHEW NIOSH 76-130 (Load Exposure and Design Considerations for Indoor Firing Ranges).

NGB-AVS-SG

SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNO) Safety and Occupational Health Program ~ POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

Explanation of Abbreviations and Terms

Abbreviations and special terms used in this publication are fisted in the glossary.

4. Policy and Procedures

Conversion of Ranges. Indoor firing ranges can be safely rehabilitated or converted for other uses, such as a storage area, kitchen, or office space, provided the following –

a. Previously active ranges must be fitoroughly decontaminated and cleaned to acceptable levels.

b. The level of cleanliness is to be determined by sampling. The Occupational Safety and Health Administration's (OSHA) Technical Manual, ⁶⁰ Edition, provides guidance on the methods and techniques needed to collect wipe samples (Appendix A).

(1) Wipe samples must be collected and analyzed prior to and after cleaning.

(2) Post-cleaning surface wipe sample results must be less than or equal to 200 micrograms per square feet (ug/sq ft). The sampling strategy, which is the amount and location of wipe samples to be collected, is provided in Appendix B. Methods for interpreting the sample results are contained in Appendix C and D.

c. Equipment/items previously stored in the range must be decontaminated and cloaned to acceptable

levels.

(1) Samples must be collected from equipment/lems stored in the range. Sample selection is critical, because the number of items stored and longth of storage differs from range to range. The amount and location of the samples, should be representative of the areas where lead dust is most likely to accumulate. The more samples collected, the better the statistical comparison of the results.

(2) Samples must be collected from the smooth surfaces of the equipment/items, in so much as possible. Results of camples collected from a rough surface will be inaccurate due to the minimal surface contact of the media. Further, the likelihood of learing the media filter is greater on rough surfaces.

(3) Samples should also be collected on items stored the longest period of time, and which have not been disturbed. Items stored closest to the bullet trap and firing line are likely to have higher concentrations of lead dust. Methods for interpreting the sample results are contained in Appendix C and D.

6 Goal

To ensure every indoor firing range is free of lead dust, and to reduce the number of cosale ARNG indoor firing ranges.

6. Background

The Environmental Protection Agency (EPA) identifies lead as a highly toxic motal. Elemental lead is indestructible, and common in the environment. Lead can enter the body by inhalation (breathing) or ingestion (eating). In addition, lead is a cumulative poison. If accumulates in the blood, bones, and organs, including the kidneys, brain and liver. Effects include nervous and reproductive system disorders, delays in neurological and physical development, cognitive and behavioral changes, and hypertension. Symptoms include loss of appetite, difficulty sleeping, irritability, fatigue, headache, and inability to concentrate. It can stay in the bones for decades. Worker awareness and training are important to ensure that employees can recognize the symptoms of exposure and get prompt medical attention.

7. Wipe Sample Media

a. OSHA Technical Manual provides the necessary guidance on the technique needed to collect wipe samples (Appendix A). Only distilled or defonized water will be used to saturate dry sample modia. At teast one field blank filter must be submitted with each sample sheet. The field blank must be from the same for, and labeled as a blank on the sample sheet. Appendix E Identifies how and where to obtain sample media. Use the following guidance for determining media acceptability.

(1) Acceptable Media consists of --

(a) Ghost Wipes™ (PREFERRED METHOD)- Pre moistened

(b) Thirty-seven (37) millimeters (ram) mixed cellulose ester (MCE) fillers, with or without the cassettes.

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- (2) Unacceptable Media consists of but is not fimited to—
 - (a) Cotton balls
 - (b) Saby wipes or wel wipes
- b. Documentation of Sample Collection. A Surface Wipe Sample Sheet must be completed and submitted with samples to your supporting faboratory. A copy of this form is located in Appendix G. Refer to Appendix A on how to collect wipe samples.
- Wipe Sampling Protocol See Appendix A.

9. Ranges Cleaning Instructions

- a. Written procedures, such as a scope of work, or Standing Operating Procedure (SOP) that compties with all federal, state and local regulations must be established prior to decontamination operations. The range ventitation system will be in operation during range cleaning to ensure that a negative pressure environment is maintained. In the absence of mechanical ventitation system, all doors and windows will be scaled to eliminate fugitive emissions. A High Efficiency Particulate Air (HEPA) filtered vacuum system to the preferred method of clearup followed by wet wiping of the range. The HEPA vacuum is designed to collect loose surface load dust particles.
- b. Any general purpose cleaning solution can be used. However, Spic and SpanTM has been found to be an effective cleaning solution by other Army organizations. Mix new solutions of cleaning solution frequency. Wet wiping will require dual containers of water; one container for wetting the applicator (mops, rags, sponge, etc.) and the other container for rinsing the applicator after the dust has been wiped from the surfaces. When placed in containers, wastewater should be left to evaporate.
- PROPERLY DISPOSE OF ALL HAZARDOUS WASTE. DO NOT PLACE LEAD CONTAMINATED WASTE INTO THE SEWER SYSTEM OR ONTO THE GROUND.
 - d. Mop-heads, sponges and rags will be discarded as hazardous waste following cleanup.
- Wet cleaning by a high-pressure system is prohibited, as this method may embed the lead into the substratum and generate large quantities of unwanted hazardous waste.
 - f. Dry sweeping is not permitted.
- g. All surface areas of the range must be cleaned. Do not remove the coating on smooth painted surfaces that are properly sealed.
- h. Wood floors should receive a coat of dock enamel or urethane; concrete floors should be sealed with (not gname) and linoteum or tile floors should be waxed.
- i. A progression of cleaning from top to bottom and from behind the steel backstop to the firing line should be used. After removing the sand, if applicable, and the steel backstop, areas in front of and behind the bullet trap along with the steel backstop piete(s) should be cleaned. Next, clean the celling, lights, baffles, retrieval system, heating system(s), and ventilation duct(s). Acoustical material should be vacuumed and removed rather than painted over.
- J. A Toxic Characteristic Leaching Procedures (TCLP) test for lead only may need to be performed on the acoustical material. A TCLP test will determine if the material is classified as "hazardous" and can be disposed of in a sanilary landfill. Contact your State Environmental Office for assistance before arranging for this laboratory testing. The floor should be the last surface cleaned, starting at the builet trap and ending behind the firing fine.
- k. After wet wiping all surfaces, permit the area to dry. Vacuum all surface areas until no dust or residue can be seen using the HEPA.
- A therough visual inspection to detect dust should be made following cleanup and prior to collecting
 post surface wipe samples.
- m. As a variety of conditions exist in ranges, unique situation may arise and specific written guidance from your Regional Industrial Hygieno Office may be required.
- 10. Cleaning Slored Contaminated Equipment
- a. Equipment contaminated (sample result is higher than 200 micrograms/sq tt) with load dust must be decontaminated before it is removed from the range.

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 Equipment located near the bullet trap and firing line should be cloaned first and than removed. The cleaning method depends on the size of the equipment and the material it is comprised of, i.e. metal. wood, concrete, parus, non-porus, smooth or rough finish etc. However, either HEPA vacuum or the wat wipe method will be used. Refer to paragraph 9 for additional guidance.

c. Every attempt should be made to clean and recialm items since disposing of equipment, as hazerdous waste is costly and wasteful. Only as a last resort will the item be discarded as hazerdous waste. Porous items, such as office partitions and carpet that were present during firing should be considered grossly contaminated and be discarded unless analysis proves otherwise. Consult your State Environmental Office for the proper hazardous waste disposal methods.

 Contaminated Sand and Lead Waste Consult your State Environmental Office for specific disposal guidance to ensure compitance with local laws and regulations.

12. Medical Surveillance

- a. A pre-placement medical examination is required for all individuals involved with range cleanup operations. Consult 29 CFR 1910,1926 for additional information on medical surveillance requirements. A medical examination must include—
 - (1) A detailed work and medical history
 - (2) A thorough physical examination
 - (3) A respirator uso evaluation
 - (4) A blood pressure measurement
 - (5) Blood sample analysis to include:
 - (a) A baseline blood lead level
 - (b) A complete blood count (CBC)
 - (c) Blood urea nilrogen (BUN)
 - (6) Serum creatinine
 - (7) Zine protoporphyria
 - (8) A routine urino analysis
 - (9) Recordkeeping
- b. Air Monitoring. Worker broathlag zone (BZ) air samples must be collected to ensure personnel are not overexposed to airborne lead during the cleanup phase. Representative air samples will be collected on all personnel involved in the cleanup operation. These exposure levels will be used to evaluate work practices and personal protective equipment. Within five (5) working days after receipt of monitoring results, each employee will be notified in writing of the air sampling results. Contact your Regional Industrial Hygiene Office for additional information pertaining to air sampling.
- 13, Worker Education

OSHA 29 CFR 1910.1025 requires that workers who are potentially exposed to any lead level shall be informed of the content of Appendix A and B of this standard. A training program must be instituted for at individuals who are subject to exposure to lead at or above the action level or for whom the possibility of skin or eye tritations exists. The training program shall be repeated for personnel currently involved in range cleanup operations, at least annually, this training must be documented on DD Form 1556 or DD Form 1556-1 and filed permanently in the employee's Official Personnal File (OPF) or the soldier's Official Military Personnel Filo (OMPF). As a minimura, complete blocks 1, 2, 3, 7, 8, 11, 12, 13, 17, 18, 24, 33 and 36 of DD Form 1556. Place the following statement in block 18, "Do not destroy, retain this record for the duration of employment/service plus 30 years." The employer will assure that each employee is informed of the following:

- a. The content of the standard and its appendices.
- b. The specific nature of operations that could result in exposure to lead above the action level.
- c. The purpose, proper selection, litting, use and limitations of respirators.
- d. The purpose and a description of medical surveylance program.
- e. Eating and drinking are prohibited in lead contaminated areas.
- Smoking and smoking materials will not be permitted in contaminated areas.

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- g. Employees must wash their hands and other exposed skin whenever they leave the work area.
- h. The engineering controls and work practices associated with the individual's job assignment.
- The contents of any compliance plan in effect.

14. Personal Protective Equipment

For housekeeping and rehabilitation the employer shall saloct respirators from among those approved for protection against lead dust, fume, and mist by the National Institute for Occupational Safety and Health (NIOSH). The employer shall institute a respiratory protection program in accordance with 29 CFR 1910.134. As a minimum, personnel conducting the decontamination of the range will be provided with the following personal protective equipment.

a. Employees engaged in range rehabilitation and/or range conversion, the employer shall provide at no cost to the employee, and assure that the employee uses appropriate protective work clothing and

equipment such as, but not limited to:

Protective coveralis with food and shoe covers or disposable Tyvek [™] full body sult.

(2) Disposable rubber gloves; and disposable shoe coverlets (if necessary).

(3) Full-face air purifying respirator with P-100 cartridges.

b. The employer shall provide the clothing required in a clean and dry condition at least daily to employees engaged in the conversion of indoor firing ranges.

c. The employer shall provide for the cleaning, laundering, or disposal of used or contaminated

protective clothing and equipment.

d. The amployer shall assure that all protective clothing is removed at the completion of a work shift

only in areas designated for that purpose (Change Areas or Change Rooms).

e. The employer will ensure that contaminated protective clothing that is to be cleaned, laundered, or disposed of, is placed in a closed container in the change area that seals sufficiently enough to prevent dispersion of load dust.

f. The employer will further inform in writing any person who cleans or launders protective clothing or

equipment of the potentially hermful effects of exposure to lead.

Housekeeping

This chapter applies to all active indoor ranges classified as "safe" for use. To keep the range operating properly and to keep possible hazards to a minimum, a routine housekeeping/ maintenance program is essential.

 The employer must establish a housekooping program sufficient to maintain all surfaces as froe as practicable of accumulations of toad dust. To this end the range will be clean at the conclusion of each

firing day. b. The range ventitation system will be in operation during all cleaning operations, to ensure a

negative pressure environment is maintained.

c. Ranges will be cleaned by using the wet method or vacuuming. A HEPA (High Efficiency Particulate Air) filtered vacuum system is the preforred method of meeting this requirement. The use of compressed air to clean floors is absolutely prohibited. If the wot method is utilized the floor should be equipped with a floor drain, and collection system. When there is no collection system, the water can be allowed to slowly evaporate leaving lead deposits/studge. The deposits/studge can then be collected, placed in motel drums, and stored for future delivery to an authorized hazardous waste disposal sito. Drume must be labeled to identify contents, in accordance with the hazardous waste program.

d. A NIOSH approved respirator (P-100) for protection against lead dust, fume, and mist will be worn

at all times white deaning.

When cleaning start behind the firing line forward, cleaning the floor and horizontal surfaces.

Mainlehance

The following are the minimum maintenance requirements, which must be performed quarterly by the range custodian, or by a person designated by the facility commander.

a. Inspect the ventilation system (an for condition of belts to ensure that they are not trayed or slipping.

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 Evaluate static pressure and compare to the baseline static pressure reading. Any changes will be reported through the safety manager to the Regional Industrial Hyglenist.

c. Inspect Louvers, if applicable, to ensure they are opening fully.

- d. Inspect the bullet trap for pitting or other damage and for sharp edges on venetian blind type bullet Ігарв.
- e. Builet Trap. The builet trap will be cleaned every 480 hours of operation at a minimum, or when the trap is three quarters full.

f. The range ventilation system will be operational during all bullot trap cleaning procedures.

g. All personnel involved in cleaning of the bullet trap will wear a NIOSH approved respirator, and

proper personal protective equipment.

b. All debris from the bullet trap will be collected, package and lurned in, in accordance with guidance from the environmental office.

Range Rehabilitation.

This chapter applies to all indeer firing ranges that have been identified as candidates for rehabilitation. This chapter further provides guidance for cleaning and/or sampling that might be required prior to the start of rehabilitation.

a. The portion(s) of the range to under go rehabilitation must be sampled to determine the level of lead contamination. Wipe samples will be taken per the established sampling protocol. See Appendix A.

b. All personnel involved in range rehabilitation will wear a NIOSH approved respirator (P-100), and

proper personal protective equipment as prescribed in paragraph 14 above.

c. Prior to start of rehabilitation the environmental office must be notified to determine the disposition of load containing debris.

18. Conversion of Indoor Ranges

Prior to the start of decentamination, employers must ensure that all procedures to be used comply with Federal, State, and local regulations. To ensure that all lead contamination is removed the following procedure is established.

All ranges stated for conversion will be inspected and evaluated.

b. All equipment stored in the range, if applicable, prior to the start of decontamination must be sampled, decontaminated, re-sampled and removed or turned in as lead contaminated material. See paragraph 10 above.

c. All acoustical tites audior sound proofing material (if applicable) must be removed and turned in as

lead contaminated material through the environmental office.

d. The backstop, builet trap, target retrieval system and firing line stations must be removed and turned in as lead containing material through the environmental office.

 Light fixtures and ventifation system grills must be removed and deconteminated. Ventilation system ducts need to be decentaminated or removed and replaced.

- g. The exhaust tans and/or the complete ventilation air-handling unit (if applicable) must be
- decontaminated or removed. Cover all openings of any component previously decontaminated prior to stad of lutertor decontamination of the fiting range.

Deviations from this guidance will require a written exception to policy from your Regional Industrial Hygleno Office. Questions and/or comments regarding this subject should be directed to your Regional Industrial Hygiene Office or Chief, National Guard Bureau, Attn: NGB-AVS-S, 111 South George Mason Drive, Allagton, VA 22204-1382.

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APPENDIX A GENERAL PROCEDURES FOR COLLECTING WIPE SAMPLES

 $\Lambda_{\rm cl}$ if multiple samples are to be collected at the work site; prepare a rough sketch of the area(s) or room(e), which are to be wipe sampled.

A-2 A new set of clean, impervious gloves should be used for each sample to avoid contamination of the media by previous samples and to prevent contact with the substance.

A-3 (1) It using Ghost Wipes™, lear open the individually sealed package. Remove the moistened wipe. Unfold the wipo.

(2) If using a dry media such as MCE or Whatmen™ filter, moisten the filter with distilled or detonized water prior to sampling.

A-4 Place a 10 cm by 10 cm template on the area to be wiped.

A-5 Apply uniform firm pressure while wiping the area inside the temptate.

A-6 To insure that all portlens of the partitioned area are whood, start at the outside edge and progress toward the center making progress toward the center making concentric squares decreasing in sixe.

A-7 After collecting a sample, fold the fitter or wipe inward and place into a container and number it. Note line number at the sample location on the sketch.

A-8 At least one blank filter treated in the same (ashion but without wiping, should be submitted to the laboratory.

APPENDIX B SAMPLING STRATEGY FOR COLLECTION OF WIPE SAMPLES

B-1 Prior to cleaning the ranges, the three samples must be collected and analyzed for total lead dust on each surface, i.e., floor, coiling, backstop, and wall to include the plenum wall, if applicable. In addition, a total of 3 samples should be collected from areas which have been least disturbed by airflow. Established walkways should be avoided.

B-2 Samples should be staggered to different greas of the range. A grid system should be utilized. Each range surface areas should be divided evenly into 3 by 3 sections. Samples should not be collected on all one section of a wall or end of the building.

APPENDIX C INTERPRETATION OF SAMPLE RESULTS (PRIOR TO CLEANING)

C-1 200 micrograms/sq ft or LESS

If all sample results are 200-micrograms/sq it or less, the range can be converted and/or used for any purpose.

C-2 BETWEEN 201 and 200,000 micrograms/sq ft

Range must be decontaininated. Continued with cleaning instructions listed in paragraph 9 Sample results will be used to establish a baseline.

C-3 Over 200,600 micrograms/sq fl

Your sample media may not be capable of collecting additional lead dust and results that are above 200,000 micrograms/sq fl, and should be considered suspect.

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APPENDIX C (Continued)

C-/i) ligh sample results may exist due to personnel welking or moving equipment/vehicles over the range surface causing the lead dust to be "ground" into the substratum. For examples, a maintenance activity may have oversprayed paint or spilled solvents onto the surface Regional industrial Hygiane Office for specific guidance.

APPENDIX D

INTERPRETATION OF SAMPLE RESULTS (AFTER CLEANING)

D-1 200 micrograms/sq. ft or less

If all sample results are less than 200 micrograms/sq ft, the range can be converted and/or used for any purpose after a coat of lead-free latex paint is applied.

APPENDIX E

RECOMMENDED SAMPLE MEDIA AND CONTAINERS

E-1 The following is a flet of vendors, which supply the media and containers necessary to collect air and lead surface wipe samples. The information is provided to assist in obtaining the proper media and containers. Alternative vendors ere available and may be utilized, if known. Contact your Regional Industrial Hygiene Office for additional assistance or dariffication.

E-2 Pre-loaded 3 place cassotto with mixed cellulose aster (MCE) filter and pad, 37 millimeter (mm), pere size 0.8 microns, breathing zone (BZ) and general area (GA) air samples.

Order From

Catalog Number
MAWP-037-A0

a. Millipore Corp.
 Ashdy Road
 Bedford, MA 01730
 617-275-9200
 800-225-1380

b. Gelman Sciences 64678 (GN-4)

600 South Wagner Rd Ann Arbor, MI 48108 313-665-0851 800-521-1520

c. Supelco, Inc. 2-3368M Supelco Park Belliofonte, PA 16823 800-247-6628 800-359-3041

E-3.37 mm MCE Fifter with pad, no cassello included, for lead surface wipe samples.

Order From

Catalog Number

2-3381IM

a, Supelco Inc. Supelco Park

Bellefonte, PA 16823

37

A 2 %

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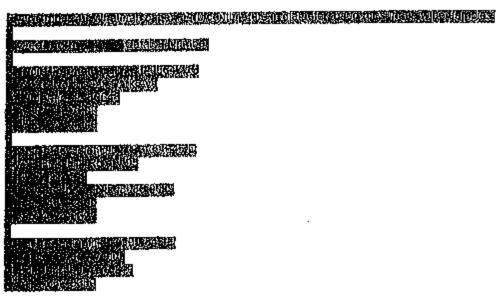
APPENDIX E (Continued)

800-247-6628 600-359-3041

b. Millipere Cerp.Ashdy RoadBedford, MA 01730617-275-9200800-225-1380

AAWP-037-00

SKC, Inc. 225-5
 334 Valley View Rd.
 Eighty Four, PA 15330
 412-941-9701
 800-752-8472



E-5, Glass container (25 millillier) for collection and shipment of media.

Order From

Catalog Number

a. Pierce Chemical Co. 13219 (screw cap) P.O. Box 117 Rockford, If. 61105 815-966-0747 800-874-3723

Altech Associates, Inc. 95321 (screw cap)
 Applied Science Labs
 2051 Waukegan Rd.
 Deerfleid, II. 60015
 312-948-8600

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APPENDIX E (Continued)

800-265-8324

E-8, Ghost Wipas™.

Order From

Catalog Number

SC4200 Environmental Express 490 Wando Park Blvd. Mt. Pleasant, SC 29464 1-800-343-5319

E-7, Ghost Wipe™ Containers

Order From

Catalog Number

Environmental Express SC499 490 Wando Park Blvd. Mt. Pleasant, SC 29464 1-800-343-5319

E-8. Plastic ziplock bags can be obtained through the Army logistics system. Many sizes are available. Contact your supporting logistics branch for assistance.

E-9. Distilled water can be purchased at larger grocery stores, usually by the gallon, at a cost of approximately \$1.25. Delonized water can be obtained at local and state water labs or a hospital,

APPENDIX F EXAMPLES OF COMPUTATION OF LEAD LEVELS FROM WIPE SAMPLE RESULTS

Sample results will be returned in the form of micrograms. The results must be converted to micrograms per square foot. This can be accomplished by following the examples listed below:

$$\frac{75 \times 029}{100} \simeq \frac{99675}{100} \approx 696.75 \text{ wg/sq ft}$$

ug - Microgram

Cm2 -- Centimeters squared

Sq ft -- Square fool

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APPENDIX G SURFACE WIPE SAMPLING SHEET

Return Address	Hygiene S	Po	int of Conlac	(name & phone #)					
Return Address		9.							
		1 28	Samples Collected By						
Sampled Facility	— Гопу – —	<u> </u>	Stalo	Location (bidg/area)					
Description of Operation			te Collected	Date Shipped					
Analysis Desired					-				
Sampling Data				Romarks	. ——				
Lab Uso Only Sample #		<u> </u>							
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Comments to Lab:									

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APPENDIX H AIR SAMPLING SHEET

		_ mausurar rry	<u> </u>	Sample Sheet	#)			
Return Addres	5		1			 -		
			Samples C	ollected By				
<====================================	n u - -		Stato T	Cocallon (bldy/area]			
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Sampling Date	R .					— 		
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Calibration in				··				
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Name of Calibra	ilor · ·-	Calibration Date	-J Pump Mar	nyfacturer				
Comments to t	<u>ah</u> ·	1		<u> </u>				

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APPENDIX I ABBREVIATIONS AND TERMS

Section I Abbreviations

ARNG

Army National Guard

BUN

Blood uroa nitrogen

BZ

Breathing zone

CBC

Complete blood count

CER

Code of Federal Regulations

¢m

Centimoter

DHEW

Department of Health, Education and Welfare

EPA

Environmental Protection Agency

GΑ

.General area

OMPF

Official Military Personnel File

QPF

Official Personnel File

OSHA

Occupational Safety and Health Administration

TGLF

Toxic Characteristic Leaching Procedures

ug/sq ft

Micrograms per square foot

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APPENDIX (Continued)

Section # Terms

HEPA

Refers to high efficiency particulate air filter systems capable of capturing up to 99.97 percent of particles 0.3 microns in size or larger.

Lead-Contaminated Range

It is assumed that all indoor ranges, which have been fired in, are lead-contaminated.

Wipe Sample

The terms wipe, swipe, or smear samples are use synonymously to describe the techniques utilized for assessing lead surface contamination.



1215 Manor Drive, Suite 205 Mechanicsburg, PA 17055 Phone: 717.590.7031 Fax: 717.590.7936 www.complianceplace.com

Industrial Hygiene Survey Report

National Guard Facility Franklin Readiness Center

Prepared For: National Guard Bureau Region North IH

301-IH Old Bay Lane

Havre de Grace, MD 21078

Survey Location: Franklin Readiness Center

300 South Main Street Franklin, NH, 03235

Prepared By: Compliance Management International, Inc.

1215 Manor Drive

Suite 205

Mechanicsburg, PA 17055

Survey Date: May 16, 2013

Report Date: June 24, 2013

Non-Responsive

Non-Responsive, CIH

Manager, Industrial Hygiene Services

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Section 1.0 Executive Summary

An industrial hygiene survey was conducted on May 16, 2013, at the Franklin Readiness Center located at 300 South Main Street, Franklin, NH 03235. The survey was performed by Mr. Non-Responsive.

- Lead surface and air samples were collected. Surface levels of lead exceeded 200 micrograms per square foot (ug/ft²) in one location. See Section 3.0 for detailed sampling results.
- 2. Lighting levels met the American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IESNA) recommended guideline in every location measured. See Section 4.0 for detailed findings.
- 3. Indoor air quality (IAQ) parameters of temperature, relative humidity, carbon monoxide and carbon dioxide (ventilation) were evaluated during the assessment.
 - a. Temperature levels met the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010 recommended guideline of 68-79 °F in the areas sampled.
 - b. The relative humidity level met the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) TG 277 recommended guideline of 30-60% in each area sampled.
 - c. Carbon monoxide (CO) levels were less than the National Ambient Air Quality Standard (NAAQS) recommended ceiling of 9 parts per million (ppm).
 - d. Carbon dioxide (CO₂) levels met the ASHRAE 62.1-2010 recommended guidelines for mechanically ventilated office buildings and commercial settings.

See Section 5.0 for detailed sampling results.

- 4. Housekeeping was good. See Section 5.0 for detailed findings.
- 5. The Drill Hall garage door was open while construction was in progress, allowing equipment exhaust fumes and dust to enter the building.

See Section 5.0 for detailed sampling results.

Section 2.0 Operation Description & Observations

The Franklin Readiness Center is mainly an administrative facility with offices, classrooms, and a converted firing range area (currently the Honor Guard Office). There were approximately 3 full-time employees stationed at this facility at the time of this survey.

The building is reported to have been built in the late 1950s. It is a one story structure. The exterior is brick. The interior walls are concrete block with drywall in some of the offices. The floors are concrete, and 12"x12" floor tiles.

The heating system consists of a gas-fired, forced hot water unit. There is one mini-split A/C unit, and several window A/C units that service the administrative areas.

There is no child-care facility in the building.

Housekeeping practices are good.

No ergonomic concerns were reported. Office areas have computer work stations. Work stations appeared to be properly designed. Personnel had supportive chairs.

This facility has a converted firing range that is now used as the Honor Guard Office.

At the time of this survey, the large Drill Hall garage door was open while construction was in progress. This allowed machine exhaust fumes and dust to enter the building.

Section 3.0 Lead Testing

Various surfaces within the facility were screened for lead using surface/wipe samples. Surface/wipe samples were collected in accordance with the American Society for Testing and Materials (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 Environmental Protection Agency (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/ft ²
1	Orderly Room	<7.4	*
2	Drill Hall	<7.4	*
3	Blank	<3	*
4	Drill Hall Floor Center	*	<110
5	Drill Hall Vending Top	*	<110
6	Drill Hall Coffee Machine Top	*	<110
7	Honor Guard (Converted Firing Range) Floor	*	<110
8	Honor Guard (CFR) Floor Outside Entrance	*	<110
9	Honor Guard (CFR) Desk Top	*	<110
10	Kitchen Stove Top	*	<110
11	Kitchen Window Sill	*	<110
12	Classroom 5 Bookshelf Top	*	<110
13	Training Room 20 Heater Top	*	920
14	Recruiting Office Bookshelf Top	*	<110
15	Orderly Office Desk Top	*	<110
16	Blank	*	<12
_	Criteria	50	200

Table Notes:

- 1. **Bolded** results exceed listed criteria
- 2. ppm = parts per million
- 3. $ug/ft^2 = micrograms per square foot$
- 4. ug/m^3 = micrograms per cubic meter
- 5. $\mathbf{ug} = \text{micrograms}$

Sources:

- NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges
- 2. OSHA 29CFR1910.1025 Lead Standard

The National Guard Bureau currently utilizes 200 micrograms per square foot (ug/ft²) 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/ft² on floors and 250 ug/ft² on windowsills should be observed. There is no child care provided at this facility.

Lead surface and air samples were collected. The following is a summary of the sample results from this survey.

- Surface levels of lead were above the recommended guideline of 200 ug/ft² in the following location:
 - o Training Room Heater Top

Cleaning procedures should be improved so that no lead is detected on surfaces.

■ Air samples for lead were below the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit of 50 micrograms per cubic meter (ug/m³).

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. 98082EL). The light meter was last calibrated in April 2013. 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 (FC)	Recommended Lighting (FC)	Sufficient Lighting
Locker Room 13	41.8	7	Yes
Unit Storage	42.3	10	Yes
Drill Hall	30.7	10	Yes
Honor Guard Office Rear	35.1	30-50	Yes
Men's Latrine	9.4	5	Yes
Classroom 4	49.0	30-50	Yes
Exercise Room	76.7	30	Yes
Kitchen (Prep)	51.9	50	Yes
Corridor 6	89.2	5	Yes
Boiler Room	37.7	30	Yes
Latrine	39.7	5	Yes
Corridor 15	31.9	5	Yes
Recruiting Office	63.2	30-50	Yes
Commander's Office	59.4	30-50	Yes
Honor Guard Office Front	84.7	30-50	Yes
Officer's Latrine	16.5	5	Yes
Lobby	32.9	10	Yes
Orderly Office	52.7	30-50	Yes

Table Notes:

- 1. FC = Foot Candles
- 2. **Bolded** results did not meet listed criteria

Source: ANSI/IESNA RP-7-01 Lighting Industrial Facilities and RP-1-04 Office Lighting.

The lighting level met the minimum recommended guidelines in all areas measured.

Section 5.0 Indoor Air Quality

Survey measurements were made for comfort parameters and ventilation (temperature, relative humidity, carbon dioxide, and carbon monoxide). The air quality measurements were collected using direct reading instrumentation for comfort parameters using a QTRAK IAQ Meter, Model 7565 (Serial #02041015). The IAQ Meter was last calibrated in August 2012.

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 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%.

The following table summarizes the measurements collected.

IAQ Assessment Summary

Location	Temperature (°F)	Relative Humidity (%)	Carbon Dioxide (ppm)	Carbon Monoxide (ppm)
Outdoors	67.1	44.6	416	0.3
Honor Guard Office	72.3	42.3	481	1.0
Criteria	68-79	30-60	<1,116	<9

Table Notes:

May, 2018

- 1. **Bolded** results exceed listed criteria
- 2. **ppm** = parts per million
- 3. (%) = percent relative humidity
- 4. ${}^{\circ}\mathbf{F} = \text{degrees Fahrenheit}$

Sources: The American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) 55-2010, 62.1-2010, Environmental Protection Agency (EPA) National Ambient Air Quality Standard (NAAQS) & The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation.

Summary of findings and recommendations:

- Temperature measurements met the recommended 68-79°F in occupied areas.
- Relative humidity levels met the recommended guidelines in all areas measured.
- Carbon dioxide levels were measured to evaluate building ventilation or the introduction or outdoor air into the building. The recommended ceiling is obtained by adding 700 ppm to the measured outdoor carbon dioxide level (700 ppm + 416 ppm for this survey). Carbon dioxide levels did not exceed the recommended ceiling of 1,116 ppm. This is an indication that outdoor air ventilation is adequate.
- Carbon monoxide levels measured were less than the recommended ceiling of 9 ppm. The recommended ceiling of 9 ppm referenced in the above table is the National Ambient Air Quality Standard for carbon monoxide
- A visual inspection was conducted throughout accessible portions of the facility to assess sources or pathways of factors potentially deleterious to IAQ. It was noted that the Drill Hall garage door was open while construction was in progress just outside the building. This allowed exhaust fumes and dust to enter the building. Perimeter doors should remain closed during construction.

Section 6.0 Suspect Asbestos Containing Building Materials

No suspect asbestos containing material (ACM) was noted at the time of this survey:

Inaccessible areas such as behind walls or crawlspaces were not inspected. ACM could potentially be present in these areas.

Section 7.0 Equipment

The following equipment was utilized during this survey. All sampling equipment was properly calibrated prior to use and verified for accuracy as applicable. See daily reports and calibrations logs for detailed information.

Equipment	Serial #	Calibration Date	Value
TSI QTrak IAQ Meter	02041015	8/2012	NA
Cal Light 400 Light Meter	98082EL	4/2013	NA
TSI 4199 Calibrator	41460827002	8/2012	NA
SKC Air Sampling Pump	647631	5/16/13	3.02 LPM
SKC Air Sampling Pump	647971	5/16/13	2.99 LPM

Section 8.0 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 Compliance Management International, Inc. 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.

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CERTIFICATE OF ANALYSIS



LAB #100470

Client:

National Guard Bureau

Job Name:

ARNG 4h NH

Chain Of Custody:

515944

Address:

301-JH Old Bay Lane, Attn: ARNG-CJG-P,

Job Location:

Franklin

Date Submitted:

5/21/2013

State Military Reservation

Job Number:

Not Provided

Person Submitting:

Non-Responsive

Havre de Grace, Maryland 21078

P.O. Number:

110111011404

W912K6-09-A-0003

Date Analyzed:

5/28/2013

Report Date: 5/29/2013

Attention:

Non-Responsive

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)	57 6 75 K 19	porting Limit	Total ug	Final Res	sult	Comments
13064485	1	Flame	Air	408	N/A	7.4	ug/m³	<3	<7.4	ug/m³	
13064486	2	Flame	Air	404	N/A	7.4	ug/m³	<3	<7.4	ug/m³	
13064487	3	Flame	Air Blank	0	N/A	3	ug/m³		<3	ug	
13064488	4	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
13064489	5	Flame	Wipe	***	0.108	110	ug/ft²	<12	<110	ug/fl²	
13064490	6	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/N²	
13064491	7	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
13064492	8	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
13064493	9	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
13064494	10	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
13064495	11	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
13064496	12	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
13064497	13	Flame	Wipe	****	0.108	110	ug/ft²	99	920	ug/ft²	
13064498	14	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
13064499	15	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
13064500	16	Flame	Wipe Blank	****	N/A	12	ug		<12	ug	

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. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AIHA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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CERTIFICATE OF ANALYSIS



LAB #100470

Client:

National Guard Bureau

Job Name:

ARNG 4h NH

Chain Of Custody:

515944

Address:

301-IH Old Bay Lane, Attn: ARNG-CJG-P,

Job Location:

Franklin

Date Submitted:

5/21/2013

State Military Reservation

Job Number:

Not Provided

Person Submitting:

Havre de Grace, Maryland 21078

P.O. Number:

W912K6-09-A-0003

Date Analyzed:

5/28/2013

Report Date: 5/29/2013

Attention:

Summary of Atomic Absorption Analysis for Lead

Page 2 of 2

AMA Sample

Client Sample

Analysis Type

Sample Type

Air Volume (L)

Area Wined (ft2)

Reporting

Total ug

associated with these

samples.

Final Result

Comments

Number

Number

Limit

See QC Summary for analytical results of quality control samples

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 %Pb = percent lead on a dry weight basis

ug = micrograms

mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm) 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.

Technical Manager:

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. This report must not be used to claim, and does not imply product certification, approval. or endorsement by NY ELAP, A1HA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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Appendix B. Photographs



Franklin Armory

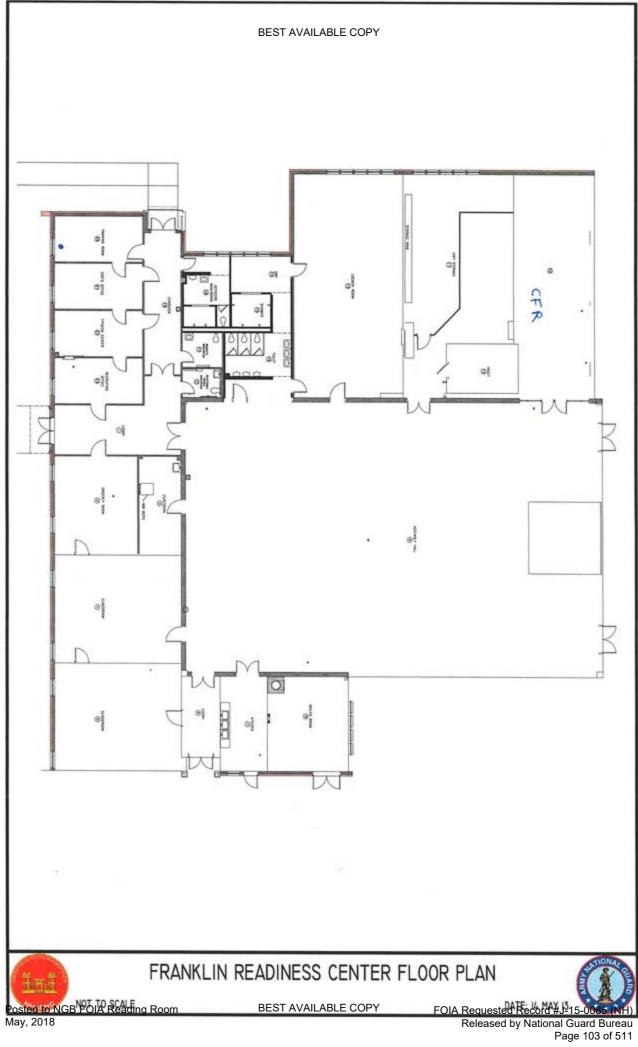


Drill Hall



Converted Firing Range- Now Honor Guard Office

Appendix C. Floor Plan



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 National Standards Institute/Illuminating Engineering Society of North America (ANSI)/American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), 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. National Ambient Air Quality Standards (NAAQS) National primary ambient air quality standards for carbon monoxide 40 CFR 50.8.
- 9. Environmental Protection Agency (EPA) standards [40 Code of Federal Regulations (CFR) 745.227 (h) (3)].
- 10. Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM).
- 11. The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation, February 2002.
- 12. NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 Nov 06.
- 13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), Thermal Environmental Conditions for Human Occupancy, 55-2010.

URS

Prepared For:

National Guard Bureau Army National Guard Region North Industrial Hygiene Office 301 – IH Old Bay Lane Havre De Grace, Maryland 21078

Prepared By:

URS Corporation 5 Industrial Way Salem, New Hampshire 03079

FINAL INDUSTRIAL HYGIENE SURVEY REPORT LANCASTER READINESS CENTER LANCASTER, NEW HAMPSHIRE

July 2006 PN: 39741509





Project Manager

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385-15 30 December 2002)

FINDINGS AND RECOMMENDATIONS

Findings	Recommendation	Risk Assessment Code
Ergonomics		
Several ergonomic issues were observed in this area. Chairs with adjustable arms should be used at the computer workstations because they can be adjusted to fit the worker, making them more comfortable. Computer monitors could not be adjusted for different individuals working at the workstations.	Correct ergonomic issues with the desks, chairs and monitors by redesigning the equipment or worksite to fit the limitations and capabilities of workers (Department of the Army Pamphlet 40-21, Chapter 4, Page 7, Section 4-3)	RAC 4
Fire Exits		
The fire exit in the kitchen is narrow because of the refrigerator and a table holding a microwave is creating an exit path of only 23 inches wide, instead of the required 28 inches or more.	Recommend finding a new place for the table and microwave to create the wider path to exit from (OSHA 29 CFR 1910.36(g)(2))	RAC 3
Lighting		
Lighting throughout administrative areas was inadequate	Increase lighting in the administrative areas. White work is in progress, offices, facilities, access ways, working areas, etc., shall be lighted by at least the minimum light intensities. URS suggests the use of task lighting. (ANSI/IESNA RP-01-04 American National Standard Practice for Office Lighting)	RAC 4
Ashestos		
Spot damaged asbestos- containing floor tile observed throughout	Remove and replace damaged asbestos-containing floor tile. Work should be completed by personnel trained in accordance with federal regulations (OSHA 29 CFR 1910.1001(k)(1))	RAC 3

FINDINGS AND RECOMMENDATIONS (Continued)

Findings	Recommendation	Risk Assessment Code
Asbestos (Cont) There are some exposed pipe insulation ends in the kitchen, janitor's closet and a storage room (#5) that need to be repaired. The Drill Hall has asbestos pipe covering that has some damaged fittings, splits where sections come together and puncture holes throughout	Repair and seal damaged asbestos- containing pipe insulation and asbestos-containing pipe insulation with exposed ends. Work should be completed by personnel trained in accordance with federal regulations (OSHA 29 CFR 1910.1001)	RAC 3
the area which need to be repaired. No site specific written asbestos management plan was available on site. No training records were found on site.	Develop a site specific written asbestos operation and maintenance plan to manage asbestos-containing materials by labeling of asbestos (OSHA 29 CFR 1910.1001 (j)(4)); employee information and training (OSHA 29 CFR 1910.1001 (j)(7)); housekeeping (OSHA 29 CFR 1910.1001 (k)); medical surveillance (OSHA 29 CFR 1910.1001 (l)(1)); record keeping (OSHA 29 CFR 1910.1001 (m)(1))	RAC 3
URS also found several bottles in the janitor's that were not	Label all secondary containors unless intended for immediate use	RAC 4
labeled. No site specific written safety program was found regarding hazard communications. No training records were found on site.	(OSHA 1910.1200 (f)(4)) Develop a site-specific hazard communication plan to manage the storage and use of hazardous materials at the site (OSHA 29 CFR 1910.1200 (e))	RAC 4
Lead The former firing range was found to contain lead levels in the dust which exceed the maximum limit of 200 μg/ft² set by the NGB Region North Industrial Hygiene Office (see Appendix G).	Personnel trained in accordance with the OSHA Lead Standard should clean the former firing range where lead was detected in quantities of greater than 200 micrograms per square foot (OSHA 29 CFR 1910.1025 (e)(1)(i))	RAC 3

FINDINGS AND RECOMMENDATIONS (Continued)

Findings	Recommendation	Risk Assessment Code
Electrical		
The electrical panels in the boiler room were obstructed	Access to electrical control panels must be unobstructed (OSHA 29 CFR1910.303(g)(iv))	RAC 4

1.0 SUMMARY

At the request of the National Guard Bureau (NGB) Region North Industrial Hygiene Office, URS Corporation (URS) conducted an industrial hygiene survey at the Readiness Center located on 532 Main Street in Lancaster, New Hampshire 03584. This report includes an executive summary and a discussion of the survey evaluation and findings and a list of conclusions and recommendations.

On December 3, 2003, Mr. Non-Responsive an industrial hygienist with URS, conducted the site visit to the Lancaster Readiness Center. The purpose of this site visit was to conduct an industrial hygiene survey, which included the collection of air samples, bulk samples, light measurements and a review of site health and safety procedures. SSG Non-Responsive of the New Hampshire ARNG was Mr. Non-Responsive site contact for this survey.

A shop layout drawing of the facility, which shows the locations where measurements were made during this survey, is contained in Appendix A. The risk assessment codes associated with this project are contained in Table 1.

Lead wipe samples held at URS Corporation will be analyzed and results will be provided in a supplemental letter report.

July 10, 2006

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2.0 ADMINISTRATIVE AREA

2.1 Operation Description

This building area contains multiple offices with desks and computer workstations. This area also includes the kitchen, classroom, janitor's closet, locker room, shower room and supply area. Several ergonomic issues were observed in this area (Photo # 2814). Chairs with adjustable arms should be used at the computer workstations because they can be adjusted to fit the worker, making them more comfortable. Computer monitors could not be adjusted for different individuals working at the workstations. If more than one person is using a workstation, then proper adjustments need to be made to accommodate each individual.

2.2 Chemical and Physical Agents Sampled

2.2.1 Carbon Dioxide

On the day of the survey, carbon dioxide measurements were made at various locations throughout the Readiness Center. Carbon dioxide concentrations ranged from 378 to 574 parts per million (ppm), with an average of 496 ppm. Carbon dioxide levels were measured using a direct reading TSI Q-Track (Model 8551).

Carbon dioxide is a normal constituent of the atmosphere and ranges from about 250 to 450 ppm. The major source of excess carbon dioxide in the indoor environment is people. Other sources can include open-flame heaters, fermentation processes, and motor vehicles. Carbon dioxide itself is not normally a cause of indoor air quality problems because concentrations must exceed 5,000 to 10,000 ppm before health effects such as headache, drowsiness, and increased respiration are noted. Typically, carbon dioxide is used as an indicator of the adequacy of fresh air intake. As the concentration of carbon dioxido increases, so do the background levels of other air contaminants.

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2.2.2 Carbon Monoxide

Carbon monoxide was also measured in the Readiness Center. Carbon monoxide concentrations remained at 0 parts per million (ppm). Therefore carbon monoxide levels were below the ASHRAE guideline for indoor environments. Carbon monoxide was measured using a TSI Q-Track (Model 8551).

Key sources of carbon monoxide within indoor environments include internal combustion engines, motor vehicle and forklift exhaust, tobacco smoke, space heaters, and improperly adjusted oil or gas burners. Health effects from exposure to elevated concentrations of carbon monoxide may include fatigue, impairment of visual acuity, irregular heartbeat, headache, nausea, and confusion. ASHRAE recommends that average carbon monoxide concentrations not exceed 9 ppm. Typical average concentrations found in commercial buildings range from 0 to 6 ppm.

2.2.3 Lighting

Lighting in the administrative area was measured using a Sper Scientific Ltd. Light Meter (Model 840020C). Table 2-1 below shows lighting measurements and the recommended lighting requirements ANSI / IESNA RP -1-04 American National Standard Practice for Office Lighting - Table B-1).

Table 2-1
Lighting Measurements and Recommended Lighting Requirements

Location	Function	Measured Illuminance (foot candles)	Recommended Minimum Illuminance (foot candles)
CDR's Office # 1 Desk 1	Administrative Duties	56	50
CDR's Office # 1 Desk 2	Administrative Duties	31	50
AST Room # 2	Administrative Duties	71	50
AST Room # 2	Administrative Duties	50	50
Library # 3 Desk 1	Administrative Duties	8	50
Library # 3 Desk 2	Administrative Duties	20	50
Classroom #19	Administrative Duties	29	50
Kitchen # 6	Food Preparation	24	50

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On the day of the survey the illuminance in the administrative area was inadequate in most offices.

2.2.4 Asbestos

Bulk samples of damaged suspect asbestos-containing materials (ACM) were collected in the administrative area for a determination of asbestos content. Analytical procedures were performed in accordance with the U.S. Environmental Protection Agency (EPA) Recommended Method for the Determination of Asbestos in Bulk Samples by Polarized Light Microscopy and Dispersion Staining (PLM/DS)(EPA-600/M4-82-020. EPA-600/R-93-116). Table 2-2 below presents the results of the sample analysis. Table 2-2 below shows the results of the samples.

Table 2-2 Sample Results of Suspect ACM

Location Of ACM Sample Taken	Material Sampled	AMA Sample Number	URS Sample Number	Total Asbestos (%)
FDC Room # 15	9"x9" Floor Tife/Mastic	0412857	1203-02A	4 (chrysotile)
FDC Room # 15	9"x9" Floor Tile/Mastic	0412858	1203-02B	4 (chrysotile)
FDC Room # 15	9"x9" Floor Tile/Mastic	0412859	1203-02C	3 (chrysotile)

The U. S. Environmental Protection Agency (EPA) states that any material with greater than 1% asbestos must be treated as ACM (U.S. EPA, Title 40 CFR Part 763.87 (c)(2)). The analytical report from AMA Analytical Services, Inc. is contained in Appendix D.

2.3 Ventilation System Evaluation

Not applicable to this operation.

2.4 Noise Measurements

Not applicable to this operation.

2.5 Personal Protective Equipment

Not applicable to this operation.

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2.6 Interpretation of Results

EMERGENCY EXITS: The fire exit in the kitchen is narrow because of the refrigerator and a table holding a microwave are creating an exit path of only 23 inches wide, instead of the required 28 inches or more (Photo #2797). Recommend finding a new place for the table and microwave to create the wider path to exit from.

<u>LIGHTING</u>: It is recommended that the lighting in the administrative areas be increased. While work is in progress, the administrative area should be lighted by at least the minimum light intensities (indicated in Table 2-1). URS suggests the use of task lighting

ASBESTOS: The floor tite that was found throughout this area was determined to contain asbestos. It is recommended that the damaged tile be replaced with new, non-asbestos tile, by an appropriately trained technician. There are some exposed pipe insulation ends in the kitchen (#6), janitor's closet (#18) and a storage room (#5) that need to be repaired (Photos # 2798, 2796 and 2804 respectively).

<u>HAZARD COMMUNICATION:</u> URS also found several bottles in the janitor's that were not labeled, which need to be (Photo # 2794)

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3.0 FORMER FIRING RANGE

3.1 Operation Description

The firing range has been dismantled and is now primarily used for storage.

3.2 Chemical and Physical Agents Sampled

3.2.1 Lead

Wipe testing for lead was conducted in the former firing range using ghost wipes, which meet ASTM E 1792 standards. Table 3-1 below shows the results of the lead wipe testing.

Table 3-1
Levels of Lead Dust Found in the Facility

Location Of Wipe Taken	URS Sample Number	Area Wiped (ft²)	Result (μg/ft²)	Maximum Surface Contamination Level (µg/ft²)
Firing Range-Floor/Front	1203-LW6	1.000	200	200
Firing Range-Floor/Center	1203-LW7	1.000	9500	200
Firing Range-Floor/Rear	1203-LW8	1.000	3100	200
Firing Range-File Cabinet	1203-LW9	1.000	150	200
Firing Range-Light Fixture	1203- LW10	1.042	2700	200
Blank	1203- Blank1	N/A	<12 μg	N/A

One air sample for lead was collected in the former firing range. Table 3-2 below shows the results of the lead air sample.

Table 3-2
Airborne Lead Concentration

Location Of Air Sample Taken	URS Sample Number	Air Volume (L)	Result (μg/m³)	OSHA's PEL (μg/m³)
Former Firling Range	1203-AA01	1096	<2.7	50.0
Air Blank	1203-Blank AA	N/A	<3.0 μg	N/A

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On the day of the survey, the airborne lead concentration in the former firing range was found to be acceptable, below OSHA's permissible exposure limit (PEL) for lead (29 CFR 1910,10259(c)) of 50.0 μg/m³ averaged over an 8-hour day.

3.3 Ventilation System Evaluation

Not applicable to this operation.

3.4 Noise Measurements

Not applicable to this operation.

3.5 Personal Protective Equipment

Not applicable to this operation.

3.6 Interpretation of Results

LEAD: The former firing range was found to contain lead levels in the dust which exceed the maximum limit of 200 μg/ft² set by the NGB Region North Industrial Hygiene Office (see Appendix G). Recommend cleaning the lead dust by an appropriately licensed contractor. Guidelines for the cleanup and rehabilitation of indoor firing ranges are included in Appendix H.

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4.0 DRILL HALL

4.1 Operation Description

A 7,500 square foot area with a roughly 30 foot high ceiling, used for assembling personnel and storing vehicles. The walls are constructed of cinder blocks with a concrete floor.

4.2 Chemical and Physical Agents Sampled

4.2.1 Lead

Wipe testing for lead was conducted in the drill half using ghost wipes, which meet ASTM E 1792 standards. Table 4-1 below shows the results of the lead testing.

Table 4-1 Levels of Lead Dust Found in the Facility

Location Of Wipe Taken	URS Sample Number	Area Wiped (ft²)	Result (μg/ft²)	Maximum Surface Contamination Level (µg/ft²)
Drill Hall-Floor #8	1203-LW1	1.000	<12	200
Drill Hall-Floor #8	1203-LW2	1.000	29	200
Drill Hall-Floor #8	1203-LW3	1.000	<12	200
Drill Hall-Floor #8	1203-LW4	1.000	<12	200
Drill Hall-Floor #8	1203-LW5	1.000	<12	200
Blank	1203- Blank1	N/A	<12 μg	N/A

An air sample for lead was collected in the drill hall. Table 4-2 below shows the result of the lead air sample.

Table 4-2 Airborne Lead Concentrations

Location Of Air Sample Taken	URS Sample Number	Air Volume (L')	Result (μg/m³)	OSHA's PEL(μg/m³)
DRILL HALL#8	1203-AA02	1092	<2.7	50.0
BLANK	1203-BlankAA	0	<3.0	50.0

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On the day of the survey, the airborne concentration of lead dust in this building area was found to be below the OSHA's PEL (29 CFR 1910.1025(c)) of 50.0 μ g/m³ averaged over an 8-hour day.

4.3 Ventilation System Evaluation

Not applicable to this operation.

4.4 Noise Measurements

Not applicable to this operation.

4.5 Personal Protective Equipment

Not applicable to this operation.

4.6 Interpretation of Results

<u>LEAD</u>: Both the air and wipe samples collected in the drill hall for lead were found to be within the acceptable limits and require no further action at this time.

ASBESTOS: The asbestos pipe covering has some damaged fittings, splits where sections come together and puncture holes throughout the area which need to be repaired (Photos # 2800-2802). The repairs need to be made by an appropriately trained technician.

July 10, 2006

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5.0 BOILER ROOM

5.1 Operation Description

A mechanical room constructed of cinder block walls with a concrete floor, containing a furnace with associated piping.

5,2 Chemical and Physical Agents Sampled

5.2.1 Asbestos

Bulk samples of suspect asbestos-containing materials (ACM) were collected in the boiler room from materials that were exposed for a determination of asbestos content. Analytical procedures were performed in accordance with the U.S. Environmental Protection Agency (EPA) Recommended Method for the Determination of Asbestos in Bulk Samples by Polarized Light Microscopy and Dispersion Staining (PLM/DS)(EPA-600/M4-82-020. EPA-600/R-93-116). Table 5-1 below shows the results of the samples.

Table 5-1
Sample Results of Suspect ACM

Location Of ACM Sample Taken	Material Sampled	URS Sample Number	Total Asbestos (%)
Boiler Room # 7	Air Cell Pipe Insulation	1203-01A_	55 (chrysotile)
Boiler Room # 7	Air Cell Pipe Insulation	1203-01B	85 (chrysotile)
Boiler Room # 7	Air Cell Pipe Insulation	1203-01C	55 (chrysotile)

The U. S. Environmental Protection Agency (EPA) states that any material with greater than 1% asbestos must be treated as ACM (U.S. EPA, Title 40 CFR Part 763.87 (c)(2)). The analytical report from AMA Analytical Services, Inc. is contained in Appendix D. Mr. Hazzard's asbestos inspector training certificate is provided in Appendix E.

One air sample was collected in the boller room to determine the background airborne fiber concentration in this area. The air sample was collected according to guidelines set forth in the National Institute for Occupational Safety and Health (NIOSH) Manual of Analytical Methods, Method 7400. AMA, using Phase Contrast Microscopy (PCM) in

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accordance with the NIOSH Method 7400, analyzed the air sample. Table 5-2 below shows the result of the air sample.

Table 5-2
Airborne Fiber Concentration

Location Of Sample Taken	URS Sample Number	Volume (Liters)	Results: Fibers Per Cubic Centimeter (f/cc)	OSHA PEL (f/cc)
Boiler Room #7	1203-ASB01	255	<0.011	0.1

The analytical result of the air sample was determined to be below the detection limit of the NiOSH 7400 method.

5.3 Ventilation System Evaluation

Not applicable to this operation.

5.4 Noise Measurements

Not applicable to this operation.

5.5 Personal Protective Equipment

Not applicable to this operation.

5.6 Interpretation of Results

<u>ASBESTOS:</u> The only issue concern identified in this area was the condition of the pipe insulation (Photo # 2783). There were numerous exposed ends that could cause asbestos fibers to be released into the air. The exposed ends and punctures need to be repaired by an appropriately trained technician.

<u>ELECTRICAL</u>: The electrical panels need to be maintained in an easily accessible condition with no obstructions placed in front of them (Photo # 2785).

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6.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS

The only safety manual found at this site consisted primarily of accident investigation

reports and legal aspects of safety. A three ring binder was reviewed at the time of the

IH survey that contained all pertinent documents... However, this document was

determined to be a course manual that was written by Alamo Safety Organization for

the Army National Guard 1st Line Supervisors and was generic in nature and not site

specific. This manual is a good tool, which could be used to help write the site's actual

safety program.

6.1 Confined Spaces

No site-specific written safety program was found regarding confined spaces.

training records were found on site. A written confined spaces program is not required

for this site.

6.2 Hearing Conservation

No site specific written safety program was found regarding hearing conservation. No

training records were found on site. A written hearing conservation is not required for

this site.

6.3 Respiratory Protection

No site specific written safety program was found regarding Respiratory Protection. No

training records were found on site. A written respiratory protection program is not

required for this site.

6.4 HAZCOM

No site specific written safety program was found regarding hazard communications.

No training records were found on site. A site specific written hazard communication

plan is required for this site.

July 10, 2006

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6.5 Personal Protective Equipment

No site specific written safety program was found regarding personal protective equipment. No training records were found on site. A written respiratory protection program is not required for this site.

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7.0 REFERENCES

American National Standards Institute

ANSI/ESNA RP-1-04: American National Standard Practice for Office Lighting

American Society of Heating Refrigerating and Air-Conditioning Engineers

ANSI/ASHRAE Standard 62-2001: Ventilation for Acceptable Indoor Air Quality

Department of the Army

Ergonomics Program Pamphlet 40-21 (15 August 2003)

Policy and Responsibilities For Inspection, Evaluation and Operation of Army National Guard Indoor Firing Ranges (National Guard Regulation 385-15 30 December 2002)

Department of Defense

DoD Hearing Conservation Program Standard 6055.12 April 1996

Creating an Ideal Workstation: A Step-by-Step Guide

U. S. Environmental Protection Agency

Asbestos Hazard Emergency Response Act (40 CFR Part 763)

National Emissions Standards for Hazardous Pollutants (40 CFR Part 61)

U. S. Housing and Urban Development

Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (1995, 1997)

U. S. Occupational Safety and Health Administration

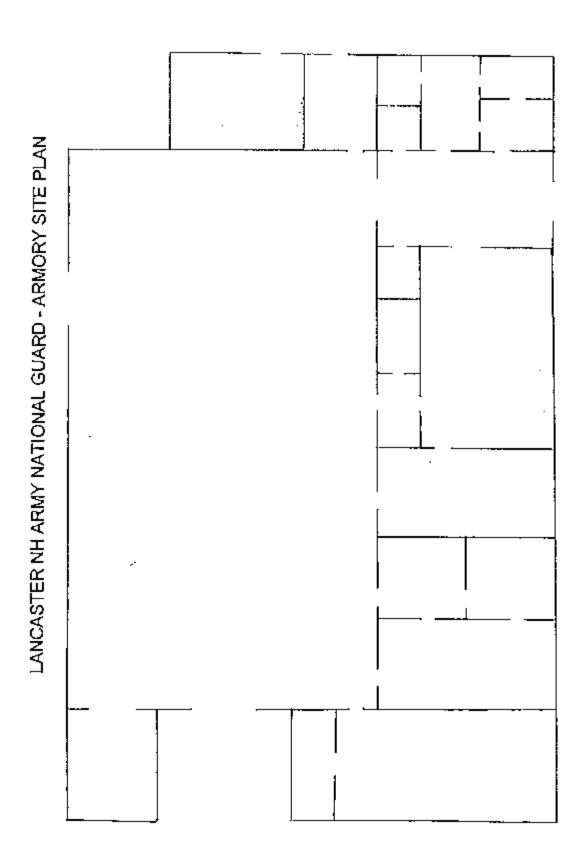
Standard for General Industry: 29 CFR 1910

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APPENDIX A READINESS CENTER DRAWING

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APPENDIX B

PERSONNEL LIST

PERSONNEL LIST

LANCASTER READINESS CENTER

NAME	RANK
Non-Responsive	SSG



APPENDIX C HAZARDOUS MATERIALS LIST

DET 1 BTRY A 2D BN 197TH FA 532 MAIN STREET LANCASTER, NH 03584-9610

3 September 2002

HAZARDOUS CHEMICAL INVENTORY Yellow Locker Number 1

Nomenclature Graphite	NSN 9620-00-180-6712	Unit of issue	Qty 1
Waterless Grease (WTR)	9150-00-145-0268	5 LB	4
Compound, Windshield	6850-00-926-2275	16 OZ	0
Dry Cleaning Solvent	6850-00-281-1985	GAL	1
Anti Freeze	6850-01-441-3218	GAL	1
Waterless Grease	9150-00-935-5851	35 LB	1
CLP	1025-01-053-6688	GAL	3
Canvas Pres. Coating	8030-00-664-4944	GAL	9
Propane	6830-00-584-3044	14 OZ	13

Inventory Performed By:

Non-Responsive

DET 1 BTRY A 2D BN 197TH FA 532 MAIN STREET LANCASTER, NH 03584-9610

3 September 2002

HAZARDOUS CHEMICAL INVENTORY Yellow Locker Number 2, Sheet 2 of 2

Nomenclature	NSN	Unit of Issue	QTY
OE HDO 10W Oil	9150-01-177-3988	, QT	April 9
Laundry Soap	No NSN	GAL	1
Paint Thinner	8010-00-558-7026	5 OAL	1
Inhibitor, Fuel Additive	6850-00-753-5061	5 GAL	1
CLP	9150-01-053-6688	GAL ''	5
Preservative Coating	8030-00-664-4944	GAL	7
Gasoline	No NSN	GAL	1

Inventory Performed By:

Gasoline

DET 1 BTRY A 2D BN 197TH FA 532 MAIN STREET LANCASTER, NH 03584-9610

3 September 2002

HAZARDOUS CHEMICAL INVENTORY Yellow Locker Number 2 With Cont. Sheet

Nomenclature	NSN	Unit of Issue	Qty
Water Reagent	6810-00-682-6867	GAL	2
Silicone, Brake Fluid	9150-01-102-9455	GAL	2
Adhesive, Cement	8040-00-264-3848	8 OZ	5
Corrosive Preventative	8030-00-546-8637	16 OZ	1
Contact Cement	No NSN	PT	1
Cleaning Compound, Optical	6850-00-227-1887	QT	1
Waterless Hand Cleaner	8520-00-082-2146	LB	0
Solid Film Lube	9150-00-823-7860	16 OZ	5
Inhibitor, Corrosión	6850-00-368-5233	LB	2
Quick Stagt, Ether	2910-00-646-9727	32 OZ	3
OE HDO 10 W Oil	9150-01-177-3988	GAL	3
HTO Oil	9150-00-935-9807	QT	3
Methanol	6810-00-597-3608	GAL	1
15W40 Oil	9150-01-421-1427	QT	1
Dextron III Oil	9150-01-353-4799	QT	6

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Inventory Performed By:

DET 1 BTRY A 2D BN 197th FA 532 MAIN STREET LANCASTER, NH 03584-9610

3 September 2002

HAZARDOUS CHEMICAL INVENTORY Yellow Locker Number 3

NOMENCLATURE	NSN	UNIT OF ISSUE	QTY
Paint, Blue Spray	No NSN	16 OZ	1
Paint, OD Spray	8010-00-848-9272	16 OZ	6
Paint, Black Spray	8010-00-582-5382	3 OZ	4
Paint, Met. Aluminum	No NSN	QT	1
Paint, Brown	8010-00-598-5460	.dr .,	3
Paint, Black	8010-00-297-0547	GL	1
Paint, OD	8010-00-597-7862	GL	2
Paint, White	8010-01-333-7762	GL	1
Paint, Thinner	8010-01-441-5940	GL	4
Paint, Yellow Spray	No NSN	12 OZ	1
Paint, Brass Spray	No NSN	11.5 OZ	1

Inventory Performed By

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APPENDIX D ANALYTICAL RESULTS

CERTIFICATE OF ANALYSIS AMA Analytical Services, Inc. A Specialized Environmental Laboratory

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12/15/2003 15-Dec-03 121112 Chain Of Custody: Person Submitting: Date Analyzed: Report Date: Lancaster, NH Not Provided Not Provided Armony Job Location: P.O. Number: Job Number: Job Name: Salem, New Hampshire 03079-2830 URS Corporation 5 Industrial Way Attention: Address: Client:

Page 1 of 2

Summary of Atomic Absorption Analysis for Lead

4475 Forbes Blvd. • Lanham, MD 20706 • (301) 459-2640 • Toll Free (600) 346-0961 • Fax (301) 459-2643 An AIHA (#8863), NVLAP (# 101143), & New York ELAP (#10920) Accredited Laboratory

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

MYELAP NY ELAP ¥ 7

CERTIFICATE OF ANALYSIS

Client:	URS Corporation	Job Name:	Armory	Chain Of Custody:	121112	
Address:	5 Industrial Way	Job Location:	Lancaster, NH	Date Analyzed:	12/15/2003	
	Salem, New Hampshire 03079-2830	Job Number:	Not Provided	Person Submitting:	Non-Re	
		P.O. Number:	Not Provided	Report Date:	15-Dec-03	
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Summary of Atomic Absorption Analysis for Lead

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Analyst:





DESTRUCTION OF STATE AND ADDRESS AND ADDRE 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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BEST AVAILABLE COPY

%Pb = percent lead by weight

N/A = Not Applicable

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7421; Water, SM-3113B Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7420; Water: SM-3111B

mg/Kg = parts per million (ppm) by weight mg/L = parts per million (ppm)

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.

ug = micrograms

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AMA Analytical Services, Inc.

CERTIFICATE OF ANALYSIS



A Specialized Environmental Laboratory

Client:	URS Corporation	
Address:	5 Industrial Way	
	Salem, New Hampshire 0307	0307
Attention:	Non-Re	

Armory	Lancaster, NH	Not Provided	Not Provided
Job Name:	Job Location:	Job Number:	P.O. Number:
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Chain Of Custody: 121112	rzed: 12/16/2003	Person Submitting:
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Summary of Phase Contrast Microscopy

AMA Sample Client Sample Volume Sampled Fibers Per Fibers Per Cubic Analyst I.D. Sample Type Number Cantimeter Centimeter Centimeter Squared



DESTRUCTION TO BE SET OF THE SET 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 Acceditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples.

4475 Forbes Blvd. • Lanham, MD 20706 • (301) 459-2640 • Toll Free (800) 346-0961 • Fax (301) 459-2643 An Alika (#8863), NVLAP (# 101143), & New York ELAP (#10920) Accredited Laboratory

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AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

Salem, New Hampshire 03079-2830 URS Corporation 5 Industrial Way Address: Client

Attention:

ted to NGB FOIA Reading Room

ZY ELAP Chain Of Custody:

CERTIFICATE OF ANALYSIS

Lancaster, NH Not Provided Not Provided Armony P.O. Number: Job Location: Job Number: Job Name:

Person Submitting: Date Analyzed:

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Page I of I

Summary of Polarized Light Microscopy

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The following footnotes only apply to those samples which the total ashestos result is flagged with a notenumber.

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 mace (<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



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 mace (<1%) for asbestos may contain a significant quantity of asbestos which is obscured from view. It is recommended that the additional preparation tocknique of gravimentic reduction be performed on this sample to minimize the contain a significant quantity of asbestos which is obscured from view. It is recommended that the additional preparation tocknique of gravimentic reduction be performed on this sample to minimize the contain a significant quantity of asbestos which is an additional properties of metrix components, followed by reamlysis by PLM and/or TEM.

Analysis Method - EPA/600R-93/116 dated July 1993

NAD = "No Asbestos Detected"

TR = "Trace equals less than 1% of this component"

DE E COPETION RECOMMENDATION - Proceedings of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Loboratories, and confliction protected and accepted for the exclusives and collection protected and accepted for the exclusives and collection protected and accepted for the exclusive and conflictions protected in the information protected in the discarded in accordance with the appropriate regulatory guidelines, males or otherwise requested by the pressured AMA knalytical Services, in containing and transmission electron microscopy of AHERA air samples.

An ATHA (#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

(Please Refer To This Number For Inquires)

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					ils will be provided as soon as technically feasible):) (QTY)	(X	(Qry)		(QTY)	CLIENT CONTACT	(LABORATORY STAFF ONLY)	Contact: Bv:		Contact: By:		Contact By:		N	on-R	espor	Isive
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APPENDIX E TRAINING CERTIFICATES



INSTITUTE FOR

ENVIRONMENTAL EDUCATION, INC.

16 Upton Drive, Wilmington, MA 01887

(978) 658-5272



This is to certify that

has completed the requisite training, and has passed an examination for reaccreditation as:

Asbestos Inspector Refresher

pursuant to Title II of the Toxic Substance Control Act, 15 U.S.C. 2646

April 11, 2003

Course Dates

Course Location

Institute for Environmental Education 16 Upton Drive

April 11, 2003

Examination Date

Wilmington, MA 01887

President/Director of Training

Expiration Date April 10, 2004

03518010625349





APPENDIX F
PHOTOGRAPHS

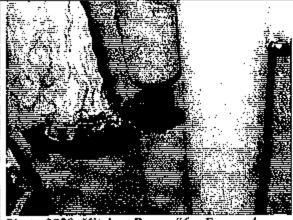


Photo 2798: Kitchen Room #6 - Exposed asbestos-containing pipe insulation ends

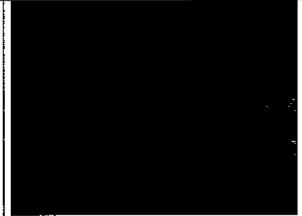


Photo 2800: Drill Hall - Asbestos-containing pipe insulation splitting apart



Photo 2801: Drill Hall - Asbestos-containing pipe insulation splitting apart

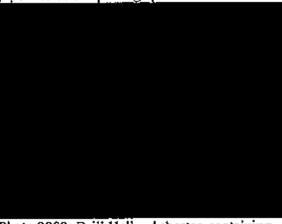


Photo 2802: Drill Hall - Asbestos-containing pipe insulation splitting apart

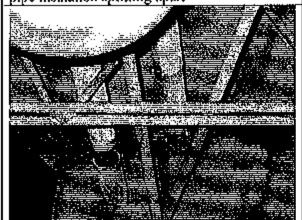
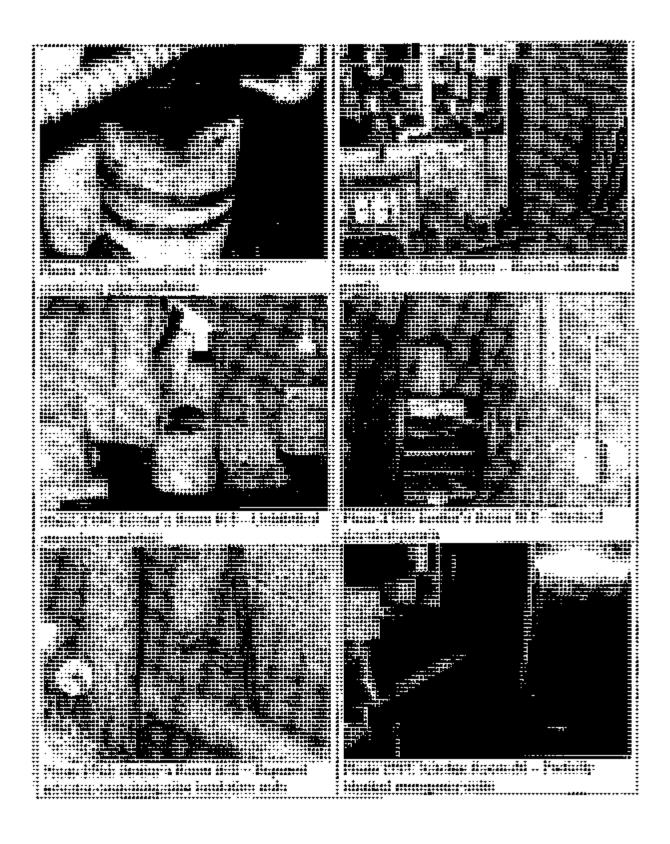


Photo 2804: Storage Room #5 - Exposed asbestos-containing pipe insulation ends



Photo 2814: Computer work station with a low monitor



APPENDIX G RECOMMENDATIONS FOR SURFACE LEAD DUST IN ARMORIES

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 ($\Box g/ft^2$). 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 μ g/ft²) and windowsills (250 μ g/ft²) 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 Lig/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.
- d. In a report titled Derivation of Wipe Surface Screaning Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that 200 $\Box g/ft^2$ 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 μ g/ft² on floors and 250 μ g/ft² 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/m³ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

APPENDIX H

POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES (NATIONAL GUARD REGULATION 385-15 30 DECEMBER 2002)

NGB-AV9-SG

SUBJECT: 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

ADDENDUM

GUIDELINES FOR IFR REHABILITATION, CONVERSION, AND CLEANING

CONTENTS (Listed by paragraph number)

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Appendices:

Appendix A - General Procedures for Collecting Wipe Samples

Appendix B - Sampling Strategy for Collection of Wipe Samples

Appendix C - Interpretation of Sample Results (Prior to Cleaning)

Appendix D - Interpretation of Sample Results (After Cleaning)

Appondix E - Recommended Sample Media and Containers

Appendix F - Examples of Computation of Lead Levels from Wipe Sample Results

Appendix G - Surface Wipe Sample Sheet

Appendix H - Air Sampling Sheet

Appendix I - Glossary

 This addendum establishes policy and procedures for rehabilitation, conversion, and cleaning of ARNG Indoor firing ranges.

References.

Rolated publications are listed below.

- a. DODI 6055.1 (Department of Defense Instruction, Occupational Safety and Health (OSH) Program).
- AR 11-34 (The Army Respiratory Protection Program).
- c. AR 40-5 (Proventive Medicine).
- d. NGR 385-15 Policy, Responsibilities, and Procedures for Inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges).
 - e. 29 Code of Federal Regulations (CFR), Part 1919, Occupational Safety and Health Standards
 - f. OSHA Technical Manual, Edition VII.
 - d. DHRW NIOSH 78-130 (Lead Exposure and Design Considerations for Indoor Firing Ranges).

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SUBJECT: 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

3. Explanation of Abbreviations and Terms

Abbroviations and special terms used in this publication are listed in the glossery.

4. Policy and Procedures

Conversion of Ranges, Indoor liding ranges can be safely rehabilitated or converted for other uses, such as a storage area, kitchen, or office space, provided the following –

2. Previously active ranges must be thoroughly decontaminated and cleaned to acceptable tevels.

b. The level of cleanliness is to be determined by sampling. The Occupational Safety and Health Administration's (OSHA) Technical Manual, ⁵⁰¹ Edition, provides guidance on the methods and techniques needed to collect wipe samples (Appendix A).

(1) Wipo samples must be collected and analyzed prior to and after cleaning.

(2) Post-clearing surface wipe sample results must be less than or equal to 200 micrograms per square feet (ug/sq ft). The sampling strategy, which is the amount end location of wipe samples to be collected, is provided in Appendix 8. Methods for interpreting the sample results are contained in Appendix C and D.

Equipment/items previously stored in the range must be decontaminated and cleaned to acceptable.

jevels.

(1) Samples must be collected from equipment/items stored in the range. Sample selection is critical, because the number of items stored and length of storage differs from range to range. The amount and location of the samples, should be representative of the areas where lead dust is most likely to accumulate. The more samples collected, the better the statistical comparison of the results.

(2) Samples must be collected from the smooth surfaces of the equipment/froms, in so much as possible. Results of samples collected from a rough surface will be inaccurate due to the misimal and accordant of the media. Further, the likelihood of teering the media filter is greater on rough surfaces.

(3) Samples should also be collected on items stored the longest period of time, and which have not been disturbed. Items stored closest to the builtet trap and filing time are likely to have higher concontrations of lead dust. Methods for interpreting the sample results are contained in Appendix C and D.

Goal

To ensure every indoor firing range is free of lead dust, and to reduce the number of unsafe ARNG indoor firing ranges.

Buckground

The Environmental Protection Agency (EPA) identifies lead as a highly toxic metal. Elemental lead is indestructible, and common in the environment. Lead can enter the body by inhetation (breathing) or ingestion (eating). In addition, lead is a cumulative poison. It accumulates in the blood, bones, and organs, including the kidneys, brain and liver. Effects include nervous and reproductive system disorders, delays in neurological and physical development, cognitive and behavioral changes, and hypertension. Symptoms include loss of apportio, difficulty algoring, irritability, fatigue, headache, and inability to concentrate. It can stay in the bones for decades. Worker awareness and training are important to ensure that emptoyees can recognize the symptoms of exposure and get prompt medical attention.

7. Wipe Sample Media

a. OSHA Technical Manual provides the necessary guidance on the technique needed to collect wipe samples (Appondix A). Only distilled or defonized water will be used to saturate dry sample modia. At least one field blank filler must be submitted with each sample shoot. The field blank must be from the same lot, and labeled as a blank on the sample sheet. Appendix E identifies how and where to obtain sample media. Use the following goldance for determining media acceptability.

(1) Acceptable Media consists of --

(a) Ghost Wipes M (PREFERRED METHOD)- Pre moisiened

(b) Thirty-seven (37) millimeters (mm) mixed collulose eater (MCE) filters, with or without the cassettes.

以正式的自由性的空间间的创作和自由工作的可能的的问题的证明,

8UBJECT: 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

- (2) Unacceptable Media consists of but is not limited to --
 - (a) Cotton balls
 - (b) Baby wipes or wat wipes
- b. Documentation of Sample Collection. A Surface Wipe Sample Sheet must be completed and submitted with samples to your supporting faboratory. A copy of this form is located in Appendix G. Refer to Appendix A on how to collect wipe samples.
- Wipo Sampling Protocol See Appendix A.

9. Ranges Cleaning instructions

- a. Written procedures, such as a scope of work, or Standing Operating Procedure (SOP) that compiles with all federal, state and local regulations arost to established prior to decontamination operations. The range ventifation system will be in operation during range cleaning to ensure that a negative pressure environment is maintained. In the absence of modification ventilation system, all doors and windows will be sealed to eliminate fugitive emissions. A High Efficiency Particulate Air (HEPA) filtered vacuum system is the preferred method of cleanup followed by wet wiping of the range. The HEPA vacuum is designed to collect loose surface load dust particles.
- b. Any general purpose cleaning solution can be used. However, Spic and Span™ has been found to be an effective cleaning solution by other Army organizations. Mix new solutions of cleaning solution frequency. Wat wiging will require dual containers of water; one container for wetting the applicator (mope, rags, sponge, etc.) and the other container for riesing the applicator after the dost has been wiped from the surfaces. When placed in containers, wastewater should be left to evaporate.
- PROPERLY DISPOSE OF ALL HAZARDOUS WASTE. DO NOT PLACE LEAD CONTAMINATED WASTE INTO THE SEWER SYSTEM OR ONTO THE GROUND.
 - d. Mop-heads, sponges and rags will be discarded as hexardous waste following cloenup.
- Wet cleaning by a high-pressure system is prohibited, as this method may embed the lead into the substratum and generale large quantities of unwanted hazardous waste.
 - f. Dry sweeping is not parmitted.
- g. All surface areas of the range must be cleaned. On not remove the ceating on smooth painted surfaces that are properly scaled.
- h. Wood floors should receive a cost of dock anamet or urethans; concrete floors should be sosted
 with deck enamel and lineform or tife floors should be woxed.
- I. A progression of cleaning from top to bottom and from behind the steel backstop to the firing line should be used. After removing the sand, if applicable, and the steel backstop, areas in front of and behind the builet trap along with the steel backstop plate(s) should be cleaned. Next, clean the ceiling, lights, baifies, retrieval system, heating system(s), and ventilation duct(s). Acoustical material should be vacuumed and removed rather than painted over.
- j. A Toxte Characteristic Leaching Procedures (TCLP) lost for fead only may need to be performed on the acoustical material. A TCLP test will determine if the material is classified as "hazardous" and can be disposed of in a sanitary landfilt. Contact your State Environmental Office for assistance before arranging for this laboratory testing. The floor should be the last surface cleaned, starting at the bullet frap and anding behind the firing line.
- k. After wet wiping all surfaces, permit the area to dry. Vacuum all surface areas until no dust or residue can be seen using the HEPA.
- I. A thorough visual inspection to detect dust should be made following cleanup and prior to collecting post surface wipe samples.
- m. As a variety of conditions exist in ranges, unique situation may arise and specific written guidance from your Regional Industrial Hygiene Office may be required.
- 10. Cleaning Stored Contaminated Equipment
- a. Equipment contaminated (sample result is higher than 200 micrograms/sq ft) with fead dust must be decontaminated before it is removed from the range.

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- b. Equipment located near the buttet trap and tiring line should be cleaned first and then removed. The cleaning method depends on the size of the equipment and the material it is comprised of, i.e. metal, wood, concrete, porus, non-porus, smooth or rough finish etc. However, either HEPA vacuum or the wet wipe method will be used. Refer to paragraph 9 for additional guidance.
- c. Every attempt should be made to cloan and roclaim items since disposing of equipment, as hazardous waste is costly and wasteful. Only as a last resort will the item be discarded as hazardous waste. Porcus items, such as office partitions and carpet that were present during firing should be considered grossly contaminated and be discarded unless analysis proves otherwise. Consult your State Environmental Office for the proper hazardous waste disposal methods.

11. Centaminated Sand and Lead Waste

Consult your State Environmental Office for specific disposal guidance to ensure compilance with local laws and regulations.

Medical Survoillance

- a. A pre-placement medical examination is required for all individuals involved with range cleanup operations. Consult 29 CFR 1910:1025 for additional information on medical surveillance requirements. A medical examination must include—
 - (1) A detailed work and medical history
 - (2) A thorough physical examination
 - (3) A respirator use evaluation.
 - (4) A blood pressure measurement
 - (5) Blood sample analysis to include:
 - (a) A baseline blood lead level
 - (b) A complete blood count (CRC)
 - (c) Blood uros nitrogen (BUN)
 - (6) Serum creatinine
 - (7) Zine protoporphyrin
 - (8) A routine urine analysis
 - (9) Recordicepting
- b. Air Monitoring. Worker breathing zone (BZ) air samples must be collected to ensure personnet are not overexposed to airborno lead during the cleanup phase. Representative air samples will be collected on all personnel involved in the cleanup operation. These exposure levels will be used to evaluate work practices and personal protective equipment. Within five (5) working days after receipt of monitoring results, each employee will be notified in writing of the air sampling results. Contact your Regional industrial Hygiene Office for additional information pertaining to air sampling.

13. Worker Education

OSHA 29 CFR 1910.1025 requires that workers who are potentially exposed to any lead fevol shall be informed of the content of Appendix A and 8 of this standard. A training program must be instituted for all individuals who are subject to exposure to lead at or above the action level or for whom the possibility of skin or eye initiations exists. The training program shall be repeated for personnel currently involved in range cleanup operations, at least annually, this training must be decumented on DO Form 1556 or DD Form 1566-1 and filed permanently in the employee's Official Personnel File (OPF) or the soldier's Official Military Personnel File (OMPF). As a minimum, complete blocks 1, 2, 3, 7, 8, 11, 12, 13, 17, 18, 24, 33 and 36 of DD Form 1556. Place the following statement in block 18, "Do not destroy, retain this record for the duration of employment/service plus 30 years." The employer will assure that each employee is informed of the following:

- a. The content of the standard and its appendices.
- b. The specific nature of operations that could result in exposure to fead above the action level.
- The purpose, proper selection, filling, use and limitations of respirators.
- d. The purpose and a description of medical surveillance program.
- e. Eating and drinking are prohibited in lead contaminated areas.
- Smoking and smoking materials will not be permitted in contaminated areas.

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- g. Employees must wash their hands and other exposed skin whenever they leave the work area.
- ii. The engineering controls and work practices associated with the individual's job assignment.
- The contents of any compliance plan in effect.

14. Personal Protective Equipment

For housekeeping and rehabilitation the employer shall select respirators from among those approved for protection against lead dust, fume, and mist by the National Institute for Occupational Safety and Health (NIOSH). The employer shall institute a respiratory protection program in accordance with 29 CFR 1910.134. As a minimum, personnel conducting the decontamination of the range wift be provided with the following personal protective equipment.

a. Employees ongaged to range rehabilitation and/or range conversion, the employer shall provide at no cost to the employee, and assure that the employee uses appropriate protective work clothing and

equipment such as, but not limited to:

(1) Protective coveralls with hood and sline covers or disposable Tyvek M full body suit.

(2) Disposable rubber glovos; and disposable shop coverlets (if necessary).

(3) Full-face air purifying respirator with P-100 cartridges.

b. The employer shall provide the clothing required in a clean and dry condition at least daily to employees engaged in the conversion of indoor firing ranges.

c. The employer shall provide for the cleaning, laundoning, or disposal of used or contaminated

protective clothing and equipment.

d. The employer shall assure that all protective clothing is removed at the comptetion of a work shift

only in areas designated for that purpose (Change Areas or Change Rooms).

e. The employer will ensure that contaminated protective clothing that is to be cleaned, faundered, or disposed of, is placed in a closed container in the change area that seals sufficiently enough to prevent dispersion of lead dust

The employer will further inform in writing any person who cleans or launders protective clothing or

equipment of the potentially harmful offects of exposure to lead.

15. Housekeeping

This chapter applies to all active indeer ranges classified as "safe" for use. To keep the range operating properly and to keep possible hazards to a minimum, a routine housekeeping/ maintenance program is essential.

a. The employer must establish a housekeeping program sufficient to maintain all surfaces es free as practicable of accumulations of lead dust. To this end the range will be clean at the conclusion of each firing day.

b. The range ventilation system will be in operation during all cleaning operations, to ensure a

negative pressure environment is maintained.

c. Rangas will be cleaned by using the wet method or vacuuming. A REPA (Fligh Efficiency Particulate Air) fillered vacuum system is the preferred method of meeting this requirement. The use of compressed air to clean floors is absolutely prohibited. If the wet method is utilized the floor should be equipped with a floor drain, and collection system. When there is no collection system, the water can be allowed to slowly evaporate leaving lead deposits/studge. The deposits/studge can then be collected, placed in metal drams, and stored for future delivery to an authorized hazardous waste disposal site. Drams must be labeled to identify contents, in accordance with the hazardous waste program.

d. A NiOSH approved respirator (P-100) for protection against load dust, fume, and mist will be worn

at all times while deanleg.

Witten cleaning start behind the firing line forward, cleaning the floor and horizontal surfaces.

16. Maintenance

The following are the minimum maintenance requirements, which must be performed quarterly by the range custodian, or by a person designated by the facility commander.

 a. Inspect the ventilation system for condition of botts to ensure that they are not trayed or slipping.

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b. Evaluate static pressure and compare to the baseline static pressure reading. Any changes will be reported through the safety manager to the Regional Industrial Hygienist.

inapact Louvors, if applicable, to ensure they are opening fully.

- d. Inspect the builtet trap for pitting or other damage and for sharp edges on venetian blind type builtet traps.
- e. Builtot Trop. The builtet trap will be cleaned every 480 hours of operation at a minimum, or when the trop is three quarters full.

The range ventifiation system will be operational during all builtet trop cloaning procedures.

g. All personnel involved in cleaning of the buffet trap will wear a NIOSH approved respirator, and proper personal projective equipment.

h. All debris from the bullet trap will be collected, package and turned in, in accordance with guidance from the environmental office,

17, Range Rehabillation.

This chapter applies to all indoor firing ranges that have been identified as conditions for rehabilitation. This chapter further provides guidance for cleaning and/or sampling that might be required prior to the start of rehabilitation.

a. The portion(s) of the range to under go rehabilitation must be sampled to determine the level of lead contamination. Wipe samples will be taken per the established sampling protocol. See Appendix A.

 b. All personnel involved in range rehabilitation will wear a NIOSH approved respirator (P-100), and proper personal protective equipment as prescribed in paragraph 14 above.

 Prior to start of rehabilitation the environmental office must be notified to determine the disposition of lead containing debris.

18. Conversion of Indoor Ranges

Prior to the start of decontamination, employers must ensure that all procedures to be used comply with Federal, State, and local regulations. To ensure that all lead contamination is removed the following procedure is established.

a. All ranges slated for conversion will be inspected and evaluated.

b. All equipment stored in the range, if applicable, prior to the start of decontamination must be sampled, decontaminated, re-sampled and removed or turned in as lead contaminated material. See paragraph 10 above.

 All acoustical tiles and/or sound proofing material (if applicable) must be removed and turned in as lead contaminated material through the environmental office.

d. The backstop, bullet trap, target retrieval system and firing line stations must be removed and turned in as fead containing material firrough the environmental office.

Light fixtures and vantilation system grils must be removed and decontaminated.

f. Ventilation system ducts need to be decontaminated or removed and replaced.

g. The exhaust fans and/or the complete ventilation air-handling unit (if applicable) must be decontaminated or removed.

 b. Cover all openings of any component previously decontaminated prior to start of interior decontamination of the firing range.

19. Deviation

Deviations from this guidance will require a written exception to policy from your Regional Industrial Hygiene Office. Quastions and/or comments regarding this subject should be directed to your Regional Industrial Hygiene Office or Chief, National Guard Sureau, Attn: NGB-AVS-S, 111 South George Mason Drive. Adjusting VA 22204-1382.

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APPENDIX A GENERAL PROCEDURES FOR COLLECTING WIPE SAMPLES

- A-1 if multiple samples are to be collected at the work site, prepare a rough sketch of the area(s) or room(s), which are to be wipe sampled.
- A-2 A new set of closm, impervious gloves should be used for each sample to avoid contamination of the media by pravious samples and to prevent contact with the substance.
- A-3 (1) If using Ghost Wipes™, tear open the individually sealed package. Remove the moistened wipe. Unfold the wipe.
- (2) If using a dry media such as MCE or Whatman™ filter, moiston the filter with distilled or defenized water prior to sampling.
- A-4 Place a 10 cm by 10 cm template on the area to be wiped.
- A-5 Apply uniform firm pressure while wiping the area inside the template.
- A-6 To insure that all portions of the partitioned area are wiped, start at the outside edge and progress loward the center making progress toward lite center making concentric squares decreasing in size.
- A-7 After collecting a sample, fold the litter or who inward and place into a container and number it. Note the number at the sample location on the sketch.
- A-8 At feast one blank lifter treated in the same fashion but without wiping, should be submitted to the laboratory.

APPENDIX B SAMPLING STRATEGY FOR COLLECTION OF WIPE SAMPLES

- B-4 Prior to cleaning the ranges, the three samples must be collected and analyzed for total lead dust on each surface, i.e., floor, celling, backstop, and wall to include the plenum well, if applicable. In addition, a total of 3 samples should be collected from areas which have been tenst disturbed by airflow. Established walkways should be avoided.
- B-2 Samples should be staggered to different areas of the range. A grid system should be utilized. Each renge surface areas should be divided evenly into 3 by 3 sections. Samples should not be collected on all one section of a wall or end of the building.

APPENDIX C INTERPRETATION OF SAMPLE RESULTS (PRIOR TO CLEANING)

C-1 200 micrograms/sq ft or LESS

If all sample results are 200 micrograms/sq ft or loss, the range can be converted and/or used for any purposo.

C-2 BETYVEEN 201 and 200,000 interograms/sq.ft.

Range must be decentaminated. Continued with cleaning instructions listed in paragraph 9 Sample results will be used to establish a baseline.

C-3 Over 200,000 micrograms/sq lt

Your sample media may not be capable of collecting additional lead dust and results that are above 200,000 micrograms/sq ft, and should be considered suspect.

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APPENDIX C (Continued)

C-4 High sample results may exist due to personnel waiking or moving equipment/vehicles over the range surface causing the tead dust to be "ground" into the substratum. For examples, a maintenance activity may have oversprayed paint or spilled solvents onto the surface Regional industrial Hygiene Office for specific guidance.

APPENDIX D

INTERPRETATION OF SAMPLE RESULTS (AFTER CLEANING)

D-1 200 micrograms/sq. ft or less if all sample results are less than 200 micrograms/sq ft, the range can be converted and/or used for any purpose after a coat of lead-free latex paint is applied.

APPENDIX E

RECOMMENDED SAMPLE MEDIA AND CONTAINERS

E-1 The following is a list of vendors, which supply the needle and containers necessary to collect air and lead surface wipe samplus. The information is provided to assist in obtaining the proper media and containers. Alternative vendors are available and may be utilized, if known. Contact your Regional Industrial Hygiene Office for additional assistance or clarification.

E-2 Pre-loaded 3 pieco cassette with mixed celligiose ester (MCF) filter and pad, 37 millimeter (mm), pero size 0.8 microns, breathing zone (BZ) and general area (GA) air samples.

Order From

Catalog Number

a, Milliporo Corp.

MAWP-037-A0

Ashdy Road Bedford, MA 61730 617-275-9200 800-225-1380

b. Gelman Sciences

84678 (GN-4)

600 South Wagner Rd Ann Arber, MI 46106 313-666-0651

800-521-1520

Supelco, Inc.
 Supelco Park

2-3368M

Supelco Park Bellofonto, PA 16823

800-247-6628

800-359-3041

C-3 37 mm MCE Filter with pad, no cassetto included, for lead surface wipe samples.

Order From

Catalog Number

a. Supeko inc.

2-33811M

Supelco Park

Bellefonte, PA 16823

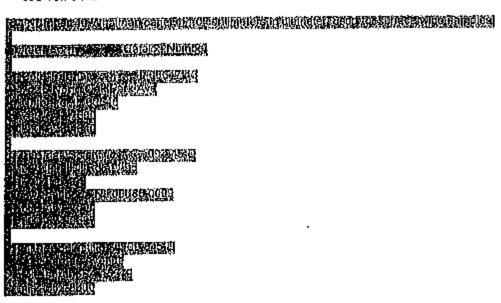
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APPENDIX E (Continued)

800-247-6628 800-359-3041

b. Millipore Corp. AAYYP-037-00 Aehdy Road Bedford, MA 01730 617-276-9200 800-225-1380

sKC, Inc. 225-5
 334 Valley View Rd.
 Eighty Four, PA 15330
 412-941-9701
 800-752-8472



E-5. Glass container (25 millititer) for collection and shipment of modia.

Order From Catalog Number

a. Pterce Chemical Co. 13219 (screw cap) P.O. 8ox 117 Rockford, IL 61105 815-968-0747 600-674-3723

 Altech Associates, Inc. 95321 (acrew cap)
 Applied Science Labs 2051 Waukegan Rd.
 Deerfield, It. 60015 312-948-8600 NGB-AV8-9G

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APPENDIX E (Continued)

800-255-8324

E-6. Ghost Wipes™.

Order From_

Catalog Number

Environmental Express SC4200 490 Wando Park Blvd. Mt. Ploesent, SC 29404 1-800-343-5319

E-7. Ghost Wipo™ Containers

Ordor From

Catalon Number

Environmental Express SC499 490 Wando Park Blvd. Mt. Pleasant, SC 29464 1-600-343-5319

E-8. Plastic ziptock bags can be obtained through the Army togistics system. Many sizes are available. Contact your supporting togistics branch for assistance.

E-9. Distilled water can be purchased at larger grocery stores, usually by the gallon, at a cost of approximately \$1.25. Delenized water can be obtained at local and state water labs or a hospital.

APPENDIX F EXAMPLES OF COMPUTATION OF LEAD LEVELS FROM WIPE SAMPLE RESULTS

Sample results will be returned in the form of micrograms. The results must be converted to micrograms per square foot. This can be accomplished by following the examples listed below:

ug - Microgram

Cm2 - Centimoters squared

Sq R -- Square foot

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APPENDIX G SURFACE WIPE SAMPLING SHEET

	Industrial	Hyglane Surfa			
Return Address			Point of Contact (name & phone #)		
			Samples Collected By		
Sampled Facility	,—	Сиу	State Location (bidg/area)		
Description of Op	oration	J <u></u>	Date Collected Date Shipped		
Analysis Desired		·	.4		
Sampling Data			· · · · · · · · · · · · · · · · · · ·		
Lab Uso Only	Sample #	Results		Romarks	
·					
· —		 -	· • • • • • • • • • • • • • • • • • • •		
	. ,				
	·	·			
				_,	
				- 1.35 1.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00	
Comments to Lab			L		

NGB-AVS-SO SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Cocupational Health Program ~ POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

APPENDIX H AIR SAMPLING SHEET

Return Address	industrial Hy	giene Air Sample Sheet Point of Contact (name/phone #)		
		Samples Collected By		
Sampled Facility	[City	Stato	Location (bidg/ərea)	
Description of Operation	Porsons Exposed	Hrs/Day	Method of Collection	
Analysia Destrod				
Sampling Data				
Sample No.				
Pump No.			_	B
Time On	,			L
Time Off				A
Total Time (min)				N
Flow Rate (LPM)				К
Volume (illere)		<u>_</u>		
GA/BZ				
Employee Hamolib				
Laborstory No.				<u>L</u>
Calibration Information	bratton (LPM)			
Prunip No. Pro-Uso	Post-Use	Retamator	Sotting Day	
			.,	
			,	
	[.,
Name of Calibrator	Callbration Date	Pump Man	wfactures	
Commants to Lab:				

SUBJECT: All States (Log Number 201-0075) Army National Guard (ARNG) Safety and Occupational Health Program – POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

APPENDIX 1 ASBREVIATIONS AND TERMS

Section I Appreviations

ARNG

Army National Guard

BUN

Blood urea nitrogen

BΖ

Breathing zone

CBC

Complete blood count

CFR

Code of Federal Regulations

cm

Contimotor

DHEW

Department of Health, Education and Welfare

EPA

Environmental Protection Agency

GA

General area

OMPF

Official Military Personnel File

OPE

Offidal Personnel File

OSHA

Occupational Safety and Health Administration

TCLP

Toxic Characteristic Leaching Procedures

ug/sq ft

Micrograms per square fool

SUBJECT: 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

APPENDIX I (Confinued)

Section () Terms

HEPA

Refers to high efficiency particulate air filter systems capable of capturing up to 99.97 percent of particles 0.3 microns in size or larger.

Lead-Contaminated Range

It is assumed that all indoor ranges, which have been fired in, are lead-contaminated.

Wipe Sample

The terms wipe, swipe, or smear samples are use synonymously to describe the techniques utilized for assessing load surface contamination.

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









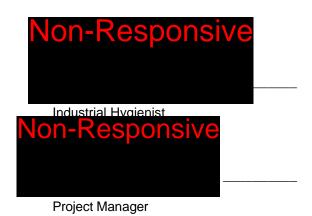
Industrial Hygiene Survey for NHARNG – Manchester Readiness Center 1059 Canal Street Manchester, New Hampshire 03101

AECOM Environment June 2010

Document No.: 60151253/Manchester Readiness Center

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

Industrial Hygiene Survey for NHARNG – Manchester Readiness Center 1059 Canal Street Manchester, New Hampshire 03101





AECOM Environment

June 2010

Document No.: 60151253/Manchester Readiness Center

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Executive Summary

On April 27, 2010, AECOM Environment conducted an Industrial Hygiene (IH) survey of the Manchester Readiness Center facility located at the state armory at 1059 Canal Street in Manchester, New Hampshire. SSG Non-Responsive was the point of contact for the facility, but was not present on the day of the survey. of the State Occupational Health Office and a building custodian accompanied AECOM during the survey to provide access and information concerning the Manchester 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 March 2009.

The Manchester Readiness Center is currently staffed by twenty to thirty personnel. The facility is located in the State Armory and consists of a three story building housing administrative offices, a Drill/Assembly Hall, and Field Maintenance Shop 4 is located in the basement of the building.

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

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 Manchester Readiness Center is housed in a three story masonry building, consisting of approximately 50% administrative space and 25% drill hall, and 25% maintenance shop.

Lighting levels measured throughout approximately 75% of the accessible spaces in the facility were adequate as per <u>ANSI/IESNA RP-1-2004</u>, <u>Office Lighting</u>, <u>ANSI/IESNA RP-7-2001</u>, <u>Industrial Lighting</u>, and the <u>IESNA Lighting Handbook</u>, <u>9th Edition</u>, <u>11 April 2005</u>. In approximately 25% of the accessible spaces lighting levels were inadequate.

AECOM did not observe any issues associated with housekeeping, building condition, asbestos, lead or mold during this evaluation. However, surface lead concentrations exceeded the ARNG guideline level at three locations. Airborne lead was not detected in any of the ambient air samples collected.

The HVAC system in the building consists of a boiler room that feeds radiant heaters throughout the building. There is no active HVAC system that provides fresh air from the building exterior. An evaluation of local exhaust ventilation systems in the garage indicated systems used to control engine emissions and welding fumes generally did not meet established guidelines.

1.0 Facility Description and Operations

The Manchester Readiness Center is an administrative facility within a masonry structure constructed in 1942. The building consists of three main sections. The north section of the building is three stories and contains office and administrative areas, and is finished with painted and ceramic tiled concrete walls, acoustical ceilings, and floor tile. The drill hall comprises the south portion of the building, and FMS-4 is located in the basement section of the drill hall. The drill hall area is finished with painted cinder block walls, an exposed wood roof deck, and concrete floors. The FMS Shop area consists of concrete floors, walls, and ceiling.

The primary activity at the Manchester Readiness Center is routine administrative duties and occasional use by units for support and training of soldiers. The Manchester Readiness Center is currently staffed by 20-30 personnel. Vehicle maintenance activities are undertaken at FMS-4 in the basement of the facility (see Section 6.0).

2.0 Sampling in Readiness Centers

2.1.1 Wipe Sampling

Wipe sampling for lead was conducted in the drill hall and in administrative areas following the 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.

Site personnel indicated that the locker room located at the south end of the basement is a converted indoor firing range. There is no active ventilation system associated with the space. There is no remaining bullet trap. The space appears to have been completely renovated at some time prior to this assessment. 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
MRC-03	Drill Hall Cabinet	<110 ug/ft ²
MRC-04	Drill Hall Floor	<110 ug/ft ²
MRC-05	Drill Hall on Cabinet	340 ug/ft ²
MRC-06	Light Fixture in Converted Indoor Firing Range	160 ug/ft ²
MRC-07	On Stored materials in Converted Indoor Firing Range	<110 ug/ft ²
MRC-08	On Floor in Converted Indoor Firing Range	200 ug/ft ²
MRC-09	Outside Converted Indoor Firing Range	220 ug/ft ²
MRC-10	1 st Floor Room under Stairs	<110 ug/ft ²
MRC-11	1 st Floor Corridor	<110 ug/ft ²
MRC-12	Kitchen	<110 ug/ft ²
MRC-13	1 st Floor Foyer	<110 ug/ft ²
MRC-14	2 nd Floor Copy Room Sill	<110 ug/ft ²
MRC-15	2 nd Floor Corridor	<110 ug/ft ²
MRC-16	3 rd Floor Room 319	<110 ug/ft ²
MRC-17	3 rd Floor Corridor	<110 ug/ft ²

Three of the wipe samples collected identified quantifiable lead at or above the ARNG action level of 200ug/ft². Laboratory analytical reports are presented in Appendix C.

2.1.2 Air Sampling

Air sampling for lead was conducted in two normally occupied areas of the facility.

Table 2-2: Lead Air Sample Results

Sample Number	Sample Location	Lead Concentration
MRC-01	At FMS Entrance (High Foot Traffic Area)	<17 ug/m ³
MRC-02	Drill Hall	<17 ug/m ³

None of the air samples collected indicated the presence of airborne lead above detectable limits. For reference, the OSHA Action Level for lead is 30 ug/m³ and the Permissible Exposure Limit (PEL) is 50 ug/m³. Laboratory analytical results are presented in Appendix C.

3.0 Physical Condition of Facility and Personnel Concerns

3.1.1 Lead Based Paint

Interior surfaces of walls are coated with paint or ceramic glazed tile. The paint on the walls appeared to be 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 Manchester Readiness Center during this survey. Thermal system piping is typically covered in ACM or fiberglass insulation with associated fittings in generally 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 or suspect mold growth in readily accessible areas of the building during the survey.

3.1.4 Housekeeping

The Manchester Readiness Center was observed to be generally clean and orderly during this assessment. AECOM did not observe dust accumulation on most 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 Manchester Readiness Center staff members. No Indoor Air Quality concerns were noted by the Manchester Readiness Center personnel.

Instantaneous real-time reading for carbon monoxide, carbon dioxide, temperature, and relative humidity are presented in the following table. The readings appeared to be within generally accepted guidelines.

Table 3-1: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (°F)	Relative Humidity (%)
Exterior - Baseline	0.3	475	50.5	79.5
1 st Floor corner office	0.1	462	71.3	36.3
2 nd Floor Locker Room	0.4	486	70.4	35.7
313	0.1	601	71.0	39.2

Table 1-3 Guidelines:

Carbon Monoxide: Office/Warehouse Space - 9 ppm based on EPA National Ambient Air Quality Standard.

OSHA Permissible Exposure Limit (PEL) = 50 ppm. ACGIH Threshold Limit value (TLV) = 25, ppm.

Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from ASHRAE Standard 62.1-2007). Not Applicable to warehouse and vehicle maintenance bays.

Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2007 – 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 55-2004)

Manchester 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

Potential for contamination of clean air sources was observed in the facility. The presence of the maintenance shop in the basement of the drill hall could potentially contaminate clean air sources in the remaining portions of the building. There is no mechanical air movement in the building outside of the maintenance shop. As long as the local exhaust ventilation system in the maintenance shop is used properly and maintained in proper working order, the potential for contamination should be kept to a minimum. The ducts for the LEV exhaust system in the garage area is above the roof of the drill hall. The most like point of entry for exhaust fumes would be windows that are well below the termination point of the exhaust ducts. AECOM evaluated the maintenance shop ventilation systems, and this information is included in Section 6 of this report.

The Manchester Readiness Center is heated by a radiant heating system fed by boilers located in a boiler room on the first floor of the administrative section of the building. Supply and return air is not provided by mechanical means. Outdoor air is provided in the building through open windows and doors.

4.1.2 HVAC Maintenance

There was no maintenance schedule associated with an active ventilation system, as the building does not have a system that provides fresh air by mechanical means.

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 associated with FMS-4 are evaluated in Section 6. Lighting levels were variable throughout the facility. Lighting levels in some areas are within acceptable levels, and in other areas they are inadequate. Lighting levels are indicated on the facility layout provided in Appendix A. When asked about concerns within the facility, most personnel indicated they felt lighting was generally inadequate.

Table 5-1: Light Survey – Readiness Center

Location	Results – (Foot candles)	Met Standard (Y/N)	Standard*
Locker Room (Old firing range)	70.1	Y	7
Basement South	29.6	Υ	5
Basement North	22.4	Υ	5
Phone Room	7.3	N	30
Transformer Room	21.4	N	30
116 Corridor	20.3	Y	5
1 st Floor Corridor	54.6	Υ	5
Kitchen	71.0	Υ	50
Cafeteria	37.6	Y	10
Weight Room	21.2	N	30
Maint. Supply	10.5	N	30
1 st Floor Corridor	23.1	Υ	5
Janitor	20.2	N	30
PAD Storage	34.4	Υ	30
Locker area	10.3-27.0	Υ	7
Rest Room	39.7	Υ	5
PAD Office	65.4	Υ	50
125 Office	51.2	Υ	50
Maintenance	60.2	Υ	50
Storage	21.2	Υ	10
107 lockers	20.9	Υ	7
CDR Office	33.8	N	50
108 office	33	N	50
Band Storage	22.0	N	30
Band Room	41.2	Υ	30
Band Lounge	44.5	Υ	10
Sound Room (Storage)	20.1	N	30
Office	20.5	Υ	50
PAD Office	84.2	Υ	50
Boiler Room Corridor	64.4	Υ	5
Boiler Room	45.8	Υ	30
Coal Storage	13.6	Υ	10
Drill Hall	51.4	Υ	10
NCO Club	51.7	Υ	10
2 nd Floor Corridor	15.8-43.5	Υ	5
222 Locker	16.7	Υ	7

Location	Results – (Foot candles)	Met Standard (Y/N)	Standard*
223 Locker	16.4	Υ	7
223 Storage	40.6	Υ	30
225 Office	17.1	N	50
Food Service Office	17.2	N	50
225 Office	50.1	Υ	50
Office	6.0	N	50
Rest Room	28.1	Υ	5
226A Office	55.9	Υ	50
226B Office	67.2	Υ	50
229A Foyer	20.6	Υ	10
229B Office	84.0	Υ	50
230 Office	68.4	Υ	50
201C Orderly Room	25.2	N	50
Copy Room	8.2	N	10
205 Men's' room	25.3	Υ	5
219 Women's Toilet/Shower	10.8-35.7	Υ	5
Men's Toilet/Shower	15.2-28.5	Υ	5
207 Classroom	55.1	Υ	30
Storage	62.0	Υ	30
Locker Room	52.1	Υ	7
Janitor 212	10.5	N	30
3 rd Floor Latrine	42.9	Υ	5
301 Office	50.1	Υ	50
302 Office	52.5	Υ	50
303 Janitor	62.1	Υ	30
304 Office	24.3	N	50
305 Office	63.2	Υ	50
Shower/Dressing Room	18.6-54.8	Υ	5
307 Office	103.1	Υ	50
308 Office	26.9	N	50
309 Office	21.2	N	50
310 Office	50.6	Υ	50
311 Office	50.4	Υ	50
312 Classroom	30.2	Υ	30
313 Office	54.6	Υ	50
314 Office	44.9	N	50
315 Office	59.2	Υ	50
316 Office	37.2	N	50
317 Office	51.6	Υ	50
318/319 Conference/Classroom	50.3	Υ	30
Coffee Room	35.2	Υ	10
3 rd Floor Corridor	20.8-52.0	Υ	5
Office Lighting (ANSI/IESNA RP-		Lighting Facilities (A	NSI RP-7-01)

6.0 Evaluation of Attached Garage

There is a garage (FMS-4) located in the basement of the Manchester armory. FMS-4 is a vehicle maintenance facility located in the basement area of the drill hall. The primary function of FMS-4 is routine maintenance and repair of vehicles used by the Army National Guard during drill weekends.

Hazards associated with the maintenance shop are typical of any vehicle maintenance facility, including physical and chemical hazards. Engineering controls present within the maintenance shop include local exhaust ventilation systems for controlling vehicle emissions, welding emissions, and battery room ventilation exhaust. Administrative controls include safety and industrial hygiene programs and standard operating procedures.

Personal Protective Equipment includes, but is not limited to respirators, hearing and eye protection, gloves, and safety shoes. Readiness Center personnel do not normally perform tasks within the maintenance shop.

6.1 Garage Ventilation Local Exhaust Ventilation Systems

FMS-04 is equipped with local exhaust ventilation systems that capture and control engine emissions. The local exhaust ventilation system for emissions in the Vehicle Maintenance Section consists of exhaust fans located on the west wall of the building that vent emissions to the roof level above the drill hall. The exhaust fans connect via rigid ductwork to flexible duct branches distributed throughout the service bays. The flexible duct branches (approximately four to 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 pulley 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. According to FMS-04 personnel, the local ventilation system for capturing and removing engine emissions is generally effective. AECOM activated the system and measured the face velocities of each accessible duct with a VelociCalc Plus air velocity meter.

In addition, LEV systems are used to control welding fumes at two welding stations and battery charging emissions in the battery storage room. The welding station between bay 1 and bay 2 has an overhead canopy hood that extends beyond the edges of the welding bench top, and the second welding station (welding/grinding) has a circular, vertical duct drop that terminates a few feet above the surface of the bench top. The battery charging room is exhausted by a general room exhaust system.

The following table presents measured flow rates and typical required exhaust flow rates for vehicles routinely serviced by field maintenance shops, and for the welding stations:

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	1004 cfm	1370 cfm		
Exhaust #2	183 cfm	1370 cfm		
Exhaust #3	971 cfm	1370 cfm		
Exhaust #4	398 cfm	1370 cfm		
Exhaust #5	268 cfm	1370 cfm		
Exhaust #6	271 cfm	1370 cfm		
Exhaust #7	170 cfm	1370 cfm		

Lo	Local Ventilation System Measured Air Flow Rates				
Exhaust #8	151 cfm	1370 cfm			
Welding Station Exhaust – Between Bays 1 and 2	1977 fpm at hood 40 fpm at benchtop	NA			
Welding Station Exhaust – Adjacent to tool room	590 cfm	250 cfm up to 6" 560 cfm 6-9" 1000 cfm 9-12"			

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°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 (°F); D_{eng}=Engine displacement (ft³); and N=Engine rpm; 1.2 represents a 20% safety factor.

The type of exhaust system in place for the welding station between bays 1 and 2 is not ideal since the canopy hood design will pull the welding fume plume through the worker's breathing zone. Exhaust systems used to control welding fume exposure should be designed to pull fumes away from the worker's breathing zone. Examples include slot hoods (with slots located along the back of the bench top, or movable capture hoods that can be placed behind and above the work piece. If the level of the work piece was raised (closer to the hood) so that fumes did not pass through the worker breathing zone, a canopy hood design may be effective. A reference value is not listed for the canopy hood in the table above since the system design (in its current configuration) is not appropriate for welding fume control. However, if the working height could be raised to a level where fumes would not pass through the worker breathing zone, a capture velocity of 100-170 feet per minute (at the work piece) would be an appropriate standard.

The reference value used for the welding station adjacent to the tool room is based on Figure VS-90-02 from the ACGIH Industrial Ventilation Manual. The measured value would be acceptable for welding activities that are conducted within 9 inches of the moveable duct opening.

It was reported that the battery room is used for limited charging of batteries as well as storage of batteries and POL. The battery room is equipped with a local ventilation system. AECOM activated and measured the effectiveness of the system.

Table 6-2: Local Ventilation System Measured Air Flow Rates – Battery Room

Bat	tery Room Ventilation System Measured Air	Flow Rates
Location	Air Flow – cubic feet per minute (cfm)	Reference Value*
Battery Room	1915 cfm	1350 cfm

Reference value determined using a required exhaust rate of 1.5 cfm per square foot of floor space as required by <u>UFC 3-410-01FA</u>, <u>Heating</u>, <u>Ventilating</u>, <u>and Air Conditioning</u>, <u>15 May 2003 and 29 CFR 1910.106</u>.

There is an emergency eyewash/shower located in the battery room. Documentation of weekly testing was not present.

6.2 Garage Lighting Evaluation

Lighting levels at various task locations and general area lighting were measured utilizing a Cal-Light 400 light meter that displays lighting levels in foot-candles. Lighting levels were inadequate in most areas.

Table 6-3: Light Survey - FMS 4

Location	Results – (Foot candles)	Met Standard (Y/N)	Standard*
Lockers	40.8	Y	7
Office	51.3	Y	50
Storage	inaccessible	N	30
Bay 1	42.1	N	75
Bay 2	29.7	N	75
Bay 3	37.4	N	75
Tool Room	56.8	Y	30
Parts Room	52.5	Υ	30
Break Room	26.9	Y	10
Battery Room	3.2	N	30
Office Lighting (ANSI/IESNA RP-1-0	04) and Industrial Lighti	ng Facilities (ANSI RP	-7-01)

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 Manchester Readiness Center, and AECOM did not observe any damaged or peeling paint during the evaluation.

AECOM did not observed damaged suspect friable asbestos containing materials during the evaluation.

No evidence of water intrusion or suspected mold growth was observed during this evaluation.

Lighting levels were below ANSI/IESNA guideline levels in approximately 25% of accessible spaces in the facility.

The ventilation system associated with the maintenance shop does not meet minimum flow rate requirements.

Lead wipes collected in the drill hall on a cabinet, on the floor in the converted indoor firing range, and on the floor outside the converted indoor firing range indicated the presence of quantifiable lead in dust at or above the ARNG action level of 200 ug/ft².

Air samples collected during this evaluation did not indicate the presence of airborne lead in areas sampled.

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.

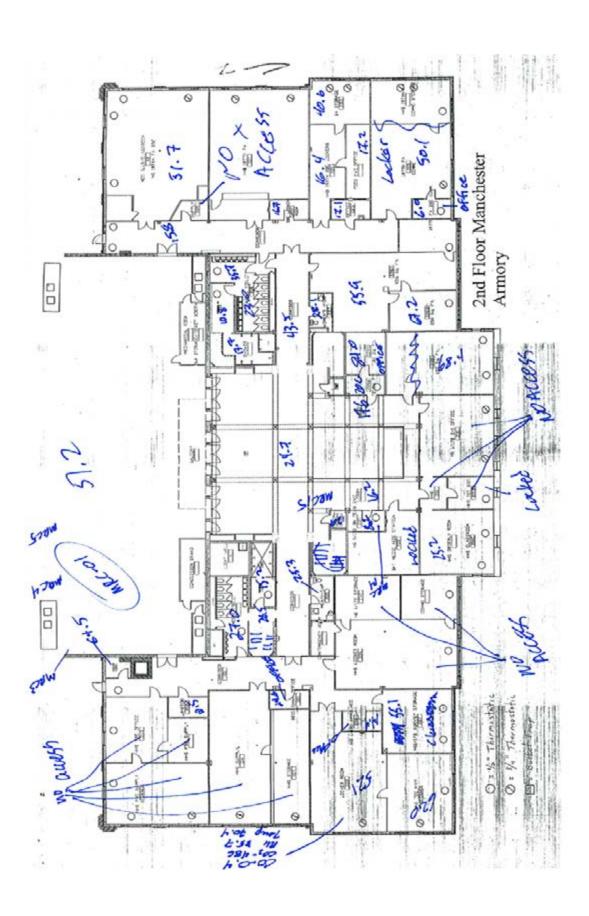
The Client recognizes and agrees that all testing and remediation methods have reliability limitations, no method nor number of sampling locations can guarantee that a condition will be discovered within the performance of the services as authorized by the Client. Additionally, the passage of time may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

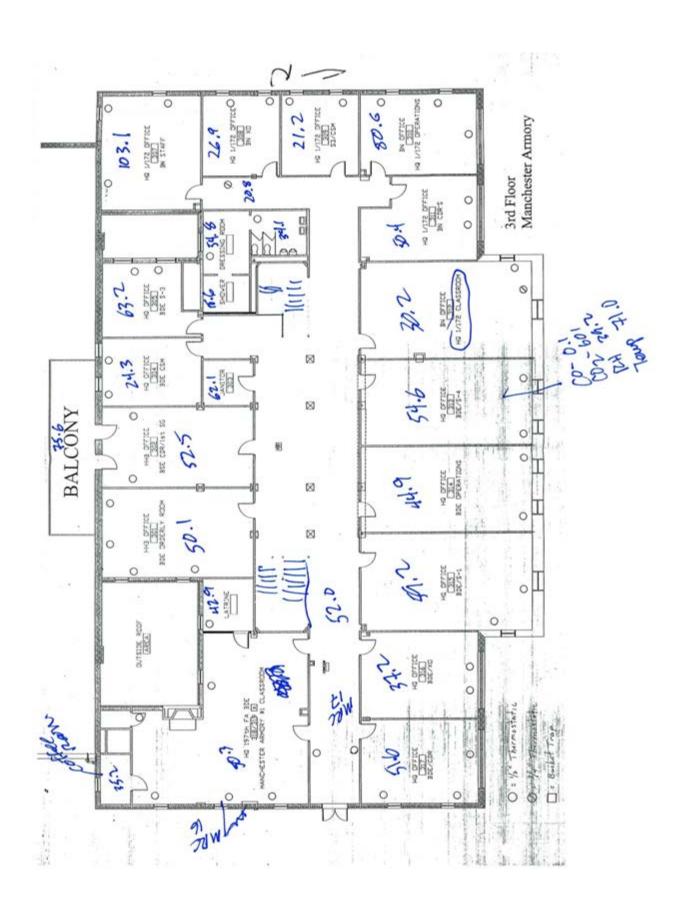
Appendix A

Manchester Readiness Center Facility Layout









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Appendix B

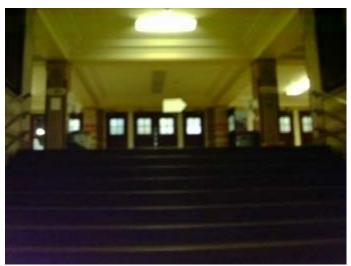
Manchester Readiness Center Photographs



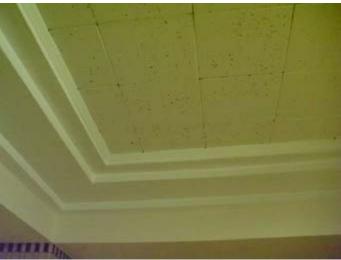
Building Exterior - Front



Building Exterior – Rear – Note LEV exhaust ducts venting at roof level



Main Stairs from Lobby



Typical Ceiling Construction



Typical Radiant Heating System



Drill Hall



Drill/Assembly Hall from Balcony



Typical Floor Tile and wall construction



Typical ACM Pipe Insulation



Boiler Room



Fiberglass Insulation in Boiler Room



Locker Room (former indoor firing range)



Radiator in former firing range



Locker Room (former indoor firing range)



Locker Room (former indoor firing range-converted storage rooms)



Cafeteria



Welding Station between garage bays 1 and 2



Welding/Grinding area at south end of garage



Typical Floor Tile

Appendix C

Analytical Results

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory





AIIIA ALBONA	Erwicormental Lead See analysepang for details	NY ELAF

Chain Of Custody:	500005		1
Date Submitted:	4/30/2010		7 10920
Person Submitting:	7.9	Non-	
Date Analyzed:	5/7/2010	Report Date:	5/18/2010

Page 1 of 2

Summary of Atomic Absorption Analysis for Lead

W912K6-09-A-0003

Job Number: P.O. Number:

Attention:

Manchester RC Manchester, NH Not Provided

Job Location:

301-IH Old Bay Lane, Attn. NGB-AVN-SI, State Military Reservation Havre de Grace, Maryland 21078

Client: Address:

National Guard Bureau

Job Name:

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Yolume (L)	Area Wiped (ft²)	Rep	Reporting Limit	Total ug	Final Result	¥	Comments
1043301	MRC-03	Flame	Wipe	ı	0.111	110	ug/ft²	<12	011>	ug/ft²	
1043302	MRC-04	Flame	Wipe	:	0.111	110	ug/n²	<12	<110	ug/A2	
1043303	MRC-05	Flame	Wipe	:	0.111	110	ug/ft²	38	340	ug/ft3	
1043304	MRC-06	Flame	Wipe	:	0.111	110	ug/ft²	17	160	ug/ft²	
1043305	MRC-07	Flame	Wipe	:	0.111	110	ug/ft²	<12	011>	ug/ft²	
1043306	MRC-08	Нате	Wipe	:	0.111	110	ug/ft²	22	200	ng/ft²	
1043307	MRC-09	Flame	Wipe	į	0.111	110	ug/ft²	24	220	zU/βn	
1043308	MRC-10	Flame	Wipe	***	0.111	110	ug/ft²	<12	<110	ng/n²	
1043309	MRC-11	Flame	Wipe	:	0.111	110	ug/ft²	<12	IO</td <td>ug/ft²</td> <td></td>	ug/ft²	
1043310	MRC-12	Flame	Wipe	:	0.111	110	ug/ft²	<12	<.10	€U/Sn	
1043311	MRC-13	Flame	Wipe	***	0.111	110	ug/ff2	<12	<110	ug/ft²	
1043312	MRC-14	Flame	Wipe	*	0.111	110	ug/U3	715	V 10	ug/R²	
1043313	MRC-15	Flame	Wipe	:	0.111	110	ug/ft²	<12	0I >	ug/ft²	
1043314	MRC-16	Flame	Wipe	:	0.111	110	ug/ft²	<12	ol >	ug/ft²	
1043315	MRC.17	Flame	Wine	:	0.111	110	na/A2	<12	× 10	110/01	

This report applies only to the sample, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to elicate, the public, and these Laboratories, as submitted and a screenfel for the rectainse or publicity and recording or publicity and recording or publicity and recording or publicity and recording or publicity and recording or publicity and recording or publicity and recording or publicity and recording or publicity and recording or publicity or the accounty and completeness of this information provided by the persons submitting them and, unless collected by presonnel of these Laboratories, we expressly defaining any incordence and liability for the accounty and completeness of this information. Recident sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the citent. NVLAP accordination applies only to polarized light nicroscopy of bulk samples and transmission applies the tectual microscopy of ALIERA air samples. This report auxt not be used to claim, add does not haply product certification, approval, or endoascement by NVLAP, NIST, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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AMA Analytical Services, Inc.

A Specialized Environmental Laboratory







301-IH Old Bay Lane, Attn: NGB-AVN-SI,

Address: Client

Havre de Grace, Maryland 21078 State Military Reservation National Guard Bureau

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Chain Of Custody	Date Submitted:	Person Submitting	Date Analyzed:
Manchester RC	Manchester, NH	Not Provided	W912K6-09-A-0003
Job Name:	Job Location:	Job Number:	P.O. Number:



5/18/2010

Report Date:

Summary of Atomic Absorption Analysis for Lead

Area Wiped (ft²)

Afr Volume (L)

Sample Type

Analysis Type

AMA Sample Number

Attention:

Page 2 of 2

Comments	control samples wpe, and soil
Final Result	See QC Summary for analytical results of quality control samples associated with these sampes. NY ELAP accreditation applies only to paint chip, whe, and soil samples.
Total ug	Summary for ana d with these san accreditation ap
rting mit	See QC S associate NY ELAP samples.



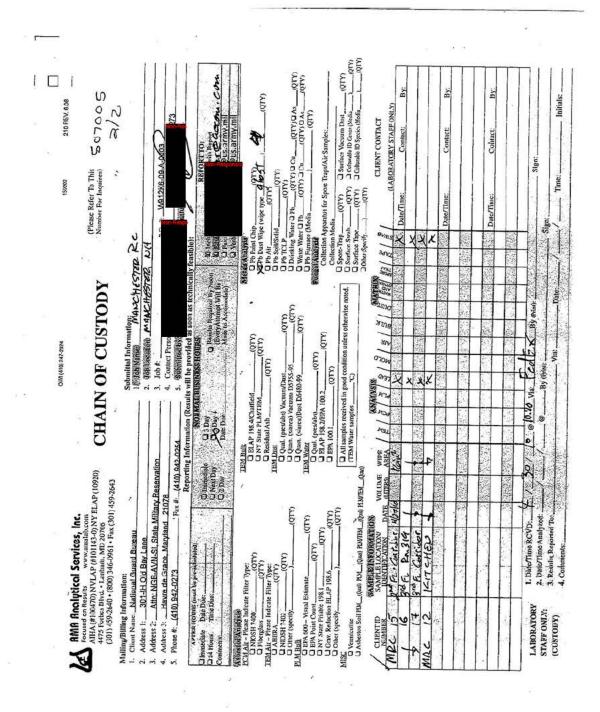
Analysis Method for Flame: Air, Wipes, Paints, and Soil/Soilds: EPA 600/R-93/200(M)-7420; Water: SM-3111B	
Analysis Method For Furnace: Alr, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7421; Water: SM-3113B	m
N/A = Not Applicable mg/Kg = parts per million (ppm) by weight mg/L = parts per million (ppm)	
%Pb = percent lead by weight ug = micrograms ug/L = parts per billion (ppb)	
Note: All 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.	

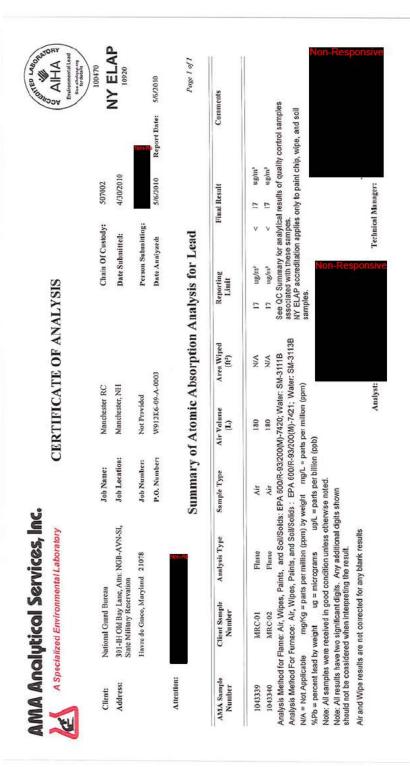
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Appendix D

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1215 Manor Drive, Suite 205 Mechanicsburg, PA 17055 Phone: 717.590.7031 Fax: 717.590.7936 www.complianceplace.com

Industrial Hygiene Survey Report

National Guard Facility Manchester Readiness Center

Prepared For: National Guard Bureau Region North IH

301-IH Old Bay Lane

Havre de Grace, MD 21078

Survey Location: Manchester Readiness Center

1059 Canal Street

Manchester, NH, 03101

Prepared By: Compliance Management International, Inc.

1215 Manor Drive

Suite 205

Mechanicsburg, PA 17055

Survey Date: May 8, 2013

Report Date: June 27, 2013

Non-Responsive

Non-Responsive, CIH

Manager, Industrial Hygiene Services

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Section 1.0 Executive Summary

An industrial hygiene survey was conducted on May 8, 2013, at the Manchester Readiness Center located at 1059 Canal Street, Manchester, NH 03101. The survey was performed by Mr. Non-Responsive.

- 1. Lead surface and air samples were collected. Surface levels of lead exceeded 200 micrograms per square foot (ug/ft²) in four (4) locations. See Section 3.0 for detailed sampling results.
- 2. Lighting levels did not meet the American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IESNA) recommended guideline in five locations. See Section 4.0 for detailed findings.
- 3. Indoor air quality (IAQ) parameters of temperature, relative humidity, carbon monoxide and carbon dioxide (ventilation) were evaluated during the assessment.
 - a. Temperature levels met the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010 recommended guideline of 68-79 °F in all occupied areas sampled.
 - b. The relative humidity levels met the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) TG 277 recommended guideline of 30-60% in all occupied areas sampled.
 - c. Carbon monoxide (CO) levels were less than the National Ambient Air Quality Standard (NAAQS) recommended ceiling of 9 parts per million (ppm).
 - d. Carbon dioxide (CO₂) levels met the ASHRAE 62.1-2010 recommended guidelines for mechanically ventilated office buildings and commercial settings.

See Section 5.0 for detailed sampling results.

4. Housekeeping was good. See Section 5.0 for detailed findings.

Section 2.0 Operation Description & Observations

The Manchester Readiness Center is an administrative and training facility with offices, classrooms, a food services area, and a converted firing range area (currently a bulk storage area). There were approximately 40 full-time employees stationed at this facility at the time of this survey.

The building is reported to have been built in the late 1930s. It is a three-story structure. The exterior is brick with a granite facade. The interior walls are concrete block with drywall and plaster in the offices. The floors are concrete, carpet, terrazzo, and floor tiles.

The heating system is a gas-fired, steam unit. There are window and split A/C units that service the administrative areas.

There is no child-care facility in the building.

Housekeeping practices are good.

No ergonomic concerns were reported. Office areas have computer work stations. Work stations appeared to be properly designed. Personnel had supportive chairs.

This facility has a converted firing range that is now used as a bulk storage area.

Section 3.0 Lead Testing

Various surfaces within the facility were screened for lead using surface/wipe samples. Surface/wipe samples were collected in accordance with the American Society for Testing and Materials (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 Environmental Protection Agency (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/m ³	Surface ug/ft ²
1	Maintenance Office	< 5.4	*
2	Dining Area	< 5.4	*
3	Blank	<3	*
4	Dining Area Window Sill	*	<110
5	Kitchen Mixer Top	*	<110
6	Drill Hall Floor Center	*	120
7	Drill Cabinet Top	*	<110
8	Drill Hall Fire Extinguisher Top	*	15,000
9	Converted Firing Range (CFR) Floor	*	720
10	CFR Contents	*	<110
11	CFR Outside Entrance Floor	*	810
12	Band Room Window Sill	*	290
13	Family Assistance Center Desk Cabinet Top	*	<110
14	Office 122 Cabinet Top	*	<110
15	Recruiter's Office Shelf Top	*	<110
16	Office 206	*	<110
17	Office 230	*	<110
18	2 nd Floor Corridor Water Machine Top	*	<110
19	Office 226	*	<110
20	Office 313	*	<110
21	Office 315	*	<110
22	Conference Room 318	*	<110
24	Blank	*	<12
-	Criteria	50	200

Table Notes:

- 1. **Bolded** results exceed listed criteria
- 2. **ppm** = parts per million
- 3. $ug/ft^2 = micrograms per square foot$
- 4. $\mathbf{ug/m}^3 = \text{micrograms per cubic meter}$
- 5. $\mathbf{ug} = \text{micrograms}$

Sources:

- 1. NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges
- 2. OSHA 29CFR1910.1025 Lead Standard

The National Guard Bureau currently utilizes 200 micrograms per square foot (ug/ft²) 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/ft² on floors and 250 ug/ft² on windowsills should be observed. There is no child care provided at this facility.

Lead surface and air samples were collected. The following is a summary of the sample results from this survey.

- Surface levels of lead were above the recommended guideline of 200 ug/ft² in the following location:
 - o Drill Hall Fire Extinguisher Top
 - o CFR Floor
 - o CFR Outside Entrance Floor
 - o Band Room Window Sill

Cleaning procedures should be improved to maintain lead levels on surfaces below the recommended guideline of 200 ug/ft².

■ Air samples for lead were below the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit of 50 micrograms per cubic meter (ug/m³).

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. 98082EL). The light meter was last calibrated in April 2013. 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 (FC)	Recommended Lighting (FC)	Sufficient Lighting
Maintenance Office	35.1	30-50	Yes
Machine Shop	38.4	30	Yes
Lobby	23.5	10	Yes
Dining Area	54.5	10	Yes
Kitchen Food Prep	76.8	50	Yes
Communications Server Room	50.9	30	Yes
Exercise Room	42.3	30	Yes
Office 122	31.5	30-50	Yes
Office 124	22.1	30-50	No
Office 125	65.7	30-50	Yes
Office 103	39.7	30-50	Yes
1 st Floor Main Corridor	12.7	5	Yes
Office 105	20.7	30-50	No
Men's Latrine	22.7	5	Yes
Office 106	30.1	30-50	Yes
Office 110	64.5	30-50	Yes
Boiler Room	16.3	30	No
Office 109	31.4	30-50	Yes
Office 213	36.7	30-50	Yes
Office 206	37.4	30-50	Yes
2 nd Floor Corridor	24.5	5	Yes
Office 201	35.3	30-50	Yes
Office 230	44.1	30-50	Yes
Office 211	35.2	30-50	Yes
Office 226	39.3	30-50	Yes
Communications Room 225	77.7	30-50	Yes
Office 224	13.0	30-50	No
Office 222	14.3	30-50	No
Classroom 219	41.6	30-50	Yes
Drill Hall	48.6	30-50	Yes
Conference Room 318	47.0	30	Yes
Office 317	41.4	30-50	Yes
Office 316	40.3	30-50	Yes
Office 315	36.2	30-50	Yes

Office 314	32.0	30-50	Yes
3rdFloor Corridor	16.3	5	Yes
Office 313	35.5	30-50	Yes
Conference 312	43.8	30	Yes
Office 311	35.5	30-50	Yes
Office 310	33.7	30-50	Yes
Office 309	63.6	30-50	Yes
Office 308	62.2	30-50	Yes
Conference 307	53.5	30	Yes
Men's Latrine	23.8	5	Yes
Office 305	31.3	30-50	Yes
Office 304	14.1	30-50	No
Computer Classroom Room	32.3	30-50	Yes
Office 301	47.7	30-50	Yes
Converted Firing Range Bulk			
Storage	30.3	10	Yes

Table Notes:

- 1. FC = Foot Candles
- 2. **Bolded** results did not meet listed 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 Offices 105, 124, 224, 304, and the Boiler Room. Lighting should be improved in these areas.

Section 5.0 Indoor Air Quality

Survey measurements were made for comfort parameters and ventilation (temperature, relative humidity, carbon dioxide, and carbon monoxide). The air quality measurements were collected using direct reading instrumentation for comfort parameters using a QTRAK IAQ Meter, Model 7565 (Serial #02041015). The IAQ Meter was last calibrated in August 2012.

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 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%.

The following table summarizes the measurements collected.

IAQ Assessment Summary

Location	Temperature (°F)	Relative Humidity (%)	Carbon Dioxide (ppm)	Carbon Monoxide (ppm)
Outdoors	74.7	51.3	381	0.0
Maintenance Office	76.5	44.6	440	0.4
Office 125	76.5	41.1	531	0.7
Office 213	74.7	53.0	500	0.4
Office 201	76.1	48.2	472	0.7
Office 316	78.1	40.1	423	0.4
Office 315	78.2	47.6	440	0.6
Criteria	68-79	30-60	<1,081	<9

Table Notes:

- 1. **Bolded** results exceed listed criteria
- 2. **ppm** = parts per million
- 3. (%) = percent relative humidity
- 4. ${}^{\circ}\mathbf{F} = \text{degrees Fahrenheit}$

Sources: The American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) 55-2010, 62.1-2010, Environmental Protection Agency (EPA) National Ambient Air Quality Standard (NAAQS) & The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation.

Summary of findings and recommendations:

- Temperature measurements met the recommended 68-79°F in all occupied areas.
- Relative humidity levels met the recommended guidelines in all occupied areas.
- Carbon dioxide levels were measured to evaluate building ventilation or the introduction of outdoor air into the building. The recommended ceiling is obtained by adding 700 ppm to the measured outdoor carbon dioxide level (700 ppm + 381 ppm for this survey). Carbon dioxide levels did not exceed the recommended ceiling of 1,081 ppm. This is an indication that outdoor air ventilation is adequate.
- Carbon monoxide levels measured were less than the recommended ceiling of 9 ppm. The recommended ceiling of 9 ppm referenced in the above table is the National Ambient Air Quality Standard for carbon monoxide
- A visual inspection was conducted throughout accessible portions of the facility to assess sources or pathways of factors potentially deleterious to IAQ. The following potentially deleterious factors were noted:
 - o Ground water is infiltrating through the perimeter wall in the Converted Firing Range.

Section 6.0 Suspect Asbestos Containing Building Materials

The following suspect asbestos containing materials (ACM) was noted at the time of this survey:

- o 9"x9" floor tile throughout the facility was intact and in good condition (approximately 40,000-50,000 sf).
- o Insulation on the boiler tank in the Boiler Room was intact and in good condition (approximately 150-200 sf).
- Window glazing was deteriorated and in poor condition (approximately 30 exterior windows). This was sampled for analysis. Sample results indicate the glazing is not an ACM.

Inaccessible areas such as behind walls or crawlspaces were not inspected. ACM could potentially be present in these areas.

It was unknown if an ACM management plan exists.

Section 7.0 Equipment

The following equipment was utilized during this survey. All sampling equipment was properly calibrated prior to use and verified for accuracy as applicable. See daily reports and calibrations logs for detailed information.

Equipment	Serial #	Calibration Date	Value
TSI QTrak IAQ Meter	02041015	8/2012	NA
Cal Light 400 Light Meter	98082EL	4/2013	NA
TSI 4199 Calibrator	41460827002	8/2012	NA
SKC Air Sampling Pump	647631	5/8/13	2.64 LPM
SKC Air Sampling Pump	647971	5/8/13	2.65 LPM

Section 8.0 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 Compliance Management International, Inc. 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.

BEST AVAILABLE COPY

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



LAB #100470

Client:

National Guard Bureau

Job Name:

ARNG 4h NH

Chain Of Custody:

515885

Address:

301-IH Old Bay Lane, Attn: ARNG-CJG-P,

Job Location:

Manchester, NH

Date Submitted:

5/14/2013

Havre de Grace, Maryland 21078

Job Number:

Not Provided

Person Submitting:

Non-Respons

Thavie de Grace, Maryland 21070

P.O. Number:

W912K6-09-A-0003

Date Analyzed:

5/20/2013

Report Date: 5/20/2013

Attention:

Non-Responsive

State Military Reservation

Summary of Atomic Absorption Analysis for Lead

Page 1 of 2

13062221	AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)		oorting Limit	Total ug	Final Res	ult	Comments
13062223 3	13062221	i	Flame	Air	554	N/A	5.4	ug/m³	<3	<5.4	ug/m³	
13062224	13062222	2	Flame	Air	557	N/A	5.4	ug/m³	<3	<5.4	ug/m³	
13062225 5 Flame Wipe **** 0.108 110 ug/h² <12 <110 ug/h² 13 120 ug/h² 13062226 6 Flame Wipe **** 0.108 110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <13062236 16 Flame Wipe **** 0.108 110 ug/h² <12 <110 ug/h² <13062237 17 Flame Wipe **** 0.108 110 ug/h² <12 <110 ug/h² <13062237 17 Flame Wipe **** 0.108 110 ug/h² <12 <110 ug/h² <13062238 18 Flame Wipe **** 0.108 110 ug/h² <12 <110 ug/h² <12 <110 ug/h² <13062238 <13 Ug/h² <13 <13 Ug/h² <13 <13 Ug/h² <13 <13 Ug/h² <13 <13 Ug/h² <13 <13 Ug/h² <13 <13 Ug/h² <13 <13 Ug/h² <13 <13 Ug/h² <13 <13 Ug/h² <13 <13 Ug/h² <13 <13 Ug/h² <13 <13 Ug/h² <13 <13 Ug/h² <13 <13 Ug/h² <13 <13 Ug/h² <13 <13 Ug/h² <13 <13 Ug/h² <13 <13 Ug/h² <13 <13 Ug/h² <13 <13 Ug/h² <13 <13 Ug/h² <13 <13 Ug/h² <13 <13 Ug/h² <13 <13 Ug/h² <13 <13 Ug/h² <13 Ug/h² <13 Ug/h	13062223	3	Flame	Air Blank	0	N/A	3	ug/m³		<3	ug	
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15002256 16 Frank Hipe	13062237	17	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
13062239 19 Flame Wine **** 0.108 110 ug/ft² <12 <110 ug/ft²	13062238	18	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
	13062239	19	Flame	Wipe	****	0.108	110	ug/ft²	<12	<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. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AIHA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

Posted to NGB FOIA Reading Room
May, 2018

An AIHA (#100470) and NY FLAP (#10920) Accredited Laboratory
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FOIA Requested Record #J-15-0085 (NH)
FOIA Requested Record #J-15-0085 (NH)
Released by National Guard Bureau
Page 224 of 511

AMA Analytical Services, Inc.

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CERTIFICATE OF ANALYSIS



LAB #100470

Client:

National Guard Bureau

Job Name:

ARNG 4h NH

Chain Of Custody:

515885

Address:

301-IH Old Bay Lane, Attn: ARNG-CJG-P,

Job Location:

Manchester, NH

Date Submitted:

5/14/2013

State Military Reservation Havre de Grace, Maryland 21078

Job Number:

Not Provided

Person Submitting:

P.O. Number:

W912K6-09-A-0003

Date Analyzed:

associated with these

samples.

5/20/2013

Report Date:

5/20/2013

Attention:

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)		oorting Jimit	Total ug	Final Res	ult	Comments
13062240	20	Flame	Wipc	****	0.108	110	ug/fl²	<12	<110	ug/ft²	
13062241	21	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
13062242	22	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
13062243	24	Flame	Wipe Blank	****	N/A	12	ug		<12	ug	
nalysis Method fo	r Flame: Air, Wipes,	Paints, and Soil/S	olids: EPA 600/F	R-93/200(M)-7000	B; Water: SM-31	11B	14000	Summary for an	alytical results		trol samples

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.



Technical Manager:



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. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AIHA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

Posted to NGB FOIA Reading Room FOIA Requested Record #J-15-0085 (NH) oom 4475 Forbes Blvd. · Lanham, MD, 20706 · (301) 459-2640 · Toll Free (800) 346-0961 · Fax (301) 459-2643 Released by National Guard Bureau May, 2018 Page 225 of 511

AMA Analytical Services, Inc.

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A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Client:

National Guard Bureau

Job Name:

ARNG 4h NH

Chain Of Custody:

515885

Address:

301-IH Old Bay Lane, Attn: ARNG-CJG-P,

Havre de Grace, Maryland 21078

Manchester, NH

W912K6-09-A-0003

Date Analyzed:

5/20/2013

State Military Reservation

Job Number:

P.O. Number:

Job Location:

Not Provided

Person Submitting:

Attention:

13062244

NAD

Summary of Polarized Light Microscopy

Page 1 of 1

AMA Sample Number	Client Sample#	Total Asbestos		Crocidolite Percent	Asbestos	Percent			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.

- 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

NAD = "No Asbestos Detected"

23

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

Analyst(s)

100

WG

Multi

Homogeneous SW

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. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NVLAP or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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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)

(301) 439	-2040 - (600) 3	40-0301 - Lax (301)4	37-2043															(V	301	1010)
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									Job	#:							_ P.C	#:_ W912K6	-09-A-0003		
 Address 2: Address 3: Phone #: 	Havre de G	race Marylani	d 210	178				4.	Con	tact P	ersor	No	n-F	20	enr	nne	ive	@ also	Non-Res	sponsive	9
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LOT 3/23/12 EXP 9/15

> 4. Comments: Posted to NGB FOIA Reading Room May, 2018

FOIA Requested Record #J-15-0085 (NH) Released by National Guard Bureau Page 227 of 511

OWI (410) 247-2024

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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)

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Mailing/Billing Information:				Si	ubmitt	lal Infor	nation:	NG	uL	NH				
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				-		**						14/0/01/0	Λ 0003	
3. Address 2: Attn: NGB-ARS-IHNE 4. Address 3: Havre de Grace, Maryland 5. Phone #: (410) 942-0273	04070				Con	toot Dare	NIO	n [200	1000	P.C	0 phone #		sive
4. Address 3: Havie de Grace, Maryland	210/0	040 0054		— "·	Colle	mittad by	INO		768	POLI	SIVE	gnature: Non-		
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May, 2018

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

Appendix B. Photographs



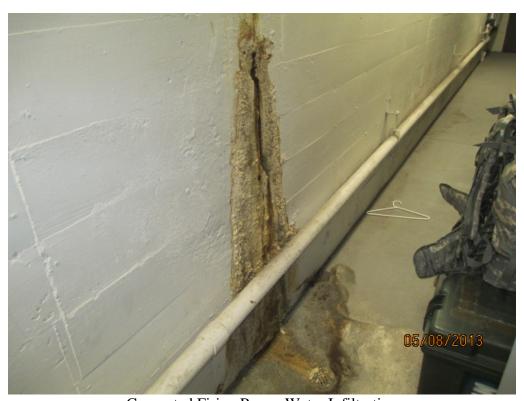
Manchester Amory



9"x9" Floor Tile Suspect ACM



Boiler Insulation Suspect ACM



Converted Firing Range Water Infiltration

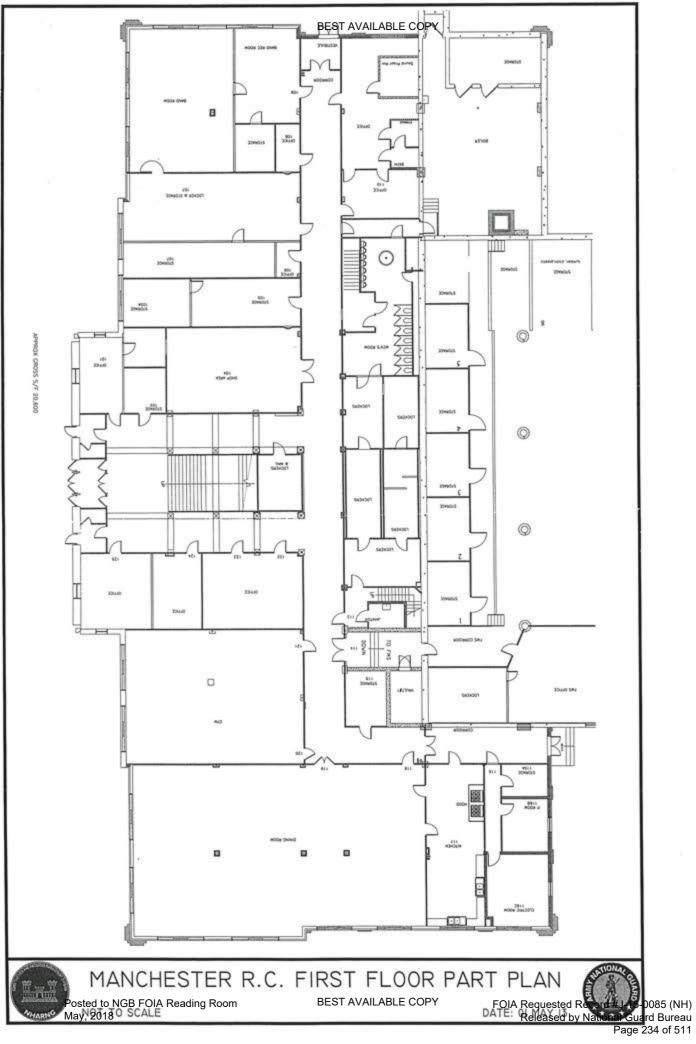


Converted Firing Range Bulk Storage



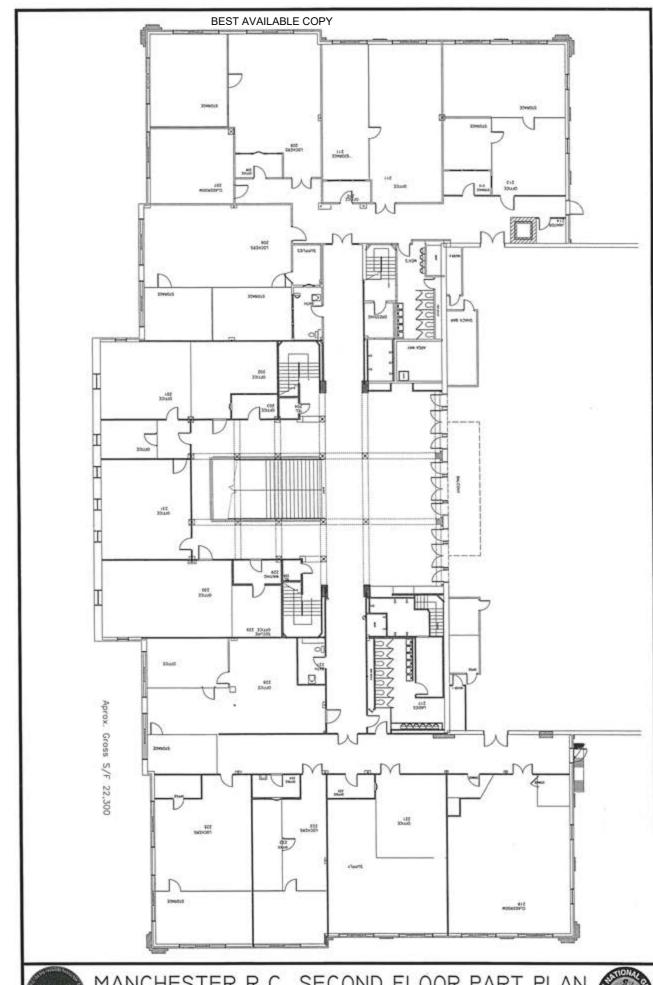
3rd Floor Conference Widow Glazing Suspect ACM

Appendix C. Floor Plan

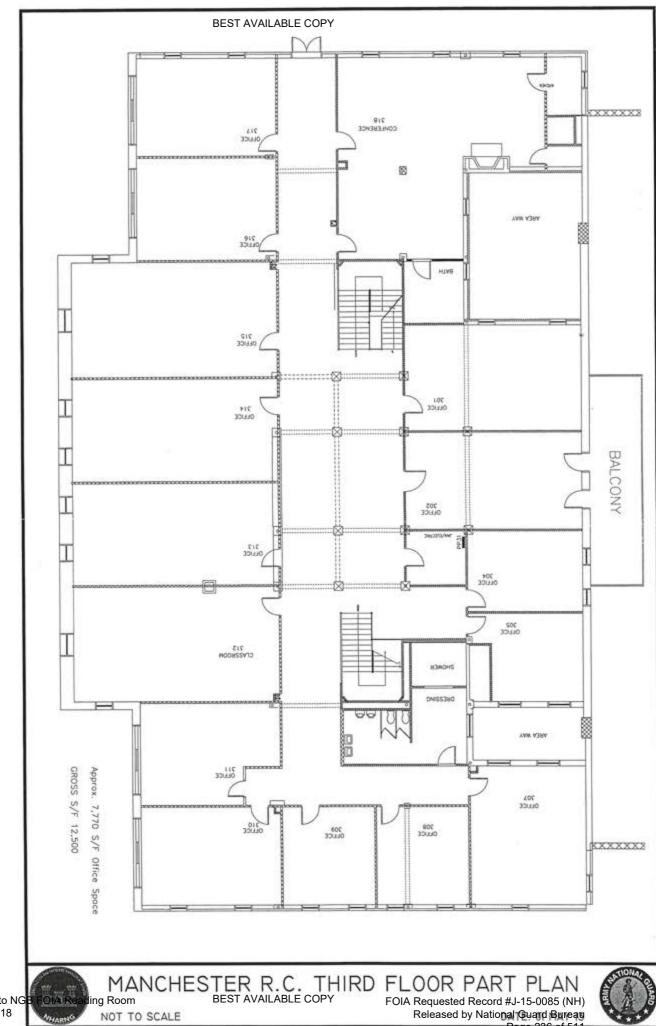


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MANCHESTER R.C. SECOND FLOOR PART PLAN FOIA Requested Record #J-15-0085 (NH)
Released by National Guard Bureau
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Posted to NGB May, 2018

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 National Standards Institute/Illuminating Engineering Society of North America (ANSI)/American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), 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. National Ambient Air Quality Standards (NAAQS) National primary ambient air quality standards for carbon monoxide 40 CFR 50.8.
- 9. Environmental Protection Agency (EPA) standards [40 Code of Federal Regulations (CFR) 745.227 (h) (3)].
- 10. Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM).
- 11. The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation, February 2002.
- 12. NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 Nov 06.
- 13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), Thermal Environmental Conditions for Human Occupancy, 55-2010.

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NATIONAL GUARD BUREAU ARMY NATIONAL GUARD REGION NORTH INDUSTRIAL HYGIENE OFFICE ATTN: NGB-ARS-IHNE 301-IH OLD BAY LANE HAVRE DE GRACE, MD 21078-4094

NGB-ARS-IHNE

19 May 2005

MEMORANDUM FOR NHARNG, Nashua Readiness Center, ATTN: SFC Non-leadiness Center, ATTN: SFC Non-

SUBJECT: Baseline Industrial Hygiene Survey Report

- 1. I have enclosed the industrial hygiene survey report completed by URS 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.

Encl

Non-Responsive
Regional Industrial Hygienist

CF: COL Non-Responsive OHM

URS

Prepared For:

National Guard Bureau Army National Guard Region North Industrial Hygiene Office 301 – IH Old Bay Lane Havre De Grace, Maryland 21078

Prepared By:

URS Corporation 5 Industrial Way Salem, New Hampshire 03079

INDUSTRIAL HYGIENE SURVEY REPORT NASHUA ARMORY NASHUA, NEW HAMPSHIRE



Office Manager

Non-Responsive

Project Manager

May 2005

PN: 39741509

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APPENDICES

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APPENDIX B PERSONNEL LIST

APPENDIX C HAZARDOUS MATERIALS LIST

APPENDIX D. ANALYTICAL RESULTS

APPENDIX E TRAINING CERTIFICATES

APPENDIX F RECOMMENDATIONS FOR SURGACE LEAD DUST IN ARMORIES

APPENDIX G PHOTOGRAPHS

FINDINGS AND RECOMMENDATIONS

Findings	Recommendation	Risk Assessment Code
Computer workstations were observed with fixed chairs, armrests, keyboards and monitors.	Ergonomic Ergonomic issues with the desks and chairs should be corrected by fitting the workplace to the worker (Department of the Army Pamphlet 40-21, Chapter 4, Page 7, Section 4-3)	RAC 3
On the day of the survey, the illumination in the administrative area was inadequate in most offices.	Increase lighting in the administrative areas. While work is in progress, the administrative area shall be lighted by at least the minimum lighting intensities (ANSI/IESNA EM 385-1-1 (3 Nov 03))	RAC 4
	Asbestos	
Damaged floor tile containing greater than 1% asbestos is present throughout the facility.	Remove and replace damaged asbestos-containing floor tile. Work should be completed by personnel trained in accordance with federal regulations (OSHA 29 CFR 1910.1001(k)(1))	RAC 3
Exposed ends or damaged asbestos-containing pipe insulation were present in the drill hall.	Repair or remove exposed ends or damaged asbestos-containing pipe insulation. Work should be completed by personnel trained in accordance with federal regulations (OSHA 29 CFR 1910.1001(k)(2))	RAC 3
No site-specific asbestos operations and maintenance plan available.	Develop a site specific asbestos operations and maintenance plan to manage asbestos-containing materials by labeling of asbestos (OSHA 29 CFR 1910.1001 (j)(4)); employee information and training (OSHA 29 CFR 1910.1001 (j)(7)); housekeeping (OSHA 29 CFR 1910.1001 (k)); medical surveillance (OSHA 29 CFR 1910.1001 (l)(1)); record keeping (OSHA 29 CFR 1910.1001 (m)(1))	RAC 3

FINDINGS AND RECOMMENDATIONS (Cont.)

Findings	Recommendation	Risk Assessment Code_
	Electrical Safety	
Access to electrical panel in janitor's room obstructed	Access to electrical control panels must be unobstructed (OSHA 29 CFR1910.303(g)(iv))	RAC 4
The state of the s		
Lead Wipe sample collected from the drill hall exceeded 200 micrograms per square foot.	Personnel trained in accordance with the OSHA Lead Standard should clean the Drill Hall where lead was detected in quantities of greater than 200 micrograms per square foot (OSHA 29 CFR 1910.1025 (e)(1)(i))	RAC 3
continue continue Cor	npressed Gas Cylinder	
Compressed gas cylinder in storage room (#13) not stored in a manner to prevent tipping (unchained / unsecured)	Compressed gas cylinders should be stored in a manner to prevent tipping (OSHA 29 CFR 1910.101(b) and Compressed Gas Association Pamphlet P-1-1965)	RAC 3
The same of the sa		Large State of the Control
Water mold stained ceiling tiles observed throughout facility.	Repair any water leaks within the building that are causing water damage to the ceilings. If left unattended to, mold could become a factor in the future (best management practice)	RAC 4

1.0 SUMMARY

At the request of the National Guard Bureau Region North Industrial Hygiene Office (NGB), URS Corporation (URS) conducted an industrial hygiene survey at the Readiness Center located at 154 Daniel Webster Highway, Nashua, New Hampshire. This report includes an executive summary, a description of the survey protocol, a discussion of the survey evaluation and findings and a list of conclusions and recommendations.

On December 10, 2003, Mr. Non-Responsive an industrial hygienist with URS, conducted the site visit to the Nashua Readiness Center. The purpose of this site visit was to conduct an industrial hygiene survey, which included the collection of air samples, bulk samples, lighting measurements and a review of site health and safety procedures. SFC Non-Responsive of the New Hampshire ARNG was Mr. Non-Responsive site contact for this survey.

A shop layout drawing of the facility, which shows the locations where measurements were made during this survey, is contained in Appendix A.

2.0 ADMINISTRATIVE AREA

2.1 Operation Description

This area has multiple offices located throughout the building with desks and computer workstations. This area also includes the kitchen, classrooms, game room, janitor's room, locker room, shower room, weight room and supply room. There were a few ergonomic issues in this area (Photos # 2953, 2959 & 2961). Chairs with adjustable arms should be used in the computer stations because they can be adjusted to fit the worker and avoid muscular skeletal disorders. There are computer monitors that need to be adjusted for the person working at the station. If more than one person is using that station, then proper adjustments need to be made to accommodate each person.

2.2 Chemical and Physical Agents Sampled

2.2.1 Carbon Dioxide

On the day of the survey, carbon dioxide measurements were made in the Readiness Center. Carbon dioxide concentrations ranged from 536 to 654 parts per million (ppm), with an average of 578 ppm. Carbon dioxide levels were measured using a direct reading TSI Q-Track (Model 8551).

Carbon dioxide is a normal constituent of the atmosphere and ranges from about 250 to 450 ppm. The major source of excess carbon dioxide in the indoor environment is people. Other sources can include open-flame heaters, fermentation processes, and motor vehicles. Carbon dioxide itself is not normally a cause of indoor air quality problems because concentrations must exceed 5,000 to 10,000 ppm before health effects such as headache, drowsiness, and increased respiration are noted. Typically, carbon dioxide is used as an indicator of the adequacy of fresh air intake. As the concentration of carbon dioxide increases, so do the background levels of other air contaminants.

ASHRAE recommends that levels of carbon dioxide be maintained below 750 ppm above background level. Given a background level of 350 ppm on the day of the survey, the ASHRAE limit would be 1100 ppm.

2.2.2 Carbon Monoxide

Carbon monoxide was also measured in the Readiness Center. Carbon monoxide concentrations ranged from 0 to 2 parts per million (ppm), with an average of 1 ppm. Therefore interior levels were below the ASHRAE guideline for indoor environments. Carbon monoxide was measured using a TSI Q-Track (Model 8551).

Key sources of carbon monoxide within indoor environments include internal combustion engines, motor vehicle and forklift exhaust, tobacco smoke, space heaters, and improperly adjusted oil or gas burners. Health effects from exposure to elevated concentrations of carbon monoxide may include fatigue, impairment of visual acuity, irregular heartbeat, headache, nausea, and confusion. ASHRAE recommends that average carbon monoxide concentrations not exceed 9 ppm. Typical average concentrations found in commercial buildings range from 0 to 6 ppm.

2.2.3 Lighting

Lighting in the administrative area was measured using a Sper Scientific Ltd. Light Meter (Model 840020C), Table 2-1 below shows lighting measurements and the recommended lighting requirement ANSI / IESNA RP =1-04 American National Standard Practice for Office Lighting = Table B-1).

Table 2-1
Lighting Measurements and Recommended Lighting Requirements

Location	Function	Measured Illuminance (lux)	Recommended Minimum Illuminance (lux)
Office # 11	Administrative Duties	320	500
Office # 12	Administrative Duties	224	500
Office # 13	Administrative Duties	268	500
Office # 14	Administrative Duties	238	500
Office # 15	Administrative Duties	321	500
Office # 16	Administrative Duties	158	500
Recruiter Office # 8	Administrative Duties	494	500
Supply Office # 7 Desk 1	Administrative Duties	190	500
Supply Office # 7 Desk 2	Administrative Duties	283	500
Janitor Room # 24	Administrative Duties	321 _	500

On the day of the survey the illuminance in the administrative area was inadequate in all offices.

2.2.4 Ashestos

Bulk samples were collected from damaged suspect asbestos-containing materials (ACM) in this area for a determination of asbestos content. Analytical procedures were performed in accordance with the U.S. Environmental Protection Agency (EPA) Recommended Method for the Determination of Asbestos in Bulk Samples by Polarized Light Microscopy and Dispersion Staining (PLM/DS)(EPA-600/M4-82-020. EPA-600/R-93-116). Table 2-2 below presents the results of the sample analysis.

Table 2-2 Samples Results of Suspect ACM

Samples Results of Suspect ACM							
		10.20					
h man karaka		AMA	l``	Total			
Location Of ACM	1.11	Sample	URS Sample	Asbestos			
Sample Taken	Material Sampled	Number	Number	(%)			
Old Game Room # 21	Brown 9"x9" Floor Tile	0414381	1210-AB01A-FT	2			
Kitchen # 26	Brown 9"x9" Floor Tile	0414382	1210-A801B-FT	2			
Classroom2 # 22	4" Black Cove Base	0414383	1210-AB02A- CB	NAD			
Kitchen # 26	4" Black Cove Base	0414384	1210-AB02B- CB	NAD			
Classroom1 # 17	4" Black Cove Base	0414385	1210-AB02C- CB	NAD			
Kitchen # 26	Cream 9"x9" Floor Tile	0414386	1210-AB03A-FT	2			
Kitchen # 26	Cream 9"x9" Floor Tile	0414387	1210-AB03B-FT	2			
Kitchen # 26	Black 9"x9" Floor Tile	0414388	1210-AB04A-FT	2			
Office # 12	Black 9"x9" Floor Tile	0414389	1210-AB04B-FT	2			
Supply Room # 3	Window Glazing	0414393	1210-AB06A	NAD			
Supply Room #3	Window Glazing	0414394	1210-AB06B	NÄD			
Supply Room #3	Window Glazing	0414395	1210-AB06C	NAD			
Old Game Room # 21	9"x9" Floor Tile Mastic	0416188	1210-AB01A- Mastic	NAD			
Kitchen # 26	9"x9" Floor Tile Mastic	0416189	1210-AB01B- Mastic	NAD			
Classroom2 # 22	4" Cove Base Mastic	0416190	1210-A802A- Mastic	NAD			
Kitchen # 26	4" Cove Base Mastic	0416191	1210-AB02B- Mastic	NAD			
Classroom1 # 17	4" Cove Base Mastic	0416192	1210-AB02C- Mastic	NAD			
Kitchen # 26	9"x9" Floor Tile Mastic	0416193	1210-AB03A- Mastic	6			
Kitchen # 26	9"x9" Floor Tile Mastic	0416194	1210-A803B- Mastic	3			
Kitchen # 26	9"x9" Floor Tile Mastic	0416195	1210-A804A- Mastic	*			
Office # 12	9"x9" Floor Tile Mastic	0416196	1210-AB04B- Mastic	2			
NAD - No Achaetae Date	_ · · · · ·						

NAD = No Asbestos Detected

^{* =} Sample Not Analyzed: Not enough material.

The U. S. Environmental Protection Agency (EPA) states that any material with greater than 1% asbestos must be treated as ACM (U.S. EPA, Title 40 CFR Part 763.87 (c)(2)). The analytical report from AMA Analytical Services, Inc. (AMA) is contained in Appendix D. Mr. asbestos inspector training certificate is provided in Appendix F.

2.2.5 Lead

Paint chip samples were collected where paint was peeling and sent to AMA for analysis. The sample results were found to be within the acceptable limits of the U.S. Housing and Urban Development (HUD) Lead-Based Paint Guidelines. Levels of lead greater than 0.5% by weight are referred to as "lead-containing" (Section 1017 of the Residential Lead-Based Paint Hazard Reduction Act of 1992 (also referred to as Title X)). Table 2-3 below shows the results of the lead testing.

Table 2-3 Levels of Lead in Paint Found in the Administrative Area

Location Of Paint Chip Taken	AMA Sample Number	URS Sample Number	Reporting Limit (% by Weight)	Final Result (% by Weight)
Rest Room Ceiling # 23	0414367	1210- LPC01	0.03	<0.027
Office # 13 Around Window	0414368	1210- LPC02	0.02	<0.023

URS collected additional lead wipe samples in this building area, in accordance with the Army National Guard statement of work. Results from analytical wipe sample analysis will be provided in a supplemental letter.

2.3 Ventilation System Evaluation

Not applicable to this operation.

2.4 **Noise Measurements**

Not applicable to this operation.

2.5 Personal Protective Equipment

Not applicable to this operation.

2.6 Interpretation of Results

<u>LIGHTING</u>: The lighting in this area falls below the minimum lighting requirements indicated in table 2-1. While work is in progress, the administrative area should be lighted by at least the minimum light intensities. Recommend increasing the lighting in the administrative areas.

<u>ASBESTOS</u>: The floor tile samples that were collected throughout this area were determined to contain asbestos. The floor tile has multiple areas of damage (Photos # 2947, 2951-2), including cracks and missing tiles. Recommend replacing the damaged tile with new, non-asbestos tile, by an appropriately trained technician. The floor tile also needs to be protected by at least two coats of wax.

MOLD: Water stains were found on the ceiling in classroom 2, room #22 (Photo # 2949), office # 18 (Photo # 2954), office # 19 (Photo # 2956), office # 20 (Photo # 2957), recruiters office # 8 (Photo # 2960), and the restroom storage # 9 (Photo # 2962). Some of the water stains have visible mold growth, which have been painted over with white paint.

<u>GENERAL SAFETY:</u> There is a compressed gas cylinder which is not chained or in a storage rack, in storage room #13 (Photo # 2963).

ELECTRICAL: The electrical panel in the janitor's room is blocked (Photo # 2989).

3.0 FORMER INDOOR FIRING RANGE

3.1 Operation Description

The firing range has been dismantled and is now primarily used for storage. The area is approximately 1250 square feet with cinder block walls and a concrete floor.

3.2 Chemical and Physical Agents Samplad

3.2.1 Lead

Wipe testing for lead was conducted in the former firing range (Photos # 2968-71), of which 4 of the 5 samples were found to contain lead above the acceptable limits of the U.S. Army. Ghost wipes, which meets ASTM E 1792 standards, were used to test surfaces for lead. Table 3-1 below shows the results of the lead testing.

Table 3-1
Levels of Lead Dust Found in the Facility

Location Of Wipe Taken	AMA Sample Number	URS Sample Number	Area Wiped (ft²)	Result (μg/ft²)	Maximum Safe Surface Contamination Level (μg/ft²)
Firing Range #1- Floor/Front	0414375	1210-LW6	1.000	1,000	200
Firing Range #1- Floor/Bullet Trap	0414376	1210-LW7	1,000	28,000	200
Firing Range #1- Top of Table	0414377	1210-LW8	1.000	290	200
Firing Range #1- Top of a Light	0414378	1210-LW9	0.625	15,000	200
Firing Range #1- Top of Equipment	0414379	1210- LW10	0.889	65	200
Blank	0414380	1210-LW Blank1	N/A	<12	200

One air sample for lead was collected in the former firing range. Table 3-2 below shows the result of the lead air sample.

Table 3-2
Airborne Lead Dust Concentration

Location Of Air Sample Taken	AMA Sample Number	URS Sample Number	Air Volume (L)	Result (μg/m³)	OSHA's PEL(µg/m³)
Former Firing	0414364	1210-LA01	1108	<2,7	50.0
Range #1					
Air Blank	0414366	1210-Blank	0	<3.0	50.0

On the day of the survey, the airborne lead concentration in the former firing range was found to be acceptable, below OSHA's permissible exposure limit (PEL) for lead (29 CFR 1910,1025(c)) of 50.0 μg/m³ averaged over an 8-hour day.

3.3 Ventilation System Evaluation

Not applicable to this operation.

3.4 Noise Measurements

Not applicable to this operation.

3.5 Personal Protective Equipment

Not applicable to this operation.

3.6 Interpretation of Results

<u>LEAD:</u> The former firing range was found to contain lead levels in the dust, which exceed the maximum limit of 200 $\mu g/ft^2$ set by the NGB Region North IH Office. See Appendix F for recommendations for surface lead dust in armories. Recommend cleaning the lead dust by using guidance in All States Letter P01-0075. The analytical results of the air sample collected in this area contained a level of lead that was below the OSHA PEL.

4.0 DRILL HALL

4.1 Operation Description

The drill hall is a 6,000 square foot area with a 30-foot high ceiling, used for assembling personnel and storing vehicles. The walls are constructed of cinder blocks with a concrete floor.

4.2 Chemical and Physical Agents Sampled

4.2.1 Lead

Wipe testing for lead was conducted in the drill hall and found that 4 of the 5 samples contained levels of lead that were within acceptable limits of 200 μ g/ft² set by the NGB Region North IH Office. Ghost wipes, which meets ASTM E 1792 standards, were used to test surfaces for lead. Table 4-1 below shows the results of the lead testing.

Table 4-1
Levels of Lead Dust Found in the Facility

Location Of Wipe Taken	AMA Sample Number	URS Sample Number	Area Wiped (ft²)	Result (μg/ft²)	Maximum Safe Surface Contamination Level (µg/ft²)
Drill Hall #2 – Floor	0414370	1210-LW1	1.000	47	200
Drill Hall #2 - Floor	0414371	1210-LW2	1.000	27	200
Drill Hall #2 - Floor	0414372	1210-LW3	1.000	42	200
Drill Hall #2 – Top of a Locker	0414373	1210-LW4	1.000	93	200
Drill Hall #2 – Top of Flammable Chemical Cabinet	0414374	1210-LW5	1.000	700	200
Blank	0414380	1210- Blank1	N/A	<12	200

One air sample for lead was collected in the drill hall. Table 4-2 below shows the result of the lead air sample.

Table 4-2
Airborne Lead Dust Concentration

Location Of Air Sample Taken	AMA Sample Number	URS Sample Number	Air Volume (L)	Result (μg/m³)	OSHA's PEL(μg/m³)
Drill Hall # 2	0414365	1210-LA02	1104	<2.7	50.0
Blank	0414366	_ 1210-Blank	0	<3.0	50.0

On the day of the survey, the airborne lead concentration in this area were found to be acceptable, below OSHA's permissible exposure limit (PEL) for lead (29 CFR 1910.1025(c)) of 50.0 μ g/m³ averaged over an 8-hour day.

One paint chip sample (Photo # 2988) was collected where paint was peeling and sent to AMA for analysis. The sample analytical results were found to be within the acceptable limits of the U.S. Housing and Urban Development (HUD) Lead-Based Paint Guidelines. Levels of lead greater than 0.5% by weight are referred to as "lead-containing" (Section 1017 of the Residential Lead-Based Paint Hazard Reduction Act of 1992 (also referred to as Title X)). Table 4-3 below shows the results of the lead tests.

Table 4-3
Levels of Lead in Paint Found in the Drill Hall

Location Of Paint Chip Taken	AMA Sample Number	URS Sample Number	Reporting Limit (% by Weight)	Final Result (% by Weight)
Drill Hall #2	0414369	1210- LPC03	0.01	0.16

4.2.2 Asbestos

Bulk samples were collected from damaged suspect asbestos-containing materials (ACM) in this area for a determination of asbestos content. Analytical procedures were performed in accordance with the U.S. Environmental Protection Agency (EPA) Recommended Method for the Determination of Asbestos in Bulk Samples by Polarized Light Microscopy and Dispersion Staining (PLM/DS)(EPA-600/M4-82-020, EPA-600/R-93-116). Table 4-4 below presents the results of the sample analysis.

Table 4-4 Sample Results of Suspect ACM

Location Of ACM Sample Taken			URS Sample Number	Total Asbestos (%)
Drill Hall # 2	Air Cell Pipe Insulation	0414390	1210-05A	60
Boiler Room #7	Air Cell Pipe Insulation	0414391	1210-05B	60
Boiler Room #7	Air Cell Pipe Insulation	0414392	1210-05C	50

The U. S. Environmental Protection Agency (EPA) states that any material with greater than 1% asbestos must be treated as ACM (U.S. EPA, Title 40 CFR Part 763.87 (c)(2)). The analytical report from AMA Analytical Services, Inc. is contained in Appendix D. Mr. asbestos inspector training certificate is provided in Appendix E.

4.3 Ventilation System Evaluation

Not applicable to this operation.

4.4 Noise Measurements

Not applicable to this operation.

4.5 Personal Protective Equipment

Not applicable to this operation.

4.6 Interpretation of Results

<u>LEAD</u>: The samples collected from the drill hall for lead dust were found to contain lead within the acceptable limits, except for the one sample collected from the top of the flammable storage cabinet. Recommend having the flammable materials cabinet cleaned using All State Letter P01-0075.

ASBESTOS: The pipe insulation in the drill hall had exposed ends, mainly on the risers where the insulation ends (Photo # 2987). There were also puncture holes throughout the insulation (Photos # 2984 & 2986) and splits where the sections come together (Photo # 2985). The repairs should be performed by an appropriately trained technician.

5.0 BOILER ROOM

5.1 Operation Description

The Boiler Room was tocked and a state employee who was not on site at the time of the inspection had the keys so the room was not accessed. The facility was about to under go renovations, which included the mechanical room.

5.2 Chemical and Physical Agents Sampled

Not applicable to this operation.

5.3 Ventilation System Evaluation

Not applicable to this operation.

5.4 Noise Measurements

Not applicable to this operation.

5.5 Personal Protective Equipment

Not applicable to this operation.

5.6 Interpretation of Results

6.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS

6.1 Confined Spaces

No site-specific written safety program found regarding confined spaces. No training records were found on site. A confined space program not required for this site.

6.2 Hearing Conservation

A written program regarding hearing conservation was found in the site's safety binder. No training records were found on site. A hearing conservation program is not required for this site.

6.3 Respiratory Protection

A written program regarding respiratory protection was found in the site's safety binder. No training records were found on site. A respiratory protection program is not required for this site.

6.4 HAZCOM

May, 2018

A written program regarding hazard communications was found in the site's safety binder. No training records were found on site.

6.5 Personal Protective Equipment

A written program regarding personal protective equipment was found in the site's safety binder. No training records were found on site. A personal protective equipment program is not required for this site.

7.0 REFERENCES

American National Standards Institute

ANSI/ESNA RP-1-04: American National Standard Practice for Office Lighting

American Society of Heating Refrigerating and Air-Conditioning Engineers

ANSI/ASHRAE Standard 62-2001: Ventilation for Acceptable Indoor Air Quality

Army Corps of Engineers

Safety and Health Requirements Manual EM 385-1-1 November 2003

Compressed Gas Association

Pamphiet P-1-1968

Department of the Army

Ergonomics Program Pamphlet 40-21 (15 August 2003)

Policy and Responsibilities For Inspection, Evaluation and Operation of Army National Guard Indoor Firing Ranges (National Guard Regulation 385-15 30 December 2002)

Department of Defense

DoD Hearing Conservation Program Standard 6055.12 April 1996

Creating an Ideal Workstation: A Step-by-Step Guide

U. S. Environmental Protection Agency

Asbestos Hazard Emergency Response Act (40 CFR Part 763)

National Emissions Standards for Hazardous Pollutants (40 CFR Part 61)

U. S. Housing and Urban Development

Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (1995, 1997)

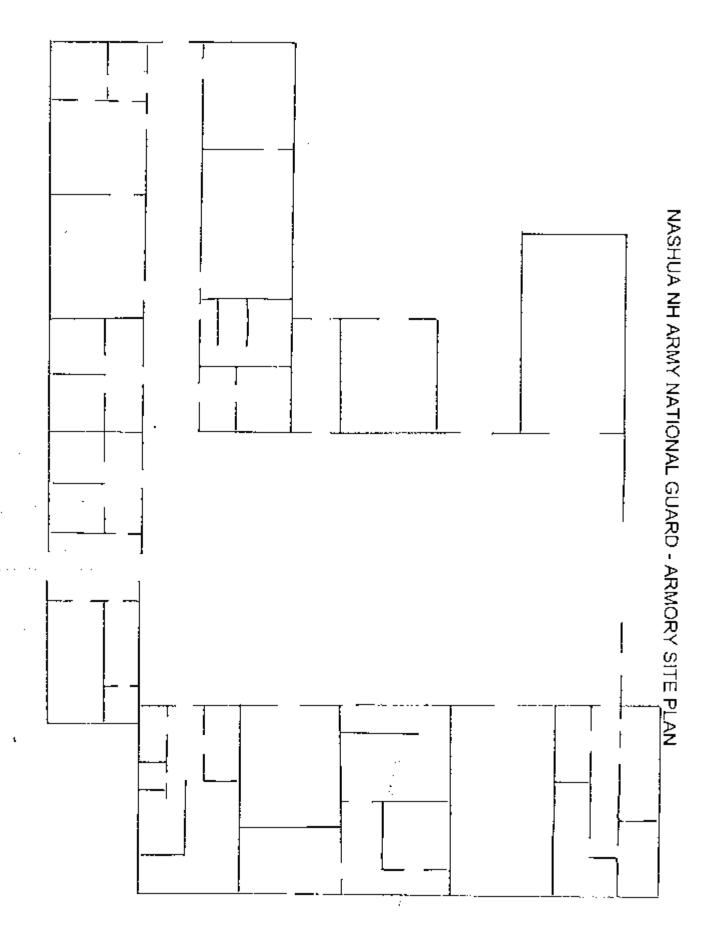
U. S. Occupational Safety and Health Administration

Standard for General Industry: 29 CFR 1910

May 13, 2005

May, 2018

APPENDIX A SHOP DRAWINGS



APPENDIX B
PERSONNEL LIST



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DEPARTMENT OF THE ARMY

B Battery, 1st Battalion 172d Field Artillery New Hampshire Army National Guard State Armory, 154 Daniel Webster Highway Nashua, New Hampshire 03060-9803



NHAG-1BN-B

10 December 2003

FULL-TIME MANNING ROSTER

NAME Non-Responsive

RANK	DUTY POSITION
SFC	Readiness NCO
SSG	Training NCO
SSG	Supply SGT



POC for this information is the undersigned at 603-888-9179



SFC Readiness NCO

APPENDIX C HAZARDOUS MATERIALS LIST

Semi-Annual Hazardous		, -	172d FA Nashua, N
	ning Community Right-To-Know Act)	Date:	1-Oct-99
inventory to Be Done and	Sent to this Office By 15 February and	15 August	·
National Stock Number	Noumenclature	Location	Uii Qty O
850-00-281-1985	Dry Cleaning Solvent, Gal	!Cab 1	!CN
930-01-174-0979	Cleaning Compound	Cab 1	!BT
040-00-264-3840	Adhesive Tent Patching	Cab 1	:CN
850-00-598-7311	Leak Prevent Comp Radiator, 1PT	jCab 1	CN
030-00-082-2508	Primer Sealing Compound, 10 fl oz	Cab 1	BT
930-01-294-1115	Scouring Powder	Cab 1	ÎCN
810-00-264-6618	Sodium Bicarbonate, 1PT	Cab 1	CN
930-00-205-2870	Floor Wax	Cab 1	ĪĠĽ i
025-01-196-2172	Cleaning Kit Artillery	Cab 1	EA
150-01-053-6688	Cleaner, Lubricant, and Preservative	Cab 1	GL
150-01-054-6453	Break free	Cab 1	QT :
150-01-054-6453	Break Free	Cab 1	BT
SN	Ballery Acid	Cab 1	BX
150-01-102-9455	Brake Fluid	Cab 1	GL
840-01-278-1336	Insect Repellent	Cab 2	CN
840-01-067-6674	Insecticide	Cab 2	ICN
850-00-973-9091	Penetrating Fluid	Cab 2	CN
010-00-721-9743	Paint Aerosol	Cab 2	iCN
010-00-721-9747	Paint Aerosol	_ Cab 2 	CN
010-00-141-2950	Paint Aerosol	Cab 2	CN
150-00-754-0064	Lubricant Solid Film	Cab 2	CN
850-00-227-1887	Cleaning Compound Optical lens	Cab 2	QT
920-00-823-9817	Pad Melal Polish	Cab 2	CN
SN	Agent 99	Cab 2	ĮQT
930-00-184-9423	Glass Cleaner	Cab 2	GL .
SN	(Spray paint	Cab 2	CN
<u>SN</u>	Goof Off	Cab 2	CN
SN	Hand Cleaner	Cab 2	GL
520-00-082-2146	Hand Cleaner	Cab 2	CN
010-00-598-5464	Paint (Green)	Cab 2	GL
010-00-597-7862	Paint (Brown)	Cab 2	GL :
010-00-597-0547	Paint (Black)	Cab 2	ÍGL :
010-00-598-5465	Paint (Greon)	Cab 2	GL
SN	Paint	Cab 2	GL
SN	Paint	Cab 2	iQT
SN	Body Filler	Cab 2	GL.
150-00-145-0268	Grease	Cab 3	ICN
310-00-275-6010	Methyl Alcohol	Cab 3	CN
310-01-128-9537	Ettier	Cab 3	CN ;
325-01-330-4668	Putty Epoxy	Cab 3	CT
030-00-081-2328	Sealing Compound	Cab 3	BT
150-00-935-9807	Hydrolic Fluid	Cab 3	ĺατ
150-00-698-2382	Automatic Transmission Fluid	Cab 3	iατ :
150-00-687-4241	Lube Oil	I	QT
150-00-231-6689		Cab 3	QT
	Lube Oil	1	BT
930-00-584-3041	Propane	Cab 3	i
150-00-458-0075	Lube Oil	Cab 3	ΩΤ
ational Stock Number	Noumenclature	Location	U/I Qty O/I
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0450 00 500 600				(5	10
9150-00-698-2382	Hydrolic Fluid	Hazmat	!QT		- 2
9150-00-231-6689	Lube Oil	HəzMat	_QT	• · · ·	. 1
9150-01-054-6453	Break Free	HazMat	įQΤ		. 1
NSN	Battery Acid	HazMat	ВX		
9150-01-053-6688	Cleaner, Lubricant, Preservative	HazMai	ВТ	: -	
9150-01-177-3988	[Oil OE/HDO-10]	HazMat	cs		
9150-01-142-1427	Oil OE/HDO-15/40	HazMat	CS		2
9150-00-458-0075	Lube Oil	HazMat	QT .		
9150-00-687-4241	Lube Oil	HazMat	୍ଦି ପ୍ର		1
9150-00-231-6689	Lube Oil				
9150-01-260-2534	Lube Solid Film	HazMat	QT		
9150-00-935-9807	Hydrolic Fluid	Hazitat	[CN		1
9150-01-053-6688		HazMat	GL GL		_
6850-00-281-1985	Break Free	HazMat	<u>GL</u>		
	Cleaning Solvent	HazMat	GL	!	
9150-00-145-0268	Grease	HazMat	CN		1
9150-01-035-5393	Lube Oil Gear (80W/90)	HazMat	CN		
9150-00-935-5851	Grease	HazMat	CN	:	
6810-00-244-0290	Methane	HazMat	CN		
2910-01-128-9537	Ether	HazMai	ICN	÷	
9150-01-102-9455	Brake Fluid	HazMat	GL	÷	1
6850-00-926-2275	Cleaning Compound	l	·		
·····	Composition	HazMat_	PT.		30
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APPENDIX D ANALYTICAL RESULTS

osted to NGB FOIA Reading Room lay, 2018

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



Client:	URS Corporation	Job Name:	Army National Guard	Chain Of Custody:	121355
Address:	5 Industrial Way	Job Location:	154 Daniel Webster Ewy Nashua, NH	Date Analyzed:	12/22/2003
	Salem, New Hampshire 03079-2830	Job Number:	Not Provided	Person Submitting:	Not⊩R
		P.O. Number:	Not Provided	Report Date:	22-Dec-03
Attention:	Non-Resi		•		
		Summary of	Summary of Atomic Absorption Analysis for Lead	sis for Lead	

Page 1 of 2

Client Sample Number	Anatysis Lype	ader admiss	(L)	(₄₃)	J.	Limit	į			Comments
[210-LA 0]	Flame	Air	1108	N/A	2.71	"w/sn	v	il	us/m³	A THE REAL PROPERTY OF THE REA
1210-LA 02	Flame	Air	1104	N/A	2.72	ug/m³	٧	2.7	ng/m³	
210-BLANK	Flame	Air Blank	0	N/A	3.00	ug/m²	٧		Sn Sn	
1210-LPC 01	Flame	Paint Chip	***	N/A	0.03	%Pb	٧	0.027	- ·	insufficient sample
									w E E	submitted to meet recommended reporting limits.
1210-LPC 02	Flame	Paint Chip	* * *	N/A	0.03	%Pb	٧	0.023	%Pb 1	Insufficient sample
									% E. ≔	submitted to meet recommended reporting limits.
1210-LPC 03	Flame	Paint Chip	美秀芳	N/A	0.01	%Pb		0.16	%b\$	
7.1	Flame	Wipe	***	1.000	12.00	ug/ft²		47	ug/ft²	
61	Flame	Wipe	****	1.000	12.00	ng/itt-		27	ug/ff²	
'n	Flame	Wipe	***	1,000	12.00	ng∕ff²		42	ug/ft²	
4	Flame	9 9 0414373 1210-LW 4 Flame Wipe ****	뜻좆풁픗	1.000	12.00	ug/ft²		93	ug/ft²	
5	Flame	Wipe	**	1.000	12.00	ng∕ft²		700	ug/ft²	
9	Flame	Wipe	***	1.000	12.00	ug∕ft²		1000	ng∕ft²	
-	Flame	Wipe	***	1.000	12.00	ug/ft²		28000	ug/ft²	
8/	Flame	Wipe	***	1.000	12.00	ug/ft²		290	ug/ft²	
6 ^	Flame	Wipe	**	0.625	19.20	ng∕ft²		15000	ng∕ft²	
10	Flame	Wipe	***	0.889	13.50	ue/ft²		65	ng/ft²	

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 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 All rights reserved. AMA Analytical Services, Inc. applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples

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AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



121355	12/22/2003	Non-F	22-Dec-03	
Chain Of Custody:	Date Analyzed:	Person Submitting:	Report Date:	
Army National Guard	154 Daniel Webster Hwy Nashua, NH	Not Provided	Not Provided	-
Job Name:	Job Location:	Job Number:	P.O. Number:	
URS Corporation	5 Industrial Way	Salem, New Hampshire 03079-2830		

Page 2 of 2

Summary of Atomic Absorption Analysis for Lead

Attention:

Client: Address:

osted to NGB FOIA Reading Room lay, 2018

AMA Sample Client Sample Analysis Type	Client Sample	nple Analysis Type	/pe Sample Type	;	Area Wiped	- Volume Area Wiped Reporting		Final Result Comments
Namber	Number	L		Ð	<u>(£</u>)	Limit		
11				To the second of	E considerada de compressor de que ca a las compressors de que ca a las compressors de que ca a la compressor de que ca a			
9E 0414380	1210-BLANK 1	IK 1 Flame	Wipe Blank	***	N/A	12,00 ug	< 12 ug	
Analysis Method for	Flame: Air, W	fipes, Paints, and S	Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7420; Water: SM-3111B	:00(M)-7420; Water	: SM-3111B			
Analysis Method For	r Furnace: Air	r, Wipes, Paints, and	Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7421; Water: SM-3113B	93/200(M)-7421; W	/ater: SM-3113B			
A/A = Not Applicable	e mg/Kg	= parts per million (A/A = Not Applicable mg/Kg = parts per million (ppm) by weight mg/L = parts per million (ppm)	parts per million (pp	(mi			
Pb = percent lead	by weight	ug ≈ micrograms	SPb = percent lead by weight ug = micrograms ug/L = parts per billion (ppb)	(ddd) t				No
Note: All resuits have	e two significa	ant digits. Any additi	Note: All results have two significant digits. Any additional digits shown should not be	ot be		N		n-F
Sonsidered when interpreting the result.	erpreting the r	resuit.				on-Ro		Resp
						e		

FOIA Requested Record #J-15-0085 (Nr sample, or sample, or sample, and it not necessarily indicative of the quality or condition of apparently identical or similar products, its public and these Laboratories. The public and these Laboratories are a mutual protection to clients, the public and these Laboratories. 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 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

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URS Corporation 5 Industrial Way

Client:

Address:

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GWNAN

NYELA

至于

Chain Of Custody: Date Analyzed: 154 Daniel Webster Hwy Nashua, NH Army National Guard Job Location: Job Name:

Not Provided Not Provided

> Job Number: P.O. Number:

Salem, New Hampshire 03079-2830

Attention:

osted to NGB FOIA Reading Room

Person Submitting:

12/29/2003 121355

Page 1 of 3

Comments

ĺ	†
	Analyst ID
	Sample
	Particulate Sample Percent Color
ý	Other Percent
Summary of Polarized Light Microscopy	Synthetic Percent
	Organic Percent
	Fiberglass Organic Synthetic Percent Percent Percent
	Mineral Wool Percent
	Other Asbestos Percent
	Crocidolite Percent
	Amosite Percent
	Chrysotile Percent
	Total Asbestos
	# 12
Room	AMA Sample Clie Number Samp

ľΒ	178	E3	LB	LB	LB	LB	E.3	9	E3	83	EB	æ	EB
Brown	Brown	Black	Black	Black	Gray	Gray	Black	Black	Off-White	Gray	Gray	White	White
8	88	100	100	100	86	98	86	86	30	30	30	100	100
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7	2	NAD	QVN	NAD	7	7	2	2	09	09	50	NAD	NAD
1210-AB 01 A- FT	1210-AB 01 B- FT	1210-AB 02 A- NAD	1210-AB 02 B- NAD CB	1210-AB 02 C- NAD CB	1210-AB 03 A- FT	1210-AB 03 B- FT	1210-AB 04 A- FT	1210-AB 04 B- FT	1210-AB 05 A	1210-AB 05 B	1210-AB 05 C	1210-AB 06 A	69 0 80 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0414381	0414382	0414383	O 0414384	0414385	0414386	0414387	0414388	0414389	0414390	0414391	0414392	0414393	0414394

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A Specialized Environmental Laboratory

URS Corporation 5 Industrial Way

> Address: Client

CERTIFICATE OF ANALYSIS

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Page 2 of 3

	Job Name:	Army National Guard	Chain Of Custody:	121355
	Job Location:	154 Daniel Webster Hwy Nashua, NH	Date Analyzed:	12/29/200
0	Job Number:	Not Provided	Person Submitting:	
	P.O. Number:	Not Provided		

Salem, New Hampshire 03079-2830

Summary of Polarized Light Microscopy

Attention:

Posted to NGB FOIA Reading Room

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Comments	THE STATE OF THE PROPERTY STATES OF THE STAT							
rticulate Sample Analyst Comm ercent Color ID	2	LB	EI	LB	5	83	EB	EB.
Sample Color	Off-White	Black	Black	Black	Brown	Black	Black	Black
Pa	ļ	100	100	100	100	100	94	6
cent	1	:	TR	í	ı	ı	1	1
Synthetic Percent	1	:	1	1	i	ı	1	ł
Organic Percent		ţ	TR	ı	1	TR	1	Æ
Fiberglass Organic Percent Percent	! ! ! ! !	ł	í	ı	1	ı	ł	ı
Mineral Wool Percent	1	;	ſ	1	1	ı	ł	ı
Other Asbestos Percent	-	!	ŀ	1	i	1	ı	1
Crocidolite Percent	(A)	·	I	ı	i	1	1	ı
Amosite (***	1	Į.	;	:	í	ı	1
Client Total Chrysotile Amosite Crocidolite Sample# Asbestos Percent Percent		ŧ	ŧ	i	1	1	9	м
Total Asbestos	~	NAD .	NAD	- NAD	. NAD	. NAD	9	<u>ب</u>
Client Sample#	1210-AB 06 C NAD	1210-AB 01 A- NAD	Mastic 1210-AB 01 B- NAD Mastic	1210-AB 02 A- NAD	1210-AB 02 B- NAD Mastic	1210-AB 02 C- NAD Mastic	1210-AB 03 A- Mastic	1210-AB 03 B-
AMA Sample Client Total Chrysotile A Number Sample# Asbestos Percent	G 0414395 1210-AB 06 C	A TS	0416189	0416190 O416190	Y416191	0416192	0416193 H	AIC 0416194

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| Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | Mastic | M 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 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 All rights reserved, AMA Analytical Services, Inc. applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples.

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CERTIFICATE OF ANALYSIS

MWLAP

NYELAP

AHY.

121355

154 Daniel Webster Hwy Nashua, NH Army National Guard

Chain Of Custody:

12/29/2003 Date Analyzed:

Person Submitting:

Not Provided Not Provided

P.O. Number:

Salem, New Hampshire 03079-2830

Attention:

sted to NGB FOIA Reading Room

Job Location: Job Number:

Job Name:

URS Corporation 5 Industrial Way

Address: Client:

Page 3 of 3

Summary of Polarized Light Microscopy

Comments	
Analyst ID	
Sample Color	
Mineral Fiberglass Organic Synthetic Other Particulate Sample Analyst Wool Percent Percent Percent Percent Color ID Percent	
Other Percent	
Fiberglass Organic Synthetic Percent Percent Percent	
Organic Percent	
 Fiberglass Percent	
Mineral Wool Percent	
 lite Other at Asbestos Percent	
 Crocidolite Percent	
 Amosite Percent	
 Client Total Chrysotile Amosite Crocidolite Sample# Asbestos Percent Percent	
Total Asbestos	
 Client Sample#	
AMA Sample Client Total Chrysotile Amosite Crocidolite Other Mineral Fiberglass (Number Sample# Asbestos Percent Percent Asbestos Wool Percent Percent Percent	

The following footnotes only apply to those samples which the total asbestos result is flagged with a note number.

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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 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 of optical microscopy.

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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 - EP A/600/R-93/116 dated July 1993

NAD = "No Asbestos Detected"

TR = "Trace equals less than 1% of this component"

EOIA Released by National protection to clients, the public and these 1 aboratories.

High Report applies only to the samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar produces. As a mutual protection to clients, the public and these 1 aboratories.

High Report applies only to the samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar produces. As a mutual protection to clients, the public and these 1 aboratories.

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121355

(Please Refer To This Number For Inquires)

CHAIN OF CUSTODY

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AIHA (#8863) NVLAP (#1143) NY ELAP (10920) 4475 Forbes Blvd. • Lanham, MD 20706 (301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643 www.amalab.com

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URS Air Sample Chain Of Custody

URS CORPORATION Project Number: 42056-013-211
5 tridustrial WayClient/ Project Name: Army National Guard
Salem, NH 03079 Location: 154 DANIEL WESTON HUY NASHUA, NH
Tel# 603 893-0616 Project Manager:
Fax# 603 893-6240 Sample Non-Responsive Date Sampled: 2/10/03

Sample	Sample Description	Pump	Flow	Volume	Analysis
I.D.#			Rate		Requested
1210-	OLD FIRING RANGE / LEAD	on: 0849	on: 4.0		
LAOI	OLD FIRING RANGE / LEAD AIR	off: 13 26	Off: 4.0	8011	`
LNOI	1	Total: 277	Average: 4-0		
1210-	DRILL HALL	on: 0855	on: 4.0		
LAOZ		off: 1331	off: 4.0	1104	
		Total: 276	Average: 4.0		
1210-		On:	On:		
BLANK	BLANK /	Off:	Off:	BLANK	
2		Total:	Average:		
		On:	On:		
		Off: Total:	Off:		ļ
			Average:		
		On: Off:	On:	•	
f		Total:	Off: Average:		
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		Total;	Average:		
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Religion of School C. Harrord Non-Responsive Company: URS Corporation	Date: 12/12/03	Received By: Company:	Date:
Relinquished By:	Date:	Received By:	Date:
Company:	Time:	Company:	Time:

URS Sample Chain Of Custody

URS CORPORATION	Project Number: 42056 - 013 - 211
5 Industrial Way	Client/ Project Name: ARMY NATIONAL GUARD .
Salem, NH 03079	Location: ISY DANIEL WEBSTER HWY NASHUA, NH
Tel# 603 893-0616	Project Manager: Non-Responsive
Fax# 603 893-6240	Sampler: Non-Responsive Date Sampled: 12/(0/03

Sample:	Sample Description	Analysis Requested
1210- LPC01	WHITE PAINT CHIP / RESTROOM SHOWER #23 CEILING	LEAD
1210 ~ LPC02	WHITE PAINT CHIP / OFFICE #13 AROUND WINDOW.	LEAD
1210- LPC03	TAN PAINT CHIP / DRILL HALL	(CAE)
-		
•		
·		
	•	

Relinquished Non-Responsive	Date: {	20/2/03	Received By:	Date:
Company: URS Corp.	Time: (3	,15	Company:	Time:
Relinquished By:	Date;		Received By:	Date:
	l			FOIA Requested Record*#J-15-0085 (NH)

Industrial Hygiene Sur Return Address: URS Corporation 5 Industrial Way Salem, NH 03079 Sampled Facility ARMORY NASHUA			Point of	Point of Contact (name and phone #) Non-Responsive 603-893-0616 Samples Collected By		
			Sample			
			State NH			
Description of Operation		Dmin.	Date Collected		Date Shipped	
Analysis	Requested: LEA			<u> </u>	. I	
Lab Use Only	Sample Number	Area Wiped	Results	Remark	S	
	1210-LW1	12'112"		DRILL	HALL #2/FLOO	R pic 29
	-LWZ				. /	
	-LW3				/ \	
	- LW4				/ TOP O	f. pic 20
	- LW5			4		t Sintrplic 2
	-LW6			OLD FI RANG		Pic 20
	-LW7			1	14	
	-LW8	V			/ Top o A TABL	
	-LW9	10" × 9"			/ Top of A LIGHT	Sic 25
	-LW10	8"×16"		*	/ Top of PIECE of Co	roin Pic ze
	-BLANKI			BLAN		
Samples I	Relinquished	n Door		<u> </u>		
Non-Res		n-Responsi	ve	12 (2 03	s 1315	
Name ((printed)) Bignature		Date	Time	

Name (printed)

Signature

Date

Time

URS ទីគីរ៉ាគ្ន់វិទី២ការតែទី Custody

URS CORPORATION	Project Number: 42056 - 013-21/
	Client/ Project Name: ARMY NATIONAL GUARD .
Salem, NH 03079	Location: 154 DANIEC WEBSTER HWY NASHUA, NH
Tel# 603 893-0616	Project Manager: Non-Responsive
Fax# 603 893-6240	Sampler: Non-Responsive Date Sampled: (2(6/63

Sample		Sample Descri	pfion	Δne	llysis Requested
I.D.#			PAIO.		nyais requested
1210-		on FLOOR TILE	ROOM #21	PLM	
ABOIA	7, [Y	HS (C)	·	1 277	\
1210-,		1	# SP	PLM	
ABOIB	*	4 /			
1210-	4" BLACK C	LOVE BASE /	/ CLASSROOM 2	PLM	
ABOZA	š MA	STIC /	# 22	, ~ ,	
1210-		/	KITCHEN	PLM	
A802B		/_	# 26	1 (2)	•
1210-			CLASSROOMI	PLM	
ABORC		/	# (7	1 Live	
1210-		LEAM FLOORTILE	/ KITCHEN	N. 100	
AB03A	? Mi	astic /	# 26	PLM	
(210-	1	/		.	
AB03B		/	₩	PLM	
1210-		ICK FLOOR TILE	KITCHEN	PLM	•
ABOYA	ζ Λ	nnstic /	#26	PLM	
1210-	1	/	Office #12	D 1 .00	·
AB04B	₹	/_		PLM	
1210-	Air CEU PI	IPE INSULATION	/ DRILL HALL	6.	
ABOSA		<u> </u>	4 2	pin	
1510 -		,	/ DRILL HALL	2	
ABOSB		/	# 2	PLM	
1210 - AB05C	V	/	DRILL HALL	PLM	
Relinquish No	n-Responsive _D	rate: 12 12 03	Received By:		Date;
		•			Time:
Company: UR	s Corp.	ime: 1315	Company:		
Relinquished By	: p	ate:	Received By:		Date:

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Company 2018

Company 2018

Company 2018

FOIA Requested Record #J-15-0085 (NH)

Released by National Guard Bureau

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Time:

URS Sample Chain Of Custody

LIRS CORPORATION	Project Number: 42056-013-211
	Client Project Name: ARMY NATIONAL GUARP
	Location: 154 DANIEL WEBSTER HWY NASHUA, NH
	Project Manager: Non-Responsive
Fax# 603 893-6240	Sampler: Non-Responsive Date Sampled: 12 (10 03

Sample I.D. #	Sample Description		Analysis Requested
1210- AB06A	WINDOW GLAZING / SU	PPLY ROOM #3	PLM .
1210- AB06B			PLM
1210- AB06C		4	PLM
			·
•			

Relin Non-Responsive	Date: 12/12/03	Received By:	Date:
Company: URS Copp.		Company:	
	1		
Relinquished By:	Date:	Received By:	Date:
Posted to NGB FOIA Readir Companyay, 2018	Time: g Room BEST		Time: cord #J-15-0085 (NH) ational Guard Bureau
			Page 277 of 511

APPENDIX E TRAINING CERTIFICATES



ENVIRONMENTAL EDUCATION, INC.

16 Upton Drive, Wilmington, MA 01887

(978) 658-5272

This is to certify that

田田田

has completed the requisite training, and has passed an examination for reaccreditation as:

Asbestos Inspector Refresher

pursuant to Title II of the Toxic Substance Control Act, 15 U.S.C. 2646

April 11, 2003 Course Dates

Course Location

Institute for Environmental Education 16 Upton Drive Wilmington, MA 01887

April 10, 2004 Expiration Date

President/Director of Training

03518010625349

April 11, 2003

Examination Date

USST8UTU62534 Certificate Number





APPENDIX F

RECOMMENDATIONS FOR SURFACE LEAD DUST IN ARMORIES

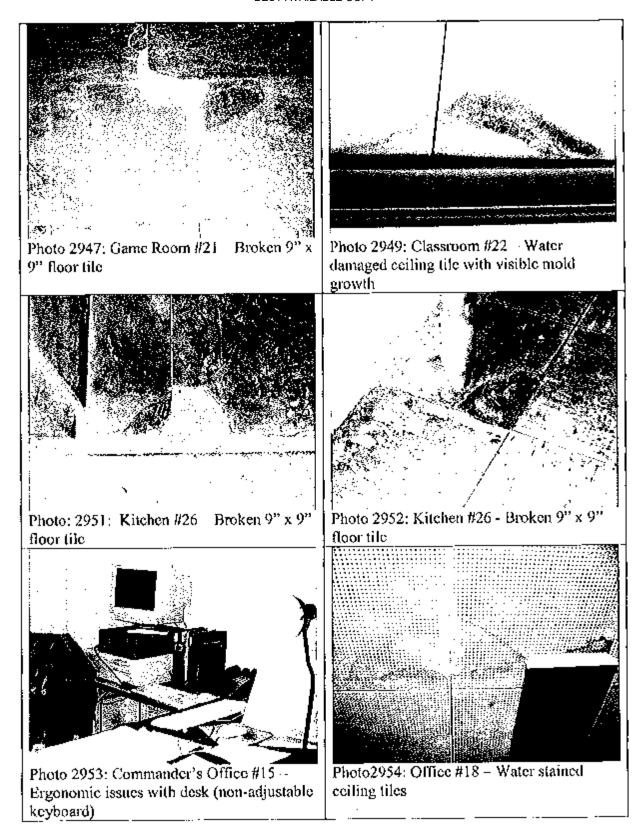
Subject: Recommendations for Surface Lead Dust in Armories

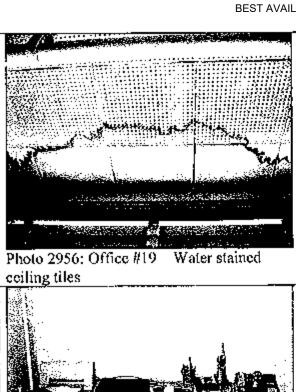
- 1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/R^2$). If a special function will be held in which children will 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 µg/R²) and windowsills (250 µg/R²) 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 $\mu g/\Omega^2$ 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 μg/ft² 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 hygicnic 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 amories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

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- 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 μ g/ Ω^2 on floors and 250 μ g/ Ω^2 on windowsills).
- b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.
- 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/m³ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building,

APPENDIX G
PHOTOGRAPHS





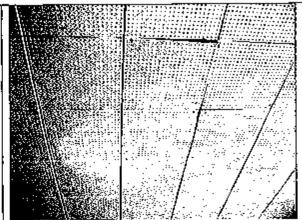


Photo 2957: Office #20 - Water stained eciling tiles



Photo 2959: Office #13 Ergonomics issues concerning computer work station

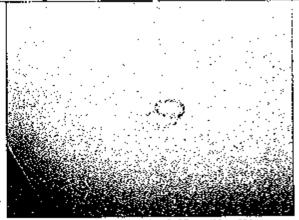


Photo 2960: Recruiter's Office #8 - Water stained ceiling tiles



Photo 2961: Recruiter's Office #8 Ergonomics issues concerning computer work station

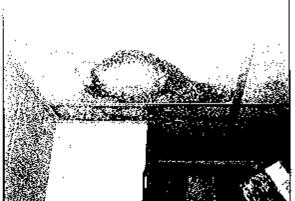
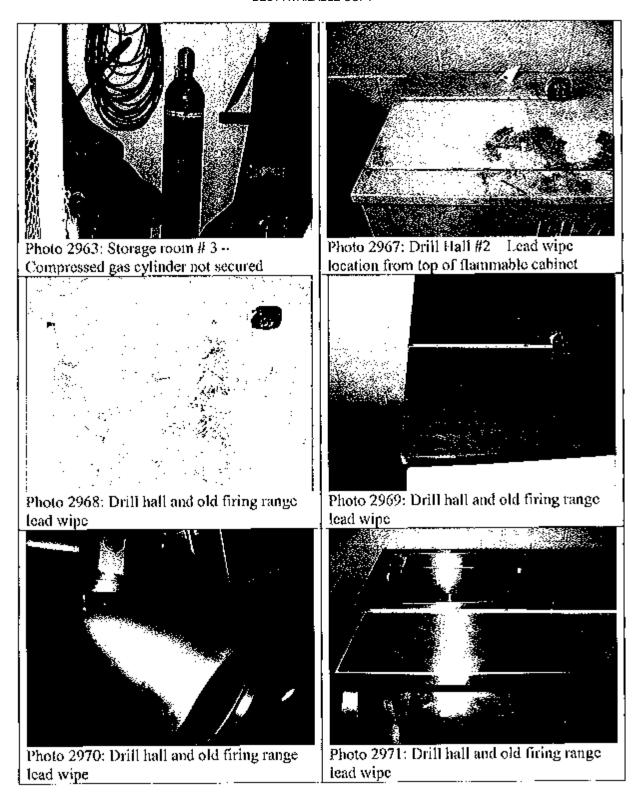
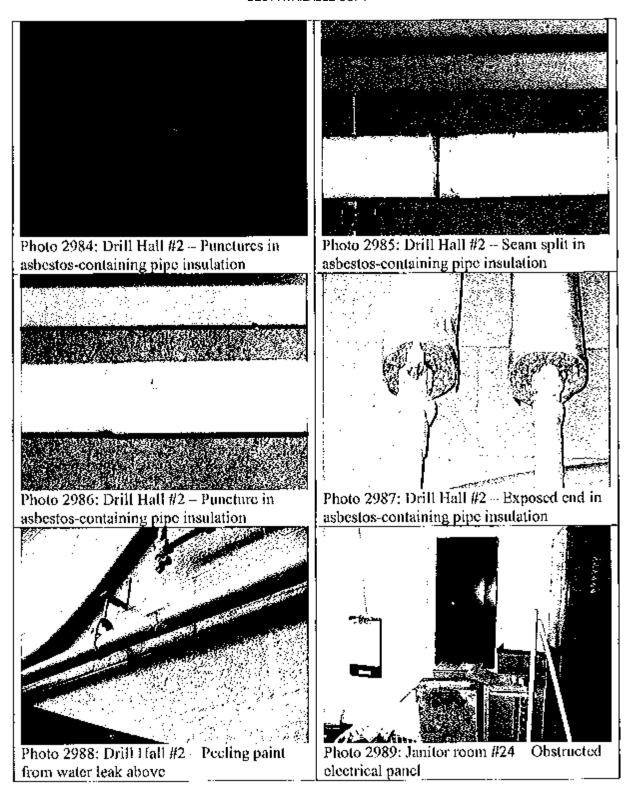


Photo 2962: Restroom storage #9 - Water stained ceiling tiles







1215 Manor Drive, Suite 205 Mechanicsburg, PA 17055 Phone: 717.590.7031 Fax: 717.590.7936 www.complianceplace.com

Industrial Hygiene Survey Report

National Guard Facility Nashua Readiness Center

Prepared For: National Guard Bureau Region North IH

301-IH Old Bay Lane

Havre de Grace, MD 21078

Survey Location: Nashua Readiness Center

154 Daniel Webster Highway

Nashua, NH, 03060

Prepared By: Compliance Management International, Inc.

1215 Manor Drive

Suite 205

Mechanicsburg, PA 17055

Survey Date: May 9, 2013

Report Date: June 24, 2013



Non-Responsive, CIH Senior Industrial Hygienist

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Section 6.0 Suspect Asbestos Containing Building Materials	0
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Section 8.0 Limitations	2
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Section 1.0 Executive Summary

An industrial hygiene survey was conducted on May 9, 2013, at the Nashua Readiness Center located at 154 Daniel Webster Highway, Nashua, NH 03060. The survey was performed by Mr. Non-Responsive.

- Lead surface and air samples were collected. Surface levels of lead exceeded 200 micrograms per square foot (ug/ft²) in one location. See Section 3.0 for detailed sampling results.
- 2. Lighting levels met the American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IESNA) recommended guideline in all locations measured. See Section 4.0 for detailed findings.
- 3. Indoor air quality (IAQ) parameters of temperature, relative humidity, carbon monoxide and carbon dioxide (ventilation) were evaluated during the assessment.
 - a. Temperature levels met the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010 recommended guideline of 68-79 °F in the areas sampled.
 - b. The relative humidity level met the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) TG 277 recommended guideline of 30-60% in all areas sampled.
 - c. Carbon monoxide (CO) levels were less than the National Ambient Air Quality Standard (NAAQS) recommended ceiling of 9 parts per million (ppm).
 - d. Carbon dioxide (CO₂) levels met the ASHRAE 62.1-2010 recommended guidelines for mechanically ventilated office buildings and commercial settings.

See Section 5.0 for detailed sampling results.

- 4. Housekeeping was good. See Section 5.0 for detailed findings.
- 5. Water-stained ceiling tiles were observed in the facility. All sources of water infiltration should be identified and repaired. Water stained ceiling tile should be removed and replaced.

Section 2.0 Operation Description & Observations

The Nashua Readiness Center is mainly an administrative facility with offices, classrooms, and a converted firing range area (currently a dining area and storage area). There were approximately 7 full-time employees stationed at this facility at the time of this survey.

The building is reported to have been built in the late 1950s. It is a one story structure. The exterior is brick. The interior walls are concrete block with drywall in some of the offices. The floors are concrete, carpet, ceramic tile, and 12"x12" floor tiles.

The heating system consists of a gas-fired, forced hot water unit. There is one rooftop A/C units that services the administrative areas.

There is no child-care facility in the building.

Housekeeping practices are good.

No ergonomic concerns were reported. Office areas have computer work stations. Work stations appeared to be properly designed. Personnel had supportive chairs.

This facility has a converted firing range that is now used as dining and storage areas.

Section 3.0 Lead Testing

Various surfaces within the facility were screened for lead using surface/wipe samples. Surface/wipe samples were collected in accordance with the American Society for Testing and Materials (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 Environmental Protection Agency (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/m ³	Surface ug/ft ²
1	Drill Hall	<7.7	*
2	Office 139	<7.7	*
3	Blank	<3	*
4	Drill Hall Floor Center	*	<110
5	Drill Hall Vending Top	*	<110
6	Converted Firing Range (CFR) Outside		<110
7	CFR Floor	*	<110
8	CFR Light Fixture	*	<110
9	CFR Contents	*	170
10	Kitchen Freezer Top	*	<110
11	Office 139 Shelf Top	*	<110
12	Classroom 131 Window Sill	*	<110
13	Family Assistance Center Window Sill	*	<110
14	Office 136 Desk Top	*	<110
15	Exercise Room Shelf	*	1500
16	Lobby Heater Top	*	<110
17	Locker Room 113 Cabinet Top	*	<110
18	Blank	*	<110
-	Criteria	50	200

Table Notes:

- 1. Bolded results exceed listed criteria
- 2. **ppm** = parts per million
- 3. $ug/ft^2 = micrograms per square foot$
- 4. $ug/m^3 = micrograms per cubic meter$
- 5. **ug** = micrograms

Sources:

- NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges
- 2. OSHA 29CFR1910.1025 Lead Standard

The National Guard Bureau currently utilizes 200 micrograms per square foot (ug/ft²) 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/ft² on floors and 250 ug/ft² on windowsills should be observed. There is no child care provided at this facility.

Lead surface and air samples were collected. The following is a summary of the sample results from this survey.

- Surface levels of lead were above the recommended guideline of 200 ug/ft² in the following location:
 - o Exercise Room Shelf

Cleaning procedures should be improved to maintain lead levels on surfaces below the detection limit.

Spot check additional areas in the Exercise Room to determine lead levels.

■ Air samples for lead were below the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit of 50 micrograms per cubic meter (ug/m³).

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. 98082EL). The light meter was last calibrated in April 2013. 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	Sufficient
Location	(FC)	Lighting (FC)	Lighting
Family Assistance Center	52.1	30-50	Yes
West Corridor	14.3	5	Yes
Classroom 131	53.9	30-50	Yes
Office 134	47.9	30-50	Yes
Lounge	65.1	10	Yes
Maintenance Office	55.8	30-50	Yes
Office 136	38.5	30-50	Yes
Office 139	55.4	30-50	Yes
Office 140	70.6	30-50	Yes
Lobby	64.1	10	Yes
Recruiting Office	32.7	30-50	Yes
Drill Hall	36.8	10	Yes
Bulk Storage 113	31.7	30-50	Yes
Kitchen Food Prep	63.1	50	Yes
Mess Office	51.6	30-50	Yes
Food Storage	30.1	30	Yes
Kitchen Latrine	34.1	5	Yes
Dining Area	64.6	10	Yes
Bulk Storage	27.0	10	Yes
Bulk Storage 125	38.1	10	Yes
West Hall Men's Latrine	11.9	5	Yes
Boiler Room	40.1	30	Yes

Table Notes:

- 1. FC = Foot Candles
- 2. **Bolded** results did not meet listed criteria

Source: ANSI/IESNA RP-7-01 Lighting Industrial Facilities and RP-1-04 Office Lighting.

The lighting level met the minimum recommended guidelines in all areas measured.

Section 5.0 Indoor Air Quality

Survey measurements were made for comfort parameters and ventilation (temperature, relative humidity, carbon dioxide, and carbon monoxide). The air quality measurements were collected using direct reading instrumentation for comfort parameters using a QTRAK IAQ Meter, Model 7565 (Serial #02041015). The IAQ Meter was last calibrated in August 2012.

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 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%.

The following table summarizes the measurements collected.

IAQ Assessment Summary

Location	Temperature (°F)	Relative Humidity (%)	Carbon Dioxide (ppm)	Carbon Monoxide (ppm)
Outdoors	73.7	60.8	360	0.1
Office 139	74.6	59.1	447	0.0
Criteria	68-79	30-60	<1,060	<9

Table Notes:

May, 2018

- 1. **Bolded** results exceed listed criteria
- 2. **ppm** = parts per million
- 3. (%) = percent relative humidity
- 4. ${}^{\circ}\mathbf{F} = \text{degrees Fahrenheit}$

Sources: The American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) 55-2010, 62.1-2010, Environmental Protection Agency (EPA) National Ambient Air Quality Standard (NAAQS) & The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation.

Summary of findings and recommendations:

- Temperature measurements met the recommended 68-79°F in occupied areas.
- Relative humidity levels met the recommended guidelines in all areas measured.
- Carbon dioxide levels were measured to evaluate building ventilation or the introduction or outdoor air into the building. The recommended ceiling is obtained by adding 700 ppm to the measured outdoor carbon dioxide level (700 ppm + 360 ppm for this survey). Carbon dioxide levels did not exceed the recommended ceiling of 1,060 ppm. This is an indication that outdoor air ventilation is adequate.
- Carbon monoxide levels measured were less than the recommended ceiling of 9 ppm. The recommended ceiling of 9 ppm referenced in the above table is the National Ambient Air Quality Standard for carbon monoxide
- A visual inspection was conducted throughout accessible portions of the facility to assess sources or pathways of factors potentially deleterious to IAQ. The following deleterious factors were noted:
 - o Eight (8) water stained ceiling tiles in several sections of the facility.

Section 6.0 Suspect Asbestos Containing Building Materials

No suspect asbestos containing material (ACM) was noted at the time of this survey:

Inaccessible areas such as behind walls or crawlspaces were not inspected. ACM could potentially be present in these areas.

Section 7.0 Equipment

The following equipment was utilized during this survey. All sampling equipment was properly calibrated prior to use and verified for accuracy as applicable. See daily reports and calibrations logs for detailed information.

Equipment	Serial #	Calibration Date	Value
TSI QTrak IAQ Meter	02041015	8/2012	NA
Cal Light 400 Light Meter	98082EL	4/2013	NA
TSI 4199 Calibrator	41460827002	8/2012	NA
SKC Air Sampling Pump	647631	5/9/13	2.61 LPM
SKC Air Sampling Pump	647971	5/9/13	2.61 LPM

Section 8.0 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 Compliance Management International, Inc. 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



Client:

National Guard Bureau

Job Name:

ARNG 4h NH

Chain Of Custody:

515879

Address: 30

301-IH Old Bay Lane, Attn: ARNG-CJG-P,

Job Location:

Nashua, NH

Date Submitted:

5/14/2013

St

State Military Reservation

Job Number:

Not Provided

Person Submitting:

Non-Responsi

Havre de Grace, Maryland 21078

P.O. Number:

W912K6-09-A-0003

Date Analyzed:

5/21/2013

Report Date: 5/21/2013

Attention:

Non-Responsive

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)		oorting Limit	Total ug	Final Res	ult	Comments
13061972	I	Flame	Air	392	N/A	7.7	ug/m³	<3	<7.7	ug/m³	
13061973	2	Flame	Air	392	N/A	7.7	ug/m³	<3	<7.7	ug/m³	
13061974	3	Flame	Air Blank	0	N/A	3	ug/m³		<3	ug	
13061975	4	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
13061976	5	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
13061977	6	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
13061978	7	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
13061979	8	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
13061980	9	Flame	Wipe	****	0.108	110	ug/ft²	18	170	ug/ft²	
13061981	10	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
13061982	11	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
13061983	12	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
13061984	13	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
13061985	14	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
13061986	15	Flame	Wipe	****	0.108	110	ug/ft²	160	1500	ug/ft²	
13061987	16	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
13061988	17	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
13061989	18	Flame	Wipe Blank	****	N/A	12	ug		<12	ug	

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. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AIHA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

Page 301 of 511

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



LAB #100470

Client:

National Guard Bureau

Job Name:

ARNG 4h NH

Chain Of Custody:

515879

Address:

301-IH Old Bay Lane, Attn: ARNG-CJG-P,

Job Location:

Nashua, NH

Date Submitted:

associated with these

samples.

5/14/2013

State Military Reservation

Havre de Grace, Maryland 21078

Job Number:

P.O. Number:

Not Provided

W912K6-09-A-0003

Person Submitting: Date Analyzed:

5/21/2013

Attention:

Summary of Atomic Absorption Analysis for Lead

Page 2 of 2

AMA Sample

Client Sample

Analysis Type

Sample Type

Air Volume

Area Wiped

Reporting

Total ug Final Result Comments

Report Date: 5/21/2013

Number

Number

(L)

(ft2)

Limit

See QC Summary for analytical results of quality control samples

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

ug = micrograms

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/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.

supplied information nor verified by this laboratory.

Air and Wipe results are not corrected for any blank results Final results for air and wipe samples are based on client

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

Analyst

Technical Manager:



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. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AIHA, or any agency of the Federal Government, All rights reserved. AMA Analytical Services, Inc.



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 Thi Number For Inquires

Mailing/Billing Information: 1. Client Name: National Guard Bureau				S	Submit	tal Info	rmatio	n: AR	NG	46	. ^	JH	t.	((0) 9
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4. Address 3: Havre de Grace, Maryland 2	1070			- ;	. Job	#:	NI					_ P.O		# Non-Respons	sive
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5. Phone #: (410) 942-0273 Fa	ax #:(410)_	942-0254		— . · ·	Sub	mitted	by:			u c			gnature	(Caponsive	
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May, 2018

FOIA Requested Record #J-15-0085 (NH) Released by National Guard Bureau OWI (410) 247-2024

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AMA Analytical Services, Inc. Focused on Results www.amalab.com

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 Inquires)

515879 (pase 2012)

Aniling/Billing Information: . Client Name: National Guard Bureau	Submittal Information: 1. Job Name: ARNG 4h NH
Address 2: Atta: NGB ADS IHNE	2. Job Location: NASA A 3. Job #: PO #: W912K6-09-A-0003 4. Contact Pers Non-Responsive phone # Non-Responsive mature: Non-responsive
Address 3: House do Cross Mandard 21079	4. Contact Pars Non-Responsive
Phone 4: (440) 042 0273	4. Condition to
Priorie #: 1410) 842-02/3 Pax #: (410) 942-0254	Results will be provided as soon as technically feasible):
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U Vermiculite (TEM Water samp	ples*C)
CJ Asbestos Soil PLM_(Qual) PLM_(Quan) PLM/TEM_(Qual) PLM/TEM_(Quan)	Other (Specify)(QTY)
CLIENT ID SAMPLE INFORMATION SAMPLE LOCATION VOLUME WIPE IDENTIFICATION DATE (LITERS). AREA	ANALYSIS ANALYSIS CLIENT CONTACT (LABORATORY STAFF ONLY)
CLIENT ID SAMPLE LOCATION VOLUME WIPE	경 [골 골 물 글 걸 물론 물론 를 (LABORATORY STAFF ONLY)
13 FAC W-SULL 5/4/13 1000/27	Date/Time: Contact: By:
4 OFFICE 136 DESK TOP	
	1 3 1 1 4 9
5 EXERCISE ADOM SHELF	
6 Lobby Hade Top	
7 Locker Room 113 CAD, top	Date/Time: Contact: By:
8 BLANK	
	Date/Time: Contact: By:
	Date time. Comact: By:
	Non-Responsive
LABORATORY 1. Date/Time RCVD:/@	Via:By (Print):Signe
2. Date/Time Analyzed: / / @	DBy (Print): Sign:
STAFF ONLY:	
a. Results Reported To:ed to NGB FOIA Reading (Regenents:	Via: Date:/ Time: Initials: BEST AVAILABLE COPY FOIA Requested Record #J-15-0085 (I

Appendix B. Photographs



Nashua Armory



Converted Firing Range Dining Area

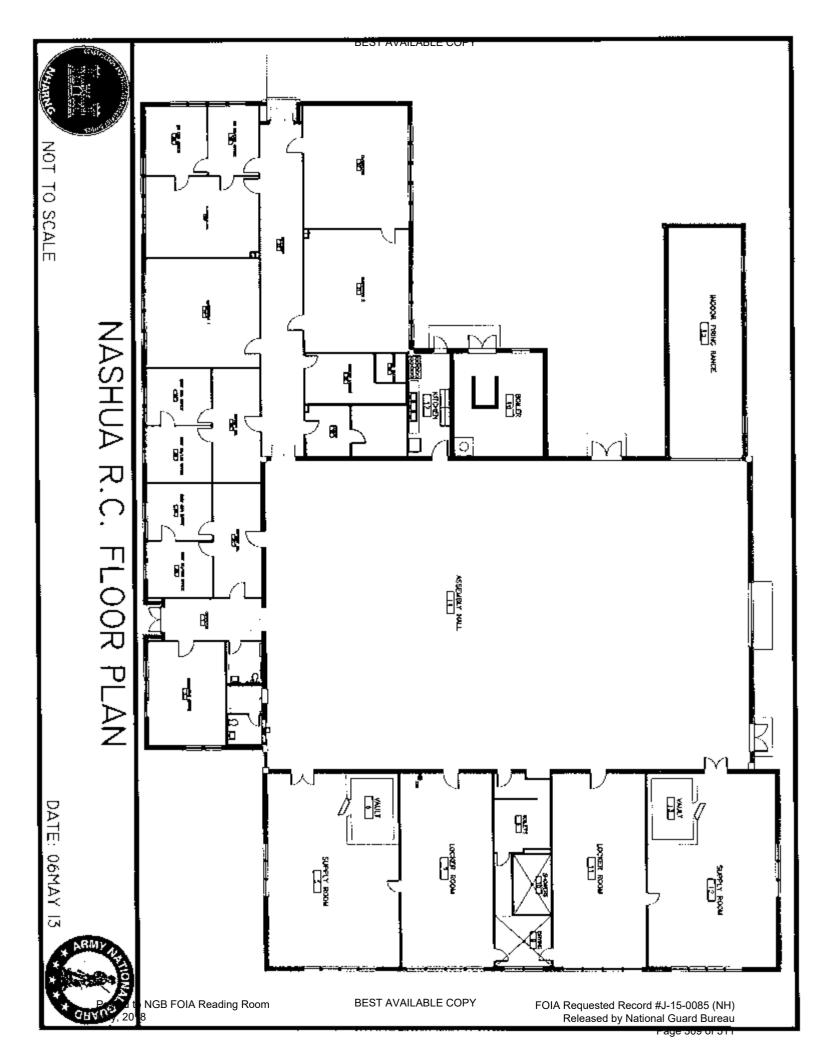


Converted Firing Range Bulk Storage



Boiler Room

Appendix C. Floor Plan



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 National Standards Institute (ANSI)/American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), 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. National Ambient Air Quality Standards (NAAQS) National primary ambient air quality standards for carbon monoxide 40 CFR 50.8.
- 9. Environmental Protection Agency (EPA) standards [40 Code of Federal Regulations (CFR) 745.227 (h) (3)].
- 10. Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM).
- 11. The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation, February 2002.
- 12. NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 Nov 06.
- 13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), Thermal Environmental Conditions for Human Occupancy, 55-2010.



1215 Manor Drive, Suite 205 Mechanicsburg, PA 17055 Phone: 717.590.7031 Fax: 717.590.7936 www.complianceplace.com

Industrial Hygiene Survey Report

National Guard Facility Plymouth Readiness Center

Prepared For: National Guard Bureau Region North IH

301-IH Old Bay Lane

Havre de Grace, MD 21078

Survey Location: Plymouth Readiness Center

19 Armory Road

Plymouth, NH, 03264

Prepared By: Compliance Management International, Inc.

1215 Manor Drive

Suite 205

Mechanicsburg, PA 17055

Survey Date: May 15, 2013

Report Date: June 24, 2013



Non-Responsive

Senior Industrial Hygienist

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Section 1.0 Executive Summary

An industrial hygiene survey was conducted on May 15, 2013, at the Plymouth Readiness Center located at 19 Armory Road, Plymouth, NH 03264. The survey was performed by Mr. Non-Responsive.

- 1. Lead surface and air samples were collected. Surface levels of lead exceeded 200 micrograms per square foot (ug/ft²) in one location. See Section 3.0 for detailed sampling results.
- 2. Lighting levels met the American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IESNA) recommended guideline in all locations measured. See Section 4.0 for detailed findings.
- 3. Indoor air quality (IAQ) parameters of temperature, relative humidity, carbon monoxide and carbon dioxide (ventilation) were evaluated during the assessment.
 - a. Temperature levels met the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010 recommended guideline of 68-79 °F in the areas sampled.
 - b. The relative humidity level did not meet the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) TG 277 recommended guideline of 30-60% in two areas sampled.
 - c. Carbon monoxide (CO) levels were less than the National Ambient Air Quality Standard (NAAQS) recommended ceiling of 9 parts per million (ppm).
 - d. Carbon dioxide (CO₂) levels met the ASHRAE 62.1-2010 recommended guidelines for mechanically ventilated office buildings and commercial settings.

See Section 5.0 for detailed sampling results.

4. Housekeeping was good. See Section 5.0 for detailed findings.

Section 2.0 Operation Description & Observations

The Plymouth Readiness Center is mainly an administrative facility with offices, classrooms, and a drill hall. There were 7 full-time employees stationed at this facility at the time of this survey.

The building is reported to have been built in the late 1950s with an addition in 2006. It is a single-story structure with a brick exterior. The interior walls are concrete block. The floors are concrete and 12"x12" floor tiles.

The heating system consists of an oil fired, forced hot water unit. There is a roof-top A/C unit that service the administrative areas.

There is no child-care facility in the building.

Housekeeping practices are good.

No ergonomic concerns were reported. Office areas have computer work stations. Work stations appeared to be properly designed. Personnel had supportive chairs.

There is a converted firing range at this facility.

Section 3.0 Lead Testing

Various surfaces within the facility were screened for lead using surface/wipe samples. Surface/wipe samples were collected in accordance with the American Society for Testing and Materials (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 Environmental Protection Agency (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/ft ²
1	Drill Hall	<6.7	*
2	Converted Firing Range (CFR)	<6.7	*
3	Drill Hall Floor	*	<110
4	Drill Hall Top of Locker	*	260
5	Drill Hall Top of Cabinet	*	<110
6	Kitchen Food Mixer	*	<110
7	Kitchen Table	*	<110
8	Drill Hall - Hall to Range Floor	*	<110
9	CFR Rack	*	<110
10	CFR Locker	*	<110
11	CFR Floor	*	<110
12	Office 2 Desk	*	<110
13	Classroom Desk	*	<110
14	Room 3	*	<110
15	Blank	*	<12
16	Blank	<3	*
-	Criteria	50	200

Table Notes:

- 1. **Bolded** results exceed listed criteria
- 2. **ppm** = parts per million
- 3. $ug/ft^2 = micrograms per square foot$
- 4. $ug/m^3 = micrograms per cubic meter$
- 5. $\mathbf{ug} = \text{micrograms}$

Sources:

- 1. NG PAM 420-15 "Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges"
- 2. Occupational Safety and Health Administration (OSHA) 29CFR1910.1025 Lead Standard

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The National Guard Bureau currently utilizes 200 micrograms per square foot (ug/ft²) 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/ft² on floors and 250 ug/ft² on windowsills should be observed. There is no child care provided at this facility.

Lead surface and air samples were collected. The following is a summary of the sample results from this survey.

- Surface levels of lead were above the recommended guideline of 200 ug/ft² in the following location:
 - o Drill Hall Top of Locker

Cleaning procedures should be improved to maintain lead levels on surfaces below the recommended guideline of 200 ug/ft².

■ Air samples for lead were below the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit of 50 micrograms per cubic meter (ug/m³).

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. 98082EL). The light meter was last calibrated in April 2013. 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 (FC)	Recommended Lighting (FC)	Sufficient Lighting
Office 2	80.1	30-50	Yes
Office 3	87.4	30-50	Yes
Classroom	61.3	30-50	Yes
Drill Hall	43.6	30	Yes
Kitchen	87.5	30-50	Yes
Office 15	65.3	30-50	Yes

Table Notes:

- 1. FC = Foot Candles
- 2. **Bolded** results did not meet listed criteria

Source: ANSI/IESNA RP-7-01 Lighting Industrial Facilities and RP-1-04 Office Lighting.

The lighting level did meet the minimum recommended guideline all areas measured.

Section 5.0 Indoor Air Quality

Survey measurements were made for comfort parameters and ventilation (temperature, relative humidity, carbon dioxide, and carbon monoxide). The air quality measurements were collected using direct reading instrumentation for comfort parameters using a QTRAK IAQ Meter, Model 7565 (Serial #02041015). The IAQ Meter was last calibrated in August 2012.

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 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%.

The following table summarizes the measurements collected.

IAQ Assessment Summary

Location	Temperature (°F)	Relative Humidity (%)	Carbon Dioxide (ppm)	Carbon Monoxide (ppm)
Outdoors	72.7	20.1	340	0.0
Office 2	71.3	25.1	412	0.0
Drill Hall	71.2	27.5	461	0.0
Criteria	68-79	30-60	<1,040	<9

Table Notes:

- 1. **Bolded** results exceed listed criteria
- 2. **ppm** = parts per million
- 3. (%) = percent relative humidity
- 4. ${}^{\circ}\mathbf{F} = \text{degrees Fahrenheit}$

Sources: The American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) 55-2010, 62.1-2010, Environmental Protection Agency (EPA) National Ambient Air Quality Standard (NAAQS) & The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation.

Summary of findings and recommendations:

- Temperature measurements met the recommended guideline of 68-79°F in occupied areas.
- Relative humidity level did not meet the recommended guideline of 30-60% in Office 2 and the Drill Hall. Low relative humidity can cause the drying of the mucous tissues and an increased susceptibility to respiratory infection. Relative humidity should be maintained at 30-60%.
- Carbon dioxide levels were measured to evaluate building ventilation or the introduction or outdoor air into the building. The recommended ceiling is obtained by adding 700 ppm to the measured outdoor carbon dioxide level (700 ppm + 340 ppm for this survey). Carbon dioxide levels did not exceed the recommended ceiling of 1,040 ppm. This is an indication that outdoor air ventilation is adequate.
- Carbon monoxide levels measured were less than the recommended ceiling of 9 ppm. The recommended ceiling of 9 ppm referenced in the above table is the National Ambient Air Quality Standard for carbon monoxide
- A visual inspection was conducted throughout accessible portions of the facility to assess sources or pathways of factors potentially deleterious to IAQ. No deleterious factors were noted:

Section 6.0 Suspect Asbestos Containing Building Materials

Suspect asbestos containing materials (ACM) materials were noted at the time of this survey in Drill Hall pipe and elbow insulation. It was intact and in good condition.

Inaccessible areas such as behind walls or crawlspaces were not inspected. ACM could potentially be present in these areas.

Section 7.0 Equipment

The following equipment was utilized during this survey. All sampling equipment was properly calibrated prior to use and verified for accuracy as applicable. See daily reports and calibrations logs for detailed information.

Equipment	Serial #	Calibration Date	Value	
TSI QTrak IAQ Meter	02041015	8/2012	NA	
Cal Light 400 Light Meter	98082EL	4/2013	NA	
TSI 4199 Calibrator	41460827002	8/2012	NA	
SKC Air Sampling Pump	647631	5/15/13	3.00 LPM	
SKC Air Sampling Pump	647971	5/15/13	3.00 LPM	

Section 8.0 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 Compliance Management International, Inc. 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.

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A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



LAB #100470

Client:

National Guard Bureau

State Military Reservation

Job Name:

ARNG 4h NH

Chain Of Custody:

515949

Address:

301-IH Old Bay Lane, Attn: ARNG-CJG-P,

Job Location:

Plymouth RC

Date Submitted:

5/21/2013

Havre de Grace, Maryland 21078

Job Number: P.O. Number: Not Provided

Person Submitting:

W912K6-09-A-0003

Date Analyzed:

5/29/2013

Report Date:

5/29/2013

Attention:

Summary of Atomic Absorption Analysis for Lead

Page 1 of 2

AMA Sample Number	Client Sample Number	Analysis Type Flame	Sample Type Air	Air Volume (L)	Area Wiped (ft²)	Reporting Limit		Total ug	Final Result		Comments
						6.7	ug/m³	<3	<6.7	ug/m³	
13064560	2	Flame	Air	450	N/A	6.7	ug/m³	<3	<6.7	ug/m³	
13064561	3	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
13064562	4	Flame	Wipe	****	0.108	110	ug/fl²	28	260	ug/ft²	
13064563	5	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
13064564	6	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/fl²	
13064565	7	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/fl²	
13064566	8	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
13064567	9	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
13064568	10	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
13064569	11	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
13064570	12	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
13064571	13	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/N²	
13064572	14	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²	
13064573	15	Flame	Wipe Blank	****	N/A	12	ug		<12	ug	
13064574	16	Flame	Air Blank	0	N/A	3	ug/m³		<3	ug	

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. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AIHA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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CERTIFICATE OF ANALYSIS



LAS #100470

Client:

National Guard Bureau

Job Name:

ARNG 4h NH

Chain Of Custody:

515949

Address:

301-IH Old Bay Lane, Attn: ARNG-CJG-P,

Job Location:

Plymouth RC

Date Submitted:

5/21/2013

State Military Reservation

Job Number:

Not Provided

Person Submitting:

Havre de Grace, Maryland 21078

P.O. Number:

W912K6-09-A-0003

Date Analyzed:

5/29/2013

5/29/2013

Attention:

Summary of Atomic Absorption Analysis for Lead

Page 2 of 2

AMA Sample

Client Sample

Analysis Type Sample Type Air Volume

Area Wiped

Reporting

Total ug

Final Result

Comments

Report Date:

Number

Number

(L)

(ft2)

Limit

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

samples.

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. Analy

Technical Manag

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. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AIHA, or any agency of the Federal Government, All rights reserved, AMA Analytical Services, Inc.

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Drill HALL Top of CAbient						×									Date/l'ime:	Contact:	By:
Kitchen - Food mixer						×											
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Appendix B. Photographs



Exterior of the facility



Drill Hall

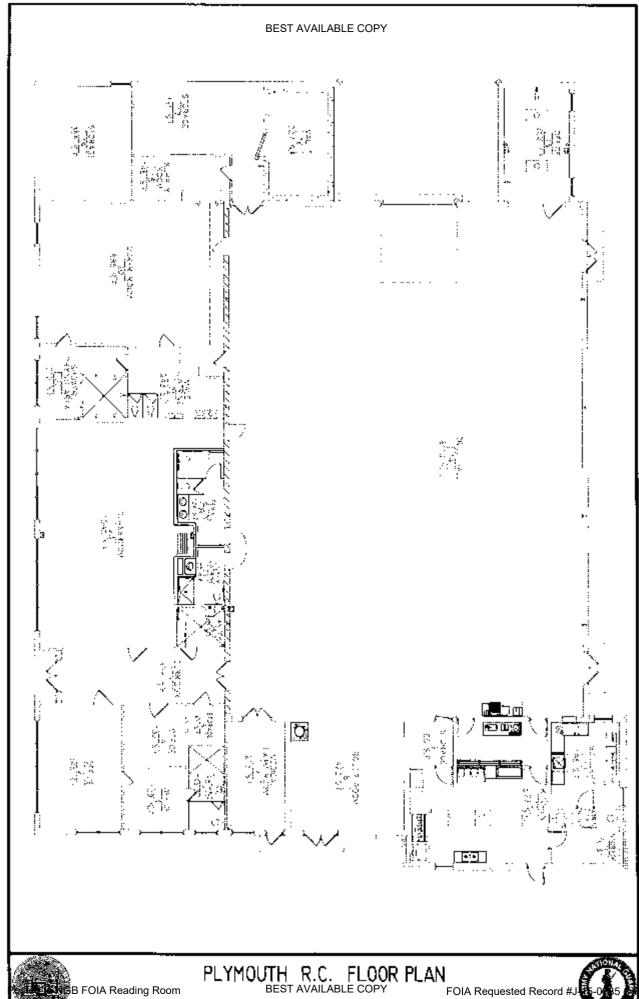


Converted firing range/office space



Suspect asbestos pipe insulation and mudded joint fittings

Appendix C. Floor Plan



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 National Standards Institute (ANSI)/American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), 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. National Ambient Air Quality Standards (NAAQS) National primary ambient air quality standards for carbon monoxide 40 CFR 50.8.
- 9. Environmental Protection Agency (EPA) standards [40 Code of Federal Regulations (CFR) 745.227 (h) (3)].
- 10. Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM).
- 11. The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation, February 2002.
- 12. NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 Nov 06.
- 13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), Thermal Environmental Conditions for Human Occupancy, 55-2010.

Prepared For:

National Guard Bureau Army National Guard Region North Industrial Hygiene Office 301 - IH Old Bay Lane Havre De Grace, Maryland 21078

Prepared By:

URS Corporation 5 Industrial Way Salem, New Hampshire 03079

INDUSTRIAL HYGIENE SURVEY REPORT PORTSMOUTH READINESS CENTER 801 McGEE DRIVE PORTSMOUTH, NEW HAMPSHIRE



Office Manager

Project Manager

October 2005 PN: 39741509

URS Corporation 5 Industrial Way Salem, NH 03079-2830 Tel: 603.893.0616

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APPENDIX H POLICY AND RESPONSIBILITIES FOR INSPECTION,

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RANGES (IFR) AND GUIDELINESFOR IFR REHABILITATION,

CONVERSION AND CLEANING

Findings and Recommendations

Findings	Recommendation	Risk Assessment Code
Computer work stations were observed with fixed chairs, armrests, keyboards and monitors.	Ergonomic issues with the desks and chairs should be corrected by fitting the workplace to the worker (DoD, OSHA General Duty)	RAC 3
On the day of the survey, the illuminance in the administrative area was inadequate in most offices.	Increase lighting in the administrative areas. While work is in progress, the administrative area shall be lighted by at least the minimum lighting intensities (ACOE EM385-1-1)	RAC 4
Lead was detected in wipe samples collected from the firing range and the drill hall in amounts greater then 200 µg/ft²	Personnel trained in accordance with the OSHA Lead Standard should clean the former firing range and drill hall where lead was detected in quantities of greater than 200 micrograms per square foot (OSHA 29 CFR 1910.1025)	RAC 4
Damaged floor tile containing greater than 1% asbestos is present throughout the facility.	Remove and replace damaged asbestos-containing floor tile. Work should be completed by personnel trained in accordance with federal regulations (OSHA 29 CFR 1910.1001)	RAC 3

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Findings and Recommendations (Cont.)

Findings	Recommendation	Rísk Assessment Code
	ACCOUNTS TO THE PARTY OF THE PA	
Exposed ends or damaged asbestos-containing pipe insulation were present in the drill hall.	Repair or remove exposed ends or damaged asbestos-containing pipe insulation. Work should be completed by personnel trained in accordance with federal regulations (OSHA 29 CFR 1910.1001)	RAC 3
No site specific asbestos operations and maintenance plan available.	Develop a site specific asbestos operations and maintenance plan to manage asbestos-containing materials (OSHA 29 CFR 1910.1001)	RAC 3
	Electrical Safety Annual Section Section 1985	
Found an electrical power outlet with exposed wires	sized and located that persons are not likely to come into accidental contact with the live parts or to bring conducting objects into contact with them (OSHA 29 CFR 1910.303)	RAC 2

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1.0 SUMMARY

At the request of the National Guard Bureau Region North Industrial Hygiene Office (NGB), URS Corporation (URS) conducted an industrial hygiene survey at the Readiness Center located at 801 McGee Drive in Portsmouth, New Hampshire 03801. This report includes an executive summary, a description of the survey protocol, a discussion of the survey evaluation and findings and a list of conclusions and recommendations.

On January 21, 2004, Mr. Non-Responsive an industrial hygienist with URS, conducted a site visit to the Readiness Center in Portsmouth, New Hampshire. The purpose of this site visit was to conduct an industrial hygiene survey, which included the collection of air samples, bulk samples, lighting measurements, and a review of site health and safety procedures. SFC Non-Responsive of the New Hampshire ARNG was Mr. Non-Responsive site contact for this survey.

A shop layout drawing of the facility, which shows the locations where measurements were made during this survey, is contained in Appendix A. The risk assessment codes associated with this project are contained in Table 1.

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2.0 ADMINISTRATIVE AREA

2.1 Operation Description

This building area contains multiple offices located throughout the building with desks and computer workstations. Computer workstations were assessed during the walkthrough for ergonomic issues. Computer workstation chairs could not be adjusted for height, the armresis were in a fixed position and keyboards in offices #5 and #17 could not be adjusted (Photos # 3204 & 3208). Computer monitors could not be adjusted for different individuals working at the work stations. If more than one person is using that station, then proper adjustments need to be made to accommodate each person.

2:2 Chemical and Physical Agents Sampled

2.2.1 Relative Humidity

Relative humidity levels were measured using a TSI Q-Track (Model 8551). Relative humidity on the day of the survey ranged from 13.6 – 15.4 % with an average of 14.5%. The average reading was below the recommended comfort level of between 30.0% and 60.0% set by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ANSI / ASHRAE Standard 62.1-2004).

2.2.2 Carbon Dioxide

On the day of the survey, carbon dioxide measurements were made at various locations throughout the Readiness Center. Carbon dioxide concentrations ranged from 450 to 531 parts per million (ppm), with an average of 484 ppm. Carbon dioxide levels were measured using a direct reading TSI Q-Track (Model 8551).

Carbon dioxide is a normal constituent of the atmosphere and ranges from about 250 to 450 ppm. The major source of excess carbon dioxide in the indoor environment is people. Other sources can include open-flame heaters, fermentation processes, and motor vehicles. Carbon dioxide itself is not normally a cause of indoor air quality problems because concentrations must exceed 5,000 to 10,000 ppm before health effects such as headache, drowsiness, and increased respiration are noted. Typically, carbon dioxide is used as an indicator of the adequacy of fresh air intake. As the concentration of carbon dioxide increases, so do the background levels of other air contaminants.

ASHRAE (62.1-2004) recommends that levels of carbon dioxide be maintained below 700 ppm above background level. Since the average interior carbon dioxide level was below 700 ppm an exterior reading was not collected.

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2.2.3 Carbon Monoxide

Carbon monoxide was also measured in the Readiness Center. Carbon monoxide concentrations remained at 0 parts per million (ppm) throughout the survey period. The measured levels were below the ASHRAE guideline for indoor environments. Carbon monoxide was measured using a TSI Q-Track (Model 8551).

Key sources of carbon monoxide within indoor environments include internal combustion engines, motor vehicle and forklift exhaust, tobacco smoke, space heaters, and improperly adjusted oil or gas burners. Health effects from exposure to elevated concentrations of carbon monoxide may include fatigue, impairment of visual acuity, irregular heartbeat, headache, nausea, and confusion. ASHRAE recommends that average carbon monoxide concentrations not exceed 9 ppm. Typical average concentrations found in commercial buildings range from 0 to 6 ppm.

2.2.4 Lighting

Lighting in the administrative area was measured using a Sper Scientific Ltd. Light Meter (Model 840020C). Table 2-1 below shows lighting measurements and the recommended lighting requirement ANSI / IESNA RP –1-04 American National Standard Practice for Office Lighting – Table 8-1).

Table 2-1
Lighting Measurements and Recommended Lighting Requirements

		nyjeaeured Jilliminande	:Recommended:
	Function 2	at lib.W. footsale.sa	illijinihence (lux) Vilootoandies) 44
Office # 10	Administrative Duties	227 / 21.1	500 / 50
Office # 15	Administrative Duties	176 / 16.4	500 / 50
Office # 16	Administrative Duties	1190 / 110.6	500 / 50
Office # 18	Administrative Duties	689 / 64.0	500 / 50
Office # 19	Administrative Duties	882 / 81.9	500 / 50
Office # 20	Administrative Duties	290 / 26.9	500 / 50
Office # 21	Administrative Duties	301 / 28.0	500 / 50
Office # 22	Administrative Duties	477 / 44.3	500 / 50
Office # 23	Administrative Duties	567 / 52.7	500 / 50
Office # 25	Administrative Duties	328 / 30.5	500 / 50
Hallway # 11	Accessway	245 / 22.8	30 / 3
Hallway # 24	Accessway	142 / 13.2	30 / 3

On the day of the survey the illuminance in the administrative area was inadequate in most offices.

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2.2.5 Lead

Paint chips were collected in two areas where paint was peeling and sent to AMA Analytical Services, Inc. (AMA) for analysis. One sample was found to contain lead in a concentration above the U.S. Housing and Urban Development (HUD) Lead-Based Paint Guidelines. Levels of lead greater than 0.5% by weight are referred to as "lead-containing" (Section 1017 of the Residential Lead-Based Paint Hazard Reduction Act of 1992 (also referred to as Title X)). Table 2-2 below shows the results of the lead paint testing.

Table 2-2
Levels of Lead in Paint Found in the Administrative Area

Sample Wooding 1944.	URS Sample TL AND NUMBER OF THE SAME	reporting Uffille (%by:Weighblic	Panel Pasalisa Zahy Welshiji
Men's Shower Room #	0121-LPC02	0.1	0.13
29			
Locker Room # 28	0121-LPC03	0.1	0.9

The analytical report from AMA is contained in Appendix D.

2.2.6 Asbestos

Bulk samples were collected from damaged suspect asbestos-containing materials (ACM) in this area for a determination of asbestos content. Analytical procedures were performed in accordance with the U.S. Environmental Protection Agency (EPA) Recommended Method for the Determination of Asbestos in Bulk Samples by Polarized Light Microscopy and Dispersion Staining (PLM/DS)(EPA-600/M4-82-020, EPA-600/R-93-116). Table 2-3 below presents the results of the sample analysis.

Table 2-3
Sample Results of Suspect ACM

Sample Location	Material Sampled&f/	4sURS(Safride)A Numbers≸∦	glak Webestos
Hallway # 24	9"x9" Black Floor Tile	0121-AB02A	2.0 (chrysotile)
Hallway # 24	9"x9" Black Floor Tile	0121-A802B	2.0 (chrysotile)
Room #5	9"x9" Black Floor Tile	0121-AB02C	2,0 (chrysotile)

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Table 2-3 (Continued) Sample Results of Suspect ACM

Sample Leoglion 4	Male all campled (1944)	URS Sample Number	Total
Office #16	9"x9" Brown Floor Tile	0121-AB03A	2,0 (chrysotile)
Kitchen # 4	9"x9" Brown Floor Tile	0121-AB03B	2.0 (chrysotile)
Room # 5	9"x9" Brown Floor Tile	0121-AB03C	2,0 (chryso <u>tile</u>)

The U. S. Environmental Protection Agency (EPA) states that any material with greater than 1% asbestos must be treated as ACM (U.S. EPA, Title 40 CFR Part 763.87 (c)(2)). The analytical report from AMA is contained in Appendix D. Mr. Hazzard's asbestos inspector training certificate is provided in Appendix E.

2.3 Ventilation System Evaluation

Not applicable to this operation

2.4 Noise Measurements

Not applicable to this operation.

2.5 Personal Protective Equipment

Not applicable to this operation.

2.6 Interpretation of Results

<u>ERGONOMICS</u>: The ergonomic issues with the desks, chairs and monitors need to be corrected by filting the workplace to the workers.

<u>LIGHTING</u>: On the day of the survey the illuminance in the administrative area was inadequate in most offices. URS recommends increasing lighting in the administrative areas through use of task lighting. While work is in progress the administrative area must be lighted by at least the minimum light intensities.

<u>LEAD</u>: Two surfaces were tested in this building area for lead dust and one was found to contain lead. Currently, there are no federal or state regulations that require removal of these materials prior to building demolition or renovation. The U.S. Occupational Safety and Health Administration (OSHA) regulations, 29 GFR 1910.1025 and 29 CFR 1926.62 are designed to protect workers potentially exposed to elevated airborne levels of lead from lead-based paint.

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<u>ASBESTOS:</u> Samples of the floor tite that was present throughout this building area were determined to contain asbestos in a concentration greater than one percent. It is recommended that the damaged tile (Photos # 3201, 3205 & 3209) be replaced with new, non-asbestos tile by an appropriately trained technician.

MOLD: There were water stains on the ceiling in room # 21 (Photo # 3199), room # 19 (Photo # 3200), room # 20 (Photo # 3202), room # 10 (Photo # 3206), room # 5 (Photo # 3207) and in the kitchen # 4 (Photo # 3210) that could lead to mold growth if not addressed.

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3.0 FORMER FIRING RANGE

3.1 Operation Description

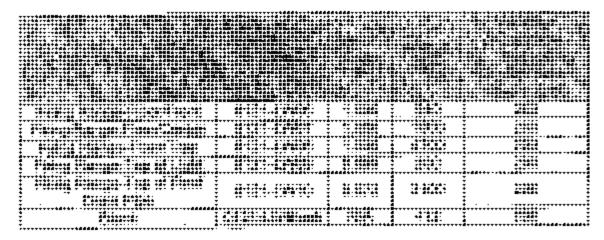
The firing range has been dismantled and this building area is now primarily used for storage.

3.2 Chemical and Physical Agents Sampled

3.2.1 Lead

Wipe testing for lead was conducted in the former firing range using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA is contained in Appendix D. Table 3-1 below shows the results of the lead sampling.

Table 3-1
Levels of Lead Dust Found in the Facility



One air sample for lead dust was also collected in the former firing range. Table 3-2 below shows the result of this air sample.

Table 3-2 Levels of Lead Found in the Air

Sample Looationer	(URS Samble (€) Number 31	Air Volume, (U)	Result :	OSHA'S (PEL(pg/m))
Former Firing Range	0121-LA01	1072	<2.8	50.0
Blank	0121-LA03	0	<3.0	50.0

On the dey of the survey, airborne lead dust levels in the former firing range were found to be acceptable, below OSHA's permissible exposure limit (PEL) for lead (29 CFR

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1910.1025(c)) of 50.0 $\mu g/m^3$ averaged over an 8-hour day. The analytical report from AMA is contained in Appendix D.

3.3 Ventilation System Evaluation

Not applicable to this operation.

3.4 Noise Measurements

Not applicable to this operation.

3.5 Personal Protective Equipment

Not applicable to this operation.

3.6 Interpretation of Results

<u>LEAD</u>: Surfaces within the former firing range were found to contain lead dust levels which exceeded the maximum limit set by the NGB (see Appendix F). URS recommends that an appropriately licensed lead contractor clean the former firing range. Appendix H provides guidelines for the clean-up and rehabilitation of indoor firing ranges.

<u>ELECTRCAL SAFETY:</u> An electrical power outlet in the former firing range had exposed wires coming from it (Photo # 3191). URS recommends cutting the power to the outlat and covering it. The fire extinguisher in the area has not been inspected since 1997 and was not marked indicating its location.

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4,0 DRILL HALL

4.1 Operation Description

The drill hall is a 7,140 square foot area with about a 30-foot high ceiling used for assembling personnel and storing vehicles. The walls are constructed of cinder blocks with a concrete floor.

4.2 Chemical and Physical Agents Sampled

4.2.1 Lead

Wipe testing for lead dust was conducted in the drill half using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA is contained in Appendix D. Table 4-1 below shows the results of the lead sampling.

Table 4-1 Levels of Lead Dust Found in the Drill Hall

Sample Location	URS Sample - Numbers	Āјевумиреd (ft)	Result (port)	Maximum Acceptable Surface Contamination
Drill Hall #1-Floor- Front	0121-LW01	1.000	33	200
Orill Hall #1-Floor- Rear	0121-LW02	1.000	50	200
Drill Hall #1-Top of Flammable Cabinet	0121-LW03	1.000	350	200
Drill Hall #1-Top of a Locker	0121-LW04	1.000	380	200
Drill Hall #1-Top of a Table	0121-LW05	1,000	110	200
Blank	0121- LW8lank1	N/A	<12	200

One air sample for lead dust was collected in the drill hall. Table 4-2 below shows the result of this air sample.

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Table 4-2
Levels of Lead Found in the Air

Simple Location	UR SSample Nümbenes	Ajry/sjume	Reduir Month	(ΦSHAIS #REE(Jg/HJ)/#
Drill Hall	0121-LA02	1068	<2.8	50.0
Blank	0121-LA03_	N/A	<3.0	<u>5</u> 0.0

On the day of the survey, the airborne lead dust level in the drill hall was found to be acceptable, below OSHA's permissible exposure limit (PEL) for lead (29 CFR 1910.1025(c)) of 50.0 $\mu g/m^3$ averaged over an 8-hour day.

A Paint chip was collected in the drill hall where paint was peeling and sent to AMA for analysis. The sample was found to contain lead in a concentration within the allowable limits of the U.S. Housing and Urban Development (HUD) Lead-Based Paint Guidelines. Levels of lead greater than 0.5% by weight are referred to as "lead-containing" (Section 1017 of the Residential Lead-Based Paint Hazard Reduction Act of 1992 (also referred to as Title X)). Table 4-3 below shows the results of the lead paint testing.

Table 4-3
Levels of Lead in Paint Found in the Drill Hall

Sample Location : 4-	WRS Sample Number 1977	Reporting Limit by Veight	Final Results &
Drill Hall #1-Wall	0121-LPC01	0.01	0.031

The analytical report from AMA is contained in Appendix D.

4.2.2 Asbestos

Bulk samples were collected from damaged suspect asbestos-containing materials (ACM) in this area for a determination of asbestos content. Analytical procedures were performed in accordance with the U.S. Environmental Protection Agency (EPA) Recommended Method for the Determination of Asbestos in Bulk Samples by Polarized Light Microscopy and Dispersion Staining (PLM/DS)(EPA-600/M4-82-020, EPA-600/R-93-116). Table 4-4 below presents the results of the sample analysis.

Table 4-4 Sample Results of Suspect ACM

Sample Location	Material Sampled	URS SampleiNumbert	Total-Aspesios (%)
Drill Hall # 1	Pipe Insulation	0121-AB01A	70 (chrysotile)
Drill Hall # 1	Pipe Insulation	0121-AB01B	70 (chrysotile)
Drill Hall # 1	Pipe Insulation	0121-AB01C	70 (chrysotile)

The U. S. Environmental Protection Agency (EPA) states that any material with greater than 1% asbestos must be treated as ACM (U.S. EPA, Title 40 CFR Part 763.87 (c)(2)). The analytical report from AMA is contained in Appendix D. Non-Responsive asbestos inspector training certificate is provided in Appendix E.

4.3 Ventilation System Evaluation

Not applicable to this operation.

4.4 Noise Measurements

Not applicable to this operation.

4.5 Personal Protective Equipment

Not applicable to this operation.

4.6 Interpretation of Results

<u>LEAD:</u> Wipe samples collected in the drill hail for lead were found to be within allowable limits, except for samples 0121-LW03 and 0121-LW04 (Photo #'s 3212-13). The lead dust level in that sample exceeds the maximum limit set by the NGB (see Appendix F).

ASBESTOS: The asbestos pipe insulation was observed to have damaged fittings, splits where sections come together and puncture holes throughout the area, which need to be repaired (Photos # 3193-95). The repairs need to be performed by an appropriately trained technician.

5.0 BOILER ROOM

On the day of this survey, URS was unable to gain access to the boller room. The State of New Hampshire had the keys.

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6.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS

6.1 Confined Spaces

No safety program was found regarding confined spaces. No training records were found on site. A confined spaces program is not required for this site.

6.2 Hearing Conservation

A written program for hearing conservation was found in the 1/172d FA Safety Binder, Table D, Chapter 5. No training records were found on site. A hearing conservation program is not required for this site.

6.3 Respiratory Protection

A written program for respiratory protection was found in the 1/172d FA Safety Binder, Tab D, Chapter 5. No training records were found on site. A respiratory protection program is not required for this site.

6.4 Hazard Communication

A written program for hazard communication was found in the 1/172d FA Safety Binder, Tab F. No training records were found on site. The Material Safety Data Sheets (MSDS) were found in a 3-ring binder on top of the flammable storage cabinet. It was not marked as to its location and not readily accessible.

6.5 Personal Protective Equipment

A written program for personal protective equipment was found in the 1/172d FA Safety Binder, Tab E, Chapter 6. No training records were found on site. A personal protective equipment program is not required for this site.

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7.0 REFERENCES

American National Standards Institute

ANSI/IESNA RP-1-04: American National Standard Practice for Office Lighting

American Society of Heating Refrigerating and Air-Conditioning Engineers

ANSI/ASHRAE Standard 55-2004: Thermal Environmental Conditions for Human Occupancy

ANSI/ASHRAE Standard 62.1-2004: Ventilation for Acceptable Indoor Air Quality

Army Corps of Engineers

Safety and Health Requirements Manual EM 385-1-1 November 2003

Department of the Army

Ergonomics Program Pamphlet 40-21 (15 August 2003)

Policy and Responsibilities For Inspection, Evaluation and Operation of Army National Guard Indoor Firing Ranges (National Guard Regulation 385-15 30 December 2002)

Department of Defense

DoD Hearing Conservation Program Standard 6055.12 April 1996

Creating an Ideal Workstation: A Step-by-Step Guide

U. S. Environmental Protection Agency

Asbestos Hazard Emergency Response Act (40 CFR Part 763)

National Emissions Standards for Hazardous Pollutants (40 CFR Part 61)

U. S. Housing and Urban Development

Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (1995, 1997)

October 20, 2005

URS

PN: 39741509 (3), Army Millianni Guirabdira (CO) - Postumouth, NEW opport VEH Postumouth Aim bry - First 600

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U. S. Occupational Safety and Health Administration

Standard for General industry: 29 CFR 1910

October 20, 2005
PN: 39741509 (J.) Army National Guard 39741599 - Podemouth, NFDReports NRT Performance Arms by Final dec

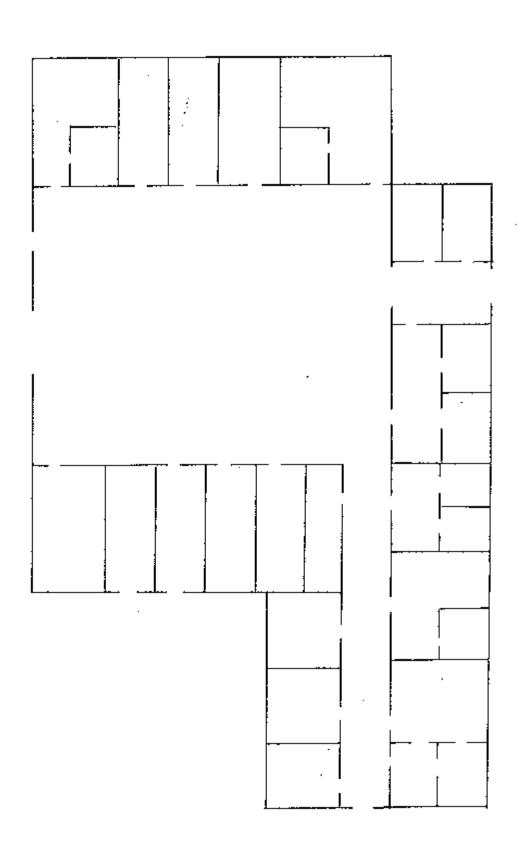
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APPENDIX A SHOP DRAWING

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PORTSMOUTH NH ARMY NATIONAL GUARD - ARMORY SITE PLAN



APPENDIX B
PERSONNEL LIST

BATTERY C 1ST BN 172D FA, STATE ARMORY, PORTSMOUTH, NH

Regular full time personnel (Deployed) SFC Non-Responsive

SFC

SGT

Filling in for Deployed Personnel

SFC

BEST AVAILABLE COPY

APPENDIX C HAZARDOUS MATERIALS LIST

DEPARTMENT OF THE ARMY BATTERY C 1st BATTALION (155mm) TOWED 172rd FIELD ARTHLERY New Hampshire Army National Guard State Armory, 803 McGee Drive Portsmouth, New Hampshire 03801-3398

23 August 2001

SEMI-ANNUAL HAZARDOUS MATERIAL INVENTORY

NATIONAL STOCK NO.	NOMENCLATURE	LOCATION	U/I	QTY
	SNAP STARTING FLUID	CAB #1	110Z	3
9150-01-055-5393	GEAR OIL 80W90	CAB #1	5GAL	1
9150-01-053-6688	CLEANER, LUBRICANT PROT	CAB #1	GAL	8
9150-00-145-0268	GREASE, AIRCRAFT, WTR	CAB #1	5LB	4
8030-00-546-8637	CORROSIVE PREVENT COMP.	CAB #1	140Z	1
9150-00-529-7518	PENETRATING OIL TYPE II	CAB #1	15 0Z	ŀ
	TONER, SOLID PILM	CAB #1	10OZ	Ĭ
6810-01-381-2904	ISOPROPYL ALCOHOL	ÇAB #1	30ML	16
6810-00-275-6010	METHANOL	CAB #1	SGAL	5
9150-00-458-0075	LUBRICANT, PROT GP PL-S	CAB #1 >	1207.	8.
8030-00-664-4944	PRESERY COATING, CANVAS	CAB #1	GAL	8
6850-00-598-9311	LBAK PREVENTATIVE COMP.	CAB #1	12OZ:	3
6850-00-368-5233	INHIBITOR, CORROS VOLATILE	CAB #1	LD .	1
7930-00-459-2247	CLEANING COMPOUND, OVEN AEROSOL	CVB #1	802	7
6830-00-584-3041	PROPANE FUEL	CAB #1	14 0Z	8
6850-00-664-1403	ANTI-FRHEZE/COOLANT	CAB #I	GAL	1
8010-00-290-6984	SPRAY ENAMEL	CAB #1	10 OZ	11
7930-01-326-8110	GLASS CLEANER	CAB #1	PT.	8
6850-00-621-1820	LEAR DETECTION COMPOUND	CAD #1	BTL	4
9150-01-177-3988	LUBRICATING OIL, ENG 10W	CAB #2	QT	97
9150-01-421-1427	LUBRICATING OIL, ENG 15W40	CAB #2	QΤ	75
9150-01-353-4799	AUTOMATIC TRANS FLUID DEXTRON II	CAB #2	QT	11
9150-00-935-9807	HYDRAULIC PLUID, OHT	CAB #2	QT	24
2910-00-646-9727	DEISEL STARTING FUEL	CAB·#2	220Z	7
6850-00-926-2275	CLEANING CMPD, WINDSHIELD	CAB #3	PT	50
8030-00-281-2348	PRESERY, COATING, CANVAS	CAB #3	5GAL	3
6850-00-281-1985	SOLVENT, DRY CLEANING	CAB #3	OAL	4
9150-00-935-5851	GREASE, AIRCRAFT, WTR	CAB #3	50AL	3
8030-00-087-8630	ANTI-SEIZE COMPOUND	CAB #3	LB.	1
9150-00-292-9689	LUBRICATING OIL, WPNS L/T	ÇAB#3	QT	5
9150-00-823-7860	LUBRICATING COMPOUND DIMETHYLSHICONE	CAB #3	PΥ	20
8010-01-160-1641	CHEMICAL AGENT RESISTANT COATING COMPONENT A	CAB #3	QT	2
8010-01-160-1641	CHEMICAL AGENT RESISTANT COATING COMPONENT B (CATAYST)	CAB #3	802	2
	DEISEL FUEL ANTI-GEL	CAB #3	GAL	l.
6830-00-584-3041	PROPANE FUEL	HAZMAT BLDG	1402	77
9150-01-421-1427	LUBRICATING OIL, 15W40	HAZMAT BLDG	QT	12

DEPARTMENT OF THE ARMY BATTERY C 1ST BATTALION (155mm) TOWED 172ND FIELD ARTHLERY New Hampshire Army National Guard State Armory, 803 McGeo Drive Portsmouth, New Hampshire 03801-3398

23 August 2000

SEMI-ANNUAL HAZARDOUS MATERIAL INVENTORY

CABINET #1

NATIONAL STOCK NO.	NOMENCLATURE	MANUFACTURER	U/I	QŢY
6850-00-264-9038 6850-00-281-1985 9150-01-055-5393 9150-00-935-5851 9150-01-053-6688 9150-00-145-0268 9150-00-145-0268 9150-00-687-4241 9150-01-102-9445 9150-0231-2361 9150-00-231-6689 9150-252-6174 9150-01-260-2534 8030-00-546-8637 6850-00-027-1887 9150-00-529-7518	SOLVENT, DRY CLEANING SOLVENT, DRY CLEANING GRAR OIL 80W90 GREASE, AIRCRAFT, WTR CLP GREASE, AIRCRAFT, WTR LUBRICATING OIL, SEMI FLUID BRAKE FLUID, SILICONE LUBRICATING OIL, GP PL-M LUBRICATING OIL, GP PL-M LUBRICATING OIL, GP L-O LUBRICATING OIL, GP L-O LUBRICATING OIL, GP L-O LUBRICATING OIL, GP L-O LUBRICATING OIL, GP L-O LUBRICATING OIL, GP L-O LUBRICATING OIL, GP L-O LUBRICATING OIL, GP L-O PUTICAL CLEANER PENETRATING OIL TYPE II	CSD INC. CSD INC Amalie Refining Shell Oil Co. Royal Lubricants Co. Royal Lubricants Co. Shell Oil Co. Castrol Inc. San Juan Intl Co. Bay Oil Co. Sowes Co. Calif. Bay Oil Co. Crown North Amer. J.HB Industries Alfa Kleen Malter International	SOAL SOAL SOAL SOAL PT SLB QT GAL QT QT QT PT 14 OZ PT 15OZ	i 4 2 3 13 2 10 6 2 2 1 3 1 1 3 1 1 3 1 3 1 3 1 3 1 1 1 1
7100 00 0-x	•			

APPENDIX D ANALYTICAL RESULTS

A Analytical Services, Inc.

A Spocialized Environmental Laboratory

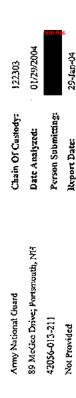
CERTIFICATE OF ANALYSIS



A. 60.

NY ELA

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Job Location:

Salem, New Hampshire 03079-2830

Attention:

Job Name:

P.O. Number: Job Number:

Report Date:

Puge 1 of 2

Summary of Atomic Absorption Analysis for Lead

Flame Wripe ***** 1000 12.00 ug/ft² 35 Flame Wripe **** 1,000 12.00 ug/ft² 50 Flame Wripe **** 1,000 12.00 ug/ft² 50 Flame Wripe **** 1,000 12.00 ug/ft² 50 Flame Wripe **** 1,000 12.00 ug/ft² 110 Flame Wripe **** 1,000 12.00 ug/ft² 100 Flame Wripe **** 1,000 12.00 ug/ft² 40 Flame Wripe **** 1,000 12.00 ug/ft² 40 Flame Wripe **** 0,972 12.34 ug/ft² 20 Flame Arir 1,000 10,00 12.00 ug/ft² 10 Flame Wripe **** 1,000 12.00 ug/ft² 10 Flame Arir 1,000 10,00<
Flame Wipe **** 1,000 12.00 ug/ft² 50 Flame Wipe **** 1,000 12.00 ug/ft² 50 Flame Wipe **** 1,000 12.00 ug/ft² 50 Flame Wipe **** 1,000 12.00 ug/ft² 100 Flame Wipe **** 1,000 12.00 ug/ft² 100 Flame Wipe **** 1,000 12.00 ug/ft² 470 Flame Wipe **** 1,000 12.00 ug/ft² 470 Flame Wipe **** 1,000 12.00 ug/ft² 470 Flame Wipe **** 0,289 13.50 ug/ft² 470 Flame Air 1072 M/A 2.80 ug/ft² 7 28 Flame Air 1072 M/A 2.81 ug/ft² 2.8 Flame Paint Chip ****
Flame Wipe **** 1,000 12.00 ug/ft² 50 Flame Wipe **** 1,000 12.00 ug/ft² 350 Flame Wipe **** 1,000 12.00 ug/ft² 350 Flame Wipe **** 1,000 12.00 ug/ft² 110 Flame Wipe **** 1,000 12.00 ug/ft² 100 Flame Wipe **** 1,000 12.00 ug/ft² 4700 Flame Wipe **** 1,000 12.00 ug/ft² 4700 Flame Wipe **** 0,032 12.34 ug/ft² 4700 Flame Wipe Blank **** 0,972 12.34 ug/ft² 4700 Flame Air 1072 N/A 2.80 ug/ft² 2.8 Flame Air 1072 N/A 2.80 ug/ft² 2.8 Flame Paint Chip **** N/
Flame Wipe **** 1,000 12.00 ug/ft² 350 Flame Wipe **** 1,000 12.00 ug/ft² 180 Flame Wipe **** 1,000 12.00 ug/ft² 110 Flame Wipe **** 1,000 12.00 ug/ft² 100 Flame Wipe **** 1,000 12.00 ug/ft² 4700 Flame Wipe **** 1,000 12.00 ug/ft² 4700 Flame Wipe **** 0,032 12.30 ug/ft² 4700 Flame Wipe Blank **** 0,072 12.34 ug/ft² 4700 Flame Air 1072 N/A 2.80 ug/ft² 5 2.8 Flame Air 1072 N/A 2.80 ug/ft² 5 2.8 Flame Paint Chip **** N/A 2.81 ug/ft² 5 2.8 Flame
Flame Wipe **** 1,000 12.00 ug/fth 380 Flame Wipe **** 1,000 12.00 ug/fth 110 Flame Wipe **** 1,000 12.00 ug/fth 1,000 Flame Wipe **** 1,000 12.00 ug/fth 4700 Flame Wipe **** 0,389 13.50 ug/fth 4700 Flame Wipe **** 0,097 12.34 ug/fth 4700 Flame Wipe Blank **** 0,972 12.34 ug/fth 200 Flame Air 1072 N/A 12.00 ug/fth < 2.8
Flame Whye ***** 1,000 12.00 ug/ft² 110 Flame Whoe **** 1,000 12.00 ug/ft² 540 Flame Whoe **** 1,000 12.00 ug/ft² 700 Flame Whoe **** 0,889 13.50 ug/ft² 470 Flame Whoe **** 0,972 12.34 ug/ft² 700 Flame Whe Blank **** 0,972 12.34 ug/ft² 70 Flame Air 1072 MA 2.80 ug/ft² 2.8 Flame Air Blank 0 N/A 2.81 ug/m² < 2.8 Flame Air Blank 0 N/A 3.00 ug/m² < 2.8 Flame Paint Chip **** N/A 0.01 %Pb Flame Paint Chip **** N/A 0.01 %Pb Flame Paint Chip **** N/A
Flame Wipe **** 1,000 12.00 ug/n² 540 Flame Wipe **** 1,000 12.00 ug/n² 1,000 Flame Wipe **** 0,889 13.50 ug/n² 4700 Flame Wipe **** 0,972 12,34 ug/n² 200 Flame Wipe **** 0,972 12,34 ug/n² 200 Flame Air 1072 WA 2.80 ug/n² < 2.8 Flame Air 1068 N/A 2.81 ug/n³ < 2.8 Flame Air Blank 0 N/A 2.81 ug/n³ < 2.8 Flame Paint Chip **** N/A 3.00 ug/n³ < 2.8 Flame Paint Chip **** N/A 0.01 %Pb < 3.8 Flame Paint Chip **** N/A 0.01 %Pb < 2.8 Flame Paint Chip **** N/A<
Flame Wipe **** 1,000 12.00 ug/ft² 1,000 Flame Wipe **** 1,000 12.00 ug/ft² 700 Flame Wipe **** 0,389 13.50 ug/ft² 700 Flame Wipe **** 0,972 12.34 ug/ft² 200 Flame Air 1072 M/A 2.80 ug/ft² 2.80 Flame Air 1068 N/A 2.81 ug/m² < 2.8
Flame Wipe **** 1,000 12.00 ug/ft² 4700 Flame Wipe **** 0.889 13.50 ug/ft² 200 Flame Wipe Blank **** 0.972 12.34 ug/ft² 200 Flame Air 1072 N/A 12.00 ug/m² < 12
Flame Wipe **** 0.889 13.50 ug/ft² 200 Flame Wipe Blank **** 0.972 12.34 ug/ft² 3100 Flame Air 1072 MA 2.80 ug/m² < 12 Flame Air 1068 MA 2.81 ug/m² < 2.8 Flame Air Blank 0 MA 3.00 ug/m² < 2.8 Flame Paint Chip **** MA 0.01 %Pb < 3 Flame Paint Chip **** MA 0.01 %Pb 0.031 Flame Paint Chip **** MA 0.01 %Pb 0.031 Flame Paint Chip **** MA 0.01 %Pb 0.031
Flame Wipe **** 0.972 12.34 ug/ft² 3100
Flame Wipe Blank **** N/A 12.00 ug < 12 Flame Air 1072 N/A 2.80 ug/m² < 2.8
Planne Air 1072 MA 2.80 ug/m² < 2.8 Flame Air 1068 N/A 2.81 ug/m² < 2.8
Flame Air 1068 N/A 2.81 ug/m² < 2.8 Flume Air Blank 0 N/A 3.00 ug/m² < 3
Flame Air Blank 0 N/A 3.00 ughth 3 Flame Paint Chip ***** N/A 0.05 %Pb 0.031 Flame Paint Chip ***** N/A 0.61 %Pb 0.13 Flame Paint Chip ***** N/A 0.01 %Pb 0.13
Flame Paint Chip **** N/A 0.01 %Pb 0.031 Flame Paint Chip **** N/A 0.01 %Pb 0.13 Flame Paint Chin **** N/A 0.01 %Pb 0.13
Flame Paint Chip **** N/A 0.01 %Pb 0.13
Flame Paint Chin ***** N/4 0.01 0.70
10.0

An ATHA (#8863), NVLAP (# 101143), & New York ELAP (#10920) Accredited Laboratory 4475 Forbes Bivd. * Lanham, MD 20706 * (301) 459-2640 * Inl Prec (800) 346-6961 * Fux (301) 459-2643

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May 2018 - 593 - 69 (301) 428 - 5843

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URS Corporation S Industrial Way

AMA Analytical Services, Inc.

A Spocialized Environmental Laboratory

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4. C.

NY ELA

01/29/2004 122303 Chain Of Custody: Person Submitting: Date Analyzed: Report Date: 89 McGoc Drive; Portsmouth, NIP Army National Guard 42056-013-211 Not Provided Job Location: P.O. Number: Job Number: Job Name: Salem, New Hampshire 03079-2830 URS Corporation S Industrial Way Attention: Address: Cient

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Summary of Atomic Absorption Analysis for Lead

Final Result	شداده در در در در در در در در در در در در در
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Area Wiped Reporting (ft*) Limit	
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Sample Type Air Volume	
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S	
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Analysis Typ	
1	The second secon
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ample ber	
AMA Sample Number	
17	11

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7420; Water: SM-31118
Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7421; Water: SM-31138
N/A = Not Applicable mg/Kg = parts per milition (ppm) by weight mg/L = parts per milition (ppm)
%Pb = percent fead 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.

Aliziys Sanager

this report is submitted and accepted for the exclusive use of the elientity 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 muther 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 personand of these Luberatories, we expressly disclaim saw knowledge and habitety for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the uppropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accretisation This report applies only to the samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clicats, the public and these Laboratories, All rights reserved. AMA Analytical Services, Inc. applies only to polarized light microscopy of bulk samptes and transmission electron microscopy of AHERA air samples.

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

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May, 2018

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MA Analytical Services, Inc.

A Specialized Environmental Laboratory

URS Corporation 5 Industrial Way

Client: Address:

CERTIFICATE OF ANALYSIS

.

Job Name: Army National Guard
Job Location: 89 McGec Drive; Portsmouth, NH
Job Number: 42056-013-211

Not Provided

P.O. Number:

Chain Of Custody: 122303
Date Analyzed: 1/29/2004
Person Submitting:

NYEA

Page 1 of 2

Summary of Polarized Light Microscopy

ł		:													
AMA Sample Number	Cltent Total Sample# Asbestos	Total Asbestos	Chrysotile Percent	Amosite Percent	Crocidofile Percent	Other Asbestos Percent	Mineral Wool Percent	Fiberglass Fercent	Fiberglass Organic Synthetic Percent Percent Percent	Synthetic	Other Percent	Other Particulate Percent Percent	Sample Calor	Analyst ID	Comments
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_	0121 AB 01 A	20	5	ı	1	ì	ı	ı	20	1	1	10	Gray	18	
_	8 10 8V 1210	70	2	ı	ı	ş	ı	ι	70	;	I	<u>0</u>	Gray	8	
	0121 AB 01 C	20	6	ı	ŧ	ı	ī	ŧ	20	:	ı	0	Gay	87	
_	0121 AB 02 A- FT	7	н	i	ı	1	1	1	:	i	1	86	Black	9	
-	0121 AB 02 A- M	1	;	į	t	ł	1	1	1	ı	ı	1		83	Sample Not Analyzed
_	0121 AB 02 B- FT	~	7	ı	1		ı	;	ı	ı	ı	86	Black	8.1	
_	0121 AB 02 B-	1	ı	ı	1	£ .	ı	:	:	ı	:	ı		£	Sample Not Analyzed
	0121 AB 02C- FT	7	7	ì	ı	ŧ	i	:	1	1	1	85	Black	9	
	0121 AB 02C- M	}	1	1	ı	ţ	ŧ	ŧ	;	1	1	ì		9	Sample Not Analyzed
-	0121 AB 03A- FT	74	7	ı	1	1	ı	ì	ı	;	ı	8	Втомп	TB	
-	0121 AB 03A- M	ì	į	ŧ	1	:	Į	;	ı	;	į	•		ឌ	Sample Not Analyzed
	0121 AB 03B- FT	2	7	1	ı	ŧ	ı	ı	1	Į	ţ	88	Brown	93	
0421848	0121 AB 03B- M	ı	ì	1	1	ı	:	f	1	i	1	ı		8.	Sample Not Analyzed

this report is submitted and accepted for the esclusive 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 priviled and from us. Sample types, locations and collection protocods are haved upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclosus any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accurdance with the appropriate regulation therefore requested by the eftent. NVLAP Accreditation applies and transmission electron microscopy of ABERA air samples. This report applies only to the samples, Investigated and is not necessarily indicative of the quality or condition of upparently identical or similar products. As a nutual protection to ellents, the public and these Laboratories,

<u>An Alffa (#5863), NVLAP (# 101143), S. New York ELAP (#10920) Accredited Laboratory</u> 4475 Forbes Bird, • Lantinn, AID 20766 • (301) 459-2640 • Yell Free (300) 346-0961 • Fax (301) 459-2643

Aftention:

Salem, New Hampshine 03079-2830

A Analytical Services, Inc.

A Specialized Environmental Lahorskory

Job Lacation: Job Number: Job Name: Salem, New Hampshire 03079-2830 URS Corporation 5 Industrial Way

CERTIFICATE OF ANALYSIS

N ELA 手

> 89 McGes Drive; Portsmouth, NII Army National Guard 42056-013-211

Not Provided

P.O. Number:

Person Submitting:

Date Analyzed:

122303

Chain Of Custody:

Page 2 of 2

Summary of Polarized Light Microscopy

Camments		Sample Not Analyzed	
le Analyst r D	a	9	
Sample	Prount		
Fiberglass Organic Synthetic Other Particulate Sample Analyst Percent Percent Percent Topo ID	86	ŧ	
Other Percent	ŀ	\$	
Synthetic Perecut	l	1	
Organic Percent	ŧ	ı	
Fiberglass Percent	1	ı	
Mineral Wool Percent	:	1	
Otlker Asbestos Percent	ı	,	ı
Cracidolite Otter Mineral Percent Asioestos Wool Percent Percent	ı		:
Sign of the sign o	;	l	1
Chrysofile Percent	,		1
Total Asbestos		14	1
Citent Sample#		9 0121 AB 03C- FT	0121 AB 03C-
AMA Sample Client Total Chrysorfie Amo Number Sample# Asbestos Penzent. Per		0421849	0421850

The following foomotts only apply to those samples which the total asbestos result is flagged with a note number.

TEM RECOMMENDATION - Please note, due to resolution ifmirations with optical microscopy and/or interference from matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for esbestos may contain a significant quantity of asbestos. It is recommended that the additional analytical technique of TFM be used to check for asbestos fibers below the resolution limits of trace (<1%) for esbestos may contain a significant quantity of asbestos.

MATRIX REDUCTION RECOMMENDATION - Please note, due to interference from the matrix components of this sample, results which are reported via PLM as negative or race (<1%) for asbestos may contain a significant quantity of asbestos which is obscured from view. It is recommended that the additional preparation technique of gravinotric reduction be performed on this sample to minimize the obscuring effects of matrix compunents, followed by reanalysis by PLM and/or TEM.

Analysis Method - EPA/600/R-93/116 deted July 1993

TR \simeq "Trace equals leas than 1% of this component" NAD = "No Asbestos Detected"

this report is submitted and accepted for the exclusive use of the elient 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 marker without prior without prior without prior and these persons are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly discinant any knowledge and from an experience of this protocols are based upon the information will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the citem. NVLAP Accreditation lishlisty 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 citem. NVLAP Accreditation This report applies only to the sample, or sumples, 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. applies only to polarized light microscopy of hulk samples and transmission electron microscopy of AHERA air samples.

An Alita (#8863), NVI.AP (# 10133), & New York ELAP (#16920) Accredited Laboratory 1475 Forbes Blvd. * Lankam, Ald 20706 * (301) 459-2643

Addresss Clicat

Attention:

	Point of Contact (name and phone #) Non-Responsive 603-893-0616 Samples Collected By Non-Responsive				Return Address: URS Corporation 5 Industrial Way Salem, NH 03079			
	ig/area)		ocation	ate VH		City PORTSMOUTH		Sampled I ARA
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	,							Received E
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URS Air Sample Chain Of Custody

	-					
URS CORPO	RATION		056-013-211			
5 Industrial V	Nay	Client/ Project Name:				
Salem: NH (Location: 861 mc	FE DRIVE	PORTSM	N. HTUOI	
Tel# 603 893	-0816	Project Manager:	Non-Responsiv	<u> </u>		
Fax# 603 89		Sampler: Non-Resp	onsive	Date Sample	d: 01/21	104
		•				
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URS Sample Chain Of Custody

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URS Sample Chain Of Custody

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0121- AB02B			/ +	PLM	
0121° AB02C	¥	1	/ TRAINING ROOM #S	PLM	
0121- AB 03A	Γ	'×9" Floor	TILE / PSNCO off	ice pim	
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APPENDIX E TRAINING CERTIFICATES

INSTITUTE FOR

ENVIRONMENTAL EDUCATION, INC. 16 Upton Drive, Wilmington, MA 01887

(978) 658-5272



is is to certify that

has completed the requisite training, and has passed an examination

for reaccreditation as:

Asbestos Inspector Refresher

pursuant to Title II of the Toxic Substance Control Act, 15 U.S.C. 2646

April 11, 2003 Course Dates

Institute for Environmental Education Wilmington, MA 01887 16 Upton Drive Course Location

Expiration Date April 10, 2004

> April 11, 2003 Examination Date

03518010625349

Certificate Number

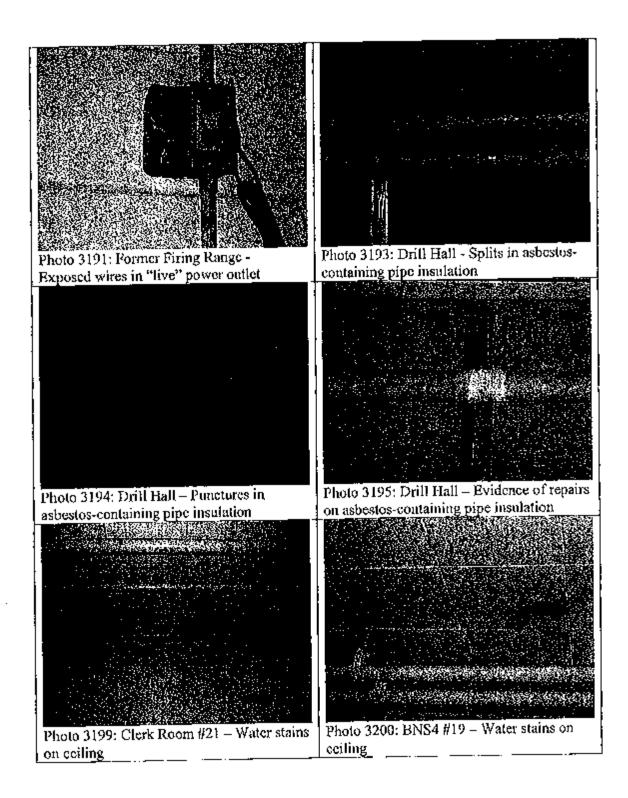
APPENDIX F RECOMMENDATIONS FOR SURFACE LEAD IN DUST IN ARMORIES

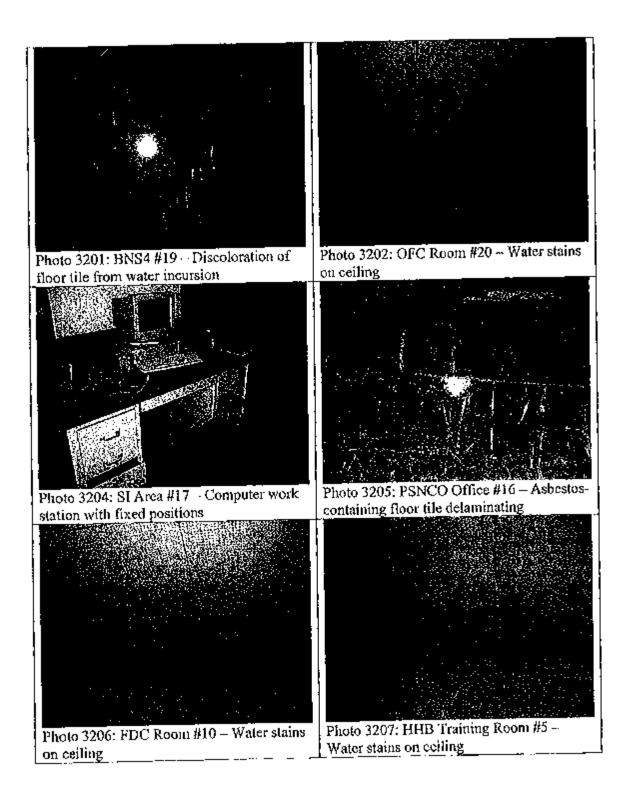
Subject: Recommendations for Surface Lead Dust in Armories

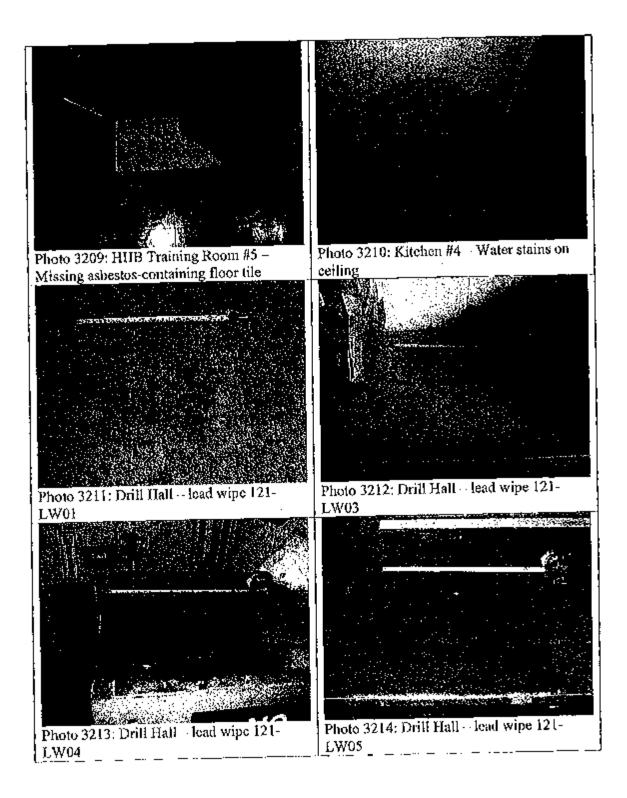
- 1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu g/ft^2$). If a special function will be held in which children 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 µg/ft²) and windowsiils (250 µg/ft²) 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 finese 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 alrborne lead levels and following good cleanup and hygienic practices.
- c. 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.
- 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 tevels 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:

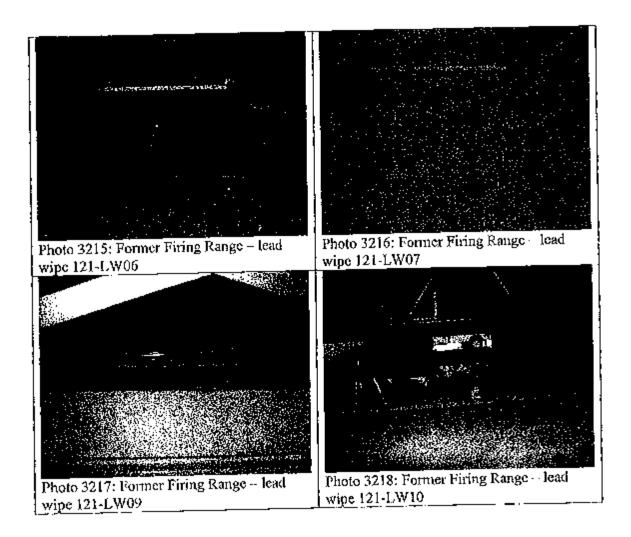
- a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under (40 $\mu g/ft^2$ on floors and 250 $\mu g/ft^2$ on windowsills).
- b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.
- c. 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/m³ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

APPENDIX G
PHOTOGRAPHS









APPENDIX H

POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION, AND OPERATION OF ARMG INDOOR FIRING RANGES (IFR) AND GUIDELINESFOR IFR REHABILITATION, CONVERSION AND CLEANING



DEPARTMENTS OF THE ARMY AND THE AIR FORCE NATIONAL GUARD BUREAU 1411 JEFFERSON DAVIS HIGHWAY ARLINGTON, VA 22202-3231

NGB-AVS

5 December 2001

MEMORANDUM FOR THE ADJUTANTS GENERAL OF ALL STATES, FUERTO RICO, THE US VIRGIN ISLANDS, GUAM, AND THE COMMANDING GENERAL OF THE DISTRICT OF COLUMBIA

SUBJECT: (All States Log Number P01-0075) Army National Guard (ARNG) - Policy and Responsibilities for Inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges (IFR) and Guidelines for IFR Rehabilitation, Conversion and Cleaning

References:

- AR 385-63, Policy and Procedures, 15 November 1983.
- b. DODI 6055.9-STD, DOD Ammunition and Explosive Safety Standards, August 1997.
- c. DODIG Report #98-170, subject: ARNG and U.S. Army Reserve Command Small Arms IFR, 30 June 1998.
 - d. AR 385-10, The Army Safety Program, 29 February 2000.
- e. All States Memorandum, NGB-AVS, 18 September 2000, subject: (All States Log Number P00-0059) Army National Guard (ARNG) - Policy and Responsibilities for Inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges.
- 2. The policy and procedures for Inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges are enclosed. Guidelines for Rehabilitation, Conversion, and Cleaning of IFRs are provided in the Addendum. These policies apply to all persons responsible for the operation, rehabilitation, conversion, and cleaning of ARNO IFR and satisfy the requirements of the references listed above.
- The enclosed document contains sample formats of the forms necessary for the routine operation of IFRs. Additionally, an IFR Standing Operating Procedure is provided to assist each State/Territory in developing local guidance consistent with the needs of the individuals that use their range(s).
- 4. The contents of this memorandum will be incorporated into the revision of NGR 385-15. Policy and Responsibilities for Evaluation, and Operation of ARNG Indoor Firing Ranges, and National Guard Pamphlet 385-15, Guidance and Procedures for IFR Rehabilitation, Conversion, and Cleaning.

NGB-AVS SUBJECT: (All States Log Number P01-0075) Army National Guard (ARNG) - Policy and Responsibilities for Inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges (IFR) and Guidelines for IFR Rehabilitation, Conversion and Cleaning Inspection

- 5. This memorandum expires 30 November 2002, unless sooner rescinded or superseded.
- 6. Point of contact is Colonel Non-Responsive Chief, Aviation and Safety Division, at DSN 327-7700 or 703-607-7700.

FOR THE CHIEF, NATIONAL GUARD BUREAU:

Non-Responsive

Encl as

Lieutenant General, GS Director, Army National Guard

CF:
NGB-IG
NGB-ART
NGB-ARC
NGB-ARE
NGB-ARI
NGB-ARS
NGB-PL

NGB-ARZ-PC Each State IG

Each State Safety Office

Each State Occupational Health Nurse

Each State Training Site Commander

Each State USPFO

Each Regional Industrial Hygienist

NGB-AVS-SG

1-1-379

SUBJECT: 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

Safety POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

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NGB-AVS-SG

SUBJECT: Ali States (Log Number P61-0075) Army National Guard (ARNG) Safety and Occupational Health Program - POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

Appendices

Appendix A - Abbreviations

Appendix B - References

Appendix C - Indoor Firing Range Accident

Response Plan

Appendix D - Permission and Release of Liability Certificate

Guidelines and Procedures for IFR Rehabilitation, Conversion, and Cleaning

1-1. General

This policy prescribes Army National Guard (ARNG) policy and responsibilities for inspection, evaluation and operation of ARNG indoor firing ranges. It applies to all training, maintenance, and firing activities conducted on Indoor firing ranges. This policy supplements AR 385-10, AR 385-63, and AR 385-64.

1-2. Explanation of abbreviations and terms

Abbreviations used in this publication are listed in Appendix A. Terms that apply specifically to IFRs can be found in paragraph 1-37 of this regulation.

1-3, Policy

a. Ammunition shall only be fired in properly classified indoor firing ranges.

 Detailed initial and periodic inspections of all indoor firing ranges shall be conducted as prescribed to ensure compliance with current safety and health standards.

c. ARNG or civillan personnel shall not use any Indoor firing range, which has been classified as

unsalo.

d. A DA Form 4753, Notice of Unsafe or Unhealthy Working Condition, shall be posted on the entrance to all ranges classified as unsafe.

e. Ranges classified as unsafe shall be secured, sufficiently to preclude entry. New ranges shall be designed using the latest standards provided by NGB-ARI.

g. The use of indoor firing ranges for purposes other than small arms weapons training and target practice is strictly prohibited.

Responsibilities

1-4. Director, Army National Guard (DARNG)

The Director, Army National Guard establishes policy and provides resources necessary to implement the ARNO Range Safety progrem per AR 385-63.

1-5. Chief, Aviation and Safety (NGB-AVS)

The Chief, NGB-AVS, has staff responsibility for supervising the ARNG Range Safety Program and to:

e. Identify the resources necessary to effect policy and standards throughout the ARNG in

accordance with (IAW) AR 385-63.

- b. Coordinate with other HODA staff agencies and the Adjutants General on matters pertaining to the ARNG Range Safety Program.
- 1-6. Chief, Safety and Occupational Health Branch (NGB-AVS-S)

The Chief, NGB-AVS-S shall- -

a. Develop, implement, and manage the ARNG Range Safety Program.

b. Review the design of all ranges to be constructed or remodeled for compliance with safety and occupational health standards and make recommendations to appropriate approval authority.

 Determine the classification of indoor firing ranges based upon input from the state safety manager, the ventilation measurements, and the air monitoring results (breathing zone and general area).

NGB-AVS-SG SUBJECT: 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

- d. Conduct an initial evaluation of new IFRs and resvaluate every two years thereafter. An IFR will be reevaluated if modifications to the range structure or ventilation system are made. Approval from the State Safety Office and Regional Industrial Hygienist must be obtained before the range is returned to
- f. Determine and publish the training requirements for the persons who witi conduct range evaluations.
- 1-7. Chief, Training Division (NGB-ART) The Chief, NGB-ART shall provide weapons training strategies consistent with AR 350-41 and the Standard and Training Commission.
- 1-8. Chief, Installations Division (NOB-ARI)

The Chief, NOB-ARI shall- -

a. Provide the design standards for the construction of indoor firing ranges.

- Ensure that the designs for new and remodeled indoor firing ranges meet approved standards and are reviewed and approved by the Safety and Occupational Health Branch.
- 1-9. The State Adjulant General

The State Adjutant General shall- -

a. Establish, supervise, and direct a safety and occupational health program for users of Indoor firing

ranges.

b. Ensure all ranges being used are classified as "sale" or "limited use", those ranges classified as "limited use" under the criteria of this regulation are used on a limited basis, and all ranges classified as "unsafe" under the criteria of this regulation are not used.

Determine and identify funding requirements to ensure development of a comprehensive safety and

occupational health program for the users of indoor firing ranges.

1-10. State Safety Manager

State Safety Managers shall--

- a. Perform or coordinate performance of all inspections and evaluations of indoor firing ranges. b. Determine whether the range is "safe" or "unsafe" based on the physical safety inspection.
- c. Review and approve all Indoor firing range SOPs to ensure all requirements are met. An

example SOP can be found at Figure 1-3 of this regulation.

 d. Perform design review of IFRs to ensure current safety and occupational health related compliance requirements are mel.

e. Make recommendations to the Adjutant General regarding the disposition of "unsafe" and "limited

use" ranges.

Approve the use of the range by non-military organizations.

- g. Maintain copies of all range inspections, ventilation measurements and visitors log.
- 1-11. State Occupational Health Nurse

The Occupational Health Nurse shall- -

a. Schedute medical surveillance examinations for individuals who are or may be exposed to Lead above the action level for more than 30 days per year.

b. Maintain exposure monitoring (air sampling results) and medical surveillance records for 40 years or the duration of employment plus 20 years, whichever is longer, as prescribed in 29 CFR 1910.1025, Appendix C, Section I.

c. Record the worker's exposure date on DA Form 4700 (Medical Record-Supplemental Medical Date) overprints, IAW TB MED 503 paragraph 3-2 f (1)(a), and DODI 6055.5-M Occupational Health

Surveillance Manual.

 d. Institute a training program that identifies the hazards and preventive measures for all personnel with a potential for exposure to Lead.

SUBJECT: 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

1-12. State Environmental Office

The State Environmental Office shall coordinate disposal of all hazardous waste generated from range operation, cleaning, and maintenance.

1-13. Facility Commanders

Commanders of facilities with indoor firing ranges shall maintain and be familiar with AR 385-83, and the provisions of this regulation, to ensure that-

a. A Safety and Occupational Health Compliance Program is developed as specified in this regulation.

b. Indoor firing ranges are secured when not in use.

c. A custodian is appointed for all indoor firing ranges under his/her area of command.

The custodians of the Indoor firing ranges maintain the visitors log and follow procedures IAW

paragraph 1-14 of this regulation. e. All non-military organizations using indoor firing ranges under their area of command have signed a contract/agreement delineating the conditions of range use and liability. The contract/agreement should also include provisions for hazardous waste disposal expenses.

A SOP for each range is established, enforced and approved by the State Safety and Occupational

Health Office.

g. All required signs are posted IAW Section 1-22 of this regulation.

h. All individuals using indoor firing ranges under the facility commander's area of command have been provided with a copy of the range SOP or been briefed on the requirements of the SOP, and that these individuals have signed an agreement to follow the rules stated therein. See paragraph 1-29 for record maintenance requirements.

Range custodians are enrolled in respiratory protection and medical surveillance programs as

required by paragraph 1-37 of this regulation (if applicable).

j. Range custodians have documentation to show that they have been educated about the health effects of exposure to Lead dust IAW 29 CFR 1910,1200 and 29 CFR 1910,1025. This is an annual requirement IAW this standard.

k. No equipment or furniture, such as tables, chairs or storage cabinets, is stored or maintained in the

i. All range safety officers and maintenance personnel have a copy of this regulation, AR 385-83, and the range SOP and are familiar with and in compliance with all indoor firing range policies and procedures.

m. The range ventilation system is checked every 480 hours of operation IAW paragraph

n. Personnel do not fire ammunition in excess of the allowable time as dictated by established 1-27 of this regulation. exposure limits. (See Figure 1-1).

o. Exposure records shall be maintained IAW paragraph 1-34 when personnel are exposed to airborna Lead concentrations in excess of 0.03 milligrams per cubic meter (mg/m3).

p. Lead fragments are not removed from the bullet trap or surrounding areas except as coordinated

through the State Environmental Office.

q. The use of M16 rifles using 5.66 mm ammunition in the indoor firing range is prohibited, except on ranges where the bullet trap is rated for 5.56 mm ammunition. Otherwise, the M16 shall be used with .22 callber adapter and ammunition.

The ventilation system is in operation at all times during firing or cleaning.

1-14. Range Custodians

Custodiane shall- -

- Ensure that all individuals using the indoor firing range understand the range safety regulations.
- b. Ensure that all cleaning procedures are performed IAW the requirements of this regulation and the rutes, and SOP. procedures prescribed in the Addendum. This includes documentation of dates, names of personnel and time on the range for all cleaning procedures. See paragraph 1-29 for record maintenance requirements.

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c. Maintain the visitor log IAW the range SOP. As a minimum the log should include the names of the shooters, the amount of time spent in the range by each individual, the date of firing, the type(s) of ammunition fired, and the number of rounds fired. See paragraph 1-29 for record maintenance

d. Forward a copy of the visitor log to the State Safety and Occupational Health Managers on a

quarterly basis

1-15. Unit Commanders

Unit Commanders shall- -

Enforce all range safety and occupational health procedures.

b. Maintain a record of time spent on the range for all personnel using "limited use" firing

ranges as recorded by the range custodian.

c. Provide the State Occupational Health Nurse with a list of personnel firing in ranges classified as "limited use" ranges for more than the prescribed times listed in Figure 1-1. See paragraph 1-29 for record maintanance requirements.

d. Designate range safety officers in writing.

e. Provide the State Occupational Health Nurse with a list of range safety officers and custodians.

f. Ensure all range safety officers and range custodians are enrolled in the Medical Surveillance and Respiratory Protection Programs, as required.

1-16. Procedures, classification and use

indoor firing ranges have been built in armories for many years. Each range design reflects the current emphasis and technology on protecting the health and safety of the shooter. Older ranges may not meet the current standards deemed necessary to accomplish this. However, under controlled conditions, many older ranges will not expose users to hazardous conditions.

1-17. Classification of ranges

Based on inspection data collected on the range inspection checklist (Figure 1-2), ranges shall be classified as "safe", "limited use" or "unsafe". Safe ranges permit authorized firing for military and civillar use. Limited use ranges permit use only under controlled conditions based on the personnel exposure limits for intermittent Lead exposure. (Figure 1-1). Unsafe ranges are not authorized for use under any conditions.

a. Building envelope. (Design standards may be found in DG 415-1, Appendix A or CEHND

1110-1-18).

(1) Safe ranges.

(a) Each firing lane is at least 4 feet wide.

(b) Pipes, conduits, lights, lighting fixtures and other projecting surfaces are balifed or covered by a material that will protect these items and prevent ricochets.

(c) Baffles do not disrupt the uniform airflow in the range.

(d) in older ranges, sidewall windows in front of the finng line have been removed and the openings seated flush to the wall with materials compatible with the adjacent walls. New ranges are not built with windows in front of the firing line.

(2) Unsafe ranges.

(a) All firing lanes are less than 4 feet wide. If any one firing lane is less than 4 feet wide, that lane shall not be used for firing.

(b) Pipes, conduits or walls are not sealed to prevent migration of Lead dust to other areas of the range. (See the Addendum for wipe sample procedures used to determine if Lead dust is leaking from the range).

(c) There are open floor drains in the range.

(d) Carpet is located in any part of the range. (Contact the State Environmental Offices for hazardous waste disposal procedures.)

(e) Doors or windows located downrange of the firing line.

(f) Range buildings do not meet the other requirements of safe ranges as prescribed in the checklist in Figure 1-2 of this document.

NGB-AVS-SG

SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNO) Safety and Occupational Health Program -- POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

b. Ventilation

(1) Safe ranges.

(a) The range has an operational mechanical ventilation system.

(b) The average airflow at the firing line in each firing lane is at least 50 feet per minute (fpm).

(c) Air is exhausted at or behind the builet Irap.

(d) Supplied air is introduced into the range behind the shooters.

(e) The ventilation system is so constructed that air exhausted from the Indoor firing range does not enter into another part of the building or any other air supply system.

(f) The exhaust exceeds the make-up air by approximately 10% to form a negative air pressure in the range in relation to adjoining areas.

(g) Air is not recirculated in the firing range unless equipped with monitoring equipment as specified

In section 1-26 of this regulation. (h) The static pressure, as measured from 6 inches inside the range entrance to 6 inches outside the range, is at least -. 05 inches of water gauge (wg) but does not exceed -.20 wg.

(i) A amoke test of the range shows laminer airflow in the range and no turbulence at

the firing line. (See the Addendum, for troubleshooting guidance) (j) in passive make-up air systems, the supply air touvers and exhaust fan shall be electrically

interlocked. (k) in systems with active make-up air, the supply and exhaust fans shall be electrically interlocked. The make-up air (an should start after the exhaust fan to ensure the range maintains a

negative pressure. (i) Range air temperature should be between 66 degrees and 60 degrees Fahrenheit.

(2) Unsafe ranges.

(a) The airflow at the firing line on any lane is less than 50 fpm at any lovel and air sampling results suggest possible overexposure as determined by a competent person.

(δ) The range has no mechanical ventilation.

- (c) The ventilation system is constructed in a manner that allows exhaust air to enter into other parts of the building or enother building air supply system.
- (d) The make-up air exceeds the exhaust, which forms a positive air pressure in the range in relation to adjoining areas.

(e) Air is exhausted anywhere other than at the bullet trap.

- (f) Make-up air is supplied only from adjacent areas of the building with no provision for inclusion of
- (g) The static pressure, as measured from 6 inches inside the range entrance to 6 inches outside the range, is measured less than -. 05 wg or in excess of -. 2 wg.

(h) The range is under positive pressure.

- (i) The supply and exhaust air systems are not electrically interlocked.
- c. Range lighting.

(1) Safe ranges.

(a) Lighting is uniform, non-glaring and does not cause shadows.

- (b) Illumination is at least 100 foot candles on the largets and 30 foot- candles in all other areas.
- (a) All lighting is protected by baffles and placed so that the shooter has an unobstructed view down range.
- (d) Downrange lighting bagins approximately 18 feet from the firing line and ends approximately 8 feet from the target line.

(e) Emergency lights are provided behind the firing line and are in working condition.

(f) Exit lights are provided as required.

(g) Lighting of at least 30-foot candles is provided behind the bullet trap for maintenance.

(2) Unsafe rannes.

(a) illumination is below 100 foot-candles on targets or 30 foot-candles in other areas.

(b) Portions of the lighting fixtures are not protected by baffles.

(e) Electrical hazard exists in the range.

d. Bullet traps.

NGB-AVS-9G

SUBJECT: 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

(1) Safe ranges.

(a) A builtet trep is permanently installed in the range.

(b) Bullet traps are of a commercial design that complies with the requirements of CEHNO

1110-1-18, DG 415-1 App. A, and this regulation.

(c) The thickness of inclined plate/sand trap type bullet trap shall be adequate to attenuate the maximum caliber of ammunition authorized to be fired on the range. See CEHND 1110-1-18, for thickness requirements for the bullet trap.

(d) All plate/sand trap type bullet traps shall be designed to prevent ricochets by directing the

projectiles in the same direction they are traveling.

(e) Sandpits in plate/sand trap type backstops shall extend to a point directly below the leading

edge of the sloped plate. (f) Forward edges in a escalator or venetian billed type builtet trap are maintained in a knife edge condition to prevent ricochets.

(2) Unsafe ranges.

(a) Steel bullet traps are bowed, punctured or severely pitted.

(b) Plates in the builet trap are flush with the other plates. Mold seams are ground smooth.

(c) Any type of portable bullet slop is used.

(d) Forward edges in a escalator or venetian blind type bullet trap are maintained in less than a krife edge condition

a. Targets and target carriers.

(1) Safe ranges.

(a) A target retrieval system is operable in all lanes and is constructed in such a manner as to minimize flat surfaces exposed to the firing line. (Firing lanes without a target retrieval system shall not be used).

(b) Only paper targets are used.

(2) Unsafe ranges. Target retrieval system is inoperable or not installed in the entire range, or larget retrieval system exposes flat surfaces to the firing line.

f. Lead levels.

(1) Safe ranges.

- (a) For personnel exposed less than 30 days per year, Lead levels do not exceed 0.05 mg/m³.
- (b) For personnel exposed more than 30 days per year and for all non-Department of Defense (DoD) personnel, Lead levels do not exceed 0.03 mg/m³.

(c) For personnel under the age of 18, see Figure 1-1.

(2) Limited use ranges.

(a) For personnel exposed less than 30 days per year, Lead levels exceed 0.05 mg/m3 but do not exceed 0.4 mg/m3 in any breathing zone or general area sample. Personnel exposures shall be controlled by ilmiting the shooters to the times described in Figure 1-1.

(b) For personnel exposed more than 30 days per year and for all non-DoD personnel, Lead levels

exceed 0.03 mg/m³ but do not exceed 0.4 mg/m³ in any breathing zone or general area sample.

(3) Unsafe ranges.

Lead levels in air sample results exceed 0.4 mg/m³ in any breathing zone or general area sample.

1-18. Range use

a. Indoor firing ranges shall not be used for any purpose other than firing. (i.e., they shall not be used

for classrooms, exercise rooms, storage, etc.). b. Ranges classified as unsafe may be used for other purposes only after proper decontamination

IAW the guidance provided in the Addendum, Guidelines and Procedures for IFR Rehabilitation, Conversion, and Cleaning.

The ventilation system is in operation at all times during firing or cleaning.

d. Equipment or furniture shall not be stored or maintained in the range, plenum area or behind the bullet trap. (For removal of equipment or furniture, use cleaning instructions provided in the Addendum). e. A hand-held ABC-type fire extinguisher is located near the entrance door, inside the firing range.

NGB-AVS-80

SUBJECT: All States (Log Number P01-9075) Army National Guard (ARNG) Safety and Occupational Health Program — POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

1-19, Prohibitions

- a. Personnel shall not be permitted in the plenum area during firing even if designed for observation.
- b. Plenum area and area behind the bullet trap shall not be used for storage of any equipment.
- c. An area directly in front of the plenum wall shall be kept clear at all times to preclude obstruction of airflow.
 - d. Variable speed fans are not permitted.
 - Ory sweeping of indoors firing ranges is prohibited. Brooms shall not be stored in the range.
 - f. Walking downrange is prohibited for individuals other than maintenance and inspection personnel.
 - g. Pellets, BBs, magnum and armor pleroing rounds are prohibited in all indoor firing ranges.
- h. To prevent contamination with Lead dust, clothing or equipment that is not required for firing shall not be permitted into the range.
- Storage of ammunition and explosives in indoor firing ranges is prohibited, except in approved and ilcensed facilities.
 - There are no open floor drains in the range.
- k. Carpet will not be tocated in any part of the range (Contact the State Environmental Office for hazardous waste disposal procedures).

1-20. Personal protective equipment

- a. Eye protection. All personnel in an indoor firing range during firing shall wear eye protection that meets the requirements of ANSI Z87.1-1999, Practice for Occupational and Educational Eye and Face Protection.
- b. Hearing protection. All personnel in an indoor firing range during firing shall wear Army approved hearing protection listed in DA Pam 40-501. When noise levels exceed 165 dBP, personnel must wear earplugs in combination with noise mufflers.
- Respiratory protection. For respiratory protection requirements during indoor firing range conversion cleanup operations, see the Addendum.

1-21. Posting warning signs

- a. The following signs shall be posted in or in the vicinity of indoor firing ranges IAW AR 385-63;
- (1) Eating, Orinking and Smoking are prohibited
- (2) Dry Sweeping is prohibited
- (3) Wash Hands and Face Immediately Following Firing
- (4) Only the Following Ammunition is authorized for use on this Range: _
- (6) Hearing Protection shall be properly worn during firing
- (8) Proper Safety Glasses/Goggles shall be worn during firing
- (7) Furniture or storage of other items of equipment is not permitted in the range
- b. The following signs shall be posted on the entrance door to the range:
- (1) Noise Hazardous Area
- (2) Danger Leed Hazard Area
- (3) Pregnant women are not permitted in this area.
- c. An Illuminated warning sign, which is interlocked with the range ventilation switch, shall be located outside of the firing range to atert individuals that the range is in use.
- d. Each firing lane shall be numbered at the firing line and at the bullet trap visible to all shooters. This is to ensure shooters use the correct target.
- A warning sign shall be posted outside of the access door to the bullet trap, which warns personnel
 not to enter during range operation.
- Note: All signs shall meet the requirements of DA Pam 385-64.

1-22. Range Standing Operating Procedures.

- a. Each indoor firing range shall have a written SOP, which is approved by the State Safety and Occupational Health Office, see figure 1-3.
 - b. Range SOPs shall include, as a minimum, the following:

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SUBJECT: All States (Log Number P61-0075) Army National Guard (ARNG) Safety and Occupational Health Program — POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

(1) The requirement for establishment and maintenance of a log of visitors for the indoor firing range. The log shall include the following information for all visitors:

(a) Name and age of shooter.

(b) Organizations (if civilian, include address and phone number).

(c) Sign-in and sign-out times and date.

(d) Type of ammunition used and number of rounds fired.

(2) The requirement for and contents of a mandatory safety briefing for all individuals prior to entering the range to be given by a designated competent range safety officer.

(3) Work practices including permissible and banned practices as specified by this regulation.

(4) instructive guidance for all range procedures.

(5) Personnel responsibilities for performing the procedures, for supervising them, and reviewing and updating the SOP.

(8) Authorized emmunition for the range.

(7) The requirement for posting of signs IAW section 1-21 of this regulation.

(8) Cleaning and maintenance requirements.

(9) Personal protective equipment requirements for maintenance, firing and cleaning.

c. Refer to TG 206 for more general guidance on SOPs.

1-23. Inspection requirements.

The first part of each inspection shall be the physical safety inspection conducted by the State Safety Manager. Once the firing range has passed this portion of the inspection, a competent person shall complete the ventilation survey and eir sampling requirements.

1-24. Initial inspections

- a. An initial inspection of all new and renovated indoor firing ranges shall be completed before the facility is accepted. The inspection report shall be kept on file with the State Safety and Occupational Health Office. The checklist in Figure 1-2 shall be used for this purpose. See paragraph 1-29 for record meintenance requirements.
- b. Findings on the initial firing range inspection, ventilation measurements, and air sampling results shall determine the range classification.

1-25. Annual Inspections

a. A safety inspection of each active range shall be made annually to ensure safety standards, procedures and records are maintained in the operation of the range. These inspections shall be completed by State Safety personnel IAW AR 385-10. The checklist in Figure 1-2 shall be used for this purpose.

b. In accordance with AR 385-63, the annual inspection shall be performed within 45 days of the

anniversary date of the initial inspection or the last annual inspection.

- c. Verify that ventilation measurements have been recorded ever 480 hours of operation.
- d. Ensure that air sampling has been conducted after changes or additions have been made to the range.

1-28. Ventilation requirements

a. Procedures for evaluating supply and exhaust ventilation systems, firing line velocities and static

pressure readings are identified in the Addendum.

- b. If air from the indoor firing range exhaust ventilation system is recirculated into the supply system of the range, the system shall have a high efficiency particulate air (HEPA) filter with reliable back-up filter. In addition, controls to monitor the concentration of Lead and Carbon Monoxide in the return air shall be installed and programmed to bypass the recirculation system automatically if the filter system falls. This system shall be operating and maintained IAW 29 CFR 1910.1025(e)(4)(ii).
- 1-27. Air sampling requirements

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SUBJECT: All States (Log Number P01-0076) Army National Guard (ARNG) Sefety and Occupational Health Program -- POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL QUARD INDOOR FIRING RANGES

 a. Initial air sampling to determine airborne Lead dust levels during prescribed firing procedures shall be conducted for all IFRs prior to routine use. If initial determination reveals employee exposure to be at or above .003 ug/m3 sampling shall be repeated IAW 29 CFR 1910.1025(d)(6)(ll).

b. Air sampling shall be accomplished for each type of ammunition to be used in the range. (For air

sampling procedures, see the Addendum).

c. After the initial air sampling, air sampling is required only if changes or additions have been made to the range, there are changes in ammunition or weapons used in the range, or if changes have occurred in ventilation measurements. Once changes occur, air sampling shall be completed every twoyears and prior to range use.

d. ARNG Regional industrial Hygienists are responsible for air sampling of indoor firing ranges to determine alcome Lead concentrations. A competent person as designated by a Regional Industrial

Hygienist may conduct the air sampling.

e. The State Occupational Health Nurse shall maintain copies of all air sampling results when required as part of personnel exposure records. See paragraph 1-11 for specific requirements.

1-28. Inspection reports

A completed inspection report shall be provided to the state Adjutant General for information or action as appropriate. An information copy shall also be provided to the Commander of the facility and to the state safety manager. A complete inspection report shall consist of the completed safety inspection checklist, ventilation data, and air sample results (initial inspection and as required by paragraph 1-24 above). Subsequent inspections shall be made as a follow-up check against results of previous inspections to assure required corrective actions have been accomplished, and there are no adverse changes to the buildings' integrity, safety equipment, environment or safe operating procedures.

1-29. Record maintenance

 All exposure monitoring and medical survollance records shall be maintained for 40 years or the duration of employment plus 20 years, whichever is longer, as prescribed in 29 CFR 1910.1025,

b. The State Safety Manager shall maintain a record of all inspections for each indoor firing range in Appendix C. the state. All inspections after the initial one shall be used as follow-up checks against previous inspection reports. This is to ensure that required corrective actions have been accomplished and that there have been no structural changes to the building, environmental conditions or eafe operating procedures. These records shall be checked during program evaluations and industrial hygiene surveys.

1-30. Control of potential Lead intoxication

Occupational Safety and Health Administration (OSHA) Lead standard

a. The requirements of the OSHA Lead standard (29 CFR 1910,1025) shall be followed. The requirements include development of a written compliance program for the protection of workers from Lead exposures (29 CFR 1910.1026(e)(3)). The program shall include at a minimum the following:

(1) A description of each operation where Lead is emitted;

(2) Methods used to achieve compliance;

(3) Methods used to meet the permissible exposure level;

(4) Air monitoring data, which documents the source of air emissions;

(6) A detailed schedule for implementation of the program;

(6) Work practices including PPE (Personal Protective Ciothing and Equipment), housekeeping, hygiene facilities and practices;

(7) Administrative control schedule;

(8) Personnel enrollment in medical surveillance;

(9) Other relevant information.

- Refer to TG 296 for specific guidance on developing the compliance program.
- 1-31. Alternative ammunition

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a. Reduced-Lead and Lead-free ammunition (non-Lead containing bullets) has become commercially available. These alternatives to conventional ammunition should be considered for training use if command policy allows.

 b. Lead-free ammunition is being developed which shall have the same ballistic properties as the Lead counterparts. The potential exists for some Lead containing ammunition to be completely replaced

by Lead-free ammunition for training and operational uses.

c. Until Lead-free emmunition is available, Lead exposure can be significantly reduced by the use of jacketed rounds. Most builet traps are rated for the use of jacketed ammunition, but this should be verified with the builet trap manufacturer.

1-32. Maintenance requirements

a. The following are minimum maintenance requirements, which shall be performed every three months by the range custodien or by a person designated by the facility commander;

(1) Inspect the ventilation system fan for condition of belts to ensure that the belts are not tom or

frayed and that they are not slipping.

(2) Evaluate static pressure and compare to the baseline static pressure reading. Any changes shall be reported to the State Safety and Occupational Health Office for further evaluation.

(3) Inspect louvers, if applicable, to ensure they are opening fully.

(4) Lubricate the bullet Irap (if applicable).

- (5) Inspect the builet trap for pitting or other damage and for sharp edges on venetian blind type bullet traps.
 - See the Addendum for a complete list of maintenance requirements for the builet trap.

1-33. Housekeaping

The ventilation system shall be in operation during all cleanup operations.

 b. An approved National Institute for Occupational Safety and Health (NiOSH) respirator (P-100) for Lead exposure shall be used during cleanup operations.

c. During range cleaning operations, workers shall wear coveralls or similar full-body clothing, gloves, hat and change of shoes or disposable bootles, face shields and goggles, or other equipment to protect the workers skin and eyes.

d. Blowing, shaking or any other means, which disperses Lead into the air, shall not be used to remove Lead dust accumulated on worker's clothing or equipment. A designated area shall be used for changing clothes to prohibit the spread of contamination. Workers shall shower and change clothes before release from work.

e. Wat cleaning methods or vacuum cleaning with HEPA filtration shall be utilized during normal cleaning operations. Dry sweeping, dusting, wiping or blowing with compressed air shall not be permitted.

f. The range shall be cleaned at the end of each firing day with a HEPA vacuum or wet mop method.

g. When performing the cleaning, clean the floor and all horizonial surfaces lifteen feet in front of and bahind the firing line, or when there is a visible accumulation of lead dust.

h. Wash water contaminated with Lead can be collected and allowed to slowly evaporate leaving Lead deposits/sludge that may be collected in plastic containers, placed in metal drums, and stored for future delivery to an authorized hazardous waste disposal sile. Drums shell be proporly labeled to Identify contents. Disposal of containerized waste shall be coordinated IAW state hazardous waste program requirements.

 The State Environmental Office shall coordinate removal and disposal of all containerized hezardous waste derived from routine use, cleaning, and maintenance of IFRs. Contact your State Environmental Office for proper disposal instructions when bullet trap catch trays are ¾ full. Spent cartridge cases shall be collected and processed in accordance with local ammunition inventory and accountability procedures, AR 710-2, and DA PAM 710-2-1.

 Prior to converting an indoor firing range to other uses, the entire range area shall be properly decontaminated of any Lead residue. For cleaning and decontamination instructions, see the Addendum. COMMERCIAL CONTRACTOR

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1-34. Maximum exposure hours Personnel exposure limits for intermittent atmospheric Lead contamination has been developed by the U.S. Army Medical Command (MEDCOM) in the form of a table of Lead exposure limits (Figure 1-1). This lable was developed to control intermittent Lead exposure and to establish maximum allowable hours of exposure based on the airborne Lead concentration and the number of days firing per year. informittent exposures to Lead in Indoor firing ranges shall be controlled according to the criteria provided in the lable of Lead exposure limits as an interim control measure only. Maximum effort shall be made to introduce permanent control measures to reduce the airborne Lead tevels to 0.03 mg/m³ or less. Exposure records shall be maintained by the commander of the facility on all personnel who use the firing range when the airborne Lead levels exceed 0.03 mg/m3. These records shall contain the airborne Lead concentrations and the amount of time spent on the range for each individual. Other potential Lead exposure, including off duty firing, may contribute to an individuals overall exposure and should be considered in establishing maximum altowable exposure time.

1-35. Extent of use

a. The extent of use for any indoor firing range shall be based on parmissible exposure of all using personnel to concentrations of airborne Lead dust.

b. Under no circumstances shall pregnant women be permitted in an indoor firing range, IAW 29 CFR

1910,1025, Appendix C, Section II (5).

c. Personnel under 17 years of age are prohibited from entering any range area with a Lead concentration greater than 0.100 mg/m3. For ranges with Lead concentrations less than 0.100 mg/m3, follow the guidelines in Figure 1-1.

d. Use of the Indeer firing range by non-mittary organizations shall be approved and documented in

wriling by the State Safety Manager.

1-36. Medical surveillance

 e. Personnel who are or may be exposed to Lead above the action level (0.03 mg/m³) for more than 30 days per year shall be enrolled in the Medical Surveillance Program.

 Medical surveillance is not required for intermittent users of indoor firing ranges if the maximum allowable exposure hours shown in Figure 1-1 is not exceeded.

a. Backsplatter-This rofers to the small particles, which break off of a bullet as it impacts the bullet trap. Variables such as the builtet composition, angle of the bullet trap, and the velocity of the impact dictate the amount and pattern of the backsplatter. A ricochet occurs when the main body of the bullet is deflected off the surface of the bullet trap.

 Competent person-An individual who has been specifically trained to identify safety and occupetional health hazards associated with Lead dust and indoor firing ranges. The individual is aware of current regulations governing indoor firing ranges and of vanillation principles and terminology, air sampling media and collection requirements and can interpret air sample results. He can provide appropriate guidance in the abatement of known hazards and has the authority to do so. He can correctly use diagnostic ventilation evaluation equipment and interpret results. He has received written authorization from the regional industrial hygiene office to properly evaluate indeer firing xanges.

c. Plenum-This term refers to a chamber used to build static pressure before the air enters the firing range. Air is introduced into the plenum from the side, top, or back and is forced through a perforated

wall (called the plenum wall) behind the firing line.

d. Smoke Testing-To conduct a smoke test, a smoke candle is ignited behind the firing line. The smoke is used to check the airflow at and in front of the firing line. There should be laminar flow down the range to the bullet trap and no turbulence at the firing line. It is also important to ensure the smoke does not circle back behind the firing line.

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FIGURE 1-1

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1,000 or above	<u> </u>]	

- These values are the actual concentrations measured over the sampling period and are not 8-hour time-weighted averages.
- Adherence to these guidelines shall prevent overexposure to Lead in indoor firing ranges.

^{*} Recommend that an Occupational Health Physician make the determination on length of firing time for individuals 17 years of age and younger.

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FIGURE 1-2

INDOOR FIRING RANGE INSPECTION CHECKLIST

See paragraphs 1-23 through 1-25 of this regulation for inspection requirements. For the range to be considered safe each of the following statements shall be true and sir-sampling results shall be below the standard for Lead. The information in parentheses after each statement denotes the location of the requirement in this or other regulations.

Location of the Renge	Date
Range Custodian	Telephone
Part 1, Physical Safety Inspection	·
A. Building Envelope 1. Each firing lane is at least 4 feet wide	o. [1-17a(1)(a)]
Pipes, conduits, and other projecting protect these items and prevent recorders. [1-17]	surfaces are baffled or covered by a material that shall [a(1)(b)]
3. No windows or doors are located in fi the bullet trap) [1-17a(1)(d)]	ront of the firing line. (Except access door to the back of
4. There are no open floor drains in the	range. (1-17a(2)(c))
6. There is no carpet, drapes or other fi	ber-like material in the range. [1-17a(2)(d)]
6. Pipes, conduits and walls are sealed areas. [1-17a(2)(b)]	to prevent leakage of Lead dust from the range into other
7. The interior surfaces or the range flo	от, walls, and ceiling have no protruding edges or
8. The roof provides ballistic security. I	DG 416-1, App. A, 3-1e(1)J
9. The walls provide ballistic security.	(DG 415-1, App. A, 3-1f(1))
10. Interior morter joints are flush with t	the interior surface. (DG 415-1, App. A, 3-1f(2))
11. The plenum wall is adequately sup \overline{A} , $3-1f(4)$)	ported and thick enough to avoid flexing. (DG 415-1, App.
12. The entrance door to the range is vair intake. (DG 415-1, App. A, 3-1h)	veather-stripped unless the door acts as passive make-up

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B. Range Lighting 1. Lighting is uniform, non-glaring and does not cause shadows. [1-17c(1)(a)]
2. Illumination is at least 100 foot candles on the targets and 30 foot candles in all other areas. [1-17c(1)(b)]
3. All lighting is protected by baffles and placed so that the shooter has an unobstructed view down range. [1-17c(1)(c)]
4. Downrange lighting begins approximately 18 feet from the firing line and ends approximately 8 feet from the target line. [1-17c(1)(d)]
5. Emergency lights are provided behind the firing line and are in working condition. [1-17c(1)(e)]
6. Exit lights are provided and working as required. (1-17c(1)(f))
7. Lighting of at least 30 foot-candles is provided behind the bullet trap for maintenance (if applicable). [1-17c(1)(g)]
8. No known electrical hazards exist in the range. (1-17c(2)(c))
C. Bullet traps 1. A bullet trap is permanently installed in the rango. [1-17d(1)(a)]
2. Bullet traps are of a commercial design, which is in compliance with the requirements of CEHND 1110-1-18, NGB-ARI, the Addendum, and this regulation. [1-17d(1)(b)]
3. The thickness of inclined plate/sand trap type bullet trap shall be adequate to attenuate the maximum caliber of ammunition authorized to be fired on the range. [1-17d(1)(c)]
4. All plate/sand trap type bullet traps are designed to prevent ricochets by directing the projectiles in the same direction they are traveling. [1-17d(1)(d)]
5. Sandpits in plate/sand trap type backstops extend to a point directly below the leading edge of the sloped plate. [1-17d(1)(e)]
 Forward edges in a louver or venetian billed type built trap are maintained in a knife edge condition to prevent ricochets. [1-17d(1)(f)]
 Steel bullet traps are not bowed, punctured or severely pitted. [1-17d(2)(a)]
8. Plates in the bullet trap are flush with the other plates. Mold seams are ground smooth. [1-17d(2)(b)]
D. Targete and target carriers 1. A target retrieval system is operable in all lanes. [1-17e(1)(a)] (Any one firing lane without a retrieval system shall not be used for firing)
2. The target retrieval system is constructed in such a manner as to minimize flat surfaces exposed to the firing line. [1-17e(1)(a)]
3. Only paper targets are used in the range. [1-17e(1)(b)]

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E. Range use 1. The range is not used for any purpose other than firing. [1-19a]
2. No equipment or furniture is stored or maintained in the range, plenum area or behind the bullet trap. [1-17d]
3. No additional clothing or equipment is brought into the range. [1-19h]
4. Personnel are ποι permitted in the plenum area during firing even if designed for observation. [1-19a]
5. Individuals other than maintenance and inspection personnel are not allowed to walk downrange. (Except in regularly cleaned area as needed to pick up brass) (1-19f)
6. All areas directly in front of the plenum walls are kept dear at all times. [1-190]
7. Pellets, BBs, magnum and armor piercing rounds are not used in the range. [1-19g]
8. The ventilation system is in operation at all times during firing or cleaning. [1-18a]
9. A hand-held ABC-type fire extinguisher is located in a recessed cabinet near the entrance door, incide of the firing range. [DG 415-1, App. A, 4-5]
F. Range maintenance 1. Dry sweeping does not occur in the range. [1-19e]
2. No brooms are located in the range. [1-19e]
3. A range custodian is appointed for the range who is fully trained and aware of his/her responsibilities. [1-13c]
G. Personnel protective equipment 1. All personnel in the range during firing wear ANSI approved eye protection. [1-20a]
2. All personnel in the range during firing wear ANSI approved hearing protection. [1-20b]
H. Posting of signs 1. The following signs are posted in or in the vicinity of the range: [1-21a] a. Eating, Drinking and Smoking are Prohibited b. Dry Sweeping is Prohibited c. Wash Hands and Face immediately Following Firing d. The Following Ammunition is authorized for use on this Range: e. Hearing Protection shall be Properly worn during firing f. Proper Safety Glasses/Goggles shall be worn during firing g. No Furniture or Storage of Items Permitted in the Range 2. The following signs are posted on the entrance door to the range: [1-21b]
a. Noise Hazardous Area b. Despet Lead Hazard Area
C. Pregnant women are not permitted in this Area 3. An illuminated warning sign, which is interlocked with the range ventilation switch, is located outside of the firing range to alert individuals that the range is in use. [1-21c]

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4. Each firing lane is numbered at the firing line and at the bullet trap visible to all shooters.
[1-21c] 5. A warning sign is posted outside of the access door to the bullet trap, which warns personnel not to enter. [1-21e]
I, Range 80P
1. The Indoor firing range has a written SOP, which is approved by the State Safety and Occupational Health Office. [1-10e]
2. The range SOP includes as a minimum the following: [1-22b] a. The requirement for establishment and maintenance of a log of visitors for the indoor
fiting range. b. The requirement for and contents of a mandatory safety briefing for all individuals prior
to entering the range to be given by a designated competent range safety officer. C. Work practices including required, recommended, permissible and banned practices
as specified by this regulation. d. Instructive guidance for all range procedures.
e. Personnel responsibilities for performing the procedures, for supervising them, and reviewing and updating the SOP.
(A. (b.e.) and new (B1)(an for the 1980)
g. The requirement for posting of signs IAW section 1-21 of this regulation. h. Cleaning and maintenance requirements.
i. Personal protective equipment requirements for maintenance, firing and cleaning.
J. Recordkeeping 1. A visitors log is maintained which includes the following information for all visitors/shooters:
[1-14c] a. Name and age of shooter.
5. Organization (if civilian, include address and priorie normals).
d. Type of ammunition used and number of rounds fired.
 Copies of initial and other previous inspections are available. [1-24a]
3. The initial inspection report includes air-sampling data. [1-24b]
4. An OSHA compliance program is in place, which covers the required aspects: [1-30a]
5, All individuals using the indoor firing range have been provided with a copy of the range SOP or been briefled on the requirements of the SOP, and have signed an agreement to follow the rules stated therein. [1-13h]
6. State maintenance officers/custodians have documentation to show that they have been educated to the health effects from exposure to Lead dust. [29 CFR 1910.1200 and 29 CFR 1910.1025]
7. Range safety officer(s) is/are designated. [1-13c]
K. New and Renovated Ranges 1. No doors are installed in the plenum wall.
2. Plenum area is at least 4 feet deep.
3. An access door is installed behind the bullet trap.
4. Only escalator or rubber bullet traps are installed.

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INDOOR FIRING RANGE INSPECTION CHECKLIST

Part 2, Vent	liation inspection
A. Existing 1. T	Ranges he range has an operational mechanical ventilation system. (1-17b(1)(a))
	he minimum ventilation rate at the firing line in each firing lane is 50 fpm at all levels. [1-
	00% of air is exhausted at or behind the bullet Irap. [1-17b(1)(c)]
	Make-up air is introduced into the range behind the shooters. [1-17b(1)(d)]
5. <i>A</i>	Ir that is introduced through vents into the plenum does not exceed a velocity of 600 fpm.
6. <i>A</i>	Air exiting through holes in the plenum wall has a velocity between 400 and 600 fpm. [1-
7. T	The ventilation system is so constructed that air exhausted from the indoor firing range does o another part of the building or any other air supply system. [1-17b(1)(g)]
а -	The exhaust exceeds the make-up air by approximately 10% to form a negative air pressure is relation to adjoining areas. [1-17b(1)(h)]
9. 1 [29 CFR 19	f air is recirculated in the range, it is instalted with a HEPA litter with a reliable back-up filter. 10,1025(e)(4)(li)]
Monoxide le system falls (29 CFR 19	10.1025(e)(4)(i)]
11.	The fan(s) in the ventilation system is a single speed fan only. [DG 415-1, App. A, 3-2a]
12.	A smoke test of the range shows laminar air flow and no turbulence in the range. (See the for troubleshooting guidence) [1-18b(1)(k)]
13. <u>[1-17b(1)(</u> 0	in non-powered systems, the supply air louvers and exhaust fan are electrically interlocked.
44	. In power systems, the supply and exhaust fans are etectrically interlocked. The make-up air start slightly after the exhaust fan. [1-17b(1)(m)]
15	. Range air temperature is between 65 degrees and 80 dagrees Fahrenheit. [1-17b(1)(n)]
1.	nd Renovated Ranges A manometer is installed leading into the exhaust fan, which is capable of measuring at least of static pressure.
2.	Supply and exhaust fans are electrically interlocked with the downrange lighting.
3.	The face velocity on supplied make-up and exhaust ducts does not exceed 2000 cfm per at of duct space. Passive supply systems have opposing blade louvers. Turning varies are installed in all duct elbows, which have between 60° and 90° angles.

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INDOOR FIRING RANGE INSPECTION CHECKLIST

 The physical safety inspection, Part 1 of the range inspection checklist, was completed and	gi
requirements met on:	
2. The ventilation inspection, Part 2 of the range inspection checklist, was completed and all requirements met on:	

3. Air sampling has been scheduled for: _	
Print and sign:	
Position:	Date:
	for the following types of ammunition:
5. Air sample results do not exceed:	mg/m ³ (results are uttached)
For military personnel exposed less that (SAFE, LIMITED USE, UNSAFE)	in 30 days per year, this range is classified as:
7. For military personnel exposed more this classified as: (SAFE, LIM	an 30 days per year and for all non-DoD personnel, this range ITED USE, UNSAFE)
Print and sign:	. <u></u>
Position:	Date:

Part 3, Air Sampling

NGB-AVS-SG SUBJECT: 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 QUARO INDOOR FIRING RANGES

- 1. References:
 - a. AR 385-10
 - b. AR 385-63
 - c. NGR 385-10
 - d. NG PAM 385-XX
 - e. 29 CFR 1910.1025
 - £ 29 CFR 1920.1200
 - g. 29 CFR 1926
 - h. 29 CFR 1960
 - I. USACHPPM, TG 141
- 2. Purpose. The ______Armory indoor firing range SOP is published to establish procedures to minimize the exposure of Lead (Pb) to personnel and provide uniform safe range operations and maintenance procedures. The provisions set forth herein shall govern all actions and personnel associated with range operations.
- Review and Update. This SOP should be reviewed yearly by the Commander of the facility and the State Safety and Occupational Health Office. A cover sheet, which documents the signature and dates of personnel involved with the review of the SOP, should be attached.
- 4. General.
- a. Each Officer or Non-Commissioned Officer In-Charge (OIC/NCOIC) of range operations shall maintain a current copy, and be familiar with the provisions of this SOP, and NGR 385-40.
- These directive and military regulations are applicable to all active duty military, military technicians, federal and state civillan employees and civillan personnel, to include local or state police authorities.
- 5. Range Control.
- a. The _____Armory Commander shall appoint, in writing, a Commissioned Officer, Warrant Officer, or a Senior NCO to the position of Range Control Officer (RCO).
 - b. The RCO is responsible to perform the following:
 - (1) Enforce the facility range safety program and SOP.
 - (2) Nollfy Armory personnol of times when the range shall be in use.
 - (3) Coordinate and schedule all activity on the firing range.
 - (4) Ensure that the range is secured when not in use.
 - (5) Ensure that nothing is stored at the range.

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- (6) investigate and report all accidents and incidents involving weapons and ammunition in accordance with NGR 385-10.
- (7) Determine which weapons and ammunition are authorized for the range. This should be coordinated through the Sate Safety and Occupational Health Office and in accordance with manufacturers' specifications.
- (8) Ensure that all OIC/NCIOCs are thoroughly familier with the weapons in use, and that the appropriate operators' manuals for the weapons are on hand.
- (9) Prepare a renge OIC/NCOIC briefing packet for all using units. The packet should contain, as a minimum; a copy of this SOP, emergency telephone numbers of local rescue authorities, and a current copy of the Accident Prevention Plan (Appendix C of this SOP).
 - (10) Ensure that mandatory signs listed in NGR 385-10, paragraph 1-21 are posted as required.
- 6. Range DIC/NGIDG. The Commander or supervisor of all using units or groups shall designate an OIC/NCOIC in the grade of E-6 or above to be the responsible for the safe conduct of firing and proper use of the facilities. The commander/supervisor shall ensure that all appointed individuals are qualified to perform their assigned duties. The duties of the range OIC/NCOIC shall include but are not limited to the following:
 - a. Prior to firing.
- (1) Receive a thorough briefing from the RCO, and conduct an inspection of the range with the RCO, or his/her designated representative. If the condition of the range is acceptable, assume control and request clearance from the RCO to fire.
 - (2) Ensure the overall safe conduct of training and the proper use of the facility.
- (3) Ensure that all participants are familiar with the verbal commands, hand signals, range procedures and safety requirements.
 - (4) Be present when the range is in use and determine when it is safe to fire.
- (5) Be knowledgeable of the weapons to be used and ensure that only authorized weapons and ammunition are used. Ensure that the proper operators' manuals are available for each individual using the range.
- (6) Se familiar with the Accident Prevention Plan and have a current copy on hand prior to commercement of firing.
 - (7) Ensure that at least three individuals are present on the range when the range is in use.
 - (8) Ensure that all personnel wear the proper hearing and eye protection as required.
- (9) Ensure that all individuals using the range have singed-in on the rester maintained by the facility Commander.
- (10) Ensure that the range has a working telephone, or that other means of emergency communication is available.
- (11) Ensure that appropriate emergency medical personnal have been notified that the range is in uso, and that the projected hours of operation are from ______ to ____ hours.

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- During Firing.
 - (1) Ensure that personnel do not leave the firing line without the permission of the OLC/NCOIC.
- (2) Ensure that the muzzle of each weapon is pointed downrange at all times. Personnel may holster their handguns after being cleared by the OfC/NCOIC to do so.
- (3) When not in use, revolvers shall have oylinders open and automatic weapons shall have magazines removed and the slide/receiver locked to the rear. Rifles shall also have the magazine removed, if applicable, boits and/or slides open or locked to the rear when not in use. Weapons shall be carried to and from the firing line in the configuration described above, with the muzzle pointed downrange.
- (4) Ensure that weapons malfunctions/jams are cleared only at the direction of the OiC/NCOIC in accordance with the procedures established in the operators' manual for the weapon.
 - (5) Ensure that weapons are cleared and checked during temporary suspension of firing.
 - (6) Ensure that firing is stopped promptly when an unsafe act is observed or reported.
- (7) Do not permit persons to walk in front of the firing line during firing. Lanes with inoperable target retrieval systems shall not be used.
- (8) Limit firing time, if applicable. This limitation shall be based on air-sampling results for individuals using the range and ventilation measurements. Contact the State Safety Manager to determine if the range has time limitations placed upon it.
 - c. After Firing.
 - (1) Ensure that all weapons are cleared prior to being removed from the firing line.
- (2) Ensure that all individuals on the range thoroughly wash their hands and face immediately after leaving the range.
- (3) Ensure that all builtet casings are removed from in front of and behind the firing line and that the range is restored to a serviceable condition. Dry sweeping of the range is prohibited.
- (4) Conduct a final inspection of the range. Secure the range, and turn the keys and shooters log into the RCO or his/her designated representative.
- 7. Range Control Officer Qualifications. His or her commander may appoint any individual in the rank of E-6 and above to the Rang Control Officer. Appointment orders for all RCOs shall be maintained on-file at the facility. Commanders of each facility shall ensure that all RCOs have been properly instructed and are compotent in performance of their duties. Law enforcement and civilians requesting appointment to perform RCO duties, shall show evidence that they have completed an Army and/or National Rille Association approved firearms instructor's course or equivalent prior to appointment.

8.	Range	Restrictions
8.	Range	Restrictions

a. The	Armory is restricted to firing the following ammunitor based upor
manufacturer spec	incations;

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FKA	м	р,	_ 5

- (1) .22 caliber including the M-16 with adapter
- (2) .38 caliber
- (3) .45 caliber
- (4) 9 mm pletols

Note: No other weapons can be fired without the approval of the State Safety Manager.

- b. Pellets, BBs, magnum and armor plenting rounds are prohibited.
- Dry sweeping of the range is prohibited.
- Trick shooting including, quick draw and hip shooting is prohibited.
- e. Storage of any liem in the range is prohibited.
- Smoking and consumption of food or beverages is prohibited.
- g. Proper hearing and eye protection shall be worn during firing.
- h. Civic groups with individuals under 18 years of age are required to have written permission from the ARNG State Safety Manager prior to firing.
 - Personnel shall not be allowed in the observetton/plenum area during firing.
- Mandatory Signs. As a minimum the following signs shall be posted on the door/entrance to the range or inside as appropriate:
 - a. Inside the Range.
 - (1) Eating, drinking and/or smoking are prohibited.
 - (2) Dry sweeping is prohibited.
 - (3) Wash hands and face immediately after lining.
 - (4) Hearing protection shall be worn during firing.
 - (5) Sefety glasses/goggles shall be worn during firing.
 - (6) Storage of furniture and other items is prohibited.
 - (7) The following ammunition is authorized for this range: ______ end
 - On the Door to the Range.
 - (1) Noise Hazardous Area.

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- (2) Danger Lead Hazard Area.
- (3) Pregnant women are not permitted in this area.

10. Authorized Use of the Range. Utilization of the ______Armory range is authorized for organizations of the ______Army National Guard conducting unit training and for the marksmanship team conducting competition or in preparation for competition. Non-Military personnel are subject to the same requirements and regulations as National Guard personnel and shall be in strict compilance with this SOP, Army Regulations, ARNG regulations and applicable subject letters and directives from the Adjutant General, State of ______

11. Release of Liability.

- a. The military Range Control Officer shall obtain a signed Release of Liability (Appendix D of this SOP) form from each civilian user of the range. Signed agreements shall be kept on file with the Commander of the facility.
- b. Organizations with members who are minors shall obtain Permission and Release of Liability (Appendix D of this SOP) form signed by a parent or guardian. The ARNG State Safety Manager shall be notified prior to minors firing on ARNG ranges.
- 12. Denial of Range Access. The Commander of the facility may withdraw range privileges from any person or organization that wilifully disobeys rules and regulations pertaining to range operations. In addition, range privileges may be denied to an individual whose knowledge of the principles of marksmanship is deficient to the degree of posing a safety hazard.

FOR THE COMMANDER:

CPT, IN, ___ARNG OIC/Armory Commander

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APPENDIX A **ABBREVIATIONS**

AN51

American National Standards Institute

Army Regulation

ARNG

Army National Guard

Cubic feet per minute

Code of Federal Regulations

CNGB

Chief, National Guard Bureau

Department of the Army

Feel Per Minute

High Efficiency Particulate Air

IAW

in Accordance With

Indoor Firing Range

angim³

Milligrams per cubic meter

National Institute for Occupational Safety and Health

NGB

National Guard Bureau

Occupational Safety and Health Administration

SOP

Standing Operating Procedure

Static pressure

USACHPPM

U.S. Army Center for Health Promotion and Proventive Medicine

Inches of water gauge

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APPENOIX B REFERENCES

ACGIH 22nd Ed, Industrial Ventilation A Manual of Recommended Practice

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

AR 40-9 Preventive Medicine

AR 350-41 Army Forces Training

AR 388-63 Policies and Procedures for Firing Ammunitton for Training, Target Practice, and Combat

U.S. Army Explosives Safety Program

Army National Guard (ARNG) Design Guide (DG) 418-1 Design Guide for Armorles

American National Standards Institute (ANSI) Z67.1-1999 Practice for Occupational and Educational Eye and Face Protection

CEHND 1110-1-18 USACE (U.S. Army Corp of Engineers) Design Manual for Indoor Firing Range

Department of the Army Pamphlet (DA PAM) 385-64 U.S. Army Explosives Safety Program

DA PAM 40-501 Hearing Conservation

DA PAM 710-2-1 Using Unit Supply System (Manual Procedures)

Department of Defense Instruction (DODI) 6055.1 Department of Defense Occupational Safety and Health (OSH) Program

DHEW NIOSH 76-136 Lead Exposure and Design Considerations for Indoor Firing Ranges

FM 20-7 Training Ranges

National Guard Regulation (NGR) 385-19 Army National Guard Safety and Occupational Health Program

Military Construction Army National Guard (MCARNG) Project Development

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APPENDIX B (Continued)

GR 420-10 Operations/Maintenance and Minor Construction, Army National Cuard

Technical Bulletin Medical (TB MED) 502 Occupational and Environmental Health, Respiratory Protection Program

TB MED 506
Occupational and Environmental Health, Occupational Vision

TG 200 USACHPPM Technical Guide for Indoor Firing Ranges

Title 29, Gode of Federal Regulations (CFR) Revision, Part 1910 Occupational Safety and health Standards

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APPENDIX C INDOOR FIRING RANGE ACCIDENT RESPONSE PLAN

- If a mishap or injury occurs at any time during the conduct of range operations, the following procedures shall be followed:
- a. The OIC/NCOIC or person in charge of the range shall order a cease-fire immediately. All weapons shall be cleared and muzzles pointed downrange.
 - b. Render first aid to the injured as appropriate.
- c. The OIC/NCOIC or person in charge of the range shall direct an individual to telephone and/or radio for medical assistance. The primary folephone to be used in case of an emergency is located ______. The emergency numbers are _______.
- d. A person shall be stationed at the main entrance of the range to provide direction to emergency medical personnel.
 - e. After all injured personnel have been removed or attended to:
 - (1) The OIC/NCOIC shall notify the RCO of the mishap.
- (2) The RCO shall in-turn notify the office of the Adjulant General at DSN ______, or the duty officer, and the State Safety and Occupational Health Office at DSN _____.
- f. The RCO, with the essistance of the State Safety Manager, shall investigate the mishap and file a DA Form 285 "Accident investigation" as appropriate.
- 2. All injuries or mishaps shall be reported to the RCO as soon as possible. The OIC/NCOIC shall be responsible to obtain witness statements and assist in making reports as may be required.

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APPENDIX D PERMISSION AND RELEASE OF LIABILITY CERTIFICATE

		Somewhere, USA Date:
Army Nation initiative, risk, and responsibility, risk, and responsibility, risk, and responsibility, risk, and responsibility, risk, and separated and seministrators and administrator states and the State of, the including the Adjutant General of demands, action, or causes of activitich may occur from any cause which may occur from any cause.	use firearms on the Indoor firing range located half Guard Armory; and whereas I am doing so now therefore, in consideration of the permission of the permission of the permission of the permission of the permission of the permission of the fireas and agent for the filters and agent for the filters, release and forever discharge the filter Army National Guard, their officers, agent filters that of the state of the state of the state of the filters agent for the period of the above granted permission of the state of the s	on extended to me by the is do hereby for myself, Government of the United ints, employees expressly in from any and all claims, by to me or my property sion. I further in the applicable range
Signature:		_
Wilness to	Signature:	_
in case of emergency, please c	ontact:	
	Name Address	
	Telephona Number	
MINOR SHALL BE ALLOWED T GUARDIAN SIGNATURE. I, said parent, and/or legal guardi	IT OR GUARDIAN OF INDIVIDUALS UNDER OUTILIZE AN ARNG FIRING RANGE WITH an of the above-named minor, hereby give my reby also release and agree to save harmless as an individual, and for our heirs, executors,	consent to said minor the parties above-named
Signature of Parent or Guardian:		

NGB-AVS-SG

SUBJECT: All States (Log Number P01-0076) Army National Guard (ARNG) Safety and Occupational Health Program - POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

ADDENDUM

GUIDELINES FOR IFR REHABILITATION, CONVERSION, AND CLEANING

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	i diagraph
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Appendices

Appendix A - General Procedures for Collecting Wipe Samples Appendix B - Sampling Strategy for Collection of Wipe Samples Appendix C - Interpretation of Sample Results (Prior to Cleaning) Appendix D - Interpretation of Sample Results (After Cleaning) Appendix E - Recommended Sample Media and Containers Appendix F - Examples of Computation of Lead Levels from Wipe Sample Results Appendix G - Surface Wipe Sample Sheet Appendix H - Air Sampling Sheet Appendix I - Glossary

1. This addendum establishes policy and procedures for rehabilitation, conversion, and cleaning of ARNG Indoor firing ranges.

2. References

Related publications are listed below.

- a. DOD: 8055.1 (Department of Defense Instruction, Occupational Safety and Health (OSH) Program).
- b. AR 11-34 (The Army Respiratory Protection Program).
- c. AR 40-5 (Preventive Medicine).
- d. NGR 385-15 Policy, Responsibilities, and Procedures for Inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges).
 - e. 29 Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Realth Standards
 - f. OSHA Technical Manual, Edition Vil.
 - g. DHEW NIOSH 78-130 (Lead Exposure and Design Considerations for Indoor Firing Ranges).

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Explanation of Abbreviations and Terms Abbreviations and special terms used in this publication are listed in the glossary.

Policy and Procedures

Conversion of Ranges, indoor firing ranges can be safely rehabilitated or converted for other uses, such as a storage area, kitchen, or office space, provided the following -

a. Previously active ranges must be thoroughly decontaminated and cleaned to acceptable levels.

b. The level of cleanliness is to be determined by sampling. The Occupational Safety and Health Administration's (OSHA) Technical Manual, ^{sh} Edition, provides guidance on the methods and techniques needed to collect wipe samples (Appendix A).

(1) Wipe samples must be collected and analyzed prior to and efter cleaning.

(2) Post-cleaning surface wipe sample results must be less than or equal to 200 micrograms per square feet (ug/sq ft). The sampling strategy, which is the amount and location of wipe samples to be collected, is provided in Appendix B. Methods for interpreting the sample results are contained in Appendix C and D.

Equipment/items previously stored in the range must be decontaminated and cleaned to acceptable

levels.

(1) Samples must be collected from equipment/items atored in the range. Sample selection is critical, because the number of items stored and length of storage differe from range to range. The amount and location of the samples, should be representative of the areas where lead dust is most likely to accumulate. The more samples collected, the better the statistical comparison of the results.

(2) Samples must be collected from the smooth surfaces of the equipment/items, in so much as possible. Results of samples collected from a rough surface will be inaccurate due to the minimal surface contact of the media. Further, the likelihood of tearing the media filter is greater on rough surfaces.

- (3) Samples should also be collected on Items stored the longest period of time, and which have not been disturbed. Hems stored closest to the bullet trap and firing line are likely to have higher concentrations of lead dust. Methods for interpreting the sample results are contained in Appendix C and D.
- To ensure every indoor firing range is free of lead dust, and to reduce the number of unsafe ARNG indoor firing ranges.
- The Environmental Protection Agency (EPA) identifies lead as a highly toxic metal. Elemental lead is Indestructible, and common in the environment. Lead can enter the body by inhalation (breathing) or ingestion (eating). In addition, lead is a cumulative poison. It accumulates in the blood, bones, and organs, including the kidneys, brain and liver. Effects include nervous and reproductive system disorders, delays in neurological and physical development, cognitive and behavioral changes, and hypertension. Symptoms include loss of appetite, difficulty sleeping, imitability, fatigue, headache, and inability to concentrate. It can stay in the bones for decades. Worker awareness and training are important to ensure that employees can recognize the symptoms of exposure and get prompt medical attention.
- 7. Wipe Sample Media a. OSHA Technical Manual provides the necessary guidance on the technique needed to collect wipe samples (Appendix A). Only distilled or delonized water will be used to saturate dry sample media. At least one field blank filter must be submitted with each sample sheet. The field blank must be from the same lot, and tabeled as a blank on the sample sheet. Appendix E identifies how and where to obtain sample media. Use the following guidance for determining media acceptability.

(1) Acceptable Media consists of --(a) Ghost Wipes 14 (PREFERRED METHOD)- Pre moistened

(b) Thirty-seven (37) millimeters (mm) mixed cellulose ester (MCE) filters, with or without the cassettes.

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(2) Unacceptable Media consists of but is not limited to-

(a) Cotton balls

(b) Baby wipes or wet wipes

- b. Occumentation of Sample Collection. A Surface Wipe Sample Sheet must be completed and submitted with samples to your supporting laboratory. A copy of this form is located in Appendix G. Refer to Appendix A on how to collect wipe samples.
- Wipe Sampling Protocol See Appendix A.

Ranges Cleaning Instructions

a. Written procedures, such as a scope of work, or Standing Operating Procedure (SOP) that complies with all federal, state and local regulations must be established prior to decontamination operations. The range ventilation system will be in operation during range cleaning to ensure that a negative pressure environment is mainteined. In the absence of mechanical ventilation system, all doors and windows will be sealed to eliminate fugitive emissions. A High Efficiency Particulate Air (HEPA) filtered vacuum system is the preferred method of cleanup followed by wat wiping of the range. The HEPA vacuum is designed to collect loose surface lead dust particles.

b. Any general purpose cleaning solution can be used. However, Spic and Span™ has been found to be an effective cleaning solution by other Army organizations. Mix new solutions of cleaning solution frequency. Wet wiping will require dual containers of water; one container for wetting the applicator (mops, rags, sponge, etc.) and the other container for rinsing the applicator after the dust has been wiped

from the surfaces. When placed in containers, wastewater should be left to evaporate.

C. PROPERLY DISPOSE OF ALL HAZARDOUS WASTE. DO NOT PLACE LEAD CONTAMINATED WASTE INTO THE SEWER SYSTEM OR ONTO THE GROUND,

d. Mop-heads, sponges and rags will be discarded as hazardous waste following cleanup.

e. Wet cleaning by a high-pressure system is prohibited, as this method may embed the lead into the substratom and generate large quantities of unwanted hazardous waste.

f. Dry sweeping is not permitted.

g. All surface areas of the range must be cleaned. Do not remove the coating on smooth painted surfaces that are properly sealed.

h. Wood floors should receive a cost of deck enamel or urethane; concrete floors should be soaled

with deck enamel and lincleum or tile floors should be waxed.

- i. A progression of cleaning from top to bottom and from behind the steel backstop to the firing line should be used. After removing the sand, if applicable, and the steel backstop, areas in front of and behind the build trap along with the steel backstop plate(s) should be cleaned. Next, clean the celling, lights, baffles, retrieval system, heating system(s), and ventilation duct(s). Acoustical material should be vacuumed and removed rather than painted over.
- J. A Toxic Characteristic Leaching Procedures (TCLP) test for lead only may need to be performed on the acoustical material. A TCLP test will determine if the material is classified as "hazardous" and can be disposed of in a sanitary landfill. Contact your State Environmental Office for assistance before arranging for this laboratory testing. The floor should be the last surface cleaned, starting at the builet trap and ending behind the firing line.

k. After wet wiping all surfaces, permit the area to dry. Vacuum all surface areas until no dust or residue can be seen using the HEPA.

I. A thorough visual inspection to detect dust should be made following cleanup and prior to collecting post surface wipe samples.

m. As a variety of conditions exist in ranges, unique situation may arise and specific written guidance from your Regional Industrial Hygiene Office may be required.

Cleaning Stored Contaminated Equipment

a. Equipment contaminated (sample result is higher than 200 micrograms/sq ft) with fead dust must be decontaminated before it is removed from the range.

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 Equipment located near the bullet trap and firing line should be cleaned first and then removed. The cleaning method depends on the size of the equipment and the material it is comprised of, i.e. metal, wood, concrete, porus, non-porus, smooth or rough finish etc. However, either HEPA vacuum or the well wipe method will be used. Refer to paragraph 9 for additional guidance.

c. Every attempt should be made to clean and reclaim items since disposing of equipment, as hazardous waste is costly and wasteful. Only as a last resort will the Item be discarded as hazardous waste. Porous items, such as office partitions and carpet that were present during firing should be considered grossly contaminated and be discarded unless analysis proves otherwise. Consult your State Environmental Office for the proper hazardous waste disposal methods.

11. Contaminated Sand and Lead Waste

Consult your State Environmental Office for specific disposal guidance to ensure compliance with local laws and regulations.

12. Medical Surveillance

- a. A pre-placement medical examination is required for all individuals involved with range cleanup operations. Consult 29 CFR 1910.1025 for additional information on medical surveillance requirements. A medical examination must include—
 - (1) A detailed work and medical history
 - (2) A thorough physical examination
 - (3) A respirator use evaluation
 - (4) A blood pressure measurement
 - (5) Blood sample analysis to include:
 - (a) A baseline blood lead level
 - (b) A complete blood count (CBC)
 - (c) Blood urea nitrogen (BUN)
 - (6) Serum creatinine
 - (7) Zinc protoporphyrin
 - (8) A routine urine analysis
 - (9) Recordkeeping
- b. Air Monitoring. Worker breathing zone (82) air samples must be collected to ensure personnel are not overexposed to airborne lead during the cleanup phase. Representative air samples will be collected on all personnel involved in the cleanup operation. These exposure levels will be used to evaluate work practices and personal protective equipment. Within five (6) working days after receipt of monitoring results, each employee will be notified in writing of the air sampling results. Contact your Regional Industrial Hygiene Office for additional information pertaining to air sampling.

Worker Education

OSHA 29 CFR 1910.1025 requires that workers who are potentially exposed to any lead level shall be informed of the content of Appendix A and B of this standard. A training program must be instituted for all Individuals who are subject to exposure to lead at or above the action level or for whom the possibility of skin or eye imitations exists. The training program shall be repeated for personnel currently involved in range cleanup operations, at least annually, this training must be documented on DD Form 1656 or DD Form 1656-1 and filed permanently in the emptoyee's Official Personnel File (OPF) or the soldier's Official Military Personnel File (OMPF). As a minimum, complete blocks 1, 2, 3, 7, 8, 11, 12, 13, 17, 18, 24, 33 and 36 of DD Form 1566. Place the following statement in block 18, "Do not destroy, retain this record for the duration of employment/service plus 30 years." The employer will assure that each employee is informed of the following:

- a. The content of the standard and its appendices.
- b. The specific nature of operations that could result in exposure to lead above the action level.
- c. The purpose, proper selection, fitting, use and limitations of respirators.
- d. The purpose and a description of medical surveillance program.
- Eating and drinking are prohibited in lead contaminated areas.
- Smoking and smoking materials will not be permitted in contaminated areas.

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- g. Employees must wash their hands and other exposed skin whenever they leave the work area.
- h. The engineering controls and work practices associated with the individual's job assignment.
- i. The contents of any compliance plan in effect.

14. Personal Protective Equipment

For housekeeping and rehabilitation the employer shall select respirators from among those approved for protection against lead dust, fume, and mist by the National Institute for Occupational Safety and Health (NIOSH). The employer shall institute a respiratory protection program in accordance with 29 CFR 1910.134. As a minimum, personnel conducting the decontamination of the range will be provided with the following personal protective equipment.

a. Employees engaged in range rehabilitation and/or range conversion, the employer shall provide at no cost to the employee, and assure that the employee uses appropriate protective work clothing and

equipment such as, but not limited to:

(1) Protective coveralls with hood and shoe covers or disposable Tyvek ™ full body suit.

(2) Disposable rubber gloves; and disposable shoe coverlets (If necessary).

(3) Full-face air purifying respirator with P-100 cartridges.

b. The employer shall provide the clothing required in a clean and dry condition at least daily to employees engaged in the conversion of indoor firing ranges.

c. The employer shall provide for the cleaning, laundering, or disposal of used or contaminated

protective clothing and equipment.

d. The employer shall assure that all protective clothing is removed at the completion of a work shift

only in areas designated for that purpose (Change Areas or Change Rooms).

- e. The employer will ensure that contaminated protective clothing that is to be cleaned, laundered, or disposed of, is placed in a closed container in the change area that seals sufficiently enough to prevent dispersion of lead dust.
- f. The employer will further inform in writing any person who cleans or launders protective cluthing or equipment of the potentially harmful effects of exposure to lead.

15. Housekeeping

This chapter applies to all active indoor ranges classified as "safe" for use. To keep the range operating properly and to keep possible hazards to a minimum, a routine housekeeping/ maintenance program is essential.

a. The employer must establish a housekeeping program sufficient to maintain all surfaces as free as practicable of accumulations of lead dust. To this end the range will be clean at the conclusion of each firing day.

b. The range ventilation system will be in operation during all cleaning operations, to ensure a

negative pressure environment is maintained.

c. Ranges will be cleaned by using the wet method or vacuuming. A HEPA (High Efficiency Particulate Air) filtered vacuum system is the preferred method of meeting this requirement. The use of compressed air to clean floors is absolutely prohibited. If the wet method is utilized the floor should be equipped with a floor drain, and collection system. When there is no collection system, the water can be allowed to slowly evaporate leaving lead deposits/sludge. The deposits/sludge can then be collected, placed in metal drums, and stored for future delivery to an authorized hazardous waste disposal site. Drums must be labeled to identify contents, in accordance with the hazardous waste program.

d. A NIOSH approved respirator (P-100) for protection against lead dust, tume, and mist will be worn

at all times while cleaning.

e. When cleaning start behind the firing line forward, cleaning the floor and horizontal surfaces.

16. Maintenance

The following are the minimum maintenance requirements, which must be performed quarterly by the range custodian, or by a person designated by the facility commander.

a. Inspect the ventilation system fan for condition of bells to ensure that they are not trayed or slipping.

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b. Evaluate static pressure and compare to the baseline static pressure reading. Any changes will be reported through the safety manager to the Regional Industrial Hygienist.

c. Inspect Louvers, if applicable, to ensure they are opening fully.

- d. Inspect the bullet trep for pitting or other damage and for sharp edges on venetian blind type bullet traps.
- e. Builet Trap. The builet trap will be cleaned every 460 hours of operation at a minimum, or when the trap is three quarters full.

f. The range ventilation system will be operational during all bullet trap cleaning procedures.

g. All personnel involved in cleaning of the bullet trap will wear a NJOSH approved respirator, and proper personal protective equipment.

h. All debris from the builet trap will be collected, package and turned in, in accordance with guidance from the environmental office.

17. Range Rehabilitation.

This chapter applies to all indoor firing ranges that have been identified as candidates for rehabilitation. This chapter further provides guidance for cleaning and/or sampling that might be required prior to the start of rehabilitation.

a. The portion(s) of the range to under go rehabilitation must be sampled to determine the level of lead contamination. Wipe samples will be taken per the established sampling protocol. See Appendix A.

b. All personnel involved in range rehabilitation will wear a NiOSH approved respirator (P-100), and proper personal protective equipment as prescribed in paragraph 14 above.

c. Prior to start of rehabilitation the environmental office must be notified to determine the disposition of lead containing debris.

Conversion of Indoor Ranges

Prior to the start of decontamination, employers must ensure that all procedures to be used comply with Federal, State, and local regulations. To ensure that all lead contamination is removed the following procedure is established.

All ranges stated for conversion will be inspected and evaluated.

 All equipment stored in the range, if applicable, prior to the start of decontamination must be sampled, decontaminated, re-sampled and removed or turned in as lead contaminated material. See paragraph 10 above.

c. All acoustical tiles and/or sound proofing material (if applicable) must be removed and turned in as

lead conteminated material through the environmental office.

- d. The backstop, bullet trap, target retrieval system and fixing line stations must be removed and turned in as lead containing material through the environmental office.
 - e. Light fixtures and ventilation system grills must be removed and decontaminated.
 f. Ventilation system ducts need to be decontaminated or removed and replaced.
- g. The exhaust fans and/or the complete ventilation air-handling unit (if applicable) must be deconteminated or removed.
- Cover all openings of any component previously decontaminated prior to start of interior decontamination of the firing range.

19. Deviation

Deviations from this guidance will require a written exception to policy from your Regional Industrial Hygiene Office. Questions and/or comments regarding this subject should be directed to your Regional Industrial Hygiene Office or Chief, National Guard Bureau, Attn: NGB-AVS-S, 111 South George Mason Drive, Arlington, VA 22204-1382.

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APPENDIX A GENERAL PROCEDURES FOR COLLECTING WIPE SAMPLES

A-1 if multiple samples are to be collected at the work site; prepare a rough sketch of the area(s) or room(s), which are to be wipe sampled.

A-2 A new set of clean, impervious gloves should be used for each sample to avoid contamination of the media by previous samples and to prevent contact with the substance.

A-3 (1) if using Ghost Wipes $^{\text{TM}}$, lear open the individually sealed package. Remove the moistened wipe. Unfold the wipe.

(2) If using a dry media such as MCE or Whatman™ filler, moisten the filter with distilled or delonized water prior to sampling.

A-4 Place a 10 cm by 10 cm template on the area to be wiped.

A-5 Apply uniform firm pressure while wiping the area inside the template.

A-6 To insure that all portions of the partitioned area are wiped, start at the outside edge and progress toward the center making progress toward the center making concentric squares decreasing in size.

A-7 After collecting a sample, fold the filler or wipe Inward and place into a container and number it. Note the number at the sample location on the sketch.

A-8 At least one blank filter treated in the same fashion but without wiping, should be submitted to the laboratory.

APPENDIX B SAMPLING STRATEGY FOR COLLECTION OF WIPE SAMPLES

B-1 Prior to cleaning the ranges, the three samples must be collected and analyzed for total lead dust on each surface. I.e., floor, ceiling, backstop, and wall to include the plenum wall, if applicable. In addition, a total of 3 samples should be collected from areas which have been least disturbed by sinflow. Established walkways should be avoided.

B-2 Samples should be staggered to different ereas of the range. A grid system should be utilized. Each range surface areas should be divided evenly into 3 by 3 sections. Samples should not be collected on all one section of a wall or end of the building.

APPENDIX C INTERPRETATION OF SAMPLE RESULTS (PRIOR TO GLEANING)

C-1 200 mtcrograms/sq ft or LESS If all sample results are 200-micrograms/sq ft or less, the range can be converted and/or used for any purpose.

C-2 BETWEEN 201 and 200,000 micrograms/sq fl Range must be decontaminated. Continued with cleaning instructions listed in paragraph 9 Sample results will be used to establish a baseline.

C-3 Over 200,000 micrograms/sq ft Your sample media may not be capable of collecting additional lead dust and results that are above 200,000 micrograms/sq ft, and should be considered suspect. NGB-AVS-SG SUBJECT: 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

APPENDIX C (Continued)

C-4 High sample results may exist due to personnel walking or moving equipment/vehicles over the range surface causing the lead dust to be "ground" into the substratum. For examples, a maintenance activity may have overeprayed paint or spilled solvents onto the surface Regional Industrial Hygiene Office for specific guidance.

APPENDIX D

INTERPRETATION OF SAMPLE RESULTS (AFTER CLEANING)

D-1 200 micrograms/sq. (t or less if all earnple results are less than 200 micrograms/sq ft, the range can be converted and/or used for any purpose after a coat of lead-free latex paint is applied.

APPENDIX E

RECOMMENDED SAMPLE MEDIA AND CONTAINERS

E-1 The following is a list of vendors, which supply the media and containers necessary to collect air and lead surface wipe samples. The information is provided to assist in obtaining the proper media and containers. Alternative vendors are available and may be utilized, if known. Contact your Regional Industrial Hygiene Office for additional assistance or clarification.

E-2 Pre-loaded 3 piece cassetts with mixed cellulose ester (MCE) filter and pad, 37 millimeter (mm), pore size 0.8 microns, breathing zone (BZ) and general area (GA) air samples.

Order From

Catalog Number

a. Millipore Corp.

MAWP-037-A0

Ashdy Road Badford, MA 01730 617-276-9200

800-225-1380

64678 (GN-4)

b. Geiman Sciences 600 South Wagner Rd Ann Arbor, MI 48106 313-665-0651

800-521-1520

2-3368M

Supelco, Inc.
 Supelco Park
 Bellefonte, PA 16823

800-247-6828

800-359-3041

E-3 37 mm MCE Filter with pad, no cassette included, for load surface wipe samples.

Order From

<u>Catalog Number</u>

a. Supelco inc. Supelco Park 2-3381IM

Bollefonte, PA 16823

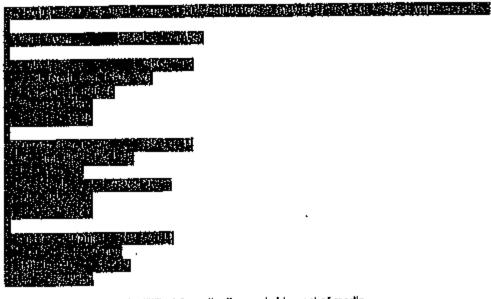
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APPENDIX E (Continued)

800-247-6628 800-359-3041

b. Millipore Corp. AAWP-037-00 Ashdy Road Bedford, MA 01730 617-276-9200 800-225-1380

SKC, Inc. 225-5
 334 Valley View Rd.
 Eighty Four, PA 15330
 412-941-9701
 800-752-8472



E-5. Glass container (25 millifilter) for collection and shipment of media.

Order From <u>Catalog Number</u>

a. Pierca Chemical Co. 13219 (screw cap) P.O. Box 117 Rockford, IL 81105 815-988-0747 800-874-3723

Alitech Associates, Inc. 95321 (screw cap)
 Applied Science Labs
 2051 Waukegan Rd.
 Deerfield, IL 60015
 312-948-8600

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APPENDIX & (Continued)

800-255-8324

E-6, Ghost Wipes™.

Order From

Catalog Number

Environmental Express SC4200 490 Wando Park Blvd. Mt. Pleasant, SC 29464 1-800-343-5319

E-7, Ghost Wipe™ Containers

Order From

Cetalog Number

Environmental Express SC499 480 Wando Park Slvd. Mt. Pleasant, SC 29464 1-800-343-5319

E-8. Plastic ziplock bags can be obtained through the Army logistics system. Many sizes are available. Contact your supporting logistics branch for assistance.

E-9. Distilled water can be purchased at larger grocery stores, usually by the gallon, at a cost of approximately \$1.25. Delonized water can be obtained at local and state water labs or a hospital.

APPENDIX F EXAMPLES OF COMPUTATION OF LEAD LEVELS FROM WIPE SAMPLE RESULTS

Sample results will be returned in the form of micrograms. The results must be converted to micrograms per square foot. This can be accomplished by following the examples listed below:

$$\frac{75 \text{ ug}}{100 \text{ cm}^2} = \frac{929 \text{ cm}^4}{1 \text{ sq ft}}$$

$$\frac{75 \times 929}{100} = \frac{69675}{100} = 696.75 \text{ ug/sq ft}$$

ug -- Microgram

Cm2 - Centimeters squared

Sq ft - Square foot

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APPENDIX G SURFACE WIPE SAMPLING SHEET

Industrial Hygiene Surface Wipe Sample Sheet						
Return Address	Point of Contact (name & phone #) Return Address					
			Samples Collected By			
Sampled Facility		City	State	Location (bldg/area)		
Description of Op	peration	<u> </u>	Date Collected			
Analysis Desired						
Şampling Dəta						
Lab Use Only	Sample #	Results		Remarks		
- -				<u></u> -		
	 	- 				
	_		<u></u>			
	<u> </u>					
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Comments to La	b:					
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APPENDIX H AIR SAMPLING SHEET

Industrial Hygiene Air Sample Sheet									
Return Addre	183			Point of Confact (name/phone #)					
				Samples Collected By					
Sampled Fac.	lity	City		State	Lo	Location (bidg/ares)			
to natiqueed	Operation	Persona Exposed		HrafD	ву	Method of Collection			
Analysis Dea	red				_				
Sampling Dal	а								
Semplo No.			:						
Pump No.									В
Time On									L
Timo Off									Α
Total Time (min)									N
Flow Rale (CPM)									
Volumo (litere)									
GA/BZ			.						. <u>.</u> .
Employee Name/ID									
Laboratory No.									
Calibration in									
Ритр Ко.	Çali Pre-Use	brallon (L	PM) Post-Use	Rotame	tameter Saliing			Date	
								<u></u>	
									
						-		••	
						_			
Name of Calibra	for	Calil	oration Date	Pump	đanu fa	cturer		 ,	
Comments to Es	īБ:								

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APPENDIX I ABBREVIATIONS AND TERMS

Section I Abbreviations

ARNO

Army National Guard

BUN

Blood urea nitrogen

82

Breathing zone

CBC

Complete blood count

CFR

Code of Federal Regulations

cm

Centimater

DHEW

Department of Health, Education and Welfare

EPA

Environmental Protection Agency

GA

.General area

OMPF

Official Military Personnel File

OPF

Offidal Personnel File

OSHA

Occupational Safety and Health Administration

TCLP

Toxic Characteristic Leaching Procedures

ug/sq ft

Micrograms per square foot

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APPENDIX I (Continued)

Section II Terms

HEPA

Refers to high efficiency particulate air filter systems capable of capturing up to 99.97 percent of particles 0.3 microns in size or larger.

Lead-Contaminated Range

it is assumed that all indoor ranges, which have been fired in, are lead-contaminated.

Wipe Sample

The terms wipe, swipe, or smear samples are use synonymously to describe the techniques utilized for assessing lead surface contamination.



1215 Manor Drive, Suite 205 Mechanicsburg, PA 17055 Phone: 717.590.7031 Fax: 717.590.7936 www.complianceplace.com

Industrial Hygiene Survey Report

National Guard Facility Portsmouth Readiness Center

Prepared For: National Guard Bureau Region North IH

301-IH Old Bay Lane

Havre de Grace, MD 21078

Survey Location: Portsmouth Readiness Center

801 McGee Drive

Portsmouth, NH, 03801

Prepared By: Compliance Management International, Inc.

1215 Manor Drive

Suite 205

Mechanicsburg, PA 17055

Survey Date: May 16, 2013

Report Date: June 24, 2013



Non-Responsive, CIH Senior Industrial Hygienist

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Section 1.0 Executive Summary

An industrial hygiene survey was conducted on May 16, 2013, at the Portsmouth Readiness Center located at 801 McGee Drive, Portsmouth, NH 03801. The survey was performed by Mr. Non-Responsive.

- 1. Lead surface and air samples were collected. Surface levels of lead exceeded 200 micrograms per square foot (ug/ft²) in one location. See Section 3.0 for detailed sampling results.
- 2. Lighting levels did not meet the American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IESNA) recommended guideline in one location measured. See Section 4.0 for detailed findings.
- 3. Indoor air quality (IAQ) parameters of temperature, relative humidity, carbon monoxide and carbon dioxide (ventilation) were evaluated during the assessment.
 - a. Temperature levels did not meet the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 55-2010 recommended guideline of 68-79 °F in three areas sampled.
 - b. The relative humidity levels met the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) TG 277 recommended guideline of 30-60% in each area sampled.
 - c. Carbon monoxide (CO) levels were less than the National Ambient Air Quality Standard (NAAQS) recommended ceiling of 9 parts per million (ppm).
 - d. Carbon dioxide (CO₂) levels met the ASHRAE 62.1-2010 recommended guidelines for mechanically ventilated office buildings and commercial settings.

See Section 5.0 for detailed sampling results.

- 4. Housekeeping was good. See Section 5.0 for detailed findings. See Section 5.0 for detailed sampling results.
- 5. Water-stained ceiling tiles were observed in the facility. All sources of water infiltration should be identified and repaired. Water stained ceiling tile should be removed and replaced.

Section 2.0 Operation Description & Observations

The Portsmouth Readiness Center is mainly an administrative facility with offices, classrooms, and a converted firing range area (currently the Fitness Center). There were approximately 5 full-time employees stationed at this facility at the time of this survey.

The building is reported to have been built in the late 1950s. It is a one story structure. The exterior is brick. The interior walls are concrete block with drywall in some of the offices. The floors are concrete, and 12"x12" floor tiles.

The heating system consists of an oil-fired, forced hot water unit. There are window A/C units servicing the administrative areas.

There is no child-care facility in the building.

Housekeeping practices are good.

No ergonomic concerns were reported. Office areas have computer work stations. Work stations appeared to be properly designed. Personnel had supportive chairs.

This facility has a converted firing range that is now used as the Fitness Center.

At the time of this survey, the building is undergoing renovation.

Water stained ceiling tiles are visible throughout the facility.

Section 3.0 Lead Testing

Various surfaces within the facility were screened for lead using surface/wipe samples. Surface/wipe samples were collected in accordance with the American Society for Testing and Materials (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 Environmental Protection Agency (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/ft ²
1	Drill Hall	<7.7	*
2	Converted Firing Range (CFR-now the Fitness Center)	<7.7	*
3	Drill Hall Floor	*	<110
4	Drill Hall Table	*	<110
5	Drill Hall Cabinet	*	<110
6	Kitchen Shelf	*	<110
7	Kitchen Table	*	<110
8	Drill Hall Floor at Range Entrance	*	110
9	CFR Floor	*	260
10	CFR Top of Light	*	140
11	CFR Exercise Equipment	*	<110
12	RC NCO Office Cabinet	*	<110
13	CO Office Desk	*	<110
14	Classroom 1 File cabinet	*	<110
15	Family Assistance Center File Cabinet	*	<110
16	Lounge TV	*	<110
17	Blank	*	<12
18	Blank	<3	*
-	Criteria	50	200

Table Notes:

- 1. **Bolded** results exceed listed criteria
- 2. **ppm** = parts per million
- 3. $ug/ft^2 = micrograms per square foot$
- 4. $ug/m^3 = micrograms per cubic meter$
- 5. $\mathbf{ug} = \text{micrograms}$

Sources:

- NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges
- 2. OSHA 29CFR1910.1025 Lead Standard

The National Guard Bureau currently utilizes 200 micrograms per square foot (ug/ft²) 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/ft² on floors and 250 ug/ft² on windowsills should be observed. There is no child care provided at this facility.

Lead surface and air samples were collected. The following is a summary of the sample results from this survey.

- Surface levels of lead were above the recommended guideline of 200 ug/ft² in the following location:
 - o Fitness Center Floor

Cleaning procedures should be improved to maintain lead levels on surfaces below the recommended guideline of 200 ug/ft².

■ Air samples for lead were below the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit of 50 micrograms per cubic meter (ug/m³).

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. 98082EL). The light meter was last calibrated in April 2013. 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 (FC)	Recommended Lighting (FC)	Sufficient Lighting
Drill Hall	30.1	10	Yes
Readiness NCO Office	47.5	30-50	Yes
Training NCO Office	59.0	30-50	Yes
CO Office	58.6	30-50	Yes
Classroom 1	64.7	30-50	Yes
Classroom 2	74.1	30-50	Yes
Bravo Battery Office	37.1	30-50	Yes
Family Readiness Office	36.5	30-50	Yes
Fitness Center	63.8	30	Yes
Lounge	4.5	10	No
Storage Bulk	73.1	10	Yes

Table Notes:

- 1. FC = Foot Candles
- 2. **Bolded** results did not meet listed 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 guidelines in the Lounge.

Section 5.0 Indoor Air Quality

Survey measurements were made for comfort parameters and ventilation (temperature, relative humidity, carbon dioxide, and carbon monoxide). The air quality measurements were collected using direct reading instrumentation for comfort parameters using a QTRAK IAQ Meter, Model 7565 (Serial #02041015). The IAQ Meter was last calibrated in August 2012.

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 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%.

The following table summarizes the measurements collected.

IAQ Assessment Summary

Location	Temperature (°F)	Relative Humidity (%)	Carbon Dioxide (ppm)	Carbon Monoxide (ppm)
Training NCO Office	66.1	52.3	362	0.0
CO Office	66.1	48.4	486	0.0
Drill Hall	66.1	50.2	359	0.0
Outdoors	68.5	48.9	323	0.0
Criteria	68-79	30-60	<1,023	<9

Table Notes:

- 1. **Bolded** results exceed listed criteria
- 2. **ppm** = parts per million
- 3. (%) = percent relative humidity
- 4. ${}^{\circ}\mathbf{F} = \text{degrees Fahrenheit}$

Sources: The American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) 55-2010, 62.1-2010, Environmental Protection Agency (EPA) National Ambient Air Quality Standard (NAAQS) & The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation.

Summary of findings and recommendations:

- Temperature measurements did not meet the recommended 68-79°F in three occupied areas.
- Relative humidity levels met the recommended guidelines in all areas measured.
- Carbon dioxide levels were measured to evaluate building ventilation or the introduction or outdoor air into the building. The recommended ceiling is obtained by adding 700 ppm to the measured outdoor carbon dioxide level (700 ppm + 323 ppm for this survey). Carbon dioxide levels did not exceed the recommended ceiling of 1,023 ppm. This is an indication that outdoor air ventilation is adequate.
- Carbon monoxide levels measured were less than the recommended ceiling of 9 ppm. The recommended ceiling of 9 ppm referenced in the above table is the National Ambient Air Quality Standard for carbon monoxide
- A visual inspection was conducted throughout accessible portions of the facility to assess sources or pathways of factors potentially deleterious to IAQ:
 - o Water stained ceiling tiles were visible throughout the facility.

Section 6.0 Suspect Asbestos Containing Building Materials

Suspect asbestos containing material (ACM) was noted on pipe insulation and pipe fittings throughout the building. These components were intact and in good condition.

Inaccessible areas such as behind walls or crawlspaces were not inspected. ACM could potentially be present in these areas.

Section 7.0 Equipment

The following equipment was utilized during this survey. All sampling equipment was properly calibrated prior to use and verified for accuracy as applicable. See daily reports and calibrations logs for detailed information.

Equipment	Serial #	Calibration Date	Value
TSI QTrak IAQ Meter	02041015	8/2012	NA
Cal Light 400 Light Meter	98082EL	4/2013	NA
TSI 4199 Calibrator	41460827002	8/2012	NA
SKC Air Sampling Pump	647631	5/16/13	3.00 LPM
SKC Air Sampling Pump	647971	5/16/13	3.00 LPM

Section 8.0 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 Compliance Management International, Inc. 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.

BEST AVAILABLE COPY

A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



LAB #100470

Client:

National Guard Bureau

Job Name:

ARNG 4h NH

Chain Of Custody:

515947

Address:

301-IH Old Bay Lane, Attn: ARNG-CJG-P,

Job Location:

Portsmouth-NH RC

Date Submitted:

5/21/2013

State Military Reservation

Havre de Grace, Maryland 21078

Job Number:

Not Provided

Person Submitting:

Non-Responsiv

P.O. Number: W912K6-09-A-0003

Date Analyzed:

5/28/2013

5/28/2013

Report Date:

Attention:

Non-Responsive

Summary of Atomic Absorption Analysis for Lead

Page 1 of 2

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Arca Wiped (ft²)	Reporting Limit			CONTROL DESCRIPTION OF THE PARTY OF THE PART	Total ug	Final Res	sult	Comments
13064529	1	Flame	Air	390	N/A	7.7	ug/m³	<3	<7.7	ug/m³			
13064530	2	Flame	Air	390	N/A	7.7	ug/m³	<3	<7.7	ug/m³			
13064531	3	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²			
13064532	4	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²			
13064533	5	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²			
13064534	6	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²			
13064535	7	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²			
13064536	8	Flame	Wipe	****	0.108	110	ug/ft²	12	110	ug/ft²			
13064537	9	Flame	Wipe	****	0.108	110	ug/ft²	28	260	ug/ft²			
13064538	10	Flame	Wipe	****	0.108	110	ug/fl²	15	140	ug/ft²			
13064539	11	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²			
13064540	12	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²			
13064541	13	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²			
13064542	14	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²			
13064543	15	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²			
13064544	16	Flame	Wipe	****	0.108	110	ug/ft²	<12	<110	ug/ft²			
13064545	17	Flame	Wipe Blank	****	N/A	12	ug		<12	ug			
13064546	18	Flame	Air Blank	0	N/A	3	ug/m³		<3	ug			

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. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AHIA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



LAB #100470

Client:

National Guard Bureau

Job Name:

ARNG 4h NH

Chain Of Custody:

515947

Address:

301-IH Old Bay Lane, Attn: ARNG-CJG-P,

Job Location:

Portsmouth-NH RC

Date Submitted:

5/21/2013

State Military Reservation

Havre de Grace, Maryland 21078

Job Number:

Not Provided

Person Submitting:

P.O. Number:

W912K6-09-A-0003

Date Analyzed:

5/28/2013

5/28/2013

Attention:

Summary of Atomic Absorption Analysis for Lead

Page 2 of 2

AMA Sample

Client Sample

Analysis Type

Sample Type

Air Volume

Area Wiped

Reporting

Total ug

Final Result

Comments

Report Date:

Number

Number

(L)

(ft2)

Limit

See QC Summary for analytical results of quality control samples

associated with these

samples.

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. Analyst:

Technical Manager:

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. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AlHA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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Focused on Results www.amalab.com
AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)
4475 Forbes Blvd. • Lanham, MD 20706

4. Comments: _

CHAIN OF CUSTODY

(Please Refer To This Number For Inquires)

Page 443 of 511

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OWI (410) 247-2024

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AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)
4475 Forbes Blvd. • Lanham, MD 20706

4. Comments: _

CHAIN OF CUSTODY

(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643 Mailing/Billing Information: Submittal Information: ARNG. 4h NH 1. Job Name: 1. Client Name: National Guard Bureau Portamouth - RE 2. Address 1: 301-IH Old Bay Lane 2. Job Location: 3. Job #: PO #: W912K6-09-A-0003 3. Address 2: Attn: NGB-ARS-IHNE 4. Contact Person 4. Address 3: Havre de Grace, Maryland 21078 @ phone# Signature: 5. Submitted by: 5. Phone #: (410) 942-0273 Fax #: (410) 942-0254 Reporting Information (Results will be provided as soon as technically feasible): NORMAL BUSINESS HOURS REPORT TO: AFTER HOURS (must be pre-scheduled) ☐ Immediate X Include with Report ☐ Immediate Date Due:_ 3 Day Results Required By Noon Pus.army.mil M Email ☐ Next Day ☐ 5 Day + 24 Hours Time Due: __ (EveryAttempt Will Be ☐ Fax: 2 Day Date Due: Made to Accomodate) Comments: ☐ Verbal dus.army.mil

PCM Air − Please Indicate Filter Type: □ NIOSH 7400	EM Bulk □ ELAP 198.4/Chatfield	☐ Pb Furnace (Media) (QTY) Fungal Analysis Collection Apparatus for Spore Traps/Air Samples: Collection Media	(QTY) QTY) (OTY)
☐ Other (specify)(QTY) MISC ☐ Vermiculite ☐ Asbestos Soil PLM_(Qual) PLM_(Quan) PLMTEM_(Qual) PLMTEM_(Quan)	All samples received in good condition unless otherwise noted (TEM Water samples°C)	Surface Swab (QTY) Culturable ID Genus (Media) Surface Tape (QTY) Culturable ID Species (Media) Other (Specify) (QTY)	(QTY) (QTY) (QTY)

ANALYSIS MATRIX CLIENT CONTACT SAMPLE INFORMATION VOLUME WIPE CLIENT ID SAMPLE LOCATION/ (LABORATORY STAFF ONLY) NUMBER IDENTIFICATION DATE (LITERS) AREA 100 50 C.O. Offic × 5.16 Date/Time: Dark Contact: By: CIASSIDOINI Desta File Cohunt Date/Time: Contact: Blank By: 0 18 BIA~4 Date/Time: Contact: By:

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

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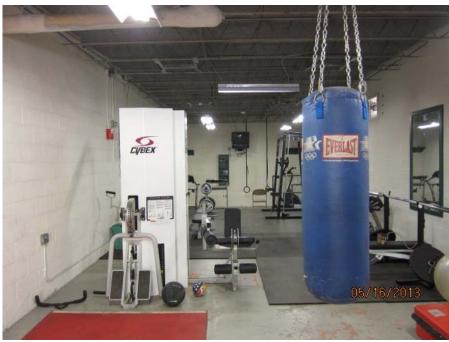
Appendix B. Photographs



Exterior of the facility



Drill Hall



Converted firing range/gym area



Suspect asbestos pipe insulation and mudded joint fittings in the drill hall

Appendix C. Floor Plan

FLOOR PLAN CENTER PORTSMOUTH READINESS

FOIA Requested Record #J-15-0085 (N

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 National Standards Institute (ANSI)/American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), 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. National Ambient Air Quality Standards (NAAQS) National primary ambient air quality standards for carbon monoxide 40 CFR 50.8.
- 9. Environmental Protection Agency (EPA) standards [40 Code of Federal Regulations (CFR) 745.227 (h) (3)].
- 10. Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM).
- 11. The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation, February 2002.
- 12. NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 Nov 06.
- 13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), Thermal Environmental Conditions for Human Occupancy, 55-2010.

URS

Prepared For:

National Guard Bureau Army National Guard Region North Industrial Hygiene Office 301 – IH Old Bay Lane Havre De Grace, Maryland 21078

Prepared By:

URS Corporation 5 Industrial Way Salem, New Hampshire 03079

INDUSTRIAL HYGIENE SURVEY REPORT WOODSVILLE READINESS CENTER SOUTH MAIN STREET WOODSVILLE, NEW HAMPSHIRE

April 2006 PN: 39741509



Office Manager



Project Manager

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	RANGES (NATIONAL GUARD REGULATION 385-15 30 DECEMBER
	2002)

FINDINGS AND RECOMMENDATIONS

Findings	Recommendation	Risk Assessment Code
Effortions 1 1		4 4 4
Fixed computer work stations that cannot be adjusted for the individual present in the administrative areas.	Ergonomic issues with the desks and chairs should be corrected by fitting the workplace to the worker (Department of the Army Pamphlet 40-21, Chapter 4, Page 7, Section 4-3)	RAC 3
Lighting The Light of the Light	《 10 10 10 10 10 10 10 10 10 10 10 10 10 	
Lighting found to be inadequate throughout	Increase lighting in the administrative areas. While work is in progress, the administrative area shall be lighted by at least the minimum lighting intensities (ANSI/IESNA RP-1-04)	RAC 4
Asbestos.	37、22、37、22、10、10、20、20、20、20、20、20、20、20、20、20、20、20、20	HARTEN TYLESPAS
Darnaged floor tile containing greater than 1% asbestos is present throughout the facility.	Remove and replace damaged asbestos-containing floor tile. Work should be completed by personnel trained in accordance with federal regulations (OSHA 29 CFR 1910.1001(k)(1))	RAC 3
Exposed ends or damaged asbestos-containing pipe insulation were present in the drill hall.	Repair or remove exposed ends or damaged asbestos-containing pipe insulation. Work should be completed by personnel trained in accordance with federal regulations (OSHA 29 CFR 1910.1001(k)(2))	RAC 3
No site-specific asbestos operations and maintenance plan available.	Develop a site specific asbestos operations and maintenance plan to manage asbestos-containing materials by labeling of asbestos (OSHA 29 CFR 1910.1001 (j)(4)); employee information and training (OSHA 29 CFR 1910.1001 (k)); medical surveillance (OSHA 29 CFR 1910.1001 (l)(1)); record keeping (OSHA 29 CFR 1910.1001 (l)(1)); record keeping (OSHA 29 CFR 1910.1001 (m)(1))	RAC 3

FINDINGS AND RECOMMENDATIONS (Continued)

Findings	Recommendation	Risk Assessment Code
Fire Safety PATE	通知的图片是多数形式。但其中X 是是2007年	《有技术》為是
Unmarked fire extinguisher found in boiler room.	Clearly mark locations of all fire extinguishers (OSHA 29 CFR 1910.157(c)(1))	RAC 4
Lead-Based Paint	对起始的一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个	Kara Panisa Sasa
Lead Wipe sample collected from the former firing range and on hazmat cabinet exceed 200 micrograms per square foot.	Personnel trained in accordance with the OSHA Lead Standard should clean the Drill Hall where lead was detected in quantities of greater than 200 micrograms per square foot (OSHA 29 CFR 1910.1025 (e)(1)(i))	RAC 3
Mölde: E E E		有效的表现的
Water stains were found on the ceiling in classroom #19, classroom #20, training room #3 and in the kitchen #6. These water stains could potentially lead to mold growth.	Repair any water leaks within the building that are causing water damage to the ceilings. If left unattended to, mold could become a factor in the future (best management practice)	RAC 4
HAZGOM		展析。它也也也無視的
No site specific hazard communication program on site	Develop a site-specific hazard communication plan to manage the storage and use of hazardous materials at the site (OSHA 29 CFR 1910.1200 (e))	RAC 4
Unlabelled secondary container in janitor's closet	Label all secondary containers unless intended for immediate use (OSHA 1910.1200 (f)(4))	RAC 4

1.0 SUMMARY

At the request of the National Guard Bureau Region North Industrial Hygiene Office (NGB), URS Corporation (URS) conducted an industrial hygiene survey at the Readiness Center located on South Main Street in Woodsville, New Hampshire. This report includes an executive summary, a description of the survey protocol, a discussion of the survey evaluation and findings and a list of conclusions and recommendations.

On December 5, 2003, Mr. Non-Responsive an industrial hygienist with URS, conducted the site visit to the Woodsville Readiness Center. The purpose of this site visit was to conduct an industrial hygiene survey, which included the collection of air samples, bulk samples, lighting measurements and a review of site health and safety procedures. SGT Non-Responsive of the New Hampshire ARNG was Mr. Non-Responsive site contact for this survey.

A shop layout drawing of the facility, which shows the locations where measurements were made during this survey, is contained in Appendix A. The risk assessment codes associated with this project are contained in Table 1.

April 3, 2006

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2.0 ADMINISTRATIVE AREA

2.1 Operation Description

This area has multiple offices located throughout the building with desks and computer workstations. This area also includes the kitchen, classroom, janitor's closet, locker room, shower room and supply area. There were a few ergonomic issues in this area (Photo # 2888). Chairs with adjustable arms should be used in the computer stations because they can be adjusted to fit the worker, making them comfortable. There are computer monitors that need to be adjusted for the person working at the station. If more than one person is using that station, then proper adjustments need to be made to accommodate each person. An unlabeled secondary container was observed in the janitor's closet.

2.2 Chemical and Physical Agents Sampled

2.2.1 Carbon Dioxide

On the day of the survey, carbon dioxide measurements were made in the Readiness Center. Carbon dioxide concentrations ranged from 400 to 555 parts per million (ppm), with an average of 425 ppm. Carbon dioxide levels were measured using a direct reading TSI Q-Track (Model 8551).

Carbon dioxide is a normal constituent of the atmosphere and ranges from about 250 to 450 ppm. The major source of excess carbon dioxide in the indoor environment is people. Other sources can include open-flame heaters, fermentation processes, and motor vehicles. Carbon dioxide itself is not normally a cause of indoor air quality problems because concentrations must exceed 5,000 to 10,000 ppm before health effects such as headache, drowsiness, and increased respiration are noted. Typically, carbon dioxide is used as an indicator of the adequacy of fresh air intake. As the concentration of carbon dioxide increases, so do the background levels of other air contaminants.

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The American Society of Heating Refrigerating and Air Conditioning Engineers (ASHRAE) recommends that levels of carbon dioxide be maintained below 700 ppm above background level. Given a background level of 350 ppm on the day of the survey, the ASHRAE limit would be 1050 ppm

2.2.2 Carbon Monoxide

Carbon monoxide was also measured in the Readiness Center. Carbon monoxide concentrations ranged from 0 to 3 parts per million (ppm), with an average of 0 ppm. Therefore interior levels were below the ASHRAE guideline for indoor environments. Carbon monoxide was measured using a TSI Q-Track (Model 8551).

Key sources of carbon monoxide within indoor environments include internal combustion engines, motor vehicle and forklift exhaust, tobacco smoke, space heaters, and improperly adjusted oil or gas burners. Health effects from exposure to elevated concentrations of carbon monoxide may include fatigue, impairment of visual acuity, irregular heartbeat, headache, nausaa, and confusion. ASHRAE recommends that average carbon monoxide concentrations not exceed 9 ppm. Typical average concentrations found in commercial buildings range from 0 to 6 ppm.

2.2.3 Lighting

Lighting in the administrativa area was measured using a Sper Scientific Ltd. Light Meter (Model 840020C). Table 2-1 below shows lighting measurements and the recommended lighting requirement ANSI / IESNA RP -1-04 American National Standard Practice for Office Lighting - Table 8-1).

Table 2-1
Lighting Measurements and Recommended Lighting Requirements

Lecation	Function	Measured Illuminance (lux)	Recommended Illuminance (lux)
CDR's Office # 1 Desk 1	Administrative Duties	475	500
CDR's Office # 1 Desk 2	Administrative Duties	293	500
Recruiter Office # 2	Administrative Duties	163	500

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Table 2-1 (Cont) Lighting Measurements and Recommended Lighting Requirements

Location		E Measured ∃ Illuminance E (lux)	Recommended Illuminance (lux)
Training Office # 3 Desk 1	Administrative Duties	213	500
Training Office # 3 Desk 2	Administrative Duties	249	500
Training Office # 3 Desk 3	Administrative Duties	207	500
Classroom2 #19 Desk 1	Administrative Duties	153	500
Supply Room # 15	Administrative Duties	309	500

On the day of the survey the illuminance in the administrative area was inadequate in all offices.

2,2,4 Asbestos

Bulk samples were collected from damaged suspect asbestos-containing materials (ACM) in this area for a determination of asbestos content. Analytical procedures were performed in accordance with the U.S. Environmental Protection Agency (EPA) Recommended Method for the Determination of Asbestos in Bulk Samples by Polarized Light Microscopy and Dispersion Staining (PLM/DS) (EPA-600/M4-82-020, EPA-600/R-93-116). Table 2-2 below presents the results of the sample analysis.

Table 2-2 Sample Results of Suspect ACM

_ Location Of ACM □ Sample	- Material Sampled		Sample	Total Asbestos (%)
Classroom2 # 19	9"x9" Floor Tile/Mastic	0412834	1205-02A	2
Classroom1 # 20	9"x9" Floor Tile/Mastic	0412835	1205-02B	2
Classroom1 # 20	9"x9" Floor Tile/Mastic	0412836	1205- 02C	2

The U. S. Environmental Protection Agency (EPA) states that any material with greater than 1% asbestos must be treated as ACM (U.S. EPA, Title 40 CFR Part 763.87 (c) The analytical report from AMA is contained in Appendix E. Mr.

asbestos inspector training certificate is provided in Appendix D.

April 3, 2006

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2.3 Ventilation System Evaluation

Not applicable to this operation.

2.4 Noise Measurements

Not applicable to this operation.

2.5 Personal Protective Equipment

Not applicable to this operation.

2.6 Interpretation of Results

LtGHTING: The lighting in this area falls below the minimum lighting requirements indicated in Table 2-1. While work is in progress the administrative area should be lighted by at least the minimum light intensities. Recommend increasing the lighting in the administrative areas through use of task lighting.

ASBESTOS; The floor tile that was found throughout this area was determined to contain asbestos. The floor tile has multiple areas of water damage (Photo # 2878) and is lifting and cracking in some spots. Recommend replacing the damaged tile with new, non-asbestos tile, by an appropriately trained technician. The floor tile also needs to be protected by at least two coats of wax.

MOLD: Water stains were found on the ceiling in classroom #19 (Photo # 2883), classroom #20 (Photo #'s 2884-86), training room #3 (Photo # 2887) and in the kitchen #6 (Photo # 2892). These water stains could potentially lead to mold growth.

HAZARD COMMUNICATION: Unlabelled secondary container observed in janitor's closet

April 3, 2006

3.0 FORMER FIRING RANGE

3.1 Operation Description

The firing range has been dismantled and is now primarily used for storage. The FDC room, which looks to have once been part of the firing range, is included in this area. The area is approximately 1,680 square feet with cinder block walls and a concrete floor.

3.2 Chemical and Physical Agents Sampled

3.2.1 Lead

Wipe testing for lead was conducted in the former firing range. Results were found to be above the acceptable limits of the U.S. Army. Ghost wipes, which meets ASTM E 1792 standards, were used to test surfaces for lead. Table 3-1 below shows the results of the lead tests.

Table 3-1
Levels of Lead Dust Found In Firing Range

Location Of Wipe. Taken	AMA Sample Number	URS Sample Number	Area Wiped (ft²)	Result (µg/ft [*])⊪	Maximum Safe Surface Contamination Level (μg/ff²)
Firing Range- Floor/Front	0412818	1205-LW6	1.000	4500	200
Firing Range- Floor/Center	0412819	1205-LW7	1.000	7100	200
Firing Range- Floor/Rear	0412820	1205-LW8	1.000	2300	200
Firing Range-Desk	0412821	1205-LW9	1.000	61	200
Firing Range-Top of Roof Drain Pipe	0412822	1205LW10	0.833	14,000	200
Firing Range-Top of Heating Unit	0412823	1205-LW10	0.583	40,000	200
Blank	0412824	1205- LWBlank	N/A	<12	200

April 3, 2006

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One air sample for lead was collected in the former firing range. Table 3-2 below shows the results of the lead air sample.

Table 3-2
Level of Lead Found In the Air

Location Of Air Sample Taken	AMA Sample Number	URS Sample Number	Air Volume (L)	∄Résult _(μg/m³)	OSHA's PEL(µg/m³)
Former Firing Range	0412825	1205-AA01	892	<3.4	50.0
Air Blank	0412827	1205-AA03	0	<3.0	50.0

On the day of the survey, the airborne lead concentration in the former firing range was found to be acceptable, below OSHA's permissible exposure limit (PEL) for lead (29 CFR 1910.1025(c)) of 50.0 $\mu g/m^3$ averaged over an 8-hour day.

Paint chips collected in two areas where paint was peeling were sent to AMA for analysis. One of the samples was found to be above the acceptable limits of the U.S. Housing and Urban Development (HUD) Lead-Based Paint Guidelines. Levels of lead greater than 0.5% by weight are referred to as "lead-containing" (Section 1017 of the Residential Lead-Based Paint Hazard Reduction Act of 1992 (also referred to as Title X). Table 3-3 below shows the results of the lead tests.

Table 3-3
Levels of Lead Found in the Firing Range

Location Of Paint Chip Taken	AMA Sample Number	URS Sample Number	Reporting Limit % by Weight)	Final Result (% by Weight):
FDC Room #9 - Floor	0412829	1205-LPC02	0.01	0.53
FDC Room #9 – Exterior Side of Garage Door	0412830	1205-LPC03	0.01	0.016

3.3 Ventilation System Evaluation

Not applicable to this operation.

3.4 Noise Measurements

Not applicable to this operation.

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3.5 Personal Protective Equipment

Not applicable to this operation.

3.6 Interpretation of Results

LEAD: The former firing range was found to contain lead in the dust, at levels which exceed the maximum limit of 200 µg/ft² set by the NGB Region North Industrial Hygiene Office (See Appendix G). Recommend cleaning up the leed dust by an appropriately licensed contractor. The lead air test performed in this area found an airborne lead concentration within acceptable limits. Guidelines for the cleanup and rehabilitation of indoor firing ranges is contained in Appendix H.

ASBESTOS: There is an insulating end cap that is loose and needs to be repaired by an appropriately licensed contractor (Photo # 2881).

April 3, 2008

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4.0 DRILL HALL

4.1 Operation Description

The drill hall is a 6,000 square feet area with a 30-foot high ceiling, used for assembling personnel and storing vehicles. The walls are constructed of cinder blocks with a concrete floor.

Chemical and Physical Agents Sampled 4.2

4,2,1 Lead

Wipe testing for lead was conducted in the drill hall and found that 4 of the 5 samples were within acceptable limits of 200 µg/ft2 set by the US Army Center for Health Promotion and Preventive Medicine. Ghost wipes, which meets ASTM E 1792 standards, were used to test surfaces for lead. Table 4-1 below shows the results of the lead tests.

Table 4-1 Levels of Lead Dust Found in the Drill Hall

Location Of Wipe Taken	AMA Sample Number	URS Sample Number	Area Wiped (ff*)	Result (ug/ft²)	Maximum Safe Surface Contamination Level (µg/ft²)
Drill Hall #10 - Floor	0412813	1205-LW1	1.000	<12	200
Drill Hall #10 - Floor	0412814	1205-LW2	1.000	<12	200
Drill Hall #10 – Top of Flammable Chemical Cabinet	0412815	1205-LW3	1.000	780	200
Orill Hall #10 - Table Top	0412816	1205-LW4	1.000	<12	200
Drill Hall #10 - Floor	0412817	1205-LW5	1.000	<12	200
Blank	0412824	1205- LWBlank	N/A	<12	200

One air sample for lead was collected in the drill hall. Table 4-2 below shows the result of the lead air sample.

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Table 4-2 Level of Lead Found in the Air

Lobation Of Ali Sample Taken ⊤	AMA Sample Number	URS Sample Number	¥≟ Air⊬ Volume (L)	Result s (µg/m³)	OSHA's PEL(ug/m²)
Drill Hall # 10	0412826	1205-AA02	848	<3.5	50.0
Blank	0412827	1205-AA03	0	<3.0	50.0

On the day of the survey, the airborne lead level in this area was found to be acceptable, below OSHA's permissible exposure limit (PEL) for lead (29 CFR 1910.1025(c)) of 50.0 µg/m³ averaged over an 8-hour day.

4,3 Ventilation System Evaluation

Not applicable to this operation.

4.4 Noise Measurements

Not applicable to this operation.

4.5 Personal Protective Equipment

Not applicable to this operation.

4.6 Interpretation of Resulte

<u>LEAD:</u> The samples collected in the drill hall for lead dust were within acceptable limits, except for the sample collected on top of the flammable storage cabinet. Recommend having the flammable storage cabinet cleaned by an appropriately licensed technician.

ASBESTOS: The asbestos pipe insulation had some damaged fittings, splits where sections come together and puncture holes throughout the area which need to be repaired (Photos # 2882, 2893-5). The repairs need to be made by an appropriately trained technician.

April 3, 2006

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5.0 BOILER ROOM

5.1 Operation Description

The boiler room is a mechanical room constructed of cinder block walls with a concrete floor which contains a furnace with associated piping.

5.2 Chemical and Physical Agents Sampled

5.2.1 Asbestos

Bulk samples were collected from damaged suspect asbestos containing materials (ACM) in this area for a determination of asbestos content. Analytical procedures were performed in accordance with the U.S. Environmental Protection Agency (EPA) Recommended Method for the Determination of Asbestos in Bulk Samples by Polarized Light Microscopy and Dispersion Staining (PLM/DS) (EPA-600/M4-82-020. EPA-600/R-93-116)). Table 5-1 below presents the results of the sample analysis.

Table 5-1
Sample Results of Suspect ACM

Location Of AGM Såmple Taken	Material Sampled	AMA Sample Number	URS: Sample : Number	Asbestos
Boiler Room # 7	Air Cell Pipe Insulation	0412831	1205-01A	65
Boiler Room # 7	Air Cell Pipe Insulation	0412832	1205-01B	65
Boiler Room # 7	Air Cell Pipe Insulation	0412833	1205-01C	65

The U. S. Environmental Protection Agency (EPA) states that any material with greater than 1% asbestos must be treated as ACM (U.S. EPA, Title 40 CFR Part 763.87 (c) (2)). The analytical report from AMA is contained in Appendix E. Mr. asbestos inspector training certificate is provided in Appendix D.

April 3, 2006

PN: 39741509: J.\ Army National Guard\39741509 - Woodsville, NH/Reports\WH Woodsville Armony - Final doc

5.2.2 Lead

One paint chip was collected in an area where paint was peeling and sent to AMA for analysis. The sample result was found to be within the acceptable limits of the U.S. Housing and Urban Development (HUD) Lead-Based Paint Guidelines. Levels of lead greater than 0.5% by weight are referred to as "lead-containing" (Section 1017 of the Residential Lead-Based Paint Hazard Reduction Act of 1992 (also referred to as Title X)). Table 5-2 below shows the results of the lead tests.

Table 5-2
Levels of Lead Found in the Boiler Room

Location Of Paint Chip Taken	AMA Sample Numbeli	URS Sample Number	Reporting. Limit (% by Weight)	Final Result (% by Weight)
Boiler Room #7 - Floor	0412828	1205- LPC01	0.01	<0.01

5.3 Ventilation System Evaluation

Not applicable to this operation.

5.4 Noise Measurements

Not applicable to this operation.

5.5 Personal Protective Equipment

Not applicable to this operation.

5.6 Interpretation of Results

<u>ASBESTOS:</u> The condition of the pipe insulation (Photos # 2863-66) is a concern in this building area. There were numerous exposed ends that could cause asbestos fibers to be released into the air. The exposed ends and punctures need to be repaired by an appropriately trained technician.

FIRE SAFETY: The fire extinguisher is not marked (Photo # 2867).

April 3, 2006

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6.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS

The only safety book found at this site consisted primarily of accident investigations and the legal aspects of safety. A three ring binder was presented to URS at the time of the IH survey that contained a course manual that was written by Alamo Safety Organization for the Army National Guard 1st Line Supervisors. The problem with using this manual as the site's written safety program is that it is not site-specific. This manual is a good tool, which could be used to help develop the site's written safety program.

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6.1 Confined Spaces

Not required for this site.

6.2 Hearing Conservation

Not required for this site.

6.3 Respiratory Protection

Not required for this site.

6.4 HAZCOM

No site-specific written safety program was found regarding hazard communications. No training records were found on site.

6.5 PERSONAL PROTECTIVE EQUIPMENT

Not required for this site.

April 3, 2000

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7.0 REFERENCES

American National Standards Institute

ANSI/ESNA RP-1-04; American National Standard Practice for Office Lighting

American Society of Heating Refrigerating and Air-Conditioning Engineers

ANSI/ASHRAE Standard 62.1-2004: Ventilation for Acceptable Indoor Air Quality

Department of the Army

Ergonomics Program Pamphiet 40-21 (15 August 2003)

Policy and Responsibilities For Inspection, Evaluation and Operation of Army National Guard Indoor Firing Ranges (National Guard Regulation 385-15 30 December 2002)

Department of Defense

DoD Hearing Conservation Program Standard 6055.12 April 1996

Creating an Ideal Workstation: A Step-by-Step Guide

U. S. Environmental Protection Agency

Asbestos Hazard Emergency Response Act (40 CFR Part 763)

National Emissions Standards for Hazardous Pollutants (40 CFR Part 81)

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U. S. Housing and Urban Development

Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (1995, 1997)

U. S. Occupational Safety and Health Administration

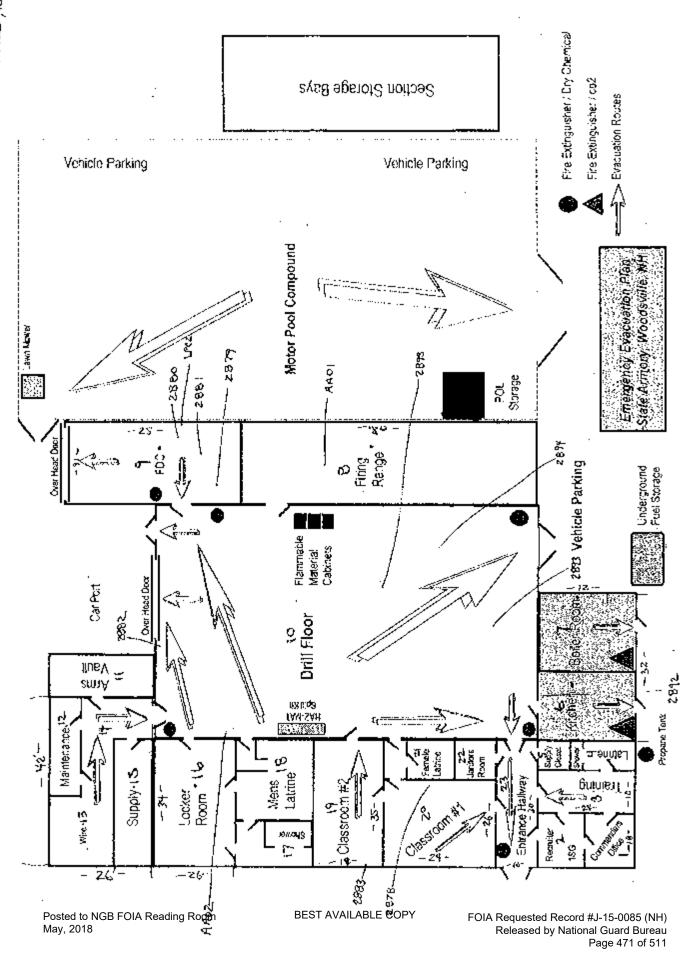
Standard for General Industry: 29 CFR 1910

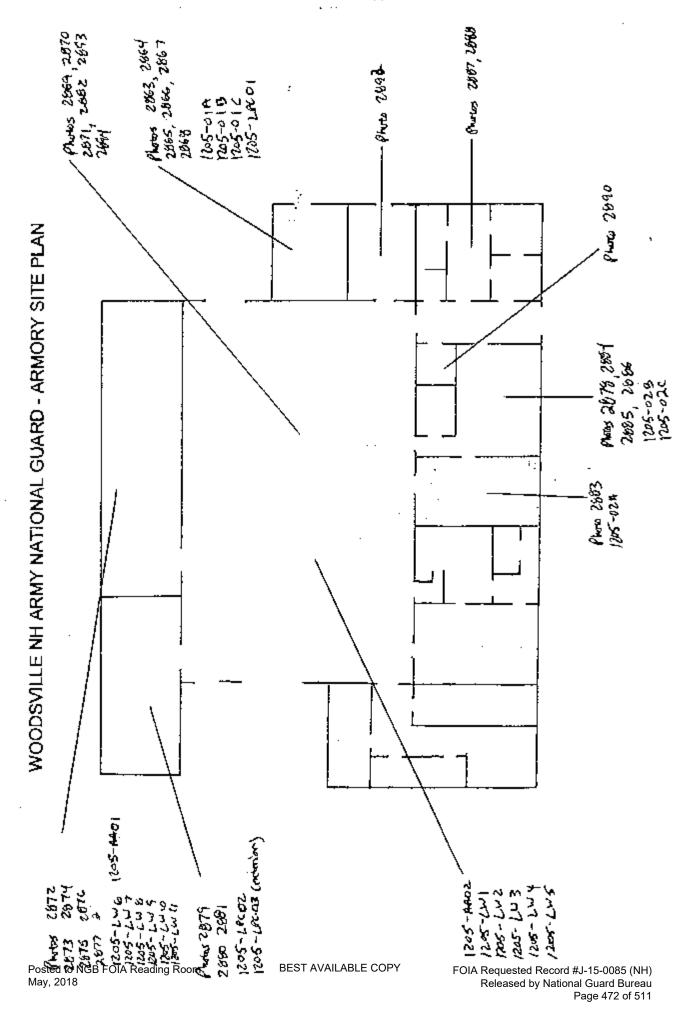
April 3, 2006

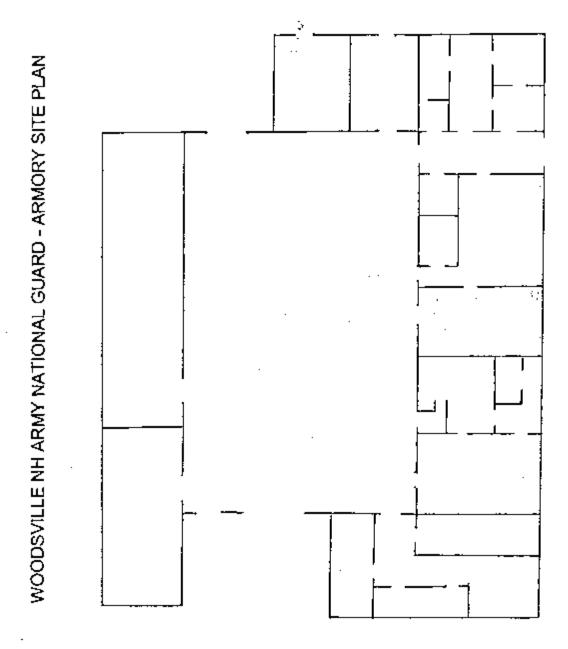
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E. 4.

APPENDIX A SHOP DRAWING







APPENDIX B
PERSONNEL LIST

PERSONNEL LIST

WOODSVILLE, NH

Name - 128 - Paris - Transfer - 1981	Rank
Non-Responsive	SGT
	SGT

APPENDIX C HAZARDOUS MATERIALS LIST

	PRODUCT NAME ZE – ON HAND	HAZARDOUS CHEMICAL / COMPOUND	LOCATION
00-664-4944 3 / Gal.	Preservative, Canvas	Petroleum Based Product	CABINET#1
01-102-9455 2 / Gal.	Brake Fluid	Petroleum Based Product	CABINET#1
00-224-6663 1 / Qt.	Rifle Bore Cleaner	Petroleum Based Product	CABINET#1
00-935-9807 1 / Qt.	Hydraulic Fluid	Petroleum Based Product	CABINET#1
00-181-7929 1 / Gal.	Anti – Freeze	Ethylene Glycol	CABINET#1
00-145-0268 2 / 2Qt.	Grease, Aircraft	Polyalphaolefius Bentonite	CADINET#1
01-197-7693 1 / 14 Oz.	Grease, Auto & Art.	Mineral Spirits	CABINET#I
00-754-2671 2 / 6 Oz.	Anti-Fog Compound	Non-Hazardous Materials	CABINET/II

	<u>PRODUCT NAME</u> IZE- ON HAND	HAZARDOUS CHRMICAL / COMPOUND	LOCATION
00-000-0000 2 / Gal.	Enamel, Gray	Naphtha (Petroleum Spirits or Benzin)	CADINET#2
00-000-0000 3 / Gal.	Enamel, Green	Naphtha (Petroleum Spirits or Benzin)	CABINET#2
00-297-0547 2 / Gal.	Enamel,Black	Naphtha (Petroleum Spirits or Denzin)	CABINET#2
00-527-2884 2 / Gal.	Enamel,Black	Naphtha (Petroleum Spirits or Benzin)	CABINET#2
00-221-2775 2 / Qt.	Enamel, Yellow	Naphtha (Petroleum Spirits or Benzin)	CABINET#2
00-091-0291 1 / Qt.	Hydraulle Jack Oil	Petroleum Spirits	CABINET#2
00-141-2952 1 / 12 Oz.	Enamel, Acrsol Red	Naphtha (Petroleum Spirits or Benzin)	CABINET#2
00-000-0000 1 / 12 Oz.	Enamel, Aersol Green	Naphtha (Petroleum Spirits or Henzin)	CABIBET#2
00-754-0064 1 / 12 Oz.	Lubricant, Solid Film	Molybdenum Disulfide	CABINET#2
00-180-7197 1 / Lb.	Graphite, Dry, Lube	Graphite	CABINET#2
00-000-0000 1 / 16 Oz.	Wasp & Homet Killer	Cyclohexene	CABINET#2

	PRODUCT NAME ZE- ON HAND	HAZARDOUŞ CHEMTCAL / COMPOUND	LOCATION
01-053-6688 20/ Gal.	Break-Free (CLP)	Petroleum (Naphtha Solvent)	IIaz-Mat Bldg
00-597-3608 2/ Gal,	Methanol,Technical	Methanol	Haz-Mat Bldg
01-102-9455 4/ Gal.	Brake Fluid(Silicone)	Petroleum Based	Haz-Mat Didg
01-197-7693 43/ 14 oz.	Grease, Auto & Art.	Polyalphaolefius - Bentonito	Haz-Mat Bldg
01-421-1427 53/ 1 qt.	Lube, Oil Engine QE/HDO/15W40	Petroleum Oil	Haz-Mat Bldg
01-353-4799 44/ 1 qt.	Hydraulie Fluid Dextron III	Petroleum Based	Haz-Mat Bldg
01-178-4726 10/ L qt.	Lube,Oil Engine 15W30	Petroleum Oil	Haz-Mat Bldg
01-128-9537 24/ 22 oz.	Cylinder, Ether	Ether	Haz-Mat Bidg
01-441-3218 8/ Gal.	Anti-Precze	Alcohol, Petroleum	Haz-Mat Bldg
00-935-9807 60/ 1 qt.	Hydraulic Fluid	Petroleum Based	Haz-Mat Bldg
00-145-0268 6/ 5 lb. Cn	Grease, Aircraft	Polyalphaolefins – Bentonite	Haz-Mat Bldg
00-823-7860 23/16 oz Cn	Lube Compound	Dimethylisilicone	Haz-Met Bldg
00-145-0268 14/ 6.5 lb. Cn	Grease, Aircraft	Polyalphaolefins Bentonite	Haz-Mat Bldg
00-935-5851 1/ 5 Gal, Cn	Grease, Aircraß	Polyalphaolefins – Bentonite	Haz-Mat Bldg

	PRODUCT NAME IZE- ON HAND	HAZARDOUS CHEMICAL/COMPOUND	LOCATION
00-141-5888 1/5 Gal, Cn	Wax, Floor Wit, Emulsion	Petroleum Based	Haz-Mat Bldg
00-922-6917 1/10 oz. Cn.	Bonding Compound	Toluenc & Naptha 107	Haz-Mat Bldg
00-242-3467 2/ 10 oz. Cn.	Fluid Vulcanizer	Petroleum Based	Haz-Mat Bldg
01-177-3988 11/ Lqt.	Oil, Engine	Petroleum Based	Haz-Mat Bldg
01-054-6453 19/ I pt.	Break-Free (CLP)	Petroleum (Naphtha Solvent)	Haz-Mat Bldg
47 EA.	**** EMPTY 5 GAL FU	ÆL CANS****	Haz-Mat Bldg

APPENDIX D ASBESESTOS TRAINING CERTIFICATES

INSTITUTE FOR

ENVIRONMENTAL EDUCATION, INC.

16 Upton Drive, Wilmington, MA 01887

(978) 658-5272

This is to certify that



has completed the requisite training, and has passed an examination for reaccreditation as:

Asbestos Inspector Refresher

pursuant to Title II of the Toxic Substance Control Act, 15 U.S.C. 2646

April 11, 2003

Course Dates

Institute for Environmental Education 16 Upton Drive

Course Location

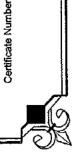
Wilmington, MA 01887

April 10, 2004

April 11, 2003

Examination Date

03518010625349



APPENDIX E

ANALYTICAL RESULTS

NY ELAP

A T T

CERTIFICATE OF ANALYSIS

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

Chain Of Custody: Person Submitting: Date Analyzed: Report Date: Woodsville, NH Not Provided Not Provided Armory Job Location: P.O. Number: Job Number: Job Name: Salem, New Hampshire 03079-2830 **URS** Corporation 5 Industrial Way Address: Client

15-Dec-03

12/15/2003

121111

Page 1 of 2

Summary of Atomic Absorption Analysis for Lead

De la company	Number	Authors Lype	Sample 13pc	3	(£4))	1	Limit			, , , , , , , , , , , , , , , , , , ,	
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0412816	1205-LW4	Flame	Wipe	*****	1.000	12.00	ug/ft²	٧	27	ug/ft²	
0412817	1205-LW5	Flame	Wipe	***	1.000	12.00	ug/ff²	٧	12	ug/ft²	
0412818	1205-LW6	Flame	Wipe	* * *	1.000	12.00	ug/ft²		4500	ug/ft-	
0412819	1205-LW7	Flame	Wipe	* * *	1.000	12.00	ug/ff²		2100	ug/ff²	
0412820	1205-LW8	Flame	Wipe	*	1.000	12.00	ug/ft³		2300	ng/ft²	
0412821	120S-LW9	Flame	Wipe	****	1.000	12.00	ug/ft²		63	ng/ft²	
0412822	1205-LW10	Flarne	Wipe	****	0.833	14.40	ng/ft²		14000	ug/ft²	
0412823	1205-LW11	Flame	Wipe	· · · · · · · · · · · · · · · · · · ·	0.583	20.57	ng/ff²		40000	ug/ff=	
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0412825	1205-AA 01	Fiame	Aír	892	ΝΆ	336	ug/m³	٧	3,4	ug/m³	
0412826	1205-AA 02	Flame	Air	848	N/A	3.54	ug/m³	٧	3.5	ug/m³	
0412827	1205-AA 03	Flame	Air Blank	0	N/A	3.00	ug/m³	v	e	Sn	
0412828	1205-LPC 01	Flame	Paint Chip	***	N/A	0.01	%bp	٧	0.01	%Pb	
0412829	1205-LPC 02	Flame	Paint Chip	****	N/A	0.01	%Pb		0.53	%Pb	
0412830	Od 12830	Flame	Paint Chip	***	Ň/A	10.0	%Pb		0.016	%Pb	

Bis 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. Eom 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 All rights reserved. AMA Analytical Services, Inc. applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples. Released by National Guard Bureau Page 484 of 511

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ed to NGB FOIA Reading Room May, 2018

Attention:

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

NYELA 至于

CERTIFICATE OF ANALYSIS

Woodsville, NH Armory Job Location: Job Name:

Not Provided Not Provided

Job Number:

Salem, New Hampshire 03079-2830

URS Corporation 5 Industrial Way P.O. Number:

Date Analyzed:

121111 Chain Of Custody:

12/15/2003 Person Submitting

Report Date:

15-Dec-03

Page 2 of 2

Comments

Summary of Atomic Absorption Analysis for Lead

		Commence of the Control of the Contr					
AMA Sample	Client Sample	Analysis Type	Sample Type	Air Volume	Area Wiped	Reporting	Final Result
Number	Number			3	£	Limit	

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7421; Water: SM-3113B Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7420; Water: SM-3111B

mg/Kg = parts per million (ppm) by weight mg/L = parts per million (ppm) ug/L = parts per billion (ppb) ug = micrograms %Pb = percent lead by weight N/A = Not Applicable

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

Technical Manager:

ED

Solve 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 anthorization and 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 All rights reserved. AMA Analytical Services, Inc. applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples.

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ed to NGB FOIA Reading Room May, 2018

Address: Client

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1

AMA Analytical Services, Inc.

A Specialized Environmental Laboratory

URS Corporation 5 Industrial Way

Client:

CERTIFICATE OF ANALYSIS

Job Location: Job Name:

Woodsville, NH Not Provided Job Number:

Not Provided

P.O. Number:

2/16/2003 121111 Person Submitting: Chain Of Custody: Date Analyzed:

NY ELAP

A E E

GWJAW

Page 1 of 1

Summary of Polarized Light Microscopy

fA Sample Number	AMA Sample Client To Number Sample# Asb	estos	Chrysotile Percent	Amosite	Chrysofile Amosite Crocidolite Percent Percent Percent	Other Asbestos Percent	Mineral Wool Percent	Fiberglass Percent	Organic Percent	Synthetic Percent	Other	Particulate Percent	Sample Analyst Color ID	Analyst ID	Comments
0412831	1205-01 A	65	59	ŧ	1	ı	ı	ı	หา	ı	1	30	Gray	9	
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0412835	1205-02 B	2	6	}	ŧ	•	E	ı	T.	ı	;	86	Geen	97	

The following footnotes only apply to those samples which the total asbestos result is flagged with a note number.

N

1205-02 C

0412836

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 TEM RECOMMENDATION - Please note, due to resolution limitations with optical microscopy andor interference from matrix components of this sample, results which are reported via PLM as negative of optical microscopy

Released by National Guard Bureau

Page 486 of 511

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Address:

Salem, New Hampshire 03079-2830

Attention:

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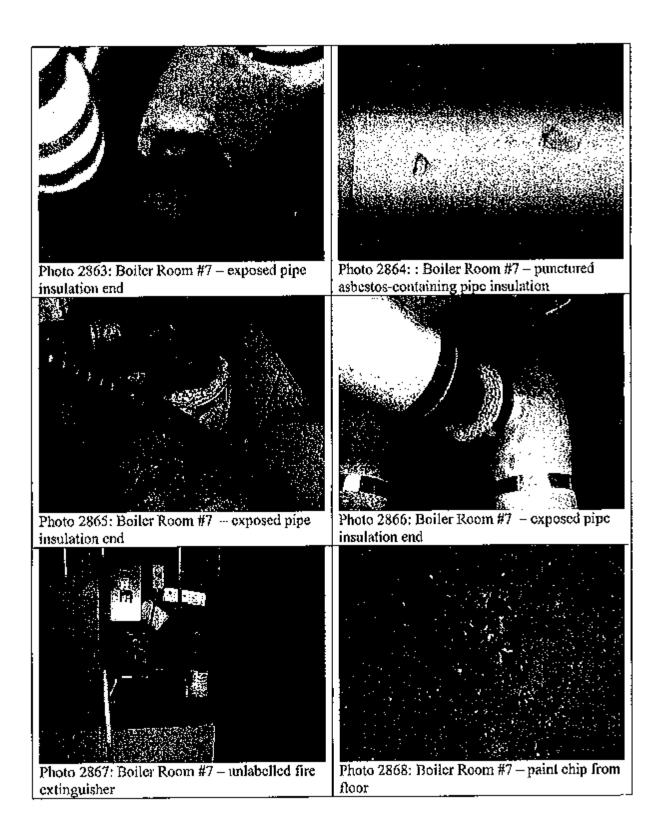
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

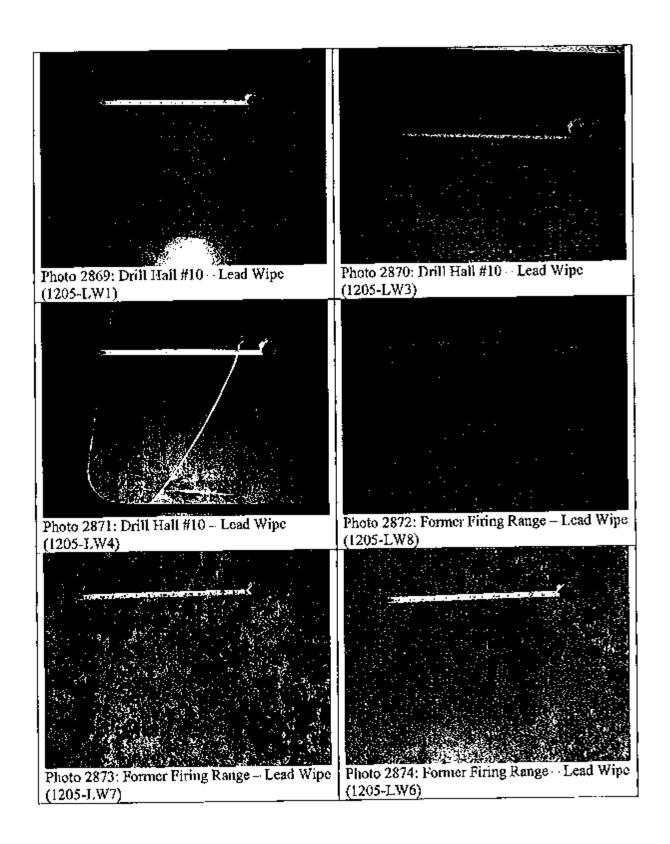
www.amalab.com

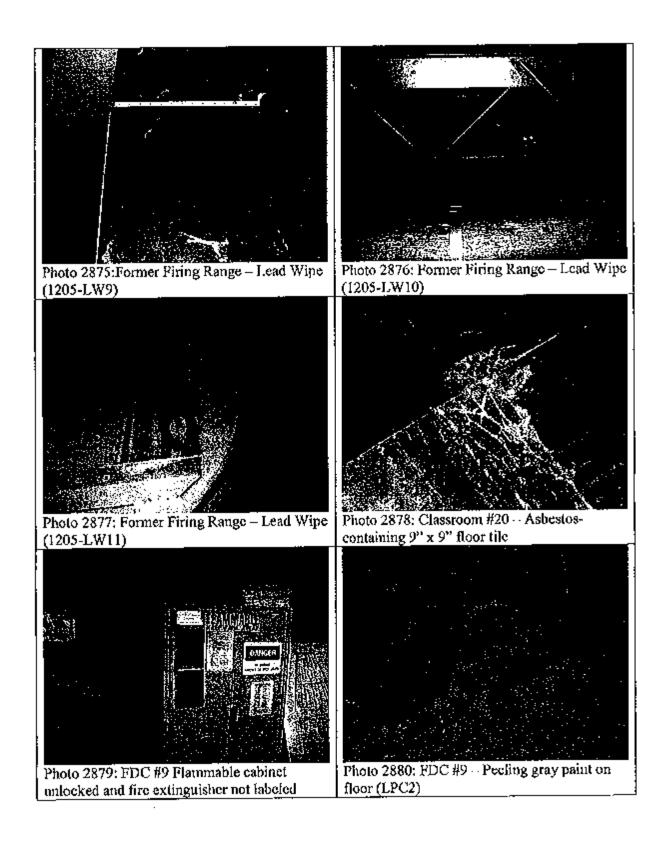
4475 Forbes Blvd. • Lanham, MD 20706

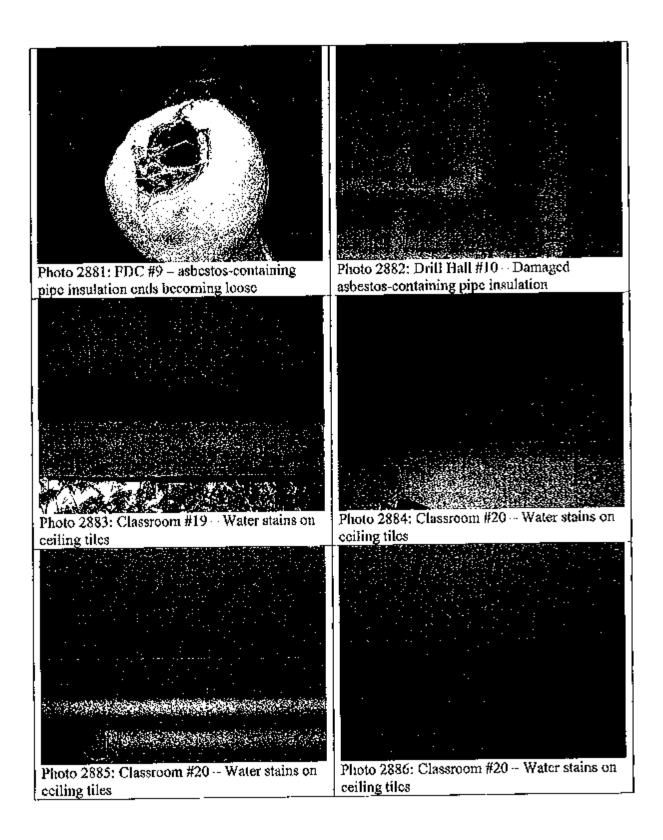
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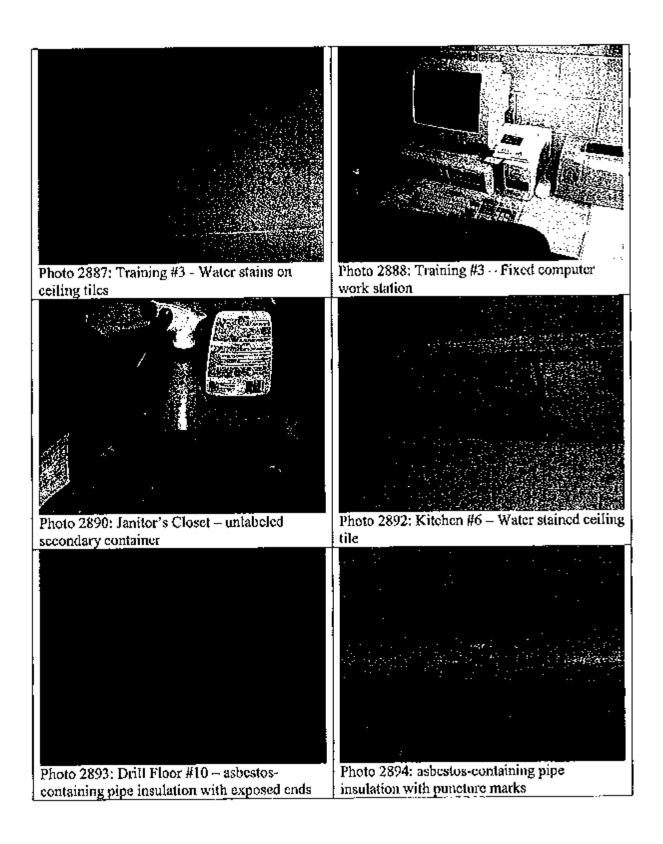
APPENDIX F
PHOTOGRAPHS











APPENDIX G

RECOMMENDATIONS FOR SURFACE LEAD DUST IN ARMORIES

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 (Ωg/ft²). 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, end feasibility of cleaning to a certain level.
- e. 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 µg/ft²) and windowsills (250 µg/ft²) 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 ere 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 Hg/R² 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 ()g/ft² 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 preceutionary 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 μ g/ft² on floors and 250 μ g/ft² 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/m³ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

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APPENDIX H

POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES (NATIONAL GUARD REGULATION 385-15 30 DECEMBER 2002)

NGB-AV9-SG

SUBJECT: 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

ADDENDUM

GUIDELINES FOR IFR REHABILITATION, CONVERSION, AND CLEANING

CONTENTS (Listed by paragraph number)

	Paragraph
Purpose	1
References	2
Explanation of Abbreviations and Terms	3
Policy and Procedures	4
Gost	5
8ackground 8ackground	6
Wips Sample Media	7
Wipe Sampling Protocol	8
Range Cleaning instructions	9
Cleaning Stored Conteminated Equipment	10
Contaminated Sand and Lead Waste	11
Medical Surveillance	12
Worker Education	13
Personal Protection Equipment	14
Housekeeping	15
Maintonance	16
Range Rehabilitation	17
Conversion of Indoor Firing Ranges	18
Deviation .	19

Appendices

Appendix A - General Procedures for Collecting Wipe Samples

Appendix B - Sampling Strategy for Collection of Wipe Samples

Appendix C - Interpretation of Sample Results (Prior to Cleaning)

Appendix D - Interpretation of Sample Results (After Cleaning)

Appendix E - Recommended Sample Media and Containers

Appendix F - Examples of Computation of Lead Levels from Wipe Sample Results

Appendix G - Surface Wipe Sample Sheet

Appendix H - Air Sampling Sheet

Appendix I - Glossary

Pernosa

 This addendum establishes policy and procedures for rehabilitation, conversion, and cleaning of ARNG indoor firing ranges.

References

Related publications are listed below.

- a. DODI 6055.1 (Department of Defense Instruction, Occupational Safety and Health (OSH) Program).
- b. AR 11-34 (The Army Respiratory Protection Program).
- c. AR 40-5 (Preventive Medicine).
- d. NGR 385-15 Policy, Responsibilities, and Procedures for Inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges).
 - e. 29 Code of Federal Regulations (CFR), Part 1919, Occupational Safety and Health Standards
 - f. OSHA Technical Manual, Edition VII.
 - g. DHEW NIOSH 76-130 (Lead Exposure and Design Considerations for Indoor Firing Ranges).

SUBJECT: 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

Explanation of Abbreviations and Terms
 Abbreviations and special terms used in this publication are listed in the glossary.

4. Policy and Procedures

Conversion of Ranges, Indoor firing ranges can be safely rehabilitated or converted for other uses, such as a storage area, kitchen, or office space, provided the following –

a. Previously active ranges must be thoroughly decontaminated and cleaned to acceptable levels.

b. The level of cleanliness is to be determined by sampling. The Occupational Safety and Health Administration's (OSHA) Technical Manual, ⁵⁰ Edition, provides guidence on the methods and techniques needed to collect wipe samples (Appendix A).

(1) Wipe samples must be collected and analyzed prior to and after cleaning.

(2) Post-cleaning surface wipe sample results must be less than or equal to 200 micrograms por square feet (ug/sq it). The sampling strategy, which is the amount and location of wipe samples to be collected, is provided in Appendix B. Methods for interpreting the sample results are contained in Appendix C and D.

Equipment/items previously stored in the range must be decontaminated and cleaned to acceptable

levels.

(1) Samples must be collected from equipment/Items stored in the range. Sample selection is critical, because the number of items stored and length of storage differs from range to range. The amount and location of the samples, should be representative of the areas where lead duel is most likely to accumulate. The more samples collected, the better the statistical comparison of the results.

(2) Samples must be collected from the smooth surfaces of the equipment/items, in so much as possible. Results of samples collected from a rough surface will be inaccurate due to the minimal surface contact of the media. Further, the likelihood of tearing the media filter is greater on rough surfaces.

- (3) Samples should also be collected on items stored the longest period of time, and which have not been disturbed. Items stored closest to the builet trap and fixing line are likely to have trigher concentrations of tead dust. Methods for interpreting the sample results are contained in Appendix C and D.
- 5. Goal

To ensure every indoor firing range is free of lead dust, and to reduce the number of unsafe ARNG Indoor firing ranges.

6. Background

The Environmental Protection Agency (EPA) Identifies feed as a highly toxic metal. Elemental lead is Indestructible, and common in the environment. Load can enter the body by inhalation (breathing) or ingestion (eating). In addition, lead is a cumulative poison. It accumulates in the blood, bones, and organs, including the kidneys, brain and fivor. Effects include nervous and reproductive system disorders, deleys in neurological and physical development, cognitive and behavioral changes, and hypertonsion. Symptoms include loss of appetite, difficulty sleeping, irritability, fatigue, headache, and inability to concentrate. It can stay in the bones for decades. Worker awareness and training are important to ensure that employees can recognize the symptoms of exposure and get prompt medical attention.

7. Wipe Sample Media

a. OSHA Technical Manual provides the necessary guidance on the technique needed to collect wipe samples (Appendix A). Only distilled or detonized water will be used to saturate dry sample media. At teast one field blank filter must be submitted with each sample sheet. The field blank must be from the same tot, and labeled as a blank on the sample sheet. Appendix E Identifies how and where to obtain sample media. Use the following guidance for determining media acceptability.

(1) Acceptable Media consists of -

(a) Ghost Wipes™ (PREFERRED METHOD)- Pre moistened

(b) Thirty-seven (37) millimeters (mm) mixed cellulose ester (MCE) filters, with or without the cassettes.

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8UBJECT: All States (Log Number 201-0075) Army National Guerd (ARNG) Sefety and Occupational Health Program -- POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

- (2) Unacceptable Media consists of but is not limited to-
 - (a) Cotton balls
 - (b) Baby wipes or wot wipes
- b. Documentation of Sample Collection. A Surface Wipe Sample Sheet must be completed and submitted with samples to your supporting laboratory. A copy of this form is located in Appendix G. Refer to Appendix A on how to collect wipe samples.
- Wipo Sampling Protocol See Appendix A.

9. Ranges Cleaning Instructions

- a. Written procedures, such as a scope of work, or Standing Operating Procedure (SOP) that complies with all federal, state and local regulations must be established prior to deconfamination operations. The range ventilation system will be in operation during range cleaning to ensure that a negative pressure environment is maintained. In the absence of mechanical ventilation system, all doors and windows will be sociled to eliminate fugitive emissions. A High Efficiency Particulate Air (HEPA) filtered vacuum system is the preferred method of cleanup followed by wet wiping of the range. The HEPA vacuum is designed to collect loose surface lead dust particles.
- b. Any general purpose cleaning solution can be used. However, Spio and Span™ has been found to be an effective cleaning solution by other Army organizations. Mix new solutions of cleaning solution frequency. Wet wiping will require dual containers of water; one container for wetting the applicator (mops, rags, sponge, etc.) and the other container for rinsing the applicator after the dual has been wiped from the surfaces. When placed in containers, wastewater should be left to evaporate.

6. PROPERLY DISPOSE OF ALL HAZARDOUS WASTE. DO NOT PLACE LEAD CONTAMINATED

WASTE INTO THE SEWER SYSTEM OR ONTO THE GROUND.

d. Mop-heads, sponges and rags will be discarded as hazardous westerfollowing cleanup.

 Wol cleaning by a high-pressure system is prohibited, as this method may ambed the fead into the substratum and generate large quantities of unwanted hazardous waste.

Dry sweeping is not permitted.

- g. All surface areas of the range must be cleaned. Do not remove the coating on smooth painted surfaces that are properly sealed.
- b. Wood floors should receive a cost of deck enamel or urethans; concrete floors should be seated with deck enamel and limiteum or title floors should be waxed.
- A progression of cleaning from top to bottom and from behind the steel backstop to the firing line should be used. After removing the sand, if applicable, and the steel backstop, areas in front of and behind the bullet trap along with the steel backstop piate(s) should be cleaned. Next, clean the ceiling, lights, baffles, retrieval system, healing system(s), and ventilation duct(s). Acoustical material should be Vacuumed and removed rather than painted over.
- J. A Toxic Characteristic Leaching Procedures (TCLP) tost for lead only may need to be performed on the acoustical material. A TCLP tost will determine if the material is classified as "trazerdous" and can be disposed of in a sanitary landfill. Contact your State Environmental Office for assistance before arranging for this laboratory testing. The floor should be the last surface cleaned, starting at the bullet trap and ending behind the firing line.

k. After wet wiping all surfaces, permit the area to dry. Vacuum all surface areas until no dust or residue can be seen using the HEPA.

A thorough visual inspection to detect dust should be made following cleanup and prior to collecting
post surface wips samples.

m. As a variety of conditions exist in ranges, unique situation may prise and specific written guidance from your Regional Industrial Hygiene Office may be required.

Cleaning Stored Conteminated Equipment

 Equipment contaminated (sample result is higher than 200 micrograms/sq fl) with lead dust must be decontaminated before it is removed from the range.

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b. Equipment located near the bullet trap and fring line should be cleaned first and then removed. The cleaning method depends on the size of the equipment and the material it is comprised of, i.e. motal, wood, concrete, purus, non-porus, smooth or rough finish etc. However, either HEPA vacuum or the well wipe method will be used. Refer to paragraph 9 for additional guidance.

c. Every attempt should be made to clean and rectain flems since disposing of equipment, as hazardous waste is costly and wasteful. Only as a last resort will the flem be discarded as hazardous waste. Porous items, such as office partitions and carpet that were present during firing should be considered grossly contaminated and be discarded unless analysis proves otherwise. Consult your State Environmental Office for the proper hazardous waste disposal methods.

11. Contaminated Sand and Lead Waste

Consult your State Environmental Office for specific disposal guidance to ensure compilance with local laws and regulations.

Medical Surveillance

- a. A pre-placement medical examination is required for all individuals involved with range cleanup operations. Consult 29 CFR 1910.1025 for additional information on medical surveillance requirements. A medical examination must include—
 - A detailed work and medical history
 - (2) A thorough physical examination
 - (3) A respirator uso avaluation:
 - (4) A blood pressure measurement
 - (5) Blood sample analysis to include:
 - (a) A baseline blood lead level
 - (b) A complete blood count (CBC)
 - (c) Blood uroa nitrogen (BUN)
 - (6) Serum creatinine
 - (Y) Zinc protoporphyria
 - (3) A routine urine analysis
 - (9) Recordkeeping
- b. Air Monitoring. Worker breathing zone (BZ) air samples must be collected to ensure personnel are not overexposed to airborne lead during the cleanup phase. Representative air samples will be collected on all personnel involved in the cleanup operation. These exposure levels will be used to evaluate work practices and personal protective equipment. Within five (6) working days after receipt of monitoring results, each employee will be notified in writing of the air sampling results. Contact your Regional Industrial Hyglene Office for additional information pertaining to air sampling.

13. Worker Education

OSHA 29 CFR 1910.1026 requires that workers who are potentially exposed to any lead level shall be informed of the content of Appendix A and B of this standard. A training program must be instituted for all individuals who are subject to exposure to lead at or above the action level or for whom the possibility of akin or eye imitations exists. The training program shall be repeated for personnel currently involved in range cleanup operations, at least annually, this training must be documented on DD Form 1556 or DD Form 1556-1 and filed permanently in the employee's Official Personnel File (OPF) or the soldier's Official Military Personnel File (OMPF). As a minimum, complote blocks 1, 2, 3, 7, 8, 11, 12, 13, 17, 18, 24, 33 and 36 of DD Form 1556. Place the following statement in block 18, "Do not destroy, retain this record for the duration of employment/service plus 30 years." The employer will assure that each employee is informed of the following:

- a. The content of the standard and its appendices.
- The specific nature of operations that could result in exposure to lead above the action level.
- c. The purpose, proper solection, filling, use and limitations of respirators.
- d. The purpose and a description of medical survoillance program.
- e. Eating and drinking are prohibited in lead contaminated areas.
- Smoking and smoking materials will not be permitted in contaminated areas.

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- g. Employees must wash their hands and other exposed skin whenever they leave the work area.
- h. The engineering controls and work practices associated with the individual's job assignment.
- The contents of any compliance plan in effect.

14. Personal Protective Equipment

For housekeeping and rehabilitation the employer shall select respirators from among those approved for protection against lead dust, filme, and mist by the National Institute for Occupational Safety and Health (NIOSH). The employer shall institute a respiratory protection program in accordance with 29 CFR 1910.134. As a minimum, personnal conducting the decontamination of the range will be provided with the following personal protective equipment.

 Employees engaged in range retrabilitation and/or range conversion, the employer shall provide at no cost to the employee, and assure that the employee uses appropriate protective work clothing and

equipment such as, but not limited to:

(1) Protective coveralts with hood and shoe covers or disposable Tyvek ™ full body suit.

(2) Disposable rubber gloves; and disposable shoe coverlets (if necessary).

(3) Full-face air purifying respirator with P-100 certridges.

b. The employer shall provide the clothing required in a clean and dry condition at least daily to employees engaged in the conversion of indoor firing ranges.

a. The employer shall provide for the cleaning, faundaring, or disposal of used or contaminated

protective clothing and equipment.

d. The employer shall assure that all protective clothing is removed at the completion of a work shift

only in areas designated for that purpose (Change Areas or Change Rooms).

o. The employer will ensure that contaminated protective clothing that is to be cleaned, faundered, or disposed of, is placed in a closed container in the change area that seals sufficiently enough to prevent dispersion of lead dust.

f. The employer will further inform in writing any person who cleans or launders protective clothing or

equipment of the patentially harmful effects of exposure to lead.

Housekeeping

This chapter applies to all active indoor ranges classified as "safe" for use. To keep the range operating property and to keep possible hazards to a minimum, a routine housekeeping/ maintenance program is essential.

a. The employer must establish a housekeeping program sufficient to maintain all surfaces as free as practicable of accumulations of lead dust. To this end the range will be clean at the conclusion of each firing day.

b. The range ventilation system will be in operation during all deaning operations, to ensure a

negative pressure environment is maintained.

 Ranges will be cleaned by using the wet method or vacuuming. A HEPA (High Efficiency) Particulate Air) filtered vacuum system is the professed method of meeting this requirement. The use of compressed air to clean floors is absolutely prohibited. If the well method is utilized the floor should be equipped with a floor drain, and collection system. When there is no collection system, the water can be allowed to slowly evaporate leaving lead deposits/studge. The deposits/studge can then be collected, placed in metal drams, and stored for future delivery to an authorized hazardous waste disposal site. Drums must be labeled to identify contents, in accordance with the hazardous waste program.

d. A NIOSH approved respirator (P-100) for protection against lead dust, fume, and mist will be worn

at all times while cleaning.

e. When cleaning start behind the firing line forward, cleaning the floor and horizontal surfaces.

16. Mairtienance

The following are the minimum maintenance requirements, which must be performed quarterly by the range custodian, or by a person designated by the facility commander.

a. Inspect the ventilation system fan for condition of belts to ensure that they are not frayed or slipping.

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 Evaluate static pressure and compare to the baseline static pressure reading. Any changes will be reported through the sefety manager to the Regional industrial Hygienist.

c. Inspect Louvers, if applicable, to ensure they are opening fully.

- d. Inspect the build trap for pitting or other damage and for sharp edges on vanetian blind type build Iraps.
- e. Builet Trap. The builet trap will be cleaned every 480 hours of operation at a minimum, or when the trap is three quarters full.

The range ventilation system will be operational during all builtet trap cleaning procedures.

g. All personnel involved in cleaning of the bullet trap will wear a NIOSH approved respirator, and proper personal protective equipment.

h. All debris from the bullet lrap will be collected, package and turned in, in accordance with guidance from the environmental office.

17. Range Rehabilitation.

This chapter applies to all indoor firing ranges that have been identified as candidates for rehabilitation. This chapter further provides guidance for cleaning and/or sampling that might be required prior to the start of rehabilitation.

a. The portion(s) of the range to under go rehabilitation must be sampled to determine the level of tead contamination. Wipe samples will be taken per the established sampling protocol. See Appendix A.

All personnel involved in range rehabilitation will wear a NIOSH approved respirator (P-100), and

proper personal protective equipment as prescribed in paragraph 14 above.

 e. Prior to start of rehabilitation the environmental office must be notified to determine the disposition. of lead containing debris.

18. Conversion of Indoor Ranges

Prior to the start of decontamination, employers must ensure that all procedures to be used comply with Federal, State, and local regulations. To ensure that all lead contamination is removed the following procedure is established.

All ranges stated for conversion will be inspected and evaluated.

b. All equipment stored in the range, if applicable, prior to the start of decontamination must be sampled, decontaminated, re-sampled and removed or turned in as lead contaminated material. See paragraph 10 above.

c. All accustical tiles audior sound proofing material (if applicable) must be removed and lurned in as lead contaminated material through the environmental office.

d. The backstop, built trap, larget retrieval system and firing line stations must be removed and turned in as lead containing material through the environmental office.

 Light fixtures and ventilation system grills must be removed and deconteminated. Ventilation system ducts need to be decontaminated or removed and replaced.

g. The exhaust fans and/or the complete ventilation air-handling unit (if applicable) must be

decontaminated or removed.

 Cover all openings of any component previously decontaminated prior to start of interior decontamination of the firing range.

Deviation

Deviations from this guidance will require a written exception to policy from your Regional Industrial Hygieno Office. Questions and/or comments regarding this subject should be directed to your Regional Industrial Hygiene Office or Chief, National Guard Bureau, Attn: NGB-AVS-S, 111 South George Mason Drive, Adjugton, VA 22204-1382.

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APPENDIX A GENERAL PROCEDURES FOR COLLECTING WIPE SAMPLES

A-1 if multiple samples are to be collected at the work site, prepare a rough sketch of the erea(s) or room(s), which are to be wipe sampled.

A-2 A new set of clean, impervious gloves should be used for each sample to avoid contamination of the media by previous samples and to prevent contact with the substance.

A-3 (1) If using Ghost Wipes™, toar open the Individually sealed package. Remove the moistened wipe. Unfold the wipe.

(2) If using a dry media such as MCE or Whatman in filter, moisign the filter with distilled or detentized water grior to sampling.

A-4 Place a 10 cm by 10 cm template on the area to be wiped.

A-5 Apply uniform firm pressure while wiping the area inside the template.

A-6 To insure that all pertions of the partitioned area are wiped, start at the obtaine edge and progress toward the center making progress toward the center making progress toward the center making concentric squares decreasing in size.

A-7 After collecting a sample, fold the filter or wipe inward and place into a container and number it. Note the number at the sample location on the sketch.

A-8 At least one blank filter treated in the same fashion but without wiping, should be submitted to the laboratory.

APPENDIX B SAMPLING STRATEGY FOR COLLECTION OF WIPE SAMPLES

B-1 Prior to cleaning the ranges, the three samples must be collected and analyzed for total lead dust on each surface, i.e., floor, ceiling, backstop, and wall to include the plenum well, if applicable. In addition, a total of 3 samples should be collected from areas which have been least disturbed by airflow. Established walkways should be avoided.

B-2 Samples should be staggered to different areas of the range. A grid system should be utilized. Each range surface areas should be divided evenly into 3 by 3 sections. Samples should not be collected on all one section of a walt or end of the building.

APPENDIX C INTERPRETATION OF SAMPLE RESULTS (PRIOR TO CLEANING)

C-1 200 micrograms/sq fl or LESS

If all sample results are 200-micrograms/sq ft or less, the range can be converted and/or used for any purpose.

C-2 BETWEEN 201 and 200,000 micrograms/sq ft

Range must be decontaminated. Continued with cleaning instructions listed in paragraph 9 Sample results will be used to establish a baseline.

C-3 Over 200,000 mlcrograms/sq ft

Your sample media may not be capable of collecting additional lead dust and results that are above 200,000 micrograms/sq ft, and should be considered suspect.

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APPENDIX C (Continued)

C4 High sample results may exist due to personnel walking or moving equipment/vehicles over the range surface causing the lead dust to be "ground" into the substratum. For examples, a maintenance activity may have oversprayed paint or splitled solvents onto the surface Regional Industrial Hygiene Office for specific guidance.

APPENDIX D

INTERPRETATION OF SAMPLE RESULTS (AFTER CLEANING)

D-1 200 mlcrograms/sq. (t or less

if all sample results are less than 200 micrograms/sq fl, the range can be converted and/or used for any purpose after a cost of lead-free latex paint is applied.

APPENDIX E

RECOMMENDED SAMPLE MEDIA AND CONTAINERS

E-1 The following is a list of vendors, which supply the media and containers necessary to collect air and tead surface wipe samples. The information is provided to assist in obtaining the proper media and containers. Alternative vendors are available and may be utilized, if known. Contact your Regional Industrial Hygiene Office for additional assistance or clarification.

E-2 Pre-loaded 3 piece cassette with mixed cellulose ester (MCE) filter and pad, 37 millimeter (mm), pore size 0.8 milcrons, breathing zone (BZ) and general area (GA) air samples.

Order From

Catalog Number

a. Millipore Corp.

MAWP-037-A0

Ashdy Road

Bedford, MA 01730

617-275-9200

800-225-1380

64678 (GN-4)

b. German Sciences
 600 South Wagner Rd

Ann Arbor, MI 48108

313-665-0651

800-521-1520

c. Supelco, înc.

2-3368M

Supelco Park

Bellefonte, PA 16823

800-247-6628

800-359-3041

E-3 37 mm MCE Filter with pad, no casselle included, for load surface wipe samples.

Order From

Catalog Number

a. Supelco Inc.

2-3381IM

Supolco Park

Belletonte, PA 16823

NOB-AVS-SG

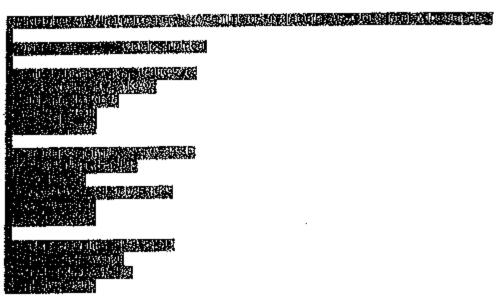
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APPENDIX E (Continued)

800-247-6628 800-359-3041

b. Millipore Corp. Ashdy Road Bedford, MA 01730 617-275-9200 800-225-1380

c. SKC, Inc. 225-5
 334 Valley View Rd.
 Eighty Four, PA 15330
 412-941-9701
 800-752-8472



E-5. Glass container (25 milliliter) for collection and shipment of media.

AAWP-037-00

Order From C

Catalog Number

a. Pierce Chemical Co.
 P.O., 80x 117
 Rockford, It. 61105
 815-968-0747
 800-874-3723

13219 (screw cap)

b. Altech Associates, Inc. 95321 (screw cap)
 Applied Science Labs
 2051 Waukegan Rd.
 Deerfield, IL 60015
 312-948-8600

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APPENDIX E (Continued)

800-255-8324

E-8. Ghost Wipes™.

Order From

Catalog Number

Environmental Express SC4200 490 Wando Park Blvd. Mt. Pleasant, SC 29484 1-800-340-5319

E-7. Ghost Wipe™ Containers

Order From

Catalog Number

Environmental Express SC499 490 Wando Park Blvd. Mt. Pleasant, SC 29464 1-800-343-5319

E-8. Plastic ziplock bags can be obtained through the Army logistics system. Many sizes are available. Contact your supporting logistics branch for assistance.

E-9. Distilled water can be purchased at larger grocery stores, usually by the gallon, at a cost of approximately \$1.26. Deionized water can be obtained at local and state water labs or a hospital.

APPENDIX F EXAMPLES OF COMPUTATION OF LEAD LEVELS FROM WIPE SAMPLE RESULTS

Sample results will be returned in the form of micrograms. The results must be converted to micrograms per square foot. This can be accomplished by following the examples listed below:

$$\frac{76 \times 929}{100} = \frac{69675}{100} = 696.7549/sq /4$$

ug - Microgram

Cm2 - Centimeters squared

Sq ft - Square foot

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APPENDIX G SURFACE WIPE SAMPLING SHEET

· . In	dustrial Hy	glene Surfac	e Wipe San	ple Sheet	
Return Address			Point of Contact (name & phone #)		
•			Samples Collected By		
Sampled Facility		он у	State	Location (bidg/area)	
Description of Opera	Description of Operation			Date Shipped	
Analysia Desired			<u> </u>		_
Sampling Data					
Lab Uso Only	Sample#	Results	_	Remarks	_
- 			<u> </u>		
····					
					
				·	
	··		- 		-
	- -				
					_
					- -
					_
Comments to Lab:	<u></u>	<u> </u>			_
COmments to Ead:					

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APPENDIX H AIR SAMPLING SHEET

Return Address		rgiene Air Sample Sheet Point of Contact (name/phone #)				
		Samples Collected By				
Sampled Facility City		Stale	Location (bid)	g/area)		
Description (f Operation	Persons Exposed	Hre/Day	Mothod of Collection Hrs/Day		
Analysis De	slrod					
Sampling D	ala					
Sainplo No.						
Pump No.						В
Time On						L
Timo Olí	.,	1				A
Fotal Time (min)						N
Flow Rate LPM)						K
Yoluma (liters)				·		<u>-</u> .
IBIAG						<u>-</u>
Employee Name/ID						
Laboratory No.			<u> </u>			
Calibration						
Pump No.	Pre-Uso Cali	bratton (LPM) Post-Use	Rotameter	Solling		
						
			<u> </u>		··-	
		[
			<u></u>		<u>-</u>	
		 · ·	·	— — †·-		
Name of Calls	rator — –	 	Pump Mane	ufacturer	_	·
			!	_ _		·

NGB-AVS-9G

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APPENDIX I ABBREVIATIONS AND TERMS

Section I Abbreviations

ARNG

Army National Guard

BUN

Blood troa nitrogen

ÐΖ

Breathing zone

CBC

Complete blood count

CFR

Code of Federal Regulations

cm

Contimeter

DHEW

Department of Health, Education and Welfare

FP4

Environmental Protection Agency

GA

,General area

OMPF

Official Military Personnel File

OPF

Official Personnel Fife

OSHA

Occupational Safety and Health Administration

TCLP

Toxic Characteristic Leaching Procedures

ug/sq ft

Micrograms per square fool

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APPENDIX I (Continued)

Section il Terms

HEPA

Refers to high efficiency particulate air filter systems capable of capturing up to 99.97 percent of particles 0.3 microns in size or larger.

Lead-Contaminated Range

It is assumed that all indoor ranges, which have been fired in, are lead-contaminated.

Wipe Sample

The terms wipe, swipe, or smoar samples are use synonymously to describe the techniques utilized for assessing lead surface contamination.

NATIONAL GUARD BUREAU ARMY NATIONAL GUARD REGION NORTH INDUSTRIAL HYGIENE OFFICE ATTN: NGB-ARS-IHNE 301-IH OLD BAY LANE HAVRE DE GRACE, MD 21078

NGB-ARS-IHNE (40-5f)

16 April 2008

EXECUTIVE SUMMARY
INDUSTRIAL HYGIENE EVALUATION
INDOOR FIRING RANGE (IFR)
FLEMINGTON, NJ
20 MARCH 2008

- 1. PURPOSE. The purpose of the survey was to evaluate occupational health and safety hazards associated with lead dust contamination of equipment stored at the inactive Flemington IFR.
- 2. CONCLUSIONS. Potential lead hazard risks associated with the equipment stored in the inactive Flemington IFR appeared to be moderately controlled. Implementation of the recommendations in this report will contribute to the healthfulness of the work environment of this facility.
- FINDINGS AND RECOMMENDATIONS.
- a. <u>Decontamination Requirements</u>. A total of 10 wipe samples were collected near and inside the IFR. Of the 10 wipe samples collected, four were over the recommended 200 μ g/ft² standard. Clean and decontaminate the IFR in accordance with (IAW) National Guard Pamphlet (NG Pam) 420-15, Section 3-2, (RAC 3)
- b. <u>Stored Materials</u>. Multiple items were stored in both the IFR and Plenum Area (Appendix C, Figures C-1 thru C-11). (RAC 3)
- (1) Cleaning Requirements. Clean all non-porous stored items with either a high efficiency particulate air (HEPA) filter vacuum or using the wet wipe method presented in NGR 420-15, Section 3-2 (h). {RAC 4}
- (2) Porous Materials. Remove all porous materials and discard them as hazardous waste IAW the local, state, and federal requirements. (RAC 4)

INDUSTRIAL HYGIENE EVALUATION INDOOR FIRING RANGE (IFR) FLEMINGTON, NJ 20 MARCH 2008

REFERENCES.

- a. Department of Defense Instruction (DODI) 6055.1, Department of Defense (DOD) Safety and Occupational Health (SOH) Program, 19 August 1998.
- National Guard Pamphlet (NG Pam) 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006.
- 2. PURPOSE. The purpose of the survey was to evaluate occupational health and safety hazards associated with lead dust contamination of equipment stored at the inactive Flemington IFR.

3. GENERAL.

- a. Survey Personnel. This survey was conducted 20 March 2008 by 1LT Non-Responsive and 1LT Non-Responsive both Environmental Engineers from the United States Army Center for Health Promotion and Preventive Medicine-North (USACHPPM-North), Fort George G. Meade, Maryland.
- b. <u>Risk Assessment Codes (RACs)</u>. RACs are assigned to recommendations to help quantify risks to personnel and to aid in the establishment of funding priorities for corrective actions. Health RACs are determined using the RAC table from the Department of Defense Instruction (DODI) 6055.1. This table is provided in Appendix A of this report.
- c. <u>Background</u>. CW2 Non-Responsive NJARNG State Occupational Health Manager (SOHM) G-3, requested an evaluation, through the National Guard Bureau (NGB) Region North Industrial Hygiene (IH) Office, of the equipment stored at the inactive Flemington IFR to assess any possible inhalation hazards as a result of lead dust contamination.

METHODOLOGY.

a. <u>Assessment Criteria</u>. The United States Army, through the Department of Defense Instruction 6055.1, Section E3.4.1.2, directs that facilities provide healthful work environments in accordance with the most stringent standards applicable (reference 1a).

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Flemington, New Jersey Army National Guard, 20 March 2008.

b. <u>Methodology</u>. The survey consisted of a visual inspection and a collection of wipe samples. All measurements were collected in accordance with applicable standards.

5. FINDINGS AND DISCUSSION.

Wipe Sampling.

- (1) General. In a compliance instruction letter for lead in the construction industry, OSHA has provided a level of acceptable lead loading on surfaces for non-lead work areas of 200 micrograms per square foot (µg/ft²). While not legally applicable, this serves as a useful guideline (Reference 1b).
- (2) Wipe Sample Results. A total of 10 wipe samples were collected near and inside the IFR. Table B-1, located in an Appendix B, shows the location of each wipe sample and the corresponding results. Any values found to be below the detectable limit were assumed to be absent of lead contamination. Of the 10 wipe samples taken, four were over the recommended 200 µg/ft² standard.
- b. Stored Materials. Multiple items were stored in both the IFR itself and the Plenum Area behind it (Appendix C, Figures C-1 thru C-11). IAW NGR 420-15, Section 3-3 (c), every attempt should be made to clean and reclaim items since disposing of equipment, as hazardous waste is costly and wasteful (reference 1b). It is recommended that items be cleaned with either a high efficiency particulate air (HEPA) filter vacuum or using the wet wipe method presented in NGR 420-15, Section 3-2 (h). Excluded from this are, any types of porous items, such as office partitions and carpet that were present during firing. These items should be considered grossly contaminated and be discarded as hazardous waste IAW the local, state, and federal requirements.

RECOMMENDATIONS.

a. <u>Decontamination Requirements</u>. Clean and decontaminate the IFR in accordance with (IAW) NG Pam 420-15, Section 3-2 (reference 1b). **(RAC 3)**

b. Stored Materials.

(1) Cleaning Requirements. Clean all non-porous stored items with either a high efficiency particulate air (HEPA) filter vacuum or using the wet wipe method presented in NGR 420-15, Section 3-2 (h) (reference 1b), (RAC 4)

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Flemington, New Jersey Army National Guard, 20 March 2008.

- (2) Porous Materials. Remove all porous materials and discard them as hazardous waste IAW the local, state, and federal requirements (reference 1b). (RAC 4)
- 7. CONCLUSIONS. Potential lead hazard risks associated with the equipment stored in the inactive Flemington IFR appeared to be moderately controlled. Implementation of the recommendations in this report will contribute to the healthfulness of the work environment of this facility.

8. ADDITIONAL ASSISTANCE. Point of contact for this action and other industrial hygiene related topics is Ms. Non-Responsive Regional Industrial Hygienist, (410) 942-0273 ext 3.

1LT, MS Environmental Engineer

on-Responsiv

APPROVED BY:

Non-Responsive

NGB Regional Industrial Hygienist

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Flemington, New Jersey Army National Guard, 20 March 2008.

APPENDIX A DERIVING RISK ASSESSMENT CODES (RACs) FOR HEALTH HAZARDS

1. HEALTH HAZARD SEVERITY CODE (HHSC). 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

AER		Exposure Conditions			
POSSIBLE?	<al< th=""><th>Occasionally > AL Always < OEL</th><th>>AL <=0EL</th><th>>OEL</th></al<>	Occasionally > AL Always < OEL	>AL <=0EL	>OEL	
NO	0	3	5	7	
YES	1-2	4	6	8	

AER = Alternate exposure route, such as skin absorption, ingestion.

AL = Action level, DoD component threshold that triggers surveillance actions, such as microWatts/cm², dB, parts per million.

OEL = Occupational Exposure Limit, DoD exposure limit, such as Threshold Limit Value and Permissible Exposure Limit.

b. Medical Effects Points Assessed.

Condition	Points
No medical effect, such as nuisance noise and nuisance odor	0
Temporary reversible illness requiring supportive treatment, such as eye irritation and sore throat	1-2
Temporary reversible illness with a variable but limited period of disability, such as metal fume fever	3-4
Permanent, non-severe 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

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Flemington, New Jersey Army National Guard, 20 March 2008.

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	1
9-12	ll II
5-8	111
0-4	IV

- 2. ILLNESS PROBABILITY CODE (IPC). Using the following guides to assess points, determine the IPC for health hazards. The IPC is a function of the duration of exposure and the number of exposed personnel.
 - a. Duration of Exposure Points Assessed

Type of	Exposure Duration			
Exposure	1-8 hr/wk	>8hr/wk, not continuous	Continuous	
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

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Flemington, New Jersey Army National Guard, 20 March 2008.

c. Determine the IPC for health hazards by totaling the points assessed and using the following guide:

Total Points (sum of A and B, above)	IPG
14-16	Α
10-13	В
5-9	O
<5	ם

3. Determine the RAC for health hazards by using the following matrix to measure health hazard severity and mishap probability factors.

•	ILLNESS	PROBABIL	LITY COD	E
SEVERITY CODE	А	B	c	D
. 1	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

From Table 2 of Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health Program, 19 August 1998 (reference 1).

4. RAC DESCRIPTOR

DESCRIPTOR	
CRITICAL	
SERIOUS	
MODERATE	
· MINOR ···	•
NEGLIGIBLE	
	· MINOR ···

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Flemington, New Jersey Army National Guard, 20 March 2008.

APPENDIX B WIPE SAMPLE RESULTS

Table B-1. Lead Wipe Sample Results for Flemington IFR 20 March 2008

Sample Number	' location		Std. µg/ ft²	Met Std.
1B	IFR Floor near table next to drain	<110	200	Yes
2B	Top of Left Side Filing Cabinet	<110	200	Yes
3B	IFR Floor near left wall	760	200	No
4B	IFR Bullet Trap	14000	200	No
5B	IFR Floor near right wall halfway down range	<110	200	Yes
6B	IFR Plenum on Floor	<110	200	Yes
7B	Table Top near Fire line	490	200	No
8B	Top of Pepsi Machine	150	200	Yes
9B	IFR Floor against right wall	810	200	No
10B	IFR Floor drain	<110	200	Yes

a: Results are in micrograms per square foot.

< indicates the value is below the detectable limit

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May, 2018

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Flemington, New Jersey Army National Guard, 20 March 2008.

APPENDIX C Photographs



Figure C-1. Flemington IFR being used as a storage area for a book sale.

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Flemington, New Jersey Army National Guard, 20 March 2008.

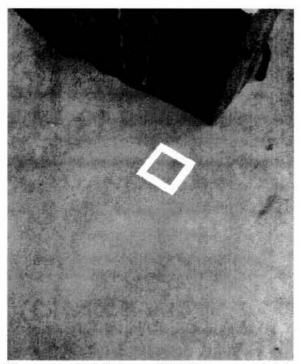


Figure C-2. Wipe sample taken on IFR Floor near table next to drain

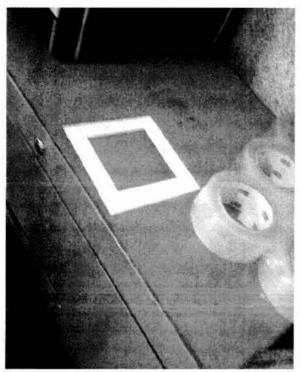


Figure C-3. Wipe sample taken on Top of Left Side Filing Cabinet

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May, 2018

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Flemington, New Jersey Army National Guard, 20 March 2008.

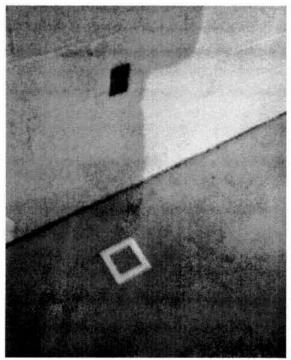


Figure C-4. Wipe sample taken on IFR Floor near left wall



Figure C-5. Wipe sample taken on IFR Bullet Trap

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Flemington, New Jersey Army National Guard, 20 March 2008.



Figure C-6. Wipe sample taken on IFR Floor near right wall, halfway down range



Figure C-7. Wipe sample taken in IFR Plenum Area on Floor

May, 2018

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Flemington, New Jersey Army National Guard, 20 March 2008.



Figure C-8. Wipe sample taken on Table Top near Fire line



Figure C-9. Wipe sample taken on top of Pepsi Machine located inside range.

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May, 2018

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Flemington, New Jersey Army National Guard, 20 March 2008.

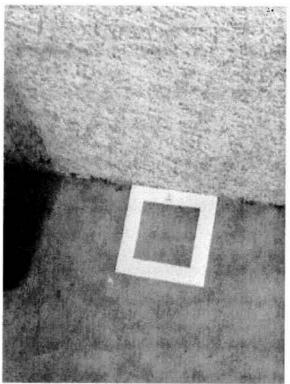


Figure C-10. Wipe sample taken on IFR Floor against right wall

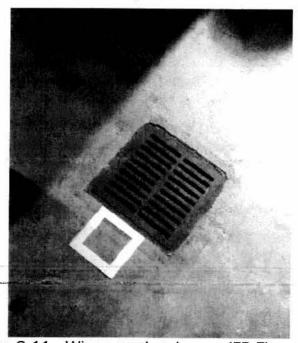


Figure C-11. Wipe sample taken on IFR Floor drain

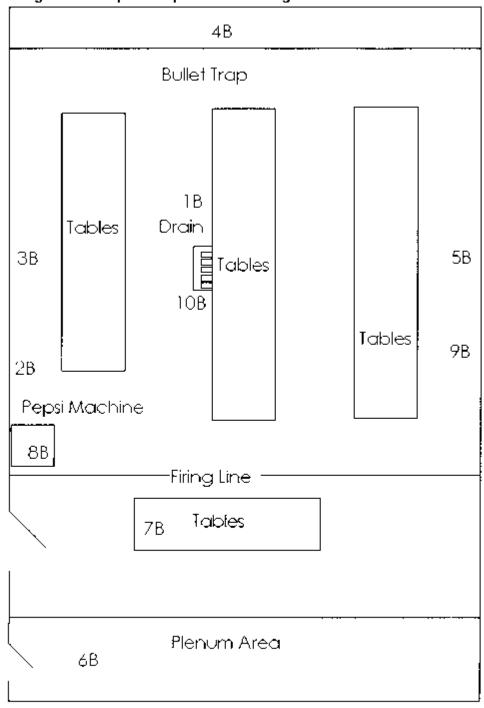


Figure 1. Diagram of Wipe Samples for Flemington IFR 20 March 2008

NATIONAL GUARD BUREAU ARMY NATIONAL GUARD REGION NORTH INDUSTRIAL HYGIENE OFFICE ATTN: NGB-ARS-IHNE 301-IH OLD BAY LANE HAVRE DE GRACE, MD 21078

NGB-ARS-IHNE (40-5f)

16 April 2008

EXECUTIVE SUMMARY
INDUSTRIAL HYGIENE EVALUATION
INDOOR FIRING RANGE (IFR)
HACKETTSTOWN, NJ
20 MARCH 2008

- 1. PURPOSE. The purpose of the survey was to evaluate occupational health and safety hazards associated with lead dust contamination of equipment stored at the inactive Hackettstown IFR.
- 2. CONCLUSIONS. Potential lead hazard risks associated with the equipment stored in the inactive Hackettstown IFR appeared to be moderately controlled. Implementation of the recommendations in this report will contribute to the healthfulness of the work environment of this facility.
- 3. FINDINGS AND RECOMMENDATIONS.
- a. Decontamination Requirements. A total of 10 wipe samples were collected near and inside the IFR. Of the 10 wipe samples collected, six were over the recommended 200 μ g/ft² standard. Clean and decontaminate the IFR in accordance with (IAW) National Guard Pamphlet (NG Pam) 420-15, Section 3-2, (RAC 3)
- b. Stored Materials. Multiple items were stored in both the IFR and Plenum Area (Appendix C, Figures C-1 thru C-11). (RAC 3)
- (1) Cleaning Requirements. Clean all non-porous stored items with either a high efficiency particulate air (HEPA) filter vacuum or using the wet wipe method presented in NGR 420-15, Section 3-2 (h). (RAC 4)
- (2) Porous Materials. Remove all porous materials and discard them as hazardous waste IAW the local, state, and federal requirements. (RAC 4)

INDUSTRIAL HYGIENE EVALUATION INDOOR FIRING RANGE (IFR) HACKETTSTOWN, NJ 20 MARCH 2008

REFERENCES.

- a. Department of Defense Instruction (DODI) 6055.1, Department of Defense (DOD) Safety and Occupational Health (SOH) Program, 19 August 1998.
- b. National Guard Pamphlet (NG Pam) 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006.
- 2. PURPOSE. The purpose of the survey was to evaluate occupational health and safety hazards associated with lead dust contamination of equipment stored at the inactive Hackettstown IFR.

GENERAL.

- a. Survey Personnel. This survey was conducted 20 March 2008 by 1LT Non-Responsive and 1LT Non-Responsive both Environmental Engineers from the United States Army Center for Health Promotion and Preventive Medicine-North (USACHPPM-North), Fort George G. Meade, Maryland.
- b. <u>Risk Assessment Codes (RACs)</u>. RACs are assigned to recommendations to help quantify risks to personnel and to aid in the establishment of funding priorities for corrective actions. Health RACs are determined using the RAC table from the Department of Defense Instruction (DODI) 6055.1. This table is provided in Appendix A of this report.
- c. <u>Background</u>. CW2 NON-Responsive NJARNG State Occupational Health Manager (SOHM) G-3, requested an evaluation, through the National Guard Bureau (NGB) Region North Industrial Hygiene (IH) Office, of the equipment stored at the inactive Hackettstown IFR to assess any possible inhalation hazards as a result of lead dust contamination.

4. METHODOLOGY.

a. Assessment Criteria. The United States Army, through the Department of Defense Instruction 6055.1, Section E3.4.1.2, directs that facilities provide healthful work environments in accordance with the most stringent standards applicable (reference 1a).

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Hackettstown, New Jersey Army National Guard, 20 March 2008,

b. <u>Methodology</u>. The survey consisted of a visual inspection and a collection of wipe samples. All measurements were collected in accordance with applicable standards.

FINDINGS AND DISCUSSION.

a. Wipe Sampling.

- (1) General. In a compliance instruction letter for lead in the construction industry, OSHA has provided a level of acceptable lead loading on surfaces for non-lead work areas of 200 micrograms per square foot $\langle \mu g/ft^2 \rangle$. While not legally applicable, this serves as a useful guideline (Reference 1b).
- (2) Wipe Sample Results. A total of 10 wipe samples were collected near and inside the IFR. Table B-1, located in an Appendix B, shows the location of each wipe sample and the corresponding results. Any values found to be below the detectable limit were assumed to be absent of lead contamination. Of the 10 wipe samples taken, six were over the recommended 200 μ g/ft² standard.
- b. Stored Materials. Multiple items were stored in both the (FR itself and Plenum Area behind it (Appendix C, Figures C-1 thru C-11). |AW NGR 420-15, Section 3-3 (c), every attempt should be made to clean and reclaim items since disposing of equipment, as hazardous waste is costly and wasteful (reference 1b). It is recommended that items be cleaned with either a high efficiency particulate air (HEPA) filter vacuum or using the wet wipe method presented in NGR 420-15, 3-2 (h). Excluded from cleaning are, any types of porous items, such as office partitions and carpet that were present during firing. These items should be considered grossly contaminated and be discarded as hazardous waste IAW the local, state, and federal requirements.

6. RECOMMENDATIONS.

a. <u>Decontamination Requirements</u>. Clean and decontaminate the IFR IAW NG Pam 420-15, Section 3-2 (reference 1b). (RAC 3)

b. Stored Materials.

(1) Cleaning Requirements. Clean all non-porous stored items with either a "" high efficiency particulate air (HEPA) filter vacuum or using the wet wipe method presented in NGR 420-15, Section 3-2 (h) (reference 1b). (RAC 4)

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SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Hackettstown, New Jersey Army National Guard, 20 March 2008.

- (2) Porous Materials. Remove all porous materials and discard them as hazardous waste IAW the local, state, and federal requirements (reference 1b). (RAC 4)
- 7. CONCLUSIONS. Potential lead hazard risks associated with the equipment stored in the inactive Hackettstown IFR appeared to be moderately controlled. Implementation of the recommendations in this report will contribute to the healthfulness of the work environment of this facility.

8. ADDITIONAL ASSISTANCE. Point of contact for this action and other industrial hygiene related topics is Ms. Non-Responsive Regional Industrial Hygienist, (410) 942-0273 ext 3.

11 T. MC

1LT, MS Environmental Engineer

APPROVED BY:

Non-Responsive

NGB Regional Industrial Hygienist

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Hackettstown, New Jersey Army National Guard, 20 March 2008.

APPENDIX A DERIVING RISK ASSESSMENT CODES (RACs) FOR HEALTH HAZARDS

1. HEALTH HAZARD SEVERITY CODE (HHSC). 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

AER POSSIBLE?		Exposure Conditions				
	<al< th=""><th>Occasionally > AL Always < OEL</th><th>>AL <=0EL</th><th>> OEL</th></al<>	Occasionally > AL Always < OEL	>AL <=0EL	> OEL		
NO	0	3	5	7		
YES	1-2	4	6	8		

AER = Alternate exposure route, such as skin absorption, ingestion.

AL = Action level, DoD component threshold that triggers surveillance actions, such as microWatts/cm², dB, parts per million.

OEL = Occupational Exposure Limit, DoD exposure limit, such as Threshold Limit Value and Permissible Exposure Limit.

b. Medical Effects Points Assessed.

Condition	Points
No medical effect, such as nuisance noise and nuisance odor	0
Temporary reversible illness requiring supportive treatment, such as eye irritation and sore throat	1-2
Temporary reversible illness with a variable but limited period of disability, such as metal fume fever	3-4
Permanent, non-severe 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

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Hackettstown, New Jersey Army National Guard, 20 March 2008.

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	1
9-12	II
5-8	111
0-4	IV

- 2. ILLNESS PROBABILITY CODE (IPC). Using the following guides to assess points, determine the IPC for health hazards. The IPC is a function of the duration of exposure and the number of exposed personnel.
 - a. Duration of Exposure Points Assessed

Type of <i>Exposure</i>	Exposure Duration			
	1-8 hr/wk	>8hr/wk, not continuous	Continuous	
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

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Hackettstown, New Jersey Army National Guard, 20 March 2008.

c. Determine the IPC for health hazards by totaling the points assessed and using the following guide:

Total Points (sum of A and B, above)	IPC
14-16	Α
10-13	В
5-9	С
< 5	D

3. Determine the RAC for health hazards by using the following matrix to measure health hazard severity and mishap probability factors.

II .	ILLNESS PROBABILITY CODE				
SEVERITY CODE	A	В	С	D	
ı	1	1	2	3	
II.	1	2	3	4	
UI	2	3	4	5	
IV	3	4	5	5	

From Table 2 of Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health Program, 19 August 1998 (reference 1).

4. RAC DESCRIPTOR

RAC	DESCRIPTOR	
1	CRITICAL	
2	SERIOUS	
3	MODERATE	
-4 · · ·	" MINOR:	
5	NEGLIGIBLE	

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Hackettstown, New Jersey Army National Guard, 20 March 2008.

APPENDIX B WIPE SAMPLE RESULTS

Table B-1. Lead Wipe Sample Results for Hackettstown IFR 20 March 2008

Sample Number	Location	Results µg/ft² a	Std. µg/ ft²	Met Std.
1D	IFR Bullet Trap	4800	200	No
2D	IFR Floor drain	2700	200	No
3D	IFR Top of yellow filing cabinet along right wall	<110	200	Yes
4D	IFR Top of M16 rack	<110	200	Yes
5D	IFR Plenum on Floor	230	200	No
6D	Floor in front of entrance door to IFR	330	200	No
7D	Folding Table at firing line	4300	200	No
8D	Top of CPU along left wall of IFR	<110	200	Yes
9D	Top of black storage box along left wall	<110	200	Yes
10D	IFR Floor near Bullet Trap along left wall	6600	200	No

a: Results are in micrograms per square foot.

< indicates the value is below the detectable limit

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Hackettstown, New Jersey Army National Guard, 20 March 2008.

APPENDIX C Photographs

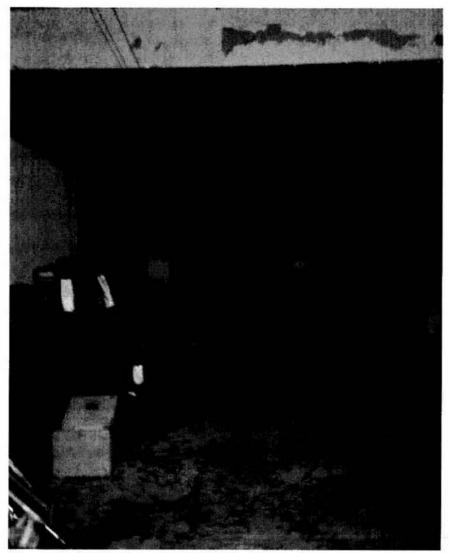


Figure C-1. Hackettstown IFR being used as a storage area.

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SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Hackettstown, New Jersey Army National Guard, 20 March 2008.

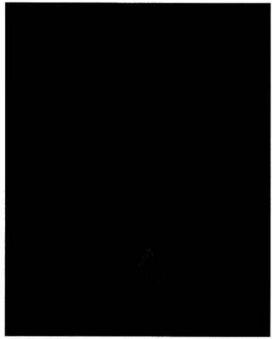


Figure C-2. Wipe sample taken on IFR Bullet Trap

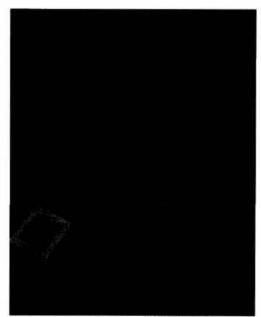


Figure C-3. Wipe sample taken on IFR Floor next to drain

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May, 2018

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Hackettstown, New Jersey Army National Guard, 20 March 2008.

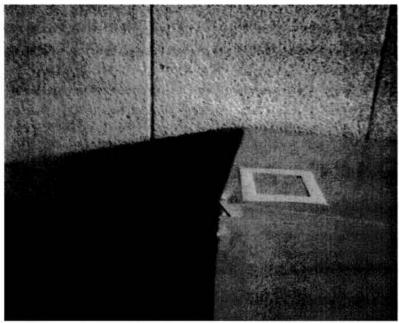


Figure C-4. Wipe sample taken on Top of Yellow Filing Cabinet along right wall



Figure C-5. Wipe sample taken on IFR M-16 Rack

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May, 2018

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Hackettstown, New Jersey Army National Guard, 20 March 2008.



Figure C-6. Wipe sample taken in IFR Plenum Area on Floor



Figure C-7. Wipe sample taken on Floor in front of entrance door to IFR

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Hackettstown, New Jersey Army National Guard, 20 March 2008.

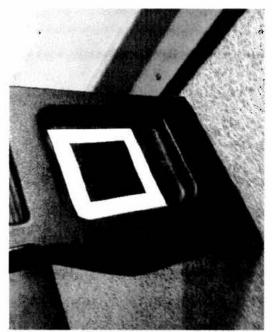


Figure C-8. Wipe sample taken on the folding table at the firing line



Figure C-9. Wipe sample taken on top of CPU along left wall of IFR.

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Hackettstown, New Jersey Army National Guard, 20 March 2008.



Figure C-10. Wipe sample taken on top of black storage box along left wall

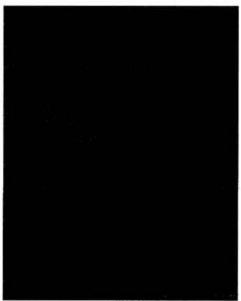
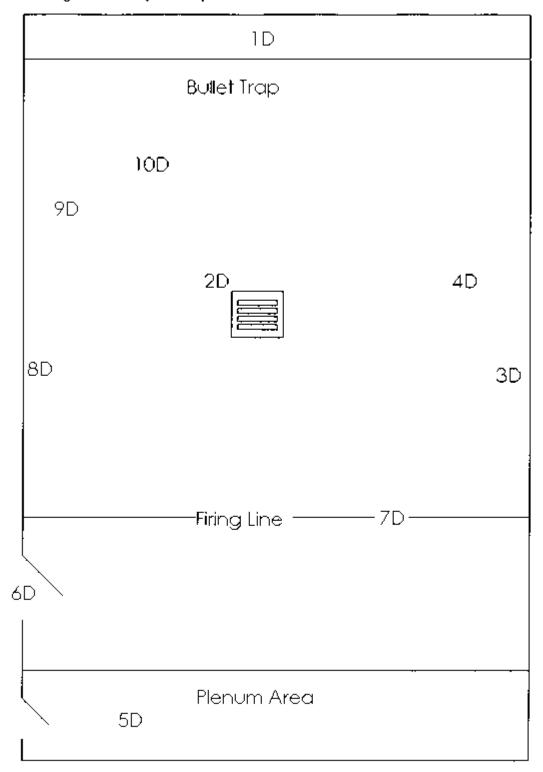


Figure C-11. Wipe sample taken on IFR Floor-near Bullet Trap along left wall-

May, 2018

Figure 1. Diagram of Wipe Samples for Hackettstown IFR 20 March 2008



NATIONAL GUARD BUREAU ARMY NATIONAL GUARD REGION NORTH INDUSTRIAL HYGIENE OFFICE ATTN: NGB-ARS-IHNE 301-IH OLD BAY LANE HAVRE DE GRACE, MD 21078

NGB-ARS-IHNE (40-5f)

16 April 2008

EXECUTIVE SUMMARY
INDUSTRIAL HYGIENE EVALUATION
INDOOR FIRING RANGE (IFR)
PORT MURRAY, NJ
20 MARCH 2008

- 1. PURPOSE. The purpose of the survey was to evaluate occupational health and safety hazards associated with lead dust contamination of equipment stored at the inactive Port Murray IFR.
- 2. CONCLUSIONS. Potential lead hazard risks associated with the equipment stored in the inactive Port Murray IFR appeared to be moderately controlled. Implementation of the recommendations in this report will contribute to the healthfulness of the work environment of this facility.
- FINDINGS AND RECOMMENDATIONS.
- a. <u>Decontamination Requirements</u>. A total of 10 wipe samples were collected near and inside the IFR. Of the 10 wipe samples collected, seven were over the recommended 200 µg/ft² standard. Clean and decontaminate the IFR in accordance with (IAW) National Guard Pamphlet (NG Pam) 420-15, Section 3-2, (RAC 3)
- b. <u>Stored Materials</u>. Multiple items were stored in both the IFR and Plenum (Appendix C, Figures C-1 thru C-11). (RAC 3)
- (1) Cleaning Requirements. Clean all non-porous stored items with either a high efficiency particulate air (HEPA) filter vacuum or using the wet wipe method presented in NGR 420-15, Section 3-2 (h). (RAC 4)
- (2) Porous Materials. Remove all porous materials and discard them as hazardous waste IAW the local, state, and federal requirements. (RAC 4)

INDUSTRIAL HYGIENE EVALUATION INDOOR FIRING RANGE (IFR) PORT MURRAY, NJ 20 MARCH 2008

1. REFERENCES.

- a. Department of Defense Instruction (DODI) 6055.1, Department of Defense (DOD) Safety and Occupational Health (SOH) Program, 19 August 1998.
- b. National Guard Pamphlet (NG Pam) 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006.
- PURPOSE. The purpose of the survey was to evaluate occupational health and safety hazards associated with lead dust contamination of equipment stored at the inactive Port Murray IFR.

GENERAL.

- a. Survey Personnel. This survey was conducted 20 March 2008 by 1LT Non-Responsive and 1LT Non-Responsive, both Environmental Engineers from the United States Army Center for Health Promotion and Preventive Medicine-North (USACHPPM-North), Fort George G. Meade, Maryland.
- b. <u>Risk Assessment Codes (RACs)</u>. RACs are assigned to recommendations to help quantify risks to personnel and to aid in the establishment of funding priorities for corrective actions. Health RACs are determined using the RAC table from the Department of Defense Instruction (DODI) 6055.1. This table is provided in Appendix A of this report.
- c. <u>Background</u>. CW2Non-Responsive NJARNG State Occupational Health Manager (SOHM) G-3, requested an evaluation, through the National Guard Bureau (NGB) Region North Industrial Hygiene (IH) Office, of the equipment stored at the inactive Port Murray IFR to assess any possible inhalation hazards as a result of lead dust contamination.

METHODOLOGY.

a. Assessment Criteria. The United States Army, through the Department of Defense Instruction 6055.1, Section E3.4.1.2, directs that facilities provide healthful work environments in accordance with the most stringent standards applicable (reference 1a).