

MASSACHUSETTS ARMY NATIONAL GUARD
JOINT FORCE HEADQUARTERS, WILFORD, MA
CONSTRUCTION AND FACILITIES MAINTENANCE OFFICE

CHCIOPEE - 25A70

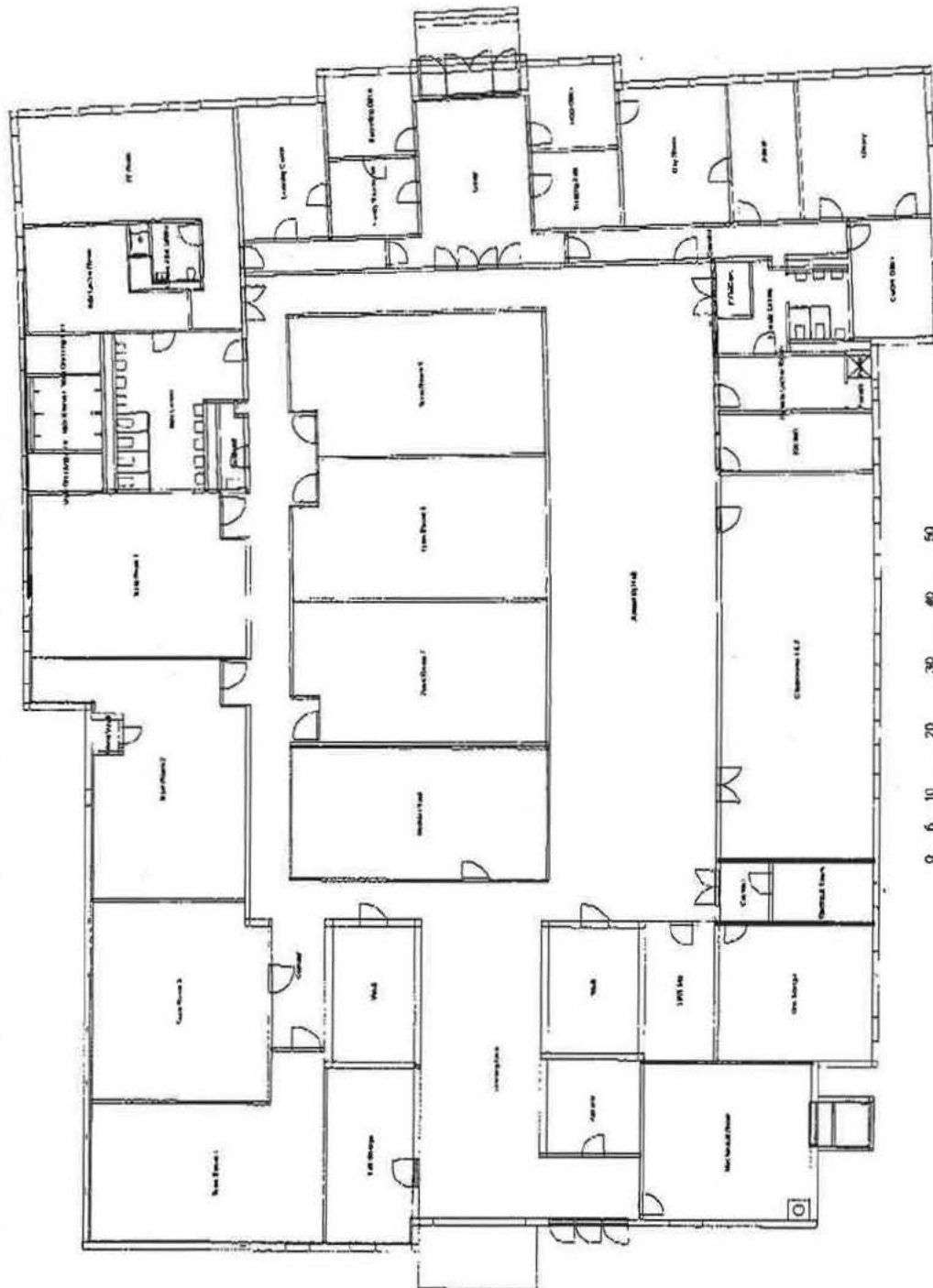
Floor Plan



18 NGB FOIA Reading Room

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (MA)
Released by National Guard Bureau
Page 869 of 3473



0 5 10 20 30 40 50
Feet
0 5 10 20
Meters

APPENDIX B
PERSONNEL LIST

Non-Responsive



APPENDIX C

ANALYTICAL RESULTS



CERTIFICATE OF ANALYSIS



Client:	National Guard Bureau	Job Name:	MA ARNG	Chain Of Custody:	515979
Address:	301-IH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	Chicopee RC	Date Submitted:	5/28/2013
Attention:	Non-Responsive	Job Number:	39743799.00011	Person Submitting:	Non-Responsive
		P.O. Number:	W912K6-09-A-0003	Date Analyzed:	6/3/2013
				Report Date:	6/4/2013

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 (ft ²)	Reporting Limit	Total ug	Final Result	Comments
13065740	Chicopee RC W-01	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13065741	Chicopee RC W-02	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13065742	Chicopee RC W-03	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13065743	Chicopee RC W-04	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13065744	Chicopee RC W-05	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13065745	Chicopee RC W-06	Flame	Wipe	****	0.108	110 ug/ft ²	360	3400 ug/ft ²	
13065746	Chicopee RC W-07	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13065747	Chicopee RC W-08	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13065748	Chicopee RC W-09	Flame	Wipe	****	0.108	110 ug/ft ²	14	130 ug/ft ²	
13065749	Chicopee RC W-10	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13065750	Chicopee RC TB-W	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.



CERTIFICATE OF ANALYSIS



Client:	National Guard Bureau	Job Name:	MA ARNG	Chain Of Custody:	515979
Address:	301-IH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	Chicopee RC	Date Submitted:	5/28/2013
		Job Number:	39743799.00011	Person Submitting:	Non-Responsive
		P.O. Number:	W912K6-09-A-0003	Date Analyzed:	6/3/2013
Attention:	Non-Responsive			Report Date:	6/4/2013

Summary of Atomic Absorption Analysis for Lead

Page 2 of 2

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Total ug	Final Result	Comments
Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm) %Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb) Note: All samples were received in good condition unless otherwise noted. Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result. Air and Wipe results are not corrected for any blank results Final results for air and wipe samples are based on client supplied information nor verified by this laboratory. All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.							See QC Summary for analytical results of quality control samples associated with these samples.		
Analysis							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non-Responsive		
							Non		

**AMA Analytical Services, Inc.**

Focused on Results www.amalab.com

AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)

4475 Forbes Blvd. • Lanham, MD 20706

(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY(Please Refer To This
Number For Inquires)

515979

Mailing/Billing Information:

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

Submittal Information:

1. Job Name: MA JABNG
2. Job Location: Chicopee RC
3. Job #: 39743799.00011 PO #: MA12K6-09-A-0022
4. Contact Person: Non-Responsive
5. Submitted By: Non-Responsive

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

AFTER HOURS (must be pre-scheduled)		NORMAL BUSINESS HOURS		RESULTS REQUIRED BY NOON (Every Attempt Will Be Made to Accommodate)	
<input type="checkbox"/> Immediate	Date Due: _____	<input type="checkbox"/> Immediate	<input type="checkbox"/> 3 Day	<input type="checkbox"/> Immediate	<input type="checkbox"/> 3 Day
<input type="checkbox"/> 24 Hours	Time Due: _____	<input type="checkbox"/> Next Day	<input checked="" type="checkbox"/> 5 Day +	<input type="checkbox"/> Next Day	<input type="checkbox"/> 5 Day +
Comments: _____		Date Due: <u>05/13</u>		Date Due: _____	

Asbestos Analysis**PCM Air** - Please Indicate Filter Type:

- ☐ NIOSH 7400 (QTY) _____
☐ Fiberglass (QTY) _____

TEM Air - Please Indicate Filter Type:

- ☐ AHERA (QTY) _____
☐ NIOSH 7402 (QTY) _____
☐ Other (specify) _____ (QTY) _____

PLM Bulk

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

MISC

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

TEM Bulk

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

TEM Dust

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

TEM Water

- ☐ Qual. (pres/abs) (QTY) _____
☐ ELAP 198.2/EPA 100.2 (QTY) _____
☐ EPA 100.1 (QTY) _____

☒ All samples received in good condition unless otherwise noted.
TEM Water samples _____ °C

Miscellaneous Analysis

- ☐ Pb Paint Chip (QTY) _____
☒ Pb Dust Wipe (wipe type Gest) (QTY) 11
☐ Pb Air (QTY) _____
☐ Pb Soil/Solid (QTY) _____
☐ Pb TCLP (QTY) _____
☐ Drinking Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY) _____
☐ Waste Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY) _____
☐ Pb Furnace (Media _____) (QTY) _____

Biological Analysis

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

CLIENT ID		SAMPLE INFORMATION		ANALYSIS												CLIENT CONTACT		
NUMBER		IDENTIFICATION		VOLUME (LITERS)	WIPER AREA	TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	WATER	SPORE TRAP	TAPE	SWAB	(LABORATORY STAFF ONLY)
Chicopee RC		W-01		5/29/13	100 cm ²								X					Date/Time: _____ Contact: _____ By: _____
Chicopee RC		W-02											X					
Chicopee RC		W-03											X					
Chicopee RC		W-04											X					
Chicopee RC		W-05											X					Date/Time: _____ Contact: _____ By: _____
Chicopee RC		W-06											X					
Chicopee RC		W-07											X					
Chicopee RC		W-08											X					
Chicopee RC		W-09											X					Date/Time: _____ Contact: _____ By: _____
Chicopee RC		W-10											X					
Chicopee RC		TB-W											X					
Chicopee RC													X					

LABORATORY**STAFF ONLY:**

(Custom)

1. Date/Time RCVD: 5/28/13 @ 9:00 Via: RBK By (Print): _____

2. Date/Time Analyzed: _____ / _____ / _____ @ _____ By (Print): _____

3. Results Reported To: _____

4. Comments: 290 685 0001

BEST AVAILABLE COPY

Date: _____ / _____ / _____

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

Released by National Guard Bureau

Page 875 of 3473

APPENDIX D
PHOTOGRAPHIC LOG



PHOTOGRAPHIC LOG



Client Name: MA ARNG- Chicopee RC		Site Location: 371 Armory Dr., Chicopee, MA	Project No. 39743799
Photo No. 1	Date: 5/22/13		
Description: Under charged fire extinguisher with no evidence of monthly inspections.			

Photo No. 2	Date: 5/22/13	
Description: Presumed asbestos-containing floor tile and associated mastic in Classroom/ Mess Hall.		



PHOTOGRAPHIC LOG



Client Name: MA ARNG- Chicopee RC		Site Location: 371 Armory Dr., Chicopee, MA	Project No. 39743799
Photo No. 3	Date: 5/22/13		
Description: Typical office setting and ergonomics, and presumed asbestos-containing floor tiles and associated mastic.			

Photo No. 4	Date: 5/22/13	
Description: Storage areas and passageways, somewhat cluttered at the time of survey.		

APPENDIX E

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 ($\mu\text{g}/\text{ft}^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.
 - a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors ($40 \mu\text{g}/\text{ft}^2$) and windowsills ($250 \mu\text{g}/\text{ft}^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.
 - b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.
 - c. OSHA used to cite a level of $200 \mu\text{g}/\text{ft}^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.
 - d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that $200 \mu\text{g}/\text{ft}^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.
 - e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no

correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:
 - a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under ($40 \mu\text{g}/\text{ft}^2$ on floors and $250 \mu\text{g}/\text{ft}^2$ 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 milligrams per cubic meter (mg/m^3) averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

Prepared For:

National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
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
CONCORD READINESS CENTER
25 EVERETT STREET
CONCORD, MASSACHUSETTS**

Non-Responsive

Office Manager

Non-Responsive

Project Manager

**September 2005
PN: 39741508**

TABLE OF CONTENTS

Section	Page
1.0 SUMMARY	1
2.0 ADMINISTRATIVE AREA	2
2.1 OPERATION DESCRIPTION	2
2.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED	2
2.2.1 Relative Humidity	2
2.2.2 Carbon Dioxide	2
2.2.3 Carbon Monoxide	3
2.2.4 Lighting	3
2.2.5 Lead	4
2.2.6 Asbestos	5
2.3 VENTILATION SYSTEM EVALUATION	5
2.4 NOISE MEASUREMENTS	5
2.5 PERSONAL PROTECTIVE EQUIPMENT	5
2.6 INTERPRETATION OF RESULTS	5
3.0 FORMER FIRING RANGE	7
3.1 OPERATION DESCRIPTION	7
3.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED	7
3.2.1 Lead	7
3.3 VENTILATION SYSTEM EVALUATION	8
3.4 NOISE MEASUREMENTS	8
3.5 PERSONAL PROTECTIVE EQUIPMENT	8
3.6 INTERPRETATION OF RESULTS	8
4.0 DRILL HALL	9
4.1 OPERATION DESCRIPTION	9
4.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED	9
4.2.1 Lead	9
4.3 VENTILATION SYSTEM EVALUATION	10
4.4 NOISE MEASUREMENTS	10
4.5 PERSONAL PROTECTIVE EQUIPMENT	10
4.6 INTERPRETATION OF RESULTS	10
5.0 BOILER ROOM	11
5.1 OPERATION DESCRIPTION	11
5.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED	11
5.2.1 Lead	11
5.3 VENTILATION SYSTEM EVALUATION	11
5.4 NOISE MEASUREMENTS	11
5.5 PERSONAL PROTECTIVE EQUIPMENT	11
5.6 INTERPRETATION OF RESULTS	12
6.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS	13
6.1 CONFINED SPACES	13
6.2 HEARING CONSERVATION	13

6.3	RESPIRATORY PROTECTION	13
6.4	HAZARD COMMUNICATION.....	13
6.5	PERSONAL PROTECTIVE EQUIPMENT.....	13
7.0	REFERENCES.....	14

APPENDICES

Appendix A	Shop Drawing
Appendix B	Personnel List
Appendix C	Hazardous Materials List
Appendix D	Analytical Results
Appendix E	Training Certificates
Appendix F	Photographs
Appendix G	Recommendations for Surface Lead Dust in Armories

FINDINGS AND RECOMMENDATIONS

Findings	Recommendation	Risk Assessment Code
Lighting		
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 (ANSI / IESNA RP-1-04)	RAC 4
Lead		
Peeling lead-based paint was present on the floor in storage room # 9, former firing range, classroom # 33 and office # 29.	Personnel trained in accordance with the OSHA Lead Standard should stabilize peeling lead paint (OSHA 29 CFR 1910.1025(h)(1))	RAC 4
Lead was detected in wipe samples collected from the former firing range in amounts greater than 200 $\mu\text{g}/\text{ft}^2$	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))	RAC 4
Asbestos		
Damaged and missing floor tile was present in training room # 12. Exposed pipe fittings were found in various locations. Exposed tank insulation was found in the boiler room.	Repair or remove asbestos-containing floor tile, tank insulation and pipe fittings. Work should be completed by personnel trained in accordance with federal regulations (OSHA 29 CFR 1910.1001(k)(1))	RAC 3
A site-specific asbestos operations and maintenance plan was available but not implemented.	Implement the site specific asbestos operations and maintenance plan to manage asbestos-containing materials (OSHA 29 CFR 1910.1001(j))	RAC 3
Hazard Communication		
No site specific hazard communication plan available.	Develop a site specific hazard communication plan to manage hazardous materials (OSHA 29 CFR 1910.1200(e))	RAC 4

FINDINGS AND RECOMMENDATIONS (Cont.)

Findings	Recommendation	Risk Assessment Code
Emergency Exit Route Safety		
An emergency exit was obstructed by equipment being stored in the hallway.	Exit routes must be free and unobstructed. No materials or equipment may be placed, either permanently or temporarily, within the exit route (OSHA 29 CFR 1910.37(a)(3)).	RAC 2
An emergency exit sign was not illuminated in the drill hall.	Each exit sign must be illuminated to a surface value of at least five foot candles (54 LUX) by a reliable light source and be a distinctive in color (OSHA 29 CFR 1910.37(b)(6)).	RAC 2

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 25 Everett Street in Concord, Massachusetts 01742. 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 29, 2004, Mr. **Non-Responsive** an industrial hygienist with URS, conducted a site visit to the Readiness Center in Concord, Massachusetts. 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. Mr. **Non-Responsive** of the State of Massachusetts 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 building area contains multiple offices located throughout the building with desks and computer workstations. Computer workstations were assessed during the walkthrough for ergonomic issues. URS was unable to gain access to office #'s 14, 15 and 16 because this unit was deployed at the time of URS' survey. The other rooms had no ergonomic issues to report.

Water marks and visible mold were observed on the ceiling in the mess hall (Photo # 3413) and shower room # 5 (Photo # 3415). The water marks in training room # 12 (Photo # 3417) and storage room # 9 (Photo # 3403) did not appear to exhibit mold growth. However, all of the water stained areas should be addressed.

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 20.4 – 25.1% with an average of 23.8% on the 1st floor. Levels of the 2nd floor ranged from 14.4 – 15.3% with an average of 14.6%. In the basement, levels ranged from 22.2 – 28.4% with an average of 24.7%. These readings were below the recommended range of 30.0% to 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 on the 1st floor ranged from 325 to 398 parts per million (ppm), with an average of 332 ppm. Levels on the 2nd floor ranged from 332 to 385 ppm, with an average of 340 ppm. Basement levels ranged from 328 to 341 ppm, with an average of 332 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 (ANSI / ASHRAE Standard 62.1-2004) recommends that

levels of carbon dioxide be maintained below 700 ppm above background level. Since the average interior reading was 332 ppm an exterior reading was not collected.

2.2.3 Carbon Monoxide

Carbon monoxide levels were also measured in the Readiness Center. The carbon monoxide concentration remained at 0 parts per million (ppm) throughout the survey period for all building areas. The measured carbon monoxide levels were below the ASHRAE (ANSI / ASHRAE Standard 62.1-2004) 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 (ANSI / ASHRAE Standard 62.1-2004) 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 2-1
Lighting Measurements and Recommended Lighting Requirements

Location	Function	Measured Illuminance (lux)	Recommended Illuminance (lux)
Office # 12 – Desk by Drill Shed	Administrative Duties	323	500
Office # 12 – Desk by Front Windows	Administrative Duties	1031	500
Office # 13	Administrative Duties	413	500
Office # 19	Administrative Duties	200	500
Office # 25	Administrative Duties	331	500
Office # 26	Administrative Duties	680	500
Office # 27	Administrative Duties	517	500
Office # 28	Administrative Duties	236	500
Office # 29	Administrative Duties	164	500
Hallway # 4	Accessway	243	30
Hallway #20	Accessway	211	30
Hallway 31	Accessway	663	30

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

2.2.5 Lead

Paint chips were collected in five areas where paint was peeling and sent to AMA Analytical Services, Inc. (AMA) for analysis. Three samples were found to contain lead in a concentration below 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 Location	URS Sample Number	Reporting Limit (% by Weight)	Final Result (% by Weight)
Storage Room # 9	0129-LPC01	0.01	0.017
Storage Room # 9	0129-LPC02	0.01	0.6
Storage Room # 10	0129-LPC04	0.01	0.18
Classroom # 33	0129-LPC07	0.01	1.3
Office # 29	0129-LPC08	0.01	4.4

The analytical report from AMA is contained in Appendix D.

Wipe testing for lead dust 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 (ft ²)	Result (µg/ft ²)	Maximum Safe Surface Contamination Level (µg/ft ²)
Bathroom # 17 – Top of a Table	0129-LW08	1.000	17	200
Office # 12 – Top of a Cabinet	0129-LW09	1.000	130	200
Office # 26 – Top of a File Cabinet	0129-LW10	1.000	31	200
Blank	0129-LWBlank	N/A	<12	200

2.2.6 Asbestos

Some exposed pipe fittings and pipe run insulation were discovered in area # 11 during the walk through inspection (Photos # 3406-07 & 3410). Training room # 12 contained some broken 9"x9" brown floor tile (Photo # 3418) and exposed air cell pipe insulation (Photo # 3416).

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

GENERAL: In general, the administrative area was neat and orderly, except in storage room # 9. This area was in disarray, which created tripping hazards (Photo # 3402). It is recommended that this area be better organized to prevent potential tripping hazards. The fire extinguisher in hallway # 4 was unmarked as to its location (Photo # 33412). Its location needs to be marked so the building occupants may find it in an emergency.

LIGHTING: 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. While work is in progress the administrative area must be lighted by at least the minimum light intensities.

LEAD: Of the five paint chips collected in the administrative area, three were determined to be lead-based. Currently, there are no federal or state regulations that require removal of lead-based paint prior to building demolition or renovation. The U.S. Occupational Safety and Health Administration (OSHA) regulations, 29 CFR 1910.1025 and 29 CFR 1926.62 are designed to protect workers potentially exposed to elevated airborne levels of lead from lead-based paint. URS recommends that personnel trained in accordance with OSHA's lead standard stabilize and make intact building areas with peeling lead-based paint.

ASBESTOS: The floor tile, pipe fittings and pipe insulation were determined to contain asbestos in a concentration greater than one percent from a report of a previous survey conducted by ATC Associates. It is recommended that the damaged tiles (Photo # 3418) be replaced with new, non-asbestos tile. The damaged pipe fittings and insulation should be removed or repaired in a timely manner. The work should be completed by an appropriately trained technician.

MOLD: The water stains on the ceilings could lead to mold problems if not addressed.

3.0 FORMER FIRING RANGE

3.1 Operation Description

The Former 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 Former Firing Range

Sample Location	URS Sample Number	Area Wiped (ft ²)	Result (µg/ft ²)	Maximum Safe Surface Contamination Level (µg/ft ²)
Firing Range-Top of Light Guard	0129-LW01	0.750	15,000	200
Firing Range-Floor-Rear	0129-LW02	1.000	1,500	200
Firing Range-Floor-Center	0129-LW03	1.000	670	200
Firing Range-Floor-Front	0129-LW04	1.000	800	200
Firing Range-Top of Old Exhaust Unit	0129-LW05	1.000	10,000	200
Blank	0129-LWBlank	N/A	<12	200

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
Level of Lead Found in the Air

Sample Location	URS Sample Number	Air Volume (L)	Result (µg/m ³)	OSHA's PEL (µg/m ³)
Former Firing Range	0129-LA02	948	<3.2	50.0
Blank	0129-LA03	0	<3.0	50.0

On the day of the survey, the airborne lead dust level 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 $50.0 \mu\text{g}/\text{m}^3$ averaged over an 8-hour day. The analytical report from AMA is contained in Appendix D.

One paint chip was collected where paint was peeling and sent to AMA for analysis. The sample was found to contain lead in a concentration that exceeds 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 paint testing.

Table 3-3
Level of Lead in Paint Found in the Former Firing Range

Sample Location	URS Sample Number	Reporting Limit (% by Weight)	Final Result (% by Weight)
Former Firing Range #7	0129-LPC03	0.01	0.82

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

LEAD: Five surface wipe samples and one paint chip sample collected within the former firing range. The surface dust wipes were all found to contain lead dust levels which exceed the maximum limit set by the National Guard Bureau. URS recommends that an appropriately licensed lead contractor clean the former firing range. The NGB has prepared a memorandum titled "Recommendations for Surface Lead Dust in Armories" which is provided in Appendix G.

The paint chip collected in the former firing range was determined to be lead-based. URS recommends that personnel trained in accordance with OSHA's lead standard stabilize and make intact this peeling lead-based paint.

4.0 DRILL HALL

4.1 Operation Description

The drill hall is a 9,600 square foot area with about a 30-foot high ceiling used for assembling personnel and storing equipment. The walls are constructed of brick with a wood floor.

The asbestos-containing pipe insulation in this area is in poor condition (Photo # 3421). The armory has an after-school program in the drill hall, which was set up for in-door soccer on the day of this survey. URS recommends removing the insulation before exposure becomes an issue.

One of the exit signs was not illuminated during the inspection (Photo # 3420) and should be repaired.

4.2 Chemical and Physical Agents Sampled

4.2.1 Lead

Wipe testing for lead dust was conducted in the drill hall 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 Number	Area Wiped (ft ²)	Result (µg/ft ²)	Maximum Safe Surface Contamination Level (µg/ft ²)
Drill Hall # 22-Floor	0129-LW06	1.000	72	200
Drill Hall # 22-Floor	0129-LW07	1.000	71	200
Blank	0129-LWBlank	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.

Table 4-2
Levels of Lead Found in the Air

Sample Location	URS Sample Number	Air Volume (L)	Result (µg/m ³)	OSHA's PEL (µg/m ³)
Drill Hall	0129-LA01	968	<3.1	50.0
Blank	0129-LA03	0	<3.0	50.0

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 $50.0 \mu\text{g}/\text{m}^3$ averaged over an 8-hour day.

One paint chip was collected where paint was peeling and sent to AMA for analysis. The sample was found to contain lead in a concentration below 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
Level of Lead in Paint Found in the Drill Hall**

Sample Location	URS Sample Number	Reporting Limit (% by Weight)	Final Result (% by Weight)
Drill Hall # 22	0129-LPC06	0.01	0.051

The analytical report from AMA is contained in Appendix D.

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

ASBESTOS: The asbestos-containing pipe insulation in this area is in poor condition (Photo # 3421). The armory has an after-school program in the drill hall, which was set up for indoor soccer on the day of this survey. URS recommends removing the insulation before exposure becomes an issue by properly trained personnel.

FIRE EXIT SIGNS: One of the exit signs was not illuminated during the inspection (Photo # 3420) and should be repaired.

5.0 BOILER ROOM

5.1 Operation Description

The boiler room is a mechanical space constructed of cinder block walls with a concrete floor, containing a furnace and associated piping.

5.2 Chemical and Physical Agents Sampled

5.2.1 Lead

One paint chip was collected where paint was peeling and sent to AMA for analysis. The sample was found to contain lead in a concentration below 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 5-1 below shows the results of the lead paint testing.

Table 5-1
Level of Lead in Paint Found in the Boiler Room

Sample Location	URS Sample Number	Reporting Limit (% by Weight)	Final Result (% by Weight)
Boiler Room # 6	0129-LPC05	0.1	<0.0093

The analytical report from AMA is contained in Appendix D.

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

LEAD: The one surface tested in the boiler room area for lead was found to contain a level of lead below the U.S. Housing and Urban Development (HUD) Lead-Based Paint Guidelines. No further testing is required at this time.

ASBESTOS: The boiler and pipe insulation was observed to be in good condition. No damaged areas were found during the walk-through inspection.

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

No safety program was found regarding hearing conservation. No training records were found on site. A hearing conservation program is not required for this site.

6.3 Respiratory Protection

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

6.4 Hazard Communication

No safety program was found regarding hazard communication. An Operations and Maintenance (O&M) Plan was provided to URS before the inspection with regard to the asbestos on site. The main deficiency with this program was that the asbestos had not been labeled as containing asbestos and no training records were found.

6.5 Personal Protective Equipment

No safety program was found regarding personal protective equipment. 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 62.1-2004: 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)

U. S. Occupational Safety and Health Administration

Standard for General Industry: 29 CFR 1910

September 12, 2005

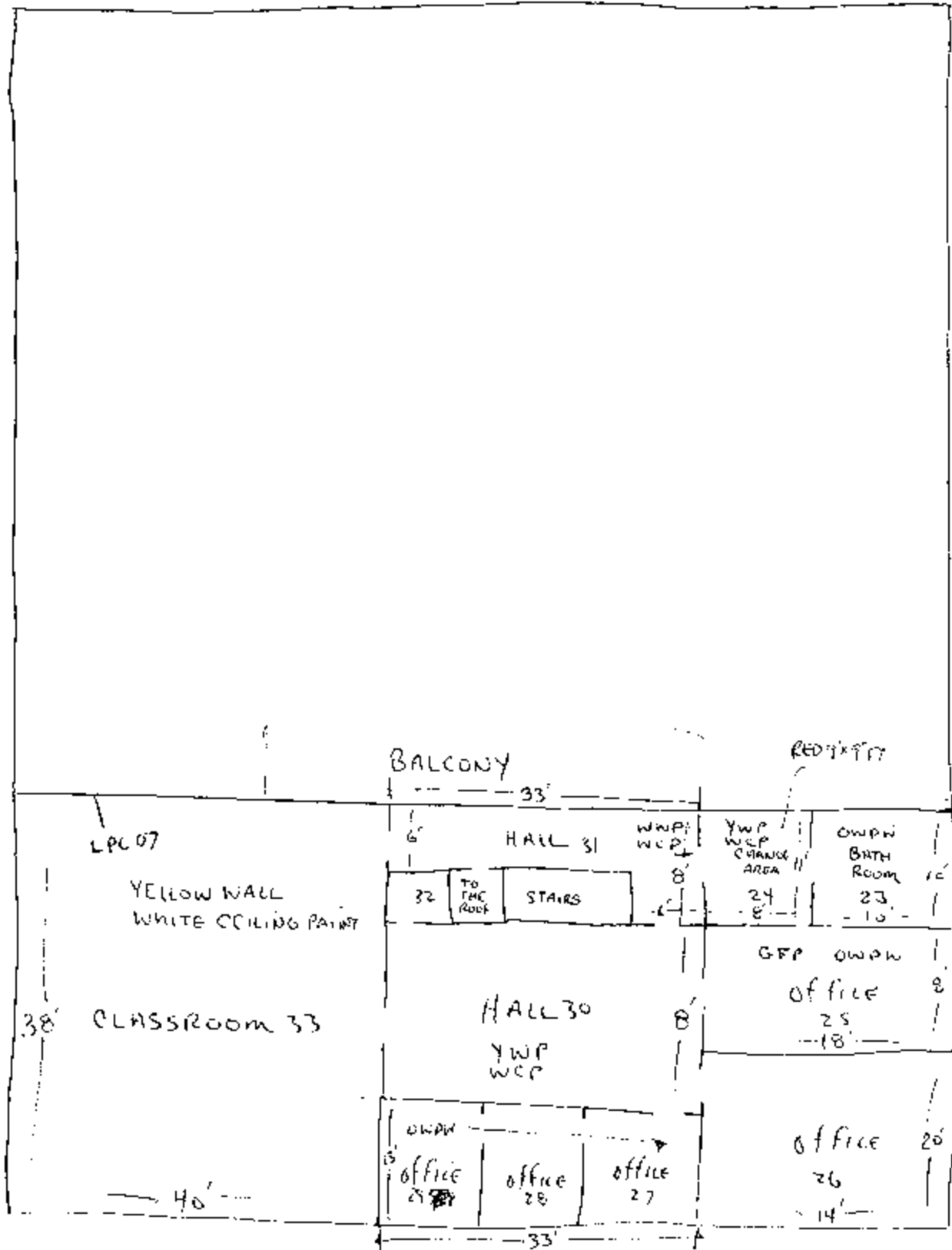
PN: 39741508 :J:\Army National Guard\38741508 - Concord, MA\Reports\MAS5 Concord Armory Final.doc

URS

14

APPENDIX A
SHOP DRAWING

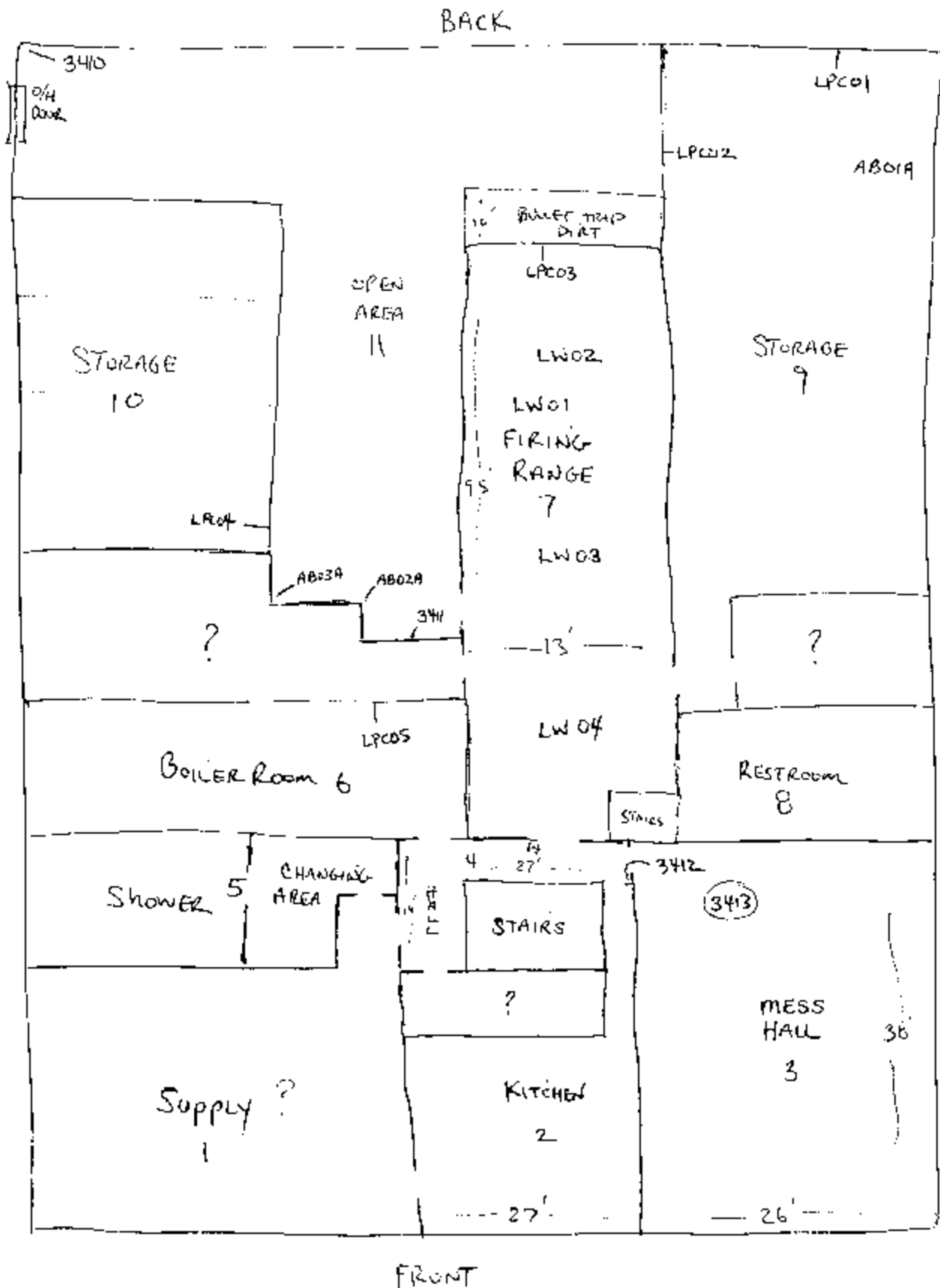
Hand-drawn floor plan of a Drill Shed Floor. The plan shows a large central area labeled "DRILL SHED FLOOR 22" with dimensions 50' by 120'. At the top is a "STAGE 50'". Along the bottom wall are several rooms: "LATRINE 18" and "LATRINE 17" on the left; "TRAINING ROOM 19" (24' wide) in the middle; "COMMANDER'S OFFICE 16" (5' wide), "1SG OFFICE 15" (8' wide), and "TRT NCO OFFICE 14" (34' wide) on the right. To the right of these is a "STORAGE ROOM 21" with "UP" and "DOWN" stairs, and "TRAINING ROOM 12" (37' wide, 25' high). A "U/A OFFICE 13" (15' wide, 12' high) is adjacent to the storage room. Fire exits are marked with "Fire ext" and arrows. Other labels include "3420", "3419", "3416", and "37".



YWP = YELLOW WALL PAINT
WCP = WHITE CEILING PAINT
WF = WOOD FLOOR
WNP = WHITE WALL PAINT

OWPW = OFF WHITE PAINT WALLS
GFP = GRAY FLOOR PAINT.

BASEMENT



APPENDIX B
PERSONNEL LIST

UNIT DEPLOYED NO STAFF ON SITE

APPENDIX C
HAZARDOUS MATERIALS LIST

BEST AVAILABLE COPY

NOT AVAILABLE

APPENDIX D
ANALYTICAL RESULTS

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client: National Guard Bureau
Address: 301-1H Old Bay Lane, Attn: NGB-AVN-SI,
State Military Reservation
Havre de Grace, Maryland 21078

Job Name: Army National Guard
Job Location: 25 Everett St. Concord, MA
Job Number: 42056-012-211
P.O. Number: Not Provided

Chain Of Custody: 122699
Date Analyzed: 02/10/2004
Person Submitting: [REDACTED]
Report Date: 10-Feb-04

Attention: [REDACTED]

Page 1 of 2

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft ²)	Reporting Limit	Final Result	Comments
0422979	0129 LA 01	Flame	Air	968	N/A	3.10 ug/m ³	< 3.1 ug/m ³	
0422980	0129 LA 02	Flame	Air	948	N/A	3.16 ug/m ³	< 3.2 ug/m ³	
0422981	0129 LA 03	Flame	Air Blank	0	N/A	3.00 ug/m ³	< 3 ug	
0422982	0129 LPC 01	Flame	Paint Chip	****	N/A	0.01 %Pb	0.017 %Pb	
0422983	0129 LPC 02	Flame	Paint Chip	****	N/A	0.01 %Pb	0.6 %Pb	
0422984	0129 LPC 03	Flame	Paint Chip	****	N/A	0.01 %Pb	0.82 %Pb	
0422985	0129 LPC 04	Flame	Paint Chip	****	N/A	0.01 %Pb	0.18 %Pb	
0422986	0129 LPC 05	Flame	Paint Chip	****	N/A	0.01 %Pb	< 0.0093 %Pb	
0422987	0129 LPC 06	Flame	Paint Chip	****	N/A	0.01 %Pb	0.051 %Pb	
0422988	0129 LPC 07	Flame	Paint Chip	****	N/A	0.01 %Pb	1.3 %Pb	
0422989	0129 LPC 08	Flame	Paint Chip	****	N/A	0.01 %Pb	4.4 %Pb	
0422990	0129-LW 01	Flame	Wipe	****	0.750	16.00 ug/ft ²	15000 ug/ft ²	
0422991	0129-LW 02	Flame	Wipe	****	1.000	12.00 ug/ft ²	1500 ug/ft ²	
0422992	0129-LW 03	Flame	Wipe	****	1.000	12.00 ug/ft ²	670 ug/ft ²	
0422993	0129-LW 04	Flame	Wipe	****	1.000	12.00 ug/ft ²	800 ug/ft ²	
0422994	0129-LW 05	Flame	Wipe	****	1.000	12.00 ug/ft ²	10000 ug/ft ²	
0422995	0129-LW 06	Flame	Wipe	****	1.000	12.00 ug/ft ²	72 ug/ft ²	
0422996	0129-LW 07	Flame	Wipe	****	1.000	12.00 ug/ft ²	71 ug/ft ²	
0422997	0129-LW 08	Flame	Wipe	****	1.000	12.00 ug/ft ²	17 ug/ft ²	
0422998	0129-LW 09	Flame	Wipe	****	1.000	12.00 ug/ft ²	130 ug/ft ²	

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 AIHA air samples.

All rights reserved. AMA Analytical Services, Inc.

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

Posted to NGB FOIA Reading Room 1475 Forbes Blvd., Lanham, MD 20706 • (301) 459-2630 • Toll Free (800) 346-0961 • Fax (301) 459-2643
May, 2018

BEST AVAILABLE COPY

P.1

(301) 459 - 2643

AMA Analytical Services
BEST AVAILABLE COPY
FOIA Requested Record #1-15-0065
Released by National Guard Bureau
61:06a
Page 10 of 79

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client: National Guard Bureau
Address: 301-1H Old Bay Lane, Attn: NGB-AVN-SI,
State Military Reservation
Havre de Grace, Maryland 21078

Job Name: Army National Guard
Job Location: 25 Everett St. Concord, MA
Job Number: 42056-012-211
P.O. Number: Not Provided

Chain Of Custody: 122699
Date Analyzed: 02/10/2004
Person Submitting: [REDACTED]
Report Date: 10-Feb-04

Attention: [REDACTED]

Page 2 of 2

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Final Result	Comments
0422999	0129-LW 10	Flame	Wipe	****	1.000	12.00 ug/ft²	31 ug/ft²	
0423000	0129-LW BLANK	Flame	Wipe Blank	****	N/A	12.00 ug	< 12 ug	

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

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

N/A = Not Applicable mg/Kg = parts per million (ppm) by weight mg/L = parts per million (ppm)

%Pb = percent lead by weight ug = micrograms ug/L = parts per billion (ppb)

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

Non-Responsive

Technical Manager: [REDACTED]

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples. All rights reserved. AMA Analytical Services, Inc.

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

Posted to NGB FOIA Reading Room 4475 Forbes Blvd., Lanham, MD 20706 • (301) 459-2640 • Toll Free (800) 346-0961 • Fax (301) 459-2643
May, 2018

BEST AVAILABLE COPY

P.2

(301) 459 - 2643

AMA Analytical Services

BEST AVAILABLE COPY

FOIA Requested Record #J-15-00657

Released by National Guard Bureau

Page 10 of 10

APPENDIX E
TRAINING CERTIFICATES

Non-Responsive



INSTITUTE FOR ENVIRONMENTAL EDUCATION, INC.

16 Upton Drive, Wilmington, MA 01887

(978) 658-5272

IEE

IEE

This is to certify that

[REDACTED]

*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 11, 2003

Examination Date

03518010625349

Certificate Number

April 10, 2004

Expiration Date

[REDACTED]

President/Director of Training

BEST AVAILABLE COPY

BEST AVAILABLE COPY

FOIA Requested Record #4-15-0085 (MA)
Released by National Guard Bureau
Page 914 of 3473

APPENDIX F
PHOTOGRAPHS

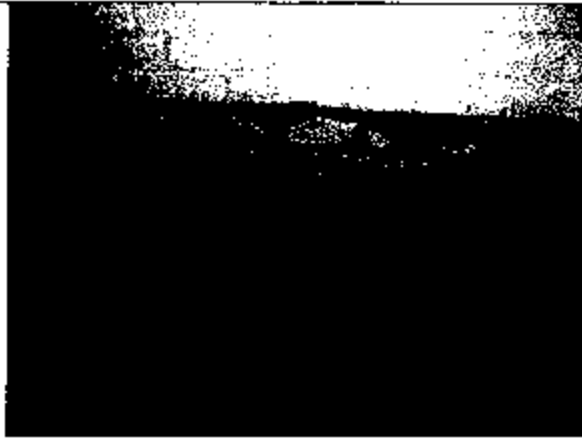


Photo 3401: Storage #9 -- Peeling green lead-based paint



Photo 3402: Storage #9- Housekeeping



Photo 3403: Storage #9 -- Water damage



Photo 3404: Storage #9 -- Exit that does not illuminate



Photo 3405: Former Firing Range Peeling lead-based paint



Photo 3406: Open Area #11 -- Damage asbestos-containing pipe insulation



Photo 3407: Open Area #11 - Damaged asbestos-containing pipe insulation



Photo 3410: Open Area #11 - Damaged asbestos-containing pipe insulation



Photo 3412: Hall #4 - Unmarked fire extinguisher

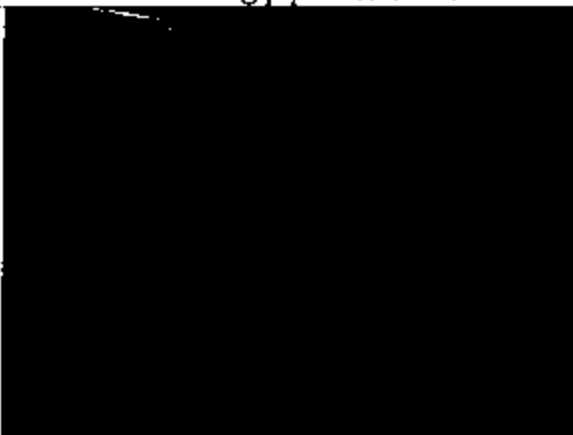


Photo 3413: Shower Room - Water damage



Photo 3415: Shower Room - Mold growth



Photo 3416: Training Room #12 - Damaged asbestos-containing pipe insulation



Photo 3417: Training Room #12 Water damage



Photo 3418: Training #12 Damaged asbestos-containing floor tile

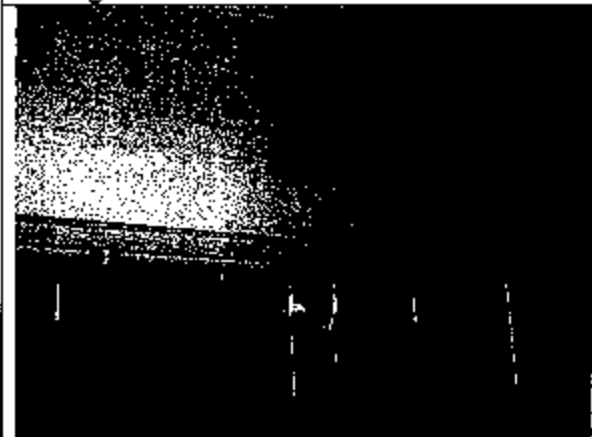


Photo 3420: Drill Shed #22 - Non-illuminating exit sign

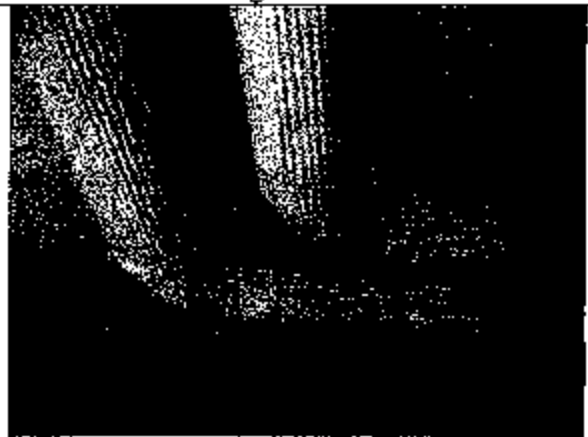


Photo 3421: Drill Shed #22 - Damaged asbestos-containing pipe insulation

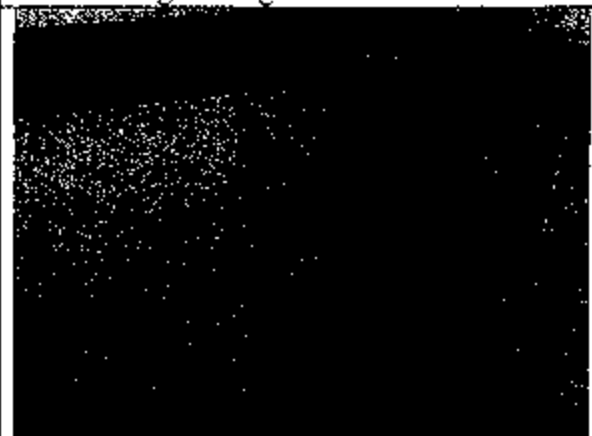


Photo 3424: Drill Shed #22 - Peeling lead-based paint



Photo 3425: Classroom #33 - Peeling lead-based paint

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 ($\mu\text{g}/\text{ft}^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

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

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

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

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

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

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

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under ($40 \mu\text{g}/\text{ft}^2$ on floors and $250 \mu\text{g}/\text{ft}^2$ 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 $0.05 \text{ mg}/\text{m}^3$ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building,

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



Industrial Hygiene Survey
for MAARNG – Concord Readiness Center
91 Everett Street
Concord, Massachusetts 01742

AECOM Environment
October 2010
Document No.: 60159721/Concord Readiness Center

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

Industrial Hygiene Survey
for MAARNG – Concord Readiness Center
91 Everett Street
Concord, Massachusetts 01742

Non-Responsive

Industrial Hygienist

Non-Responsive

Project Manager

Non-Responsive

Section Manager – EHS Management

AECOM Environment
October 2010
Document No.: 60159721/Concord Readiness Center

Contents

1.0 Facility Description and Operations	1-1
2.0 Sampling in Readiness Centers	2-1
2.1.1 Wipe Sampling.....	2-1
2.1.2 Air Sampling.....	2-1
3.0 Physical Condition of Facility and Personnel Concerns	3-1
3.1.1 Lead Based Paint	3-1
3.1.2 Suspect Asbestos Containing Materials	3-1
3.1.3 Water Damage/Mold.....	3-1
3.1.4 Housekeeping.....	3-1
3.1.5 Indoor Air Quality/ Ergonomics	3-1
4.0 Ventilation and HVAC System.....	4-1
4.1.1 Ventilation Systems and Potential for Contamination of Clean Air Sources	4-1
4.1.2 HVAC Maintenance	4-1
5.0 Lighting	5-1
6.0 Evaluation of Attached Garage	6-1
7.0 Conclusions and Limitations	7-1

List of Appendices

Appendix A Concord Readiness Center Facility Layout

Appendix B Concord Readiness Center Photographs

Appendix C Analytical Results

Appendix D References

List of Tables

Table 2-1: Lead Wipe Sample Results	2-1
Table 2-2: Lead Air Sample Results	2-1
Table 3-1: Indoor Air Quality Monitoring Results.....	3-2
Table 5-1: Light Survey	5-1

Executive Summary

On August 17, 2010, AECOM Environment conducted an Industrial Hygiene (IH) survey of the Concord Readiness Center facility located at 91 West Everett Street in Concord, Massachusetts. SSG [REDACTED] was the point of contact for the facility, [REDACTED] Non-Responsive, Program Coordinator I, was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Concord 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 Concord Readiness Center is currently staffed by approximately three personnel. The facility was constructed in 1915.

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

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

The Concord Readiness Center is housed in a two story masonry structure with a basement, consisting of approximately 50% administrative space and 50% drill hall.

Lighting levels measured in most offices was as inadequate and should be addressed. All other levels were generally acceptable as per ANSI/IESNA RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005.

Wipe samples collected in the former firing range indicated lead levels exceeding the ARNG action level.

Suspect mold growth was observed on water damaged ceiling tile in the mess hall.

The HVAC system in the building consists of a boiler room that feeds radiant heaters throughout the building. There is no HVAC system that provides fresh air from the building exterior in administrative areas. The Drill Hall is equipped with overhead fans along each wall. No information was available regarding fan unit maintenance.

1.0 Facility Description and Operations

The Concord Readiness Center is an administrative facility within a two story masonry structure with a basement. The building consists of two main sections. The front section of the building contains office and administrative areas, and is finished with painted plaster walls, plaster ceilings, and floor tile. The drill hall comprises rear portion of the building. This area is finished with painted masonry walls, an exposed roof deck painted to match the walls, and hardwood floors.

The primary activity at the Concord Readiness Center is routine administrative duties and occasional use by units for support and training of soldiers. The Concord Readiness Center is currently staffed by approximately three personnel. No vehicle maintenance activities are undertaken at the facility.

2.0 Sampling in Readiness Centers

2.1.1 Wipe Sampling

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

According to site personnel the indoor firing range at the facility is no longer in use and was abated on September 30, 2000. 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
CRC-1	Range Floor	1300 ug/ft ²
CRC-2	Range Table	800 ug/ft ²
CRC-3	Range Wall	36000 ug/ft ²
CRC-4	Range Duct	11000 ug/ft ²
CRC-5	Exterior Range Floor	310 ug/ft ²
CRC-6	Kitchen Stove	250 ug/ft ²
CRC-7	Mess Hall Table	150 ug/ft ²
CRC-8	Drill Shed Vending Machine	110 ug/ft ²
CRC-9	U/A Office Shelf	<110 ug/ft ²
CRC-10	Training Room Shelf	120 ug/ft ²
CRC-11	Office #1 Shelf	<110 ug/ft ²
CRC-12	Classroom Table	<110 ug/ft ²

All of the wipe samples collected in the former firing range and in the kitchen indicated elevated levels of lead. All other samples showed levels that were below the ARNG action level of 200 ug/ft². Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

Ambient 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
CRC-01A	Drill Hall	<13 ug/m ³
CRC-02A	U/A Office	<13 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. The paint on the walls appeared to be generally in good condition with the exception of localized areas, such as the upstairs classroom and some ceiling areas. A paint chip sample was collected in the upstairs classroom where the paint was peeling or otherwise damaged. The paint chip sample collected at the Concord Readiness Center showed the presence of quantifiable lead (29 CFR 1910.1025). Other painted building surfaces appeared to be generally in good condition with no peeling paint observed. Concrete flooring was generally tiled or unpainted. Laboratory analytical results are presented in Appendix C.

Table 3-11: Lead Paint Chip Sample Results

Sample Number	Sample Location	Lead Concentration
CRC-01C	Classroom	0.15 %Pb

3.1.2 Suspect Asbestos Containing Materials

AECOM did observe damaged, friable suspect asbestos containing materials (ACM) in the basement of the Concord Readiness Center during this survey. AECOM was provided with a survey dated 2005, where the pipe insulation was found to be positive, thus a bulk sample was not taken. Thermal system piping is typically covered in ACM or fiberglass insulation with associated fittings generally in good condition.

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

3.1.3 Water Damage/Mold

AECOM observed evidence of water intrusion in the upstairs classroom and mess hall during this survey. Localized, suspect mold growth was observed on ceiling tiles in the mess hall. According to site personnel the water damage was due to a roof leak which has been repaired. The impacted areas were limited to less than 10 square feet.

3.1.4 Housekeeping

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

3.1.5 Indoor Air Quality/ Ergonomics

The Administration Section contains general office space. The Administration Section is generally utilized by all of the Concord Readiness Center staff members. No Indoor Air Quality concerns were noted by the Concord 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 3-2: Indoor Air Quality Monitoring Results

Location	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Temp (°F)	Relative Humidity (%)
Exterior - Baseline	1.7	455	76.9	66.6
Training Room #1	1.8	478	79.0	60.3
Classroom	1.3	498	79.0	63.1
Kitchen	1.3	516	80.0	61.1
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)				

Concord 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 not observed in the facility.

The Concord Readiness Center is heated by a radiant heating system fed by a boiler located in the boiler room. Supply and return air is not provided by mechanical means. Outdoor air is provided in the building through open windows and doors.

Multiple fan units are located along each wall of the drill hall, but the units were inaccessible and site personnel could not provide information on the use or status of the system. The fans were not observed in operation during the survey.

4.1.2 HVAC Maintenance

There was no maintenance schedule associated with an active ventilation system.

5.0 Lighting

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

Table 5-1: Light Survey

Location	Results – (Foot candles)	Met Standard (Y/N)	Standard*
Training Room #1	41.8	Y	30
U/A Office	63.8	Y	50
Storage Room	3.6	N	5
Training Room #2	23.4	N	30
Latrine #1	20.5	Y	5
TRT NCO Office	35.4	N	50
1SG Office	39.6	N	50
Commanders Office	31.6	N	50
Latrine #2	22.5	Y	5
Drill Shed	10.7	Y	10
Classroom	37.5	Y	30
Closet	6.7	Y	5
Changing Room	35.0	Y	5
Latrine #3	41.0	Y	5
Storage #2	19.9	Y	5
Office #1	35.6	N	50
Office #2	39.2	N	50
Office #3	29.6	N	50
Storage #3	41.5	Y	5
Kitchen	36.8	Y	10
Mess Hall	28.9	Y	10
Storage Bay	27.5	Y	5
Tent Storage	24.1	Y	5
Medical Supplies #1	25.5	Y	5
Medical Supplies #2	21.6	Y	5
Former Range	16.7	Y	5
Equipment Room	34.3	Y	5
Storage #4	28.2	Y	5
Men's Latrine	23.1	Y	5
Shower	5.1	Y	5
Boiler Room	3.1	N	30
Radioactive Storage	21.5	Y	5
Medical Supplies #3	2.7	N	5
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI RP-7-01)			

6.0 Evaluation of Attached Garage

There is no garage associated with the Concord Readiness Center.

7.0 Conclusions and Limitations

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

Housekeeping is performed regularly at the Concord Readiness Center, and AECOM did observe damaged friable pipe insulation and peeling paint during the evaluation.

Evidence of water intrusion was observed in the upstairs class room and mess hall. Localized, suspect visible mold growth was observed on ceiling tiles in the mess hall.

Lighting levels in most offices were out of compliance with ANSI/IESNA guideline levels.

Air samples collected and analyzed did not indicate quantifiable levels of airborne lead. Detectable levels of lead were found in the paint chip sample acquired from the classroom.

Wipe samples collected in the former range and kitchen all exceeded the ARNG action level. Other various locations throughout the building did not indicate levels of lead on surfaces in excess of the ARNG action level.

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.

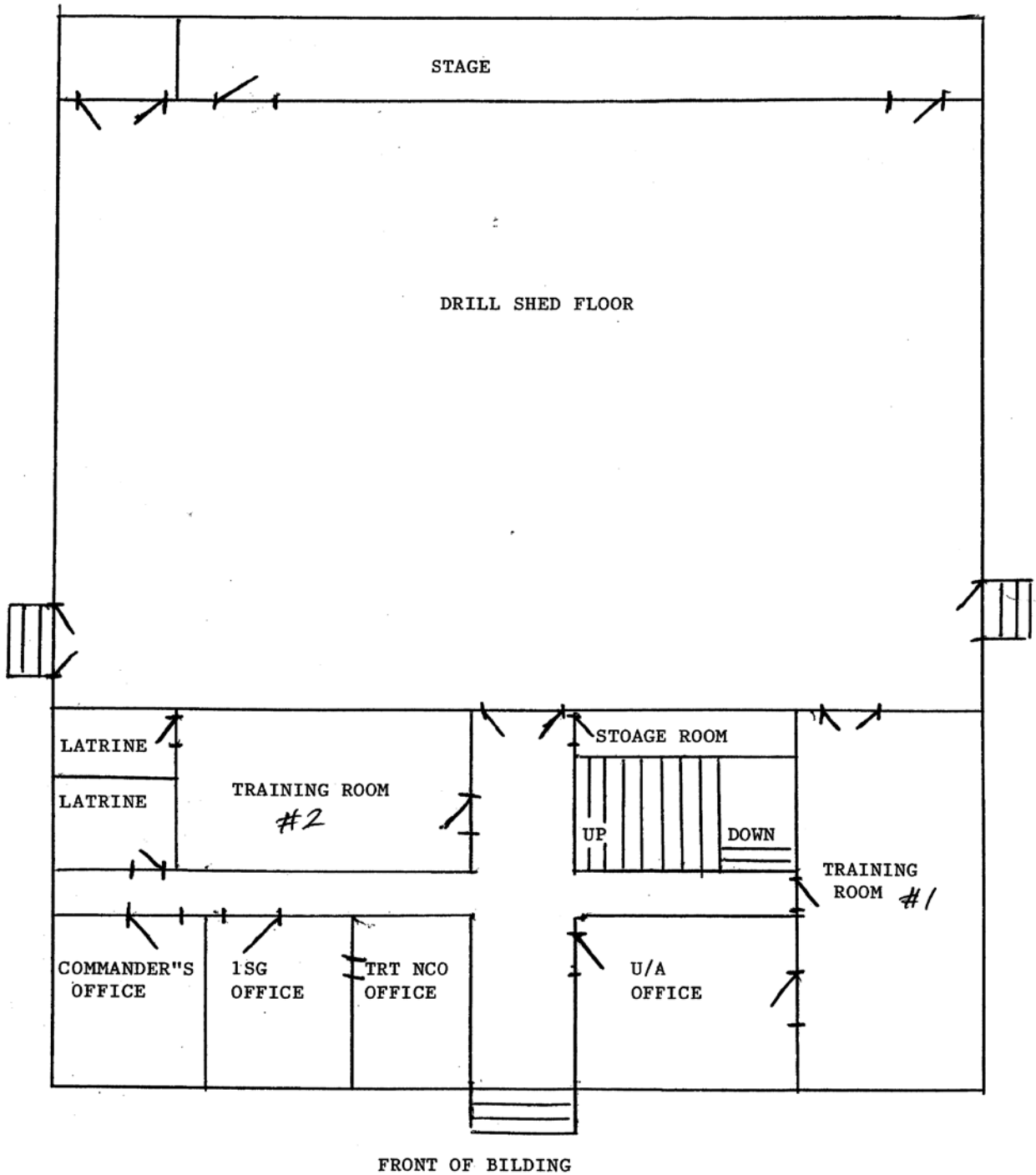
As with all such surveys, the results of the sampling represent conditions found on the date of the survey and may not represent conditions found at other times. Additionally, this survey was limited with respect to the specific parameters indicated above and should not be construed to be a comprehensive 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.

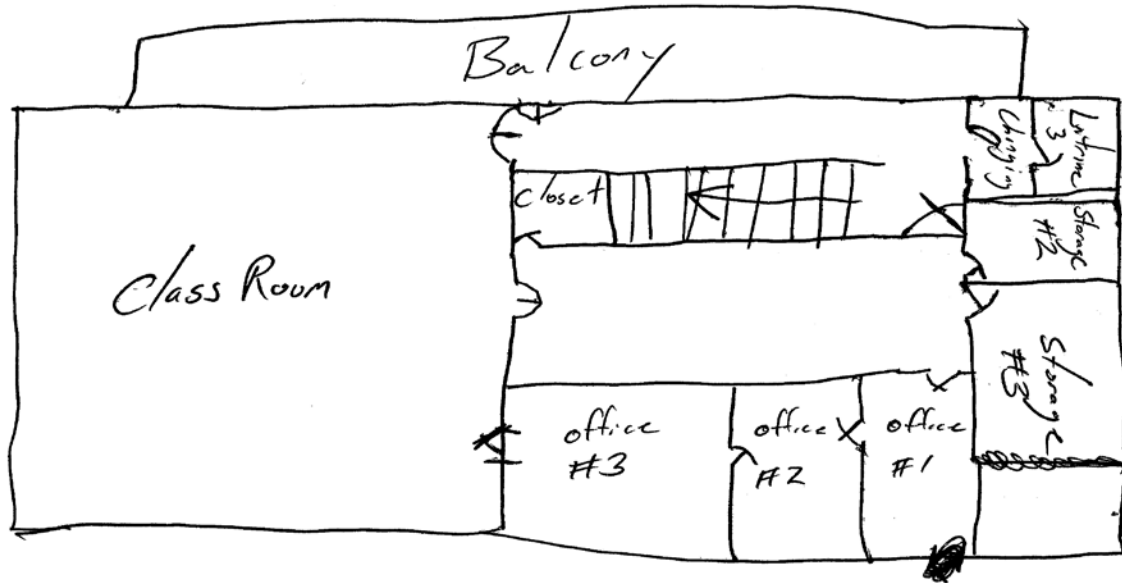
The Client recognizes and agrees that all testing and remediation methods have reliability limitations, no method nor number of sampling locations can guarantee that a condition will be discovered within the performance of the services as authorized by the Client. Additionally, the passage of time may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

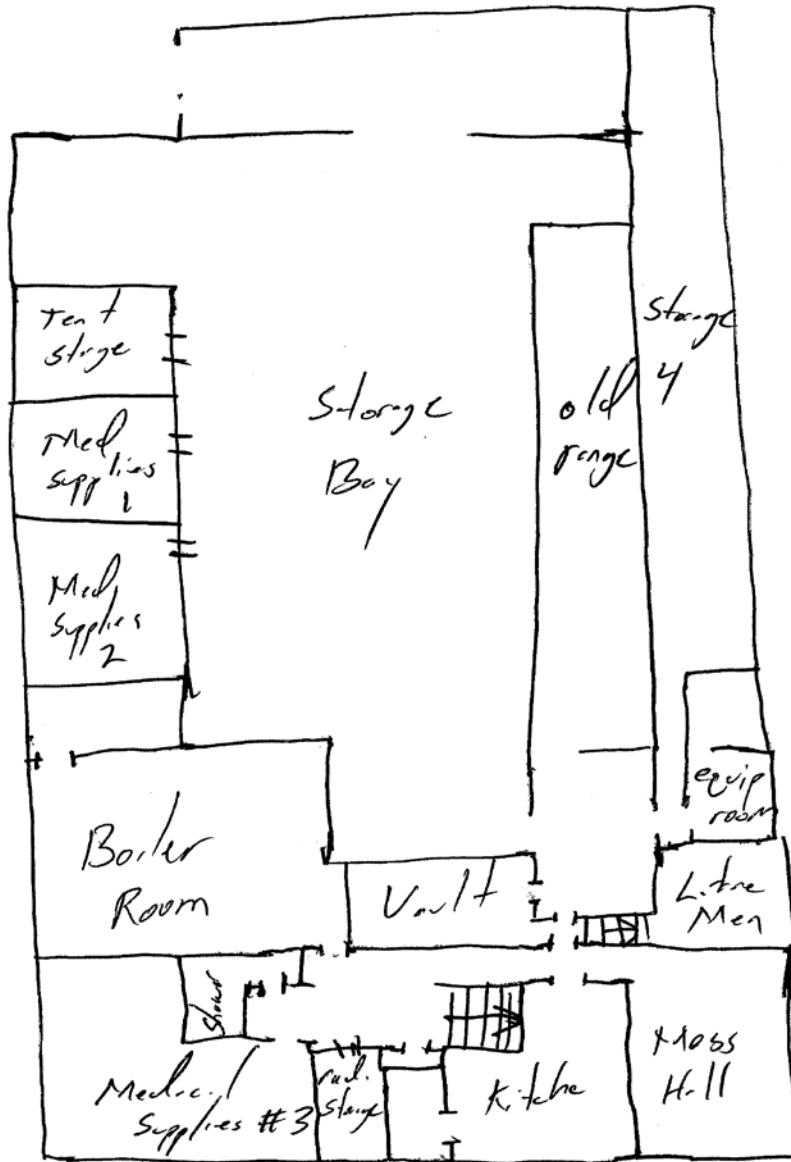
Concord Readiness Center Facility Layout

MAIN FLOOR EVACUATION PLAN FOLLOW RED ARROWS





← 2



Appendix B

Concord Readiness Center Photographs

Photograph 1



Building Exterior - Front

Photograph 2



Building Exterior - Rear

Photograph 3



Water Damaged Wall and Ceiling in Classroom

Photograph 4



Water Stained Ceiling Tile and Visible Mold Growth in Mess Hall

Photograph 5



Drill Shed

Photograph 6



Drill Shed

Photograph 7



Basement Storage

Photograph 8



Typical Floor Tile

Photograph 9



Typical ACM Pipe Insulation

Photograph 10



Boiler Room

Photograph 11



Flammable Storage Cabinets

Photograph 12



Exterior Window Caulk/Glazing

Photograph 13



Typical Plaster Ceiling

Photograph 14



Men's Shower

Photograph 15



Radiant Heater

Photograph 16



Damaged ACM Pipe Insulation in Basement

Photograph 17



Fan Unit in Drill Shed

Photograph 18



Paint Chip Sample in Classroom

Photograph 19



Former Range

Photograph 20



Range Wall with Visible Lead

Appendix C

Analytical Results

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



LAB #100470

NY ELAP
10920

Client: National Guard Bureau
Address: 301-JH Old Bay Lane, Attn: NGB-AVN-SI,
State Military Reservation
Havre de Grace, Maryland 21078

Job Name: Concord Readiness Center
Job Location: 91 Everett Street Concord, MA
Job Number: Not Provided
P.O. Number: W912K6-09-A-0003

Chain Of Custody: 508624
Date Submitted: 8/23/2010
Person Submitting: [REDACTED]
Date Analyzed: 8/31/2010

Report Date: 9/1/2010

Attention: [REDACTED]

Summary of Atomic Absorption Analysis for Lead

Page 1 of 2

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft ²)	Reporting Limit	Total ug	Final Result	Comments
1073192	CRC-01 C	Flame	Paint Chip	****	N/A	0.0091 %Pb		0.15 %Pb	
1073193	CRC-01	Flame	Wipe	****	0.111	110 ug/ft ²	140	1300 ug/ft ²	
1073194	CRC-02	Flame	Wipe	****	0.111	110 ug/ft ²	89	800 ug/ft ²	
1073195	CRC-03	Flame	Wipe	****	0.111	110 ug/ft ²	4000	36000 ug/ft ²	
1073196	CRC-04	Flame	Wipe	****	0.111	110 ug/ft ²	1200	11000 ug/ft ²	
1073197	CRC-05	Flame	Wipe	****	0.111	110 ug/ft ²	35	310 ug/ft ²	
1073198	CRC-06	Flame	Wipe	****	0.111	110 ug/ft ²	28	250 ug/ft ²	
1073199	CRC-07	Flame	Wipe	****	0.111	110 ug/ft ²	16	150 ug/ft ²	
1073200	CRC-08	Flame	Wipe	****	0.111	110 ug/ft ²	13	110 ug/ft ²	
1073201	CRC-09	Flame	Wipe	****	0.111	110 ug/ft ²	12	<110 ug/ft ²	
1073202	CRC-10	Flame	Wipe	****	0.111	110 ug/ft ²	13	120 ug/ft ²	
1073203	CRC-11	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
1073204	CRC-12	Flame	Wipe	****	0.111	110 ug/ft ²	<12	<110 ug/ft ²	
1073205	CRC-01 A	Flame	Air	225	N/A	13 ug/m ³	<3	<13 ug/m ³	
1073206	CRC-02 A	Flame	Air	225	N/A	13 ug/m ³	<3	<13 ug/m ³	

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 NY ELAP, AIHA, NVLAP, NIST, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

An AIHA (#100470), NVLAP (101143-0), and NY ELAP (#10920) Accredited Laboratory

Posted to NGB FOIA Reading Room
May, 2018

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

BEST AVAILABLE COPY

BEST AVAILABLE COPY

FOIA Requested Record #1-15-0085 (MA)

Released by National Guard Bureau

Page 952 of 3473

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



LAB #100470

NY ELAP

10920

Client: National Guard Bureau
Address: 301-JH Old Bay Lane, Attn: NGB-AVN-SI,
State Military Reservation
Havre de Grace, Maryland 21078

Job Name: Concord Readiness Center
Job Location: 91 Everett Street Concord, MA
Job Number: Not Provided
P.O. Number: W912K6-09-A-0003

Chain Of Custody: 508624
Date Submitted: 8/23/2010
Person Submitting: [REDACTED]
Date Analyzed: 8/31/2010

Report Date: 9/1/2010

Attention: [REDACTED]

Summary of Atomic Absorption Analysis for Lead

Page 2 of 2

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft ²)	Reporting Limit	Total ug	Final Result	Comments
<p>Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7420; Water: SM-3111B Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7421; Water: SM-3113B N/A = Not Applicable mg/Kg = parts per million (ppm) 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.</p>									
<p>See QC Summary for analytical results of quality control samples associated with these samples. NY ELAP accreditation applies only to paint chip, wipe, and soil samples.</p>							<p>Non-Responsive</p>		
<p>Analyst: [REDACTED]</p>							<p>Lab Manager: [REDACTED]</p>		

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 NY ELAP, AIHA, NVLAP, NIST, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

An AIHA (#100470), NVLAP (101143-0), and NY ELAP (#10920) Accredited Laboratory

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


AMA Analytical Services, Inc.

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

CHAIN OF CUSTODY

(Please Refer To This
Number For Inquiries)

508624
2 of 3

Mailing/Billing Information:

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

Submittal Information:

1. Job Name: Concord RC
 2. Job Location: 91 Everett St Concord MA
 3. Job #: _____ PO #: W912K6-09-A-0003
 4. Contact Person: _____
 5. Submitted by: _____

Reporting Information (Results will be provided as)

AFTER HOURS (must be pre-scheduled) <input type="checkbox"/> Immediate Date Due: _____ <input type="checkbox"/> 24 Hours Time Due: _____ Comments: _____		NORMAL BUSINESS HOURS <input type="checkbox"/> Immediate <input type="checkbox"/> 3 Day <input checked="" type="checkbox"/> 5 Day + <input type="checkbox"/> Next Day <input type="checkbox"/> 2 Day (Date Due: _____)		REPORT TO: With Report <input checked="" type="checkbox"/> <u>AEcom.com</u> <input type="checkbox"/> <u>us.army.mil</u> <input type="checkbox"/> <u>us.army.mil</u>	
--	--	---	--	--	--

Asbestos Analysis

PCMAir - Please Indicate Filter Type:
☐ NIOSH 7400 (QTY) _____
☐ Fiberglass (QTY) _____
TEM Air - Please Indicate Filter Type:
☐ AHERA (QTY) _____
☐ NIOSH 7402 (QTY) _____
☐ Other (specify) _____ (QTY) _____
PLM Bulk
☐ EPA 600 - Visual Estimate (QTY) _____
☐ EPA Point Count (QTY) _____
☐ NY State Friable 198.1 (QTY) _____
☐ Grav. Reduction ELAP 198.6 (QTY) _____
☐ Other (specify) _____ (QTY) _____
MISC
☐ Vermiculite
☐ Asbestos Soil PLM (Qual) PLM (Quant) PLMTEM (Qual) PLMTEM (Quant)

TEM Bulk

☐ ELAP 198.4/Chatfield (QTY) _____
☐ NY State PLM/TEM (QTY) _____
☐ Residual Ash (QTY) _____
TEM Dust
☐ Qual. (pre/abs) Vacuum/Dust (QTY) _____
☐ Quan. (s/area) Vacuum D5755-95 (QTY) _____
☐ Quan. (s/area) Dust D6480-99 (QTY) _____

TEM Water

☐ Qual. (pre/abs) (QTY) _____
☐ ELAP 198.2/EPA 100.2 (QTY) _____
☐ EPA 100.1 (QTY) _____
☐ All samples received in good condition unless otherwise noted.
 (TEM Water samples _____ °C)

Metals Analysis

☐ Pb Paint Chip (QTY) _____
☒ Pb Dust Wipe (wipe type Chisel) 12 (QTY) _____
☐ Pb Air (QTY) _____
☐ Pb Soil/Solid (QTY) _____
☐ Pb TCLP (QTY) _____
☐ Drinking Water ☐ Pb (QTY) _____ ☐ Cu (QTY) _____ ☐ As (QTY) _____
☐ Waste Water ☐ Pb (QTY) _____ ☐ Cu (QTY) _____ ☐ As (QTY) _____
☐ Pb Furnace (Media _____) (QTY) _____

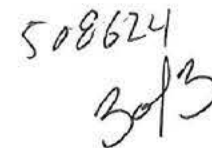
Fungal Analysis

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

CLIENT ID NUMBER	SAMPLE INFORMATION		ANALYSIS										MATRIX		CLIENT CONTACT				
	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPE AREA	TEM	PCN	PLM	LEAD	MOLD	AIR	BULK	DUST	WATER AND OILS	SPORE TRAP	TAPE	SWAB	(LABORATORY STAFF ONLY)		
CRC-01	Range Floor	3/17/18		16 in ²				X								X	Date/Time:	Contact:	By:
CRC-02	Range Table							X								X			
CRC-03	Range Wall							X								X			
CRC-04	Range Post							X								X			
CRC-05	Range Exterior Fl							X								X	Date/Time:	Contact:	By:
CRC-06	Kitchen Floor							X								X			
CRC-07	Mess Hall Table							X								X			
CRC-08	Dall. Sh. Under							X								X			
CRC-09	1st Office Shelf							X								X	Date/Time:	Contact:	By:
CRC-10	Temporary RM 1 Shelf							X								X			
CRC-11	Office 1 Shelf							X								X			
CRC-12	Classroom Table							X								X			

LABORATORY
STAFF ONLY:
(CUSTODY)

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



1. Job Name: Concord H/C
2. Job Location: 91 Everett St Concord MA
3. Job #: _____ PO #: W912K6-09-A-0003
4. Contact Person _____
5. Submitted by: _____

AFTER HOURS (must be pre-scheduled) <input type="checkbox"/> Immediate Date Due: _____ <input checked="" type="checkbox"/> 24 Hours Time Due: _____ Comments: _____ _____ _____	NORMAL BUSINESS HOURS <div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> Immediate <input type="checkbox"/> Next Day <input type="checkbox"/> 2 Day </div> <div> <input type="checkbox"/> 3 Day <input checked="" type="checkbox"/> 5 Day + Date Due: _____ </div> <div> <input type="checkbox"/> Results Required By Noon (Every Attempt Will Be Made To Accommodate) </div> </div>	REPORT TO: Report _____ Non-Response _____ s.army.mil s.army.mil
---	--	---

☐ Pb Dust Wipe (wipe type _____) _____ (QTY)
☒ Pb Air 2 _____ (QTY)
☐ Pb Soil/Solid _____ (QTY)
☐ Pb TCLP _____ (QTY)
☐ Drinking Water ☐ Pb _____ (QTY) ☐ Cu _____ (QTY) ☐ As _____ (QTY)
☐ Waste Water ☐ Pb _____ (QTY) ☐ Cu _____ (QTY) ☐ As _____ (QTY)
☐ Pb Furnace (Media _____) _____ (QTY)

Collection Apparatus for Spore Traps/Air Samples: _____
Collection Media _____

<input type="checkbox"/> Spore-Trap _____ (QTY)	<input type="checkbox"/> Surface Vacuum Dust _____ (QTY)
<input type="checkbox"/> Surface Swab _____ (QTY)	<input type="checkbox"/> Culturable ID Genus (Media) _____ (QTY)
<input type="checkbox"/> Surface Tape _____ (QTY)	<input type="checkbox"/> Culturable ID Species (Media) _____ (QTY)
<input type="checkbox"/> Other (Specify) _____ (QTY)	

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

CLIENT ID NUMBER	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPE AREA	TEM	PCM	PLM	LEAD	MOLY	AIR	SULF	DUST	WATER AND OILS	PCRB TRAC	TAPE	SWA	(LABORATORY STAFF ONLY)
CRC-01A	D-11 Shed	9/17/10	22.5					X		X							Date/Time: Contact: By:
CRC-02A	1/4 Office	9/17/10	22.5					X		X							Date/Time: Contact: By:
																	Date/Time: Contact: By:
																	Date/Time: Contact: By:

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

Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. <http://www.osha.gov/comp-links.html>
2. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998. http://www.dtic.mil/whs/directives/corres/pdf/i60551_081998/i60551p.pdf
3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://www.usapa.army.mil/pdffiles/r11_34.pdf
4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://www.usapa.army.mil/pdffiles/r40_5.pdf
5. AR 385-10, The Army Safety Program, 23 August 2007. http://www.usapa.army.mil/pdffiles/r385_10.pdf
6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://www.usapa.army.mil/pdffiles/p40_501.pdf
7. AR 40-11, Preventive Medicine, 22 July 2005. http://www.army.mil/usapa/epubs/pdf/p40_11.pdf
8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://www.usapa.army.mil/pdffiles/p40_503.pdf
9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf
10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current Ed.
11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.
12. American National Standards Institute (ANSI) Z358.1-2004, Emergency Eyewash and Shower Equipment.
13. American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 62.1-2007, Ventilation for Acceptable Indoor Air Quality.
14. RP-1-2004, Office Lighting, ANSI/IESNA.
15. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.
16. Unified Facilities Criteria, (UFC) 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, including change 3, Aug. 03.

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

Non-Responsive

Office Manager

Non-Responsive

Project Manager

**INDUSTRIAL HYGIENE SURVEY REPORT
DANVERS READINESS CENTER
5 SYCAMORE STREET
DANVERS, MASSACHUSETTS**

**October 2005
PN: 39741508**

TABLE OF CONTENTS

Section	Page
1.0 SUMMARY	1
2.0 ADMINISTRATIVE AREA.....	2
2.1 OPERATION DESCRIPTION.....	2
2.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED.....	2
2.2.1 Relative Humidity.....	2
2.2.2 Carbon Dioxide.....	2
2.2.3 Carbon Monoxide.....	3
2.2.4 Lighting.....	3
2.2.5 Lead.....	4
2.2.6 Asbestos.....	5
2.3 VENTILATION SYSTEM EVALUATION	5
2.4 NOISE MEASUREMENTS.....	6
2.5 PERSONAL PROTECTIVE EQUIPMENT.....	6
2.6 INTERPRETATION OF RESULTS.....	6
3.0 FORMER FIRING RANGE	7
3.1 OPERATION DESCRIPTION.....	7
3.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED.....	7
3.2.1 Lead.....	7
3.3 VENTILATION SYSTEM EVALUATION	8
3.4 NOISE MEASUREMENTS.....	8
3.5 PERSONAL PROTECTIVE EQUIPMENT.....	8
3.6 INTERPRETATION OF RESULTS.....	8
4.0 DRILL HALL	9
4.1 OPERATION DESCRIPTION.....	9
4.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED.....	9
4.2.1 Lead.....	9
4.3 VENTILATION SYSTEM EVALUATION	10
4.4 NOISE MEASUREMENTS.....	10
4.5 PERSONAL PROTECTIVE EQUIPMENT.....	10
4.6 INTERPRETATION OF RESULTS.....	10
5.0 BOILER ROOM	11
5.1 OPERATION DESCRIPTION.....	11
5.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED.....	11
5.2.1 Lead.....	11
5.3 VENTILATION SYSTEM EVALUATION	11
5.4 NOISE MEASUREMENTS.....	11
5.5 PERSONAL PROTECTIVE EQUIPMENT.....	11
5.6 INTERPRETATION OF RESULTS.....	12
6.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS.....	13

TABLE OF CONTENTS (cont.)

6.1	CONFINED SPACES	13
6.2	HEARING CONSERVATION	13
6.3	RESPIRATORY PROTECTION	13
6.4	HAZARD COMMUNICATION.....	13
6.5	PERSONAL PROTECTIVE EQUIPMENT.....	13
7.0	REFERENCES	14

APPENDICES

Appendix A Shop Drawing

Appendix B Personnel List

Appendix C Hazardous Materials List

Appendix D Analytical Results

Appendix E Training Certificates

Appendix F Photographs

Appendix G Recommendations for Surface Lead Dust in Armories

FINDINGS AND RECOMMENDATIONS

Findings	Recommendation	Risk Assessment Code
Ergonomic		
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
Lighting		
On the day of the survey, the illuminance in the administrative area was inadequate in half of all 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 RP-1-04)	RAC 4
Lead		
Lead was detected in wipe samples collected from the firing range in amounts greater than 200 $\mu\text{g}/\text{ft}^2$	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))	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
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(j))	RAC 3
Hazard Communication		
No site specific hazard communication plan available.	Develop a site specific hazard communication plan to manage hazardous materials (OSHA 29 CFR 1910.1200(e))	RAC 4

FINDINGS AND RECOMMENDATIONS (Continued)

Findings	Recommendation	Risk Assessment Code
Electrical Safety		
Found an electrical power outlet with exposed wires	Any electrical openings shall be so 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 1910.305(b)(2))	RAC 2
Mold		
Watermarks and mold growth were throughout.	Determine and repair source of water. Replace water damaged building materials and implement a moisture management program to provide direction for future water incursions (Best management practice)	RAC 4
Fire Safety		
An obstructed fire extinguisher was found in the kitchen.	Fire extinguishers must be made available when needed and that employees are not subjected to injury hazards when they try to obtain an extinguisher (OSHA 29 CFR 1910.157(c)(1)).	RAC 2

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 5 Sycamore Street in Danvers, Massachusetts 01923. 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 16, 2004, Mr. **Non-Responsive** an industrial hygienist with URS, conducted a site visit to the Readiness Center in Danvers, Massachusetts. 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 Massachusetts 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 building area contains multiple offices located throughout the building with desks and computer workstations. Computer workstations were assessed during the walk through for ergonomic issues. Computer workstation chairs could not be adjusted for height, the armrests were in a fixed position and keyboards could not be adjusted (Photo # 3166) in most of the offices. Computer monitors could not be adjusted for different individuals working at the workstations. If more than one person is using that station, then proper adjustments need to be made to accommodate each person.

Water marks were observed on the ceiling in the classrooms.

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 10.5-15.1 % with an average of 11.9%. This average reading was below the recommended range of 30.0% to 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 341 to 404 parts per million (ppm), with an average of 362 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 outside reading was not collected.

2.2.3 Carbon Monoxide

Carbon monoxide was also measured in the Readiness Center. The carbon monoxide concentration remained at 0 parts per million (ppm) throughout the survey period. This measured level was below the ASHRAE guideline for indoor environments (62.1-2004). 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 (62.1-2004) 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 2-1
Lighting Measurements and Recommended Lighting Requirements

Location	Function	Measured Illuminance (lux / foot candles)	Recommended Minimum Illuminance (lux / foot candles)
Office # 9	Administrative Duties	947 / 88.0	500 / 50
Office # 11	Administrative Duties	1108 / 102.9	500 / 50
Office # 12	Administrative Duties	405 / 37.6	500 / 50
Office # 16	Administrative Duties	561 / 52.1	500 / 50
Office # 17	Administrative Duties	331 / 30.7	500 / 50
Office # 19 – Desk 1	Administrative Duties	228 / 21.2	500 / 50
Office # 19 – Desk 2	Administrative Duties	381 / 35.4	500 / 50
Office # 20	Administrative Duties	598 / 55.6	500 / 50
Office # 21	Administrative Duties	248 / 23.0	500 / 50
Office # 22 – Left Front Desk	Administrative Duties	663 / 61.6	500 / 50
Office # 22 – Left Center Desk	Administrative Duties	362 / 33.6	500 / 50

Table 2-1 (Continued)
Lighting Measurements and Recommended Lighting Requirements

Location	Function	Measured Illuminance (lux / foot candles)	Recommended Minimum Illuminance (lux / foot candles)
Office # 22 – Left Rear Desk	Administrative Duties	9,710 / 902.1	500 / 50
Office # 22 – Right Rear Desk	Administrative Duties	692 / 64.3	500
Office # 22 – Right Center Desk	Administrative Duties	262 / 24.3	500
Office # 22 – Right Front Desk	Administrative Duties	560 / 52.0	500

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

2.2.5 Lead

Paint chips were collected in four areas where paint was peeling and sent to AMA Analytical Services, Inc. (AMA) for analysis. The four samples were found to contain lead in a concentration below 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 Location	URS Sample Number	Reporting Limit (% by Weight)	Final Result (% by Weight)
Kitchen # 5	0116-LPC03	0.01	0.11
Men's Latrine # 28	0116-LPC04	0.01	0.14
Supply Room # 26	0116-LPC05	0.01	0.013
Supply Room # 26	0116-LPC06	0.01	0.18

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	URS Sample Number	Total Asbestos (%)
Hallway # 1A	9"x9" Brown Floor Tile	0116-AB01A-FT	5 (chrysotile)
Kitchen # 5	9"x9" Brown Floor Tile	0116-AB01B-FT	NAD
Locker Room # 13	9"x9" Brown Floor Tile	0116-AB01C-FT	NAD
Hallway # 1A	Associated Mastic	0116-AB01A-M	2 (chrysotile)
Kitchen # 5	Associated Mastic	0116-AB01B-M	3 (chrysotile)
Locker Room # 13	Associated Mastic	0116-AB01C-M	3 (chrysotile)
Locker Room # 13	12"x12" White Ceiling Tile	0116-AB02A	NAD
Classroom # 3	12"x12" White Ceiling Tile	0116-AB02B	NAD
Supply Room # 14	12"x12" White Ceiling Tile	0116-AB02C	NAD

NAD = "No Asbestos Detected"

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.

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

GENERAL: In general, the administrative area was neat and orderly. The fire exits and extinguishers were marked and easily accessible, except in the kitchen. On the day this survey was conducted, the fire exit lane through the kitchen was not 36 inches or wider (Photo # 3164).

ERGONOMICS: The ergonomic issues regarding the desks, chairs and monitors need to be corrected by fitting the workplace to the workers.

LIGHTING: On the day of the survey, the illuminance in the administrative area was inadequate in approximately half of the offices. URS recommends increasing lighting in the administrative areas. While work is in progress the administrative area must be lighted by at least the minimum light intensities.

LEAD: The four surfaces that were sampled in this area for lead were found to be within the allowable limits and require no further action at this time.

ASBESTOS: Samples of the floor tile which was present throughout this building area were determined to contain asbestos in a concentration greater than one percent. It is recommended that the damaged tiles (Photo # 3163) be replaced with new, non-asbestos tile by an appropriately trained technician.

ELECTRICAL: An electrical power outlet in office # 16 had exposed wiring (Photo # 3170). URS recommends putting a cover on the outlet.

MOLD: There were water stains on the ceiling in classroom # 3 (Photo # 3161), classroom # 4 and office # 16 (Photo # 3169) that may indicate mold problems if not addressed. There was visible mold growth on the pipe above the drop ceiling in room # 17 (Photo # 3168).

FIRE SAFETY: An obstructed fire extinguisher was observed in the kitchen

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 Former Firing Range

Sample Location	URS Sample Number	Area Wiped (ft ²)	Result (µg/ft ²)	Maximum Acceptable Surface Contamination Level (µg/ft ²)
Firing Range-Top of Light Guard	0116-LW06	1.111	19000	200
Firing Range-Top of a Table	0116-LW07	1.000	30	200
Firing Range-Floor-Floor	0116-LW08	1.000	260	200
Firing Range-Floor-Center	0116-LW09	1.000	240	200
Firing Range-Floor-Bullet Trap	0116-LW10	1.000	13000	200
Blank	0116-LWBlank1	N/A	<12	200

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
Level of Lead Found in the Air**

Sample Location	URS Sample Number	Air Volume (L)	Result ($\mu\text{g}/\text{m}^3$)	OSHA's PEL ($\mu\text{g}/\text{m}^3$)
Former Firing Range	0116-LA02	928	<3.2	50.0
Blank	0116-LA-Blank	0	<3.0	50.0

On the day of the survey, the airborne lead dust level 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 $50.0 \mu\text{g}/\text{m}^3$ 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

LEAD: Surfaces within the former firing range were found to contain lead dust levels which exceed the maximum limit set by the US Army Center for Health Promotion and Preventive Medicine. URS recommends that personnel trained in accordance with the OSHA lead standard (29 CFR 1910.1025) clean the former firing range. The NGB has prepared a memorandum titled "Recommendations for Surface Lead Dust in Armories" which is provided in Appendix G.

4.0 DRILL HALL

4.1 Operation Description

The drill hall is a 6,300 square foot area with about a 30 foot high ceiling used for assembling personnel and storing vehicles. The walls are constructed of cinder block 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 hall 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 Number	Area Wiped (ft ²)	Result (µg/ft ²)	Maximum Acceptable Surface Contamination Level (µg/ft ²)
Drill Hall #27-Floor	0116-LW01	1.000	13	200
Drill Hall #27-Floor	0116-LW02	1.000	18	200
Drill Hall #27-Floor	0116-LW03	1.000	<12	200
Drill Hall #27-Top of a Table	0116-LW04	1.000	<12	200
Drill Hall #27-Top of Powerade Drink Machine	0116-LW05	1.000	25	200
Blank	0116-LWBlank1	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.

**Table 4-2
Level of Lead Found in the Air**

Sample Location	URS Sample Number	Air Volume (L)	Result ($\mu\text{g}/\text{m}^3$)	OSHA's PEL ($\mu\text{g}/\text{m}^3$)
Drill Hall	0116-LA01	956	<3.1	50.0
Blank	0116-LABlank	0	<3.0	50.0

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 $50.0 \mu\text{g}/\text{m}^3$ 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

LEAD: Wipe samples collected in the drill hall for lead were found to be below allowable limits and require no further action at this time.

5.0 BOILER ROOM

5.1 Operation Description

The boiler room is a mechanical space constructed of cinder block walls with a concrete floor, containing a furnace and associated piping.

5.2 Chemical and Physical Agents Sampled

5.2.1 Lead

Paint chips were collected in two areas where paint was peeling and sent to AMA for analysis. Both samples were found to contain lead in a concentration below 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 5-1 below shows the results of the lead paint testing.

Table 5-1
Levels of Lead in Paint Found in the Boiler Room

Sample Location	URS Sample Number	Reporting Limit (% by Weight)	Final Result (% by Weight)
Boiler Room #2	0116-LPC01	0.1	0.052
Boiler Room #2	0116-LPC02	0.1	0.06

The analytical report from AMA is contained in Appendix D.

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

LEAD: Two surfaces were tested in the boiler room for lead and found to contain levels below the U.S. Housing and Urban Development (HUD) Lead-Based Paint Guidelines. No further action is required at this time.

MOLD: There was visible mold growth on an old tank that was hanging from the ceiling (Photo # 3159). An appropriately trained technician should remove the mold before it becomes a larger issue.

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 safety program for hearing conservation was found in the site's safety binder, tab I, 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 safety program for respiratory protection was found in the site's safety binder, tab I, 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 safety program for hazard communication was found in the site's safety binder, tab I, chapter 6. No training records were found on site.

6.5 Personal Protective Equipment

A written safety program for personal protective equipment was found in the site's safety binder, tab N, chapter 10. 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/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 6055.22 APR 96

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

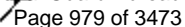
Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (1995, 1997)

U. S. Occupational Safety and Health Administration

Standard for General Industry: 29 CFR 1910

APPENDIX A
SHOP DRAWING

DANVERS, MA



APPENDIX B
PERSONNEL LIST



REPLY TO
ATTENTION OF:

DEPARTMENT OF THE ARMY
Headquarters, 1st Battalion, 101st Field Artillery
"South Regiment"
5 Sycamore Street, New Bedford, Massachusetts 02740

16 January 2004

SUBJECT: Full Time Personnel in the Danvers Armory

1. The following is a list of personnel who work at the Danvers Armory on a full time basis:

Non-Responsive

2. POC on this matter is the undersigned at (978) 774-7406.

Non-Responsive

SFC, MAARNG
Readiness NCO

APPENDIX C
HAZARDOUS MATERIALS LIST

NO HAZARDOUS CHEMICALS INVENTORY ON SITE

APPENDIX D
ANALYTICAL RESULTS



CERTIFICATE OF ANALYSIS

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

Job Name: Army National Guard
Job Location: 2 Amory Drive Danvers, MA
Job Number: Not Provided
P.O. Number: Not Provided

Chain Of Custody: 122170
Date Analyzed: 1/26/2004
Person Submitting: [REDACTED]
Report Date: 26-Jan-04

Attention: Todd Young

Page 1 of 2

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft ²)	Reporting Limit	Final Result	Comments
0420756	0116-LA-01	Flame	Air	956	N/A	3.14 ug/m ³	< 3.1 ug/m ³	
0420757	0116-LA-02	Flame	Air	928	N/A	3.23 ug/m ³	< 3.2 ug/m ³	
0420758	0116-LA-BLANK	Flame	Air Blank	0	N/A	3.00 ug/m ³	< 3 ug	
0420759	0116-LW01	Flame	Wipe	1000	1.000	12.00 ug/ft ²	13 ug/ft ²	
0420760	0116-LW02	Flame	Wipe	1000	1.000	12.00 ug/ft ²	18 ug/ft ²	
0420761	0116-LW03	Flame	Wipe	1000	1.000	12.00 ug/ft ²	< 12 ug/ft ²	
0420762	0116-LW04	Flame	Wipe	1000	1.000	12.00 ug/ft ²	< 12 ug/ft ²	
0420763	0116-LW05	Flame	Wipe	1000	1.000	12.00 ug/ft ²	25 ug/ft ²	
0420764	0116-LW06	Flame	Wipe	1111	1.111	10.80 ug/ft ²	19000 ug/ft ²	
0420765	0116-LW07	Flame	Wipe	1000	1.000	12.00 ug/ft ²	30 ug/ft ²	
0420766	0116-LW08	Flame	Wipe	1000	1.000	12.00 ug/ft ²	260 ug/ft ²	
0420767	0116-LW09	Flame	Wipe	1000	1.000	12.00 ug/ft ²	240 ug/ft ²	
0420768	0116-LW10	Flame	Wipe	1000	1.000	12.00 ug/ft ²	13000 ug/ft ²	
0420769	0116-LWB/BLANK	Flame	Wipe Blank	N/A	N/A	12.00 ug	< 12 ug	
0420770	0116-LPC-01	Flame	Paint Chip	N/A	N/A	0.01 %Pb	0.052 %Pb	
0420771	0116-LPC-02	Flame	Paint Chip	N/A	N/A	0.01 %Pb	0.06 %Pb	
0420772	0116-LPC-03	Flame	Paint Chip	N/A	N/A	0.01 %Pb	0.11 %Pb	
0420773	0116-LPC-04	Flame	Paint Chip	N/A	N/A	0.01 %Pb	0.14 %Pb	
0420774	0116-LPC-05	Flame	Paint Chip	N/A	N/A	0.01 %Pb	0.013 %Pb	
0420775	0116-LPC-06	Flame	Paint Chip	N/A	N/A	0.01 %Pb	0.18 %Pb	

BEST AVAILABLE COPY

BEST AVAILABLE COPY

FOIA Requested Record #1-15-0085 (AMA)

Released by National Guard Bureau

Page 985 of 3473

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, the sample 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. The sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples.

All rights reserved. AMA Analytical Services, Inc.

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

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

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

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

Job Name: Army National Guard
Job Location: 2 Armory Drive Danvers, MA
Job Number: Not Provided
P.O. Number: Not Provided

Chain Of Custody: 122170
Date Analyzed: 1/26/2004
Person Submitting: [REDACTED]
Report Date: 26-Jan-04

Attention: [REDACTED]

Page 2 of 2

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Final Result	Comments
-------------------	----------------------	---------------	-------------	----------------	------------------	-----------------	--------------	----------

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7420; Water: SM-3111B
Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7421; Water: SM-3113B
N/A = Not Applicable mg/Kg = parts per million (ppm) by weight mg/L = parts per million (ppm)
% = percent lead by weight ug = micrograms ug/L = parts per billion (ppb)
Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Analyst: [REDACTED]

Quality Manager: [REDACTED]

Non-Responsive

BEST AVAILABLE COPY

FOIA Requested Record #1-15-0085 (AMA)
Released by National Guard Bureau
Page 986 of 3473

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. These sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and ability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples. All rights reserved. AMA Analytical Services, Inc.

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

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

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Jan 27 04 11:29a

AMA Analytical Services
BEST AVAILABLE COPY

(301) 459 - 2643

P. 1

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

Job Name: Army National Guard
Job Location: 2 Army Drive Danvers, MA
Job Number: Not Provided
P.O. Number: Not Provided

Chain Of Custody: 122170
Date Analyzed: 1/26/2004
Person Submitting: [REDACTED]

Attention: [REDACTED]

Page 1 of 2

Summary of Polarized Light Microscopy

AMA Sample Number	Client Sample #	Total Asbestos	Chrysotile Percent	Amosite Percent	Crocidolite Percent	Other Asbestos Percent	Mineral Wool Percent	Fiberglass Percent	Organic Percent	Synthetic Percent	Other Percent	Particulate Percent	Sample Color	Analyst ID	Comments
0420776	0116-AB01 A- FT	5	5	--	--	--	--	--	--	--	--	95	Brown	CK	
0420777	0116-AB01 A- M	NAD	--	--	--	--	--	--	TR	--	--	100	Black	CK	
0420778	0116-AB01 B- FT	NAD	--	--	--	--	--	--	--	--	--	100	Brown	CK	
0420779	0116-AB01 B- M	2	2	--	--	--	--	--	2	--	--	96	Black	CK	
0420780	0116-AB01 C- FT	3	3	--	--	--	--	--	--	--	--	97	Brown	CK	
0420781	0116-AB01 C- M	3	3	--	--	--	--	--	TR	--	--	97	Black	CK	
0420782	0116-AB02 A	NAD	--	--	--	--	35	--	TR	--	--	65	Off-White	CK	
0420783	0116-AB02 B	NAD	--	--	--	--	40	--	TR	--	--	60	Off-White	CK	
0420784	0116-AB02 C	NAD	--	--	--	--	40	--	TR	--	--	60	Off-White	CK	

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples. All rights reserved. AMA Analytical Services, Inc.

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

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #A-15-0085 (MA)
Released by National Guard Bureau
Page 987 of 3473

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Jan 27 04 11:29a

AMA Analytical Services
BEST AVAILABLE COPY

(301) 459 - 2643

P. 2

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

Job Name: Army National Guard
Job Location: 2 Armory Drive Danvers, MA
Job Number: Not Provided
P.O. Number: Not Provided

Chain Of Custody: 122170
Date Analyzed: 1/26/2004
Person Submitting: [REDACTED]

Attention: [REDACTED]

Page 2 of 2

Summary of Polarized Light Microscopy

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

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

- 1 TEM RECOMMENDATION - Please note, due to resolution limitations with optical microscopy and/or interference from matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos. It is recommended that the additional analytical technique of TEM be used to check for asbestos fibers below the resolution limits of optical microscopy.
- 2 MATRIX REDUCTION RECOMMENDATION - Please note, due to interference from the matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos which is obscured from view. It is recommended that the additional preparation technique of gravimetric reduction be performed on this sample to minimize the obscuring effects of matrix components, followed by reanalysis by PLM and/or TEM.

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

NAD = "No Asbestos Detected"

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

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples.

All rights reserved. AMA Analytical Services, Inc.

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

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (MA)
Released by National Guard Bureau
Page 988 of 3473

APPENDIX E
TRAINING CERTIFICATES

Non-Responsive



**INSTITUTE FOR
ENVIRONMENTAL EDUCATION, INC.**

16 Upton Drive, Wilmington, MA 01887
(978) 658-5272

IEE

IEE

This is to certify that

[REDACTED]

*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 11, 2003

Examination Date

03518010625349

Certificate Number

April 10, 2004

Expiration Date

[REDACTED]

President/Director of Training

BEST AVAILABLE COPY

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (MA)
Released by National Guard Bureau
Page 991 of 3473

APPENDIX F
PHOTOGRAPHS

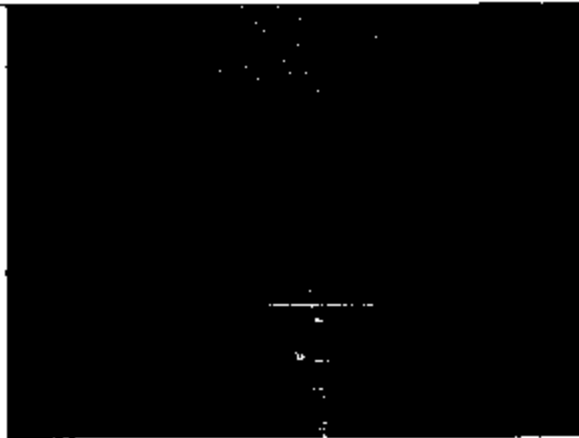


Photo 3159: Boiler Room -Visible mold growth on tank

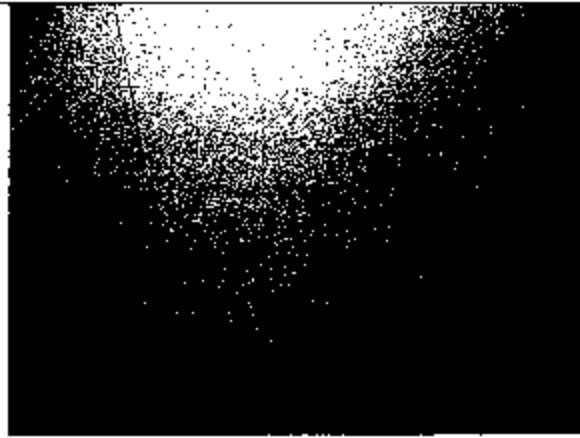


Photo 3161: Classrooms 3 & 4 - Water stains on ceiling

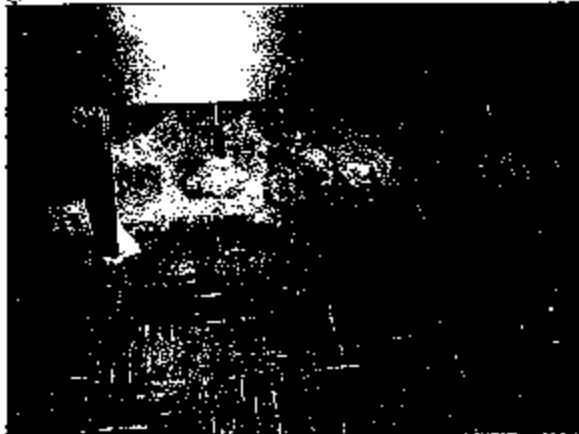


Photo 3163: Kitchen #5 - Damaged asbestos-containing floor tile



Photo 3164: Kitchen #5 - Obstructed fire extinguisher



Photo 3166: Orderly Room #21 Computer Workstation



Photo 3168: Orderly Room #17 Fiberglass pipe insulation with mold growth



Photo 3169: Office #16 – Water stains on ceiling



Photo 3170 Office #6 – Exposed electrical outlet

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 ($\mu\text{g}/\text{ft}^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

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

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

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

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

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

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

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under ($40 \mu\text{g}/\text{ft}^2$ on floors and $250 \mu\text{g}/\text{ft}^2$ 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 $0.05 \text{ mg}/\text{m}^3$ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building,



Prepared For:

National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
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
MASSACHUSETTS NATIONAL GUARD READINESS CENTER
2 ARMORY ROAD
DANVERS, MA 01923**

June 17, 2013
PN: 39743799

Non-Responsive

Director, Industrial Hygiene Services

Non-Responsive

Project Manager

TABLE OF CONTENTS

Section	Page
1.0 SUMMARY	1
2.0 SUPPLY / TRAINING AREA.....	3
2.1 Operation Description.....	3
2.2 Chemical and Physical Agents Sampled	3
2.2.1 Carbon Dioxide.....	3
2.2.2 Carbon Monoxide	4
2.2.3 Relative Humidity	4
2.2.4 Temperature.....	4
2.2.5 Lighting.....	5
2.2.6 Lead	5
2.2.7 Asbestos.....	7
2.3 Ventilation System Evaluation	8
2.4 Noise Measurements.....	8
2.5 Personal Protective Equipment	9
3.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS.....	10
3.1 Confined Spaces	10
3.2 Hearing Conservation.....	10
3.3 Respiratory Protection	10
3.4 Hazard Communication	10
3.5 Personal Protective Equipment	10
3.6 Asbestos Operations and Maintenance Program	10
3.7 Safety	11
4.0 REFERENCES.....	12

APPENDICES

APPENDIX A	SHOP DRAWING
APPENDIX B	PERSONNEL LIST
APPENDIX C	ANALYTICAL RESULTS
APPENDIX D	PHOTOGRAPHIC LOG
APPENDIX E	RECOMMENDATIONS FOR SURFACE LEAD DUST IN ARMORIES

FINDINGS AND RECOMMENDATIONS
MASSACHUSETTS NATIONAL GUARD READINESS CENTER
2 ARMORY RD, DANVERS, MA

Findings	Recommendations	Risk Assessment Code (RAC)
Lighting		
On the day of the survey, the illuminance was inadequate in several locations tested.	Increase lighting in the work areas. While work is in progress, these areas must be lighted by at least the minimum lighting intensities (ANSI / IESNA RP-1-04).	RAC 4
Ergonomics		
Computer workstations in the Administrative Areas were observed with un-adjustable chairs, arm rests and keyboards.	Ergonomic issues with regard to 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
Lead		
Four of the 9 lead wipe samples indicated elevated lead levels.	Personnel trained in accordance with the OSHA Lead Standard should clean the areas where elevated lead dust levels were identified (OSHA 29 CFR 1910.1025(h)(1)).	RAC 3
Emergency Exits		
Emergency exit signs were not visible from all areas of the facility or illuminated.	Emergency exits should be properly illuminated (29 CFR 1910.37 (q)(6)).	RAC 3
Asbestos		
Presumed asbestos-containing floor tile and mastic were damaged throughout the facility; an Asbestos Operation and Maintenance Program was not available on-Site.	Develop a site-specific asbestos operations and maintenance program for management of asbestos-containing materials in place as required by OSHA 29 CFR 1910.1001(j)(2).	RAC 3
PPE		
Hazard assessments have not been conducted to determine whether personal protective equipment is required.	Conduct a hazard assessment of site operations to determine what types of PPE are required for each type of work (29 CFR 1910.132(d)(1)).	RAC 4

Findings	Recommendations	Risk Assessment Code (RAC)
Water Intrusion		
Water staining was observed on stored materials in the Supply Room.	The source of the water intrusion should be identified and repaired. The water-stained materials should be repaired or replaced (ACGIH – Guidelines for the Assessment of Bio-aerosols in the Indoor Environment).	RAC 4
Fire Extinguishers		
A fire extinguisher was blocked along the north perimeter of the Assembly Hall.	Portable fire extinguishers shall be provided, mounted and located so that they are readily available. (29 FR 1910.157 (c)(1) and 29 CFR 1910.38 (c)(2)).	RAC 3
Ladders		
Ladders were observed not properly secured and stored.	Ladders not in use shall be properly stored in a vertical position fastened to walls. (29 CFR 1910.25 (c)(2)(i)).	RAC 4
Housekeeping		
Storage areas were cluttered, including exits and passageways.	All places of employment, passageways, storerooms and service rooms shall be kept clean and orderly and in a sanitary condition. (29 CFR 1910.22 (a)(1)).	RAC 3
Former Indoor Firing Range		
The former Indoor Firing Range has been posted as unsafe due to lead contaminated; however the area is still regularly used.	Personnel trained in accordance with the OSHA Lead Standard should decontaminate this area in accordance with National Guard Pamphlet 420-15 (OSHA 29 CFR 1910.1025(h)(1)).	RAC 3
Since the former indoor firing range is contaminated with lead and several wipe samples were found to contain elevated lead levels, the area should be locked and access restricted. An assessment should be made as to whether respiratory protection and other PPE should be worn when entering this area.	A respirator shall be provided for each employee when such equipment is necessary to protect the health of the employee. (29 CFR 1910.134 (a)(2)).	RAC 3

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 in Danvers, Massachusetts.

URS representative, Ms. Non-Responsive, conducted the Industrial Hygiene Survey on April 11, 2013. The scope of work included an overall assessment of the facility as it relates to industrial hygiene and included a walkthrough of the facility, collection of photographs, and when required, measurements for illumination (light), area and personal air sampling, and noise mapping.

The Danvers Readiness Center is a one-story brick building, consisting of offices, a classroom, supply area, gender separate bathrooms, storage rooms, a kitchen, an Assembly Hall and a former Indoor Firing Range. A layout of the Readiness Center is provided in Appendix A.

GENERAL: The former Indoor Firing Range was taken out of service and is currently being used for storage. Presumed asbestos-containing floor tiles were noted to be damaged throughout the facility. Emergency exit signs were not posted and illuminated throughout the facility. Emergency escape plans were not posted throughout the facility. A fire extinguisher was blocked along the north perimeter of the Assembly Hall. Ladders were not properly secured and stored. Evidence of water intrusion, reportedly from a pipe break, was noted in the Supply Room.

LIGHTING: Lighting in the Readiness Center was found to be inadequate in several of the areas measured. Areas noted within the report as having inadequate lighting require upgrading by either increasing the general lighting or through the use of task lighting. While work is in progress work areas must be lighted by at least the minimum light intensities.

LEAD: Four of the nine wipe samples collected in the Readiness Center were found to contain lead in a concentration above the recommended limit set by the NGB, Region

North IH Office. The former indoor firing range has been posted as unsafe due to lead contamination, however, the area is still used regularly.

On the day of the survey, the paint chip samples were not found to contain a level of lead above the HUD criteria for determination of paint as lead-based.

ASBESTOS: Presumed asbestos-containing floor tiles were noted to be damaged throughout the facility. No Asbestos Operations and Maintenance Program was found on site. Until suspect materials have been sampled and determined not to contain asbestos, they must be presumed to be asbestos-containing and managed accordingly.

ERGONOMICS: Many of the work stations had ergonomic issues which require attention. Computer workstations were assessed during the walkthrough for ergonomic issues. The computer workstations in the facility did not meet the current Occupational Safety and Health Administration (OSHA) ergonomic recommendations. The chair armrests, keyboards, and monitors were not adjustable. All workstations in the facility should be adjusted and monitored. The ergonomic issues with regard to the workstations and chairs need to be corrected by fitting the workplace to the worker.

NOISE: Noise mapping levels in the Readiness Center determined that noise levels were below the OSHA permissible exposure limit (PEL) and Department of Defense Instruction (DoDI) Hearing Conservation Standard (6055.12 3 December 2010) on the day of URS' site visit.

2.0 SUPPLY / TRAINING AREA

2.1 Operation Description

This Readiness Center is primarily used for weekend training drills and conducting administrative functions. The building includes offices, a classroom, supply area, gender separate bathrooms, storage rooms, a kitchen, an Assembly Hall and a former Indoor Firing Range.

The Readiness Center was found to be somewhat cluttered and unorganized at the time of URS' site visit.

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. Interior carbon dioxide concentrations were found to be between 453 and 699 parts per million (ppm). Carbon dioxide levels were measured using a direct-reading TSI Q-Trak (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 human respiration. 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 but is typically 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.

To minimize air quality complaints, the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) has proposed that the carbon dioxide concentration within an occupied workspace be maintained below 700 ppm above ambient outside levels. For example, on the day of the survey, the outside carbon dioxide level was measured at 416 ppm. Therefore ASHRAE (Standard 62.1-2010) would recommend that interior carbon dioxide concentrations be maintained at or below

1116 ppm. Using the ASHRAE guideline, the readings at the subject site were found to be below the suggested indoor to outdoor differential concentration.

2.2.2 Carbon Monoxide

The carbon monoxide concentration in the Readiness Center was measured between 0.0 ppm and 0.8 ppm on the day of the survey. ASHRAE recommends that average carbon monoxide concentrations not exceed 9 ppm. Typical average concentrations found in commercial buildings range from 0 to 6 ppm. The measured levels were below the ASHRAE guideline for indoor environments. Carbon monoxide was measured using a TSI Q-Trak Plus (Model 8554).

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.

2.2.3 Relative Humidity

The average relative humidity within the Readiness Center measured with the Q-Trak Plus was 45.7%, which was within the guideline of less than 65% recommended by ASHRAE.

2.2.4 Temperature

Temperature should be maintained within the thermal comfort envelope suggested in ASHRAE Standard 55-2010. This standard on thermal environments specifies conditions in which 80% or more of building occupants should find the thermal environment acceptable. ASHRAE 55-2010 suggests temperatures of 68 to 75 degrees Fahrenheit (°F), during winter months, for people in typical seasonal clothing during light sedentary activity. For summer, the temperature should be in the range of 73 to 79 °F.

The average temperature inside the Readiness Center was, 64.2 °F, which was below the guideline of 68 to 75 °F recommended by ASHRAE for thermal comfort. No complaints regarding temperature were received by URS during this survey.

2.2.5 Lighting

Lighting in the Readiness Center was measured using a cal-Light 400 Light Meter. Table 2-1 below shows lighting measurements in foot candles (FC) and the recommended lighting requirements (Illuminating Engineering Society of North America (IESNA) RP-7-01).

Table 2-1
Lighting Measurements and Recommended Lighting Requirements

Location	Function	Measured Illuminance in Foot Candles (FC)	Recommended Minimum Illuminance in Foot Candles (FC)
Admin, North Office, desk- Non-Response	Admin	28.5	50
Admin, North Office, conference room, vacant desk	Admin	33.9	50
Admin North, conference table	Admin	36.9	50
Offices North of Lobby, desk- Non-Response	Admin	87.4	50
Drill Hall	Hall	14.9	5
North Hallway	Hall	6.7	5
North Office, Btry. Co., desk	Admin	83.4	50
Recruiter's Office, desk	Admin	34.7	50
Recruiter's Office, desk- Non-Response	Admin	29.9	50
South Hall	Hall	71.8	5
Storage off Range, shelves	Storage	8.7	30
Classroom, table	Admin	34.0	50
Classroom, table	Admin	46.2	50
Classroom, table	Admin	43.1	50
West storage, shelves	Storage	21.1	30
Supply Room, shelf	Storage	16.9	30
Supply Room, shelf	Storage	9.6	30
Supply Room, desk	Admin	51.1	50

On the day of the survey, the illuminance in the Readiness Center was determined to be inadequate in twelve of the locations tested throughout the facility.

2.2.6 Lead

Wipe testing for lead dust was conducted in the Readiness Center using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA Analytical

Services, Inc. (AMA) is contained in Appendix C. Table 2-2 below shows the results of the lead wipe testing.

Table 2-2
Levels of Lead Dust Found in the Readiness Center

Sample Location	URS Sample Number	Area Wiped in Square Feet (ft²)	Result in Micrograms/Square Foot (µg/ft²)	Maximum Surface Contamination Level in Micrograms/Square Foot (µg/ft²)
Supply Room, doorway to former Indoor Firing Range, floor	Danvers RC Wipe-01	0.108	750	200
North Storage, floor by rolling door	Danvers RC Wipe-03	0.108	720	200
South Storage, floor by door to vault	Danvers RC Wipe-04	0.108	510	200
Basement Boiler Room, floor by hot water heater	Danvers RC Wipe-05	0.108	7600	200
South Admin, conference room, floor behind copier	Danvers RC Wipe-06	0.108	<110	200
Recruiting Office, floor under desk by window	Danvers RC Wipe-07	0.108	<110	200
Classroom, floor under projector screen	Danvers RC Wipe-08	0.108	<110	200
Kitchen, floor under storage locker	Danvers RC Wipe-09	0.108	<110	200
PT Room, floor behind door	Danvers RC Wipe-10	0.108	<110	200

Four of the nine surface dust level measurements were found to contain lead at a level above the NGB recommended level, based on the OSHA clarification letter which states “as free as practicable” of lead contamination as specified under OSHA 29 CFR 1926.62. Since access to the former firing range was restricted, no wipe samples were collected in that area.

Two paint chip samples were collected from areas of peeling paint in the facility and were analyzed for lead content. The analytical report from AMA is contained in Appendix C.

According to the U.S. Department of Housing and Urban Development (HUD), paint is considered to be lead-based if the quantity of lead is greater than 0.5% by weight. OSHA has not established a minimum percentage of lead to be defined as lead-based paint, therefore paint with lead in any amount above the analytical detection limit is considered to be lead-based under these regulations. The results of URS' lead paint testing are contained in Table 2-3.

Table 2-3
Lead Content in Painted Surfaces

Paint Location	Lead Concentration (Percent Weight)	HUD Lead-Based Quantity (Percent Weight)
White paint, interior walls, Supply Room	<0.0091	0.5
Gray/ beige paint, boiler room, walls	0.23	0.5

On the day of the survey, neither of the paint chip samples were found to have a lead content above the HUD criteria for determination of paint as lead-based.

2.2.7 Asbestos

URS collected a total of three samples from damaged suspect friable asbestos-containing material (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 with dispersion staining (EPA-600/M4-82-020). Table 2-4 below shows the results of the asbestos sampling.

**Table 2-4
Asbestos Bulk Sample Results – Assembly Hall**

Sample Location	Sample Description	URS Sample Number	Result Total Asbestos Content
Basement Boiler Room, boiler at valve	Pipe Insulation	Danvers RC PLM-01A-01C	Non-detect

The EPA states that any material with an asbestos content greater than 1% must be treated as ACM (EPA, Title 40 CFR Part 763.87 (c)(2)). The analytical report from AMA is contained in Appendix C.

Presumed asbestos-containing floor tiles and associated mastic were also identified during this survey. Until suspect materials have been sampled and determined not to contain asbestos, they must be presumed to be asbestos-containing and managed accordingly.

2.3 Ventilation System Evaluation

The facility, not designed for vehicle maintenance, contains a ventilation system that is limited to localized personal ventilation (i.e. room fans, window air conditioning units) within the majority of rooms, and main negative draw fans in the Assembly Hall.

2.4 Noise Measurements

Noise mapping was conducted throughout the Readiness Center. Area noise mapping results indicated that, on the day of the survey, noise levels throughout the Readiness Center ranged from 58.9 decibels to 64.2 decibels. All noise mapping results were below the DoDI Hearing Conservation Standard (6055.12 3 December 2010) of 85 dBA/8-hour day.

2.5 Personal Protective Equipment

Personal protective equipment was orderly and readily available to employees in the Readiness Center. Personal protective equipment included safety glasses, ear plugs and nitrile gloves.

3.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS

3.1 Confined Spaces

A written confined spaces program is not applicable to this facility.

3.2 Hearing Conservation

A written hearing conservation program was identified on site. A review of normal site activities determined that no operations were identified that would warrant hearing protection. Based on area noise mapping results and a review of normal site operations, a hearing conservation program is not required for this site.

3.3 Respiratory Protection

A site-specific written program regarding Respiratory Protection was identified on site. No operations were observed by URS that would require the use of respiratory protection. If workers are allowed access to the former indoor firing range, which has not been contaminated, a hazard assessment should be conducted to determine whether respiratory protection and other forms of PPE should be required in this area.

3.4 Hazard Communication

A site-specific hazard communication program was identified on site.

Material safety data sheets, a site map, and list of full time personnel were readily available on the day of the survey.

3.5 Personal Protective Equipment

A written personal protective equipment program was identified on site. A hazard assessment should be conducted to determine whether personal protective equipment is required for activities typically undertaken at the Readiness Center.

3.6 Asbestos Operations and Maintenance Program

A written asbestos operations and maintenance program was not identified on site.

3.7 Safety

The former Indoor Firing Range was taken out of service and is currently being used for storage. Presumed asbestos-containing floor tiles were noted to be damaged throughout the facility. Emergency exit signs were not posted and illuminated throughout the facility. Emergency escape plans were not posted throughout the facility. A fire extinguisher was blocked along the north perimeter of the Assembly Hall.

4.0 REFERENCES

American Conference of Governmental Industrial Hygienists

Industrial Ventilation: A Manual of Recommended Practice, 27th Edition, 2010

Guidelines for the Assessment of Bio-aerosols in the Indoor Environment, 1989

American National Standards Institute

American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-04: American National Standard Practice for Office Lighting

ANSI/IESNA RP-7-01: Recommended Practice for Lighting Industrial Facilities

American Society of Heating, Refrigerating and Air-Conditioning Engineers

ANSI/ASHRAE Standard 62.1-2010: Ventilation for Acceptable Indoor Air Quality

ANSI/ASHRAE Standard 55-2010: Thermal Environmental Conditions for Human Occupancy.

Department of the Army

DA PAM 40-21, Ergonomics Program, 15 August 2003

Unified Facilities Criteria, Heating, Ventilating and Air Conditioning, 3-520-05, 14 April 2008

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

AR 385-10, The Army Safety Program, 23 August 2007; RAR Issue Date: 4 October 2011

National Guard Pamphlet 420-15

Department of Defense

DoDI 6055.12, Hearing Conservation, 3 December 2010

Creating the Ideal Computer Workstation: A Step-by-Step Guide, June 2000

National Institute for Occupational Safety and Health

Current Intelligence Bulletin 50: Carcinogenic Effects of Exposure to Diesel Exhaust, August 1988

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. Department of Housing and Urban Development

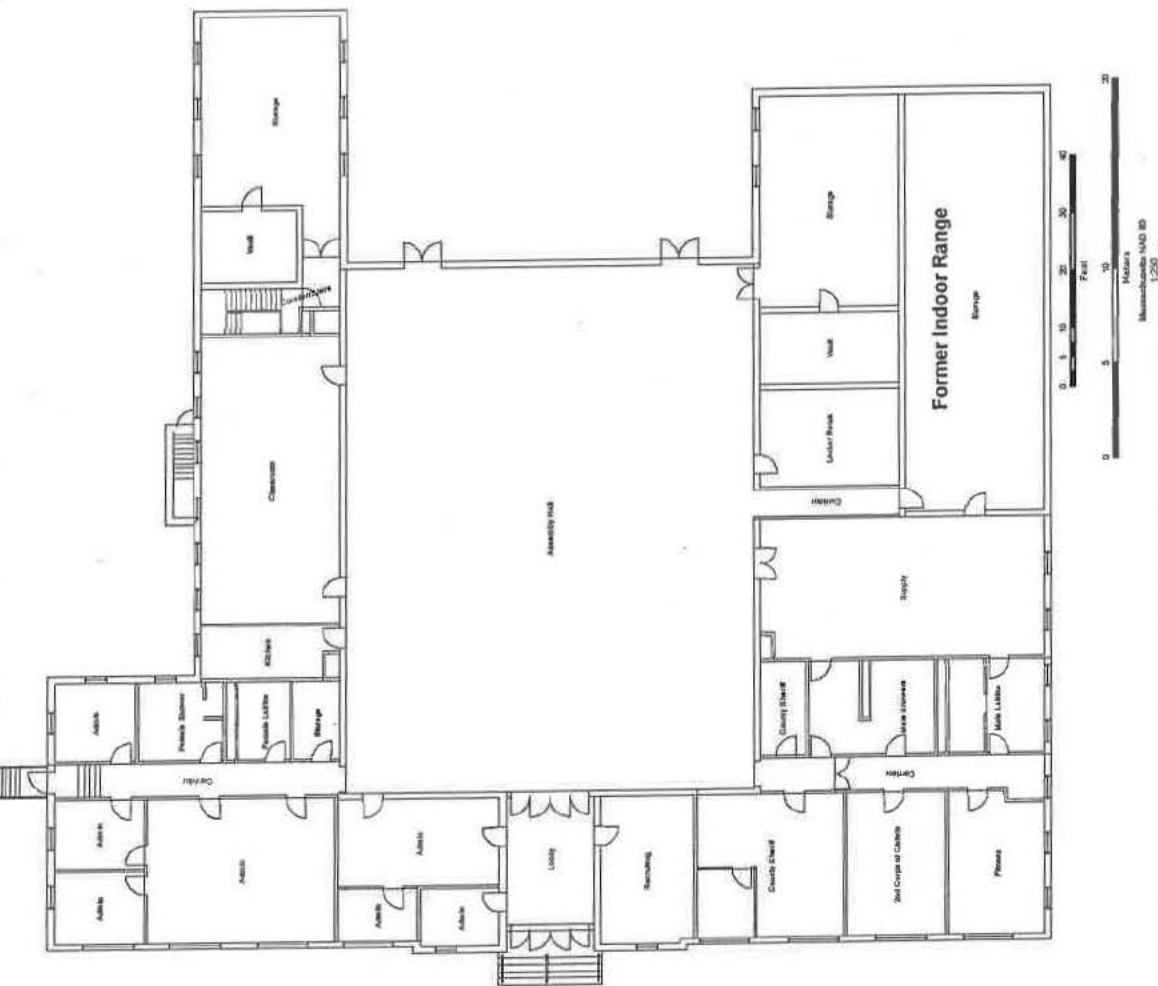
Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (1995, 1997, 2012)

U. S. Occupational Safety and Health Administration

Standard for General Industry: 29 CFR 1910

OSHA Clarification Letter – Clarification of “as free as practicable” of lead contamination under 29 CFR 1926.62, 13 January 2003.

APPENDIX A
SHOP DRAWING



Basement is partial only, rest of area is slab on grade.



 William A. Conway
Psychiatry, SUNY Stony Brook (USA)
Conway@stonybrook.edu
Library 23-4-06

15 JUL 2012

APPENDIX B
PERSONNEL LIST

Non-Responsive



Fulltime

Fulltime

Fulltime

2days per week

5 Days per month

APPENDIX C

ANALYTICAL RESULTS



CERTIFICATE OF ANALYSIS



Client:	National Guard Bureau	Job Name:	MA ARNG	Chain Of Custody:	515617
Address:	301-1H Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	2 Armory Road, Danvers, MA	Date Submitted:	4/17/2013
		Job Number:	Danvers RC	Person Submitting:	Non-Responsive
		P.O. Number:	W912K6-09-A-0003	Date Analyzed:	
Attention:	Non-Responsive			Report Date:	4/24/2013

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 (ft ²)	Reporting Limit	Total ug	Final Result	Comments
13054205	DanversRC Wipe 01	Flame	Wipe	****	0.108	110 ug/ft ²	80	750 ug/ft ²	
13054206	DanversRC Wipe 03	Flame	Wipe	****	0.108	110 ug/ft ²	77	720 ug/ft ²	
13054207	DanversRC Wipe 04	Flame	Wipe	****	0.108	110 ug/ft ²	55	510 ug/ft ²	
13054208	DanversRC Wipe 05	Flame	Wipe	****	0.108	110 ug/ft ²	820	7600 ug/ft ²	
13054209	DanversRC Wipe 06	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13054210	DanversRC Wipe 07	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13054211	DanversRC Wipe 08	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13054212	DanversRC Wipe 09	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13054213	DanversRC Wipe 10	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13054214	DanversRC Wipe FB	Flame	Wipe Blank	****	N/A	12 ug		<12 ug	
13054215	DanversRC LBP 01	Flame	Paint Chip	****	N/A	0.0091 %Pb		<0.0091 %Pb	
13054216	DanversRC LBP 02	Flame	Paint Chip	****	N/A	0.0064 %Pb		0.23 %Pb	

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.



CERTIFICATE OF ANALYSIS



Client:	National Guard Bureau	Job Name:	MA ARNG	Chain Of Custody:	515617
Address:	301-IH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	2 Armory Road, Danvers, MA	Date Submitted:	4/17/2013
		Job Number:	Danvers RC	Person Submitting:	Non-Responsive
		P.O. Number:	W912K6-09-A-0003	Date Analyzed:	
Attention:	Non-Responsive			Report Date:	4/24/2013

Summary of Atomic Absorption Analysis for Lead

Page 2 of 2

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Total ug	Final Result	Comments
Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm) %Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb) Note: All samples were received in good condition unless otherwise noted. Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result. Air and Wipe results are not corrected for any blank results Final results for air and wipe samples are based on client supplied information nor verified by this laboratory. All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.							See QC Summary for analytical results of quality control samples associated with these samples.		
Analyst: Non-Responsive						Technical Manager: Non-Responsive			

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.amaulab.com

AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)

4475 Forbes Blvd. • Lanham, MD 20706

(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY(Please Refer To This
Number For Inquiries)

515617

Mailing/Billing Information:

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

Submission Information:

1. Job Name: MA IABNG
2. Job Location: DANVERS ARMY Bldg, DANVERS, MA
3. Job #: DANVERS BC PO #: W012K6 00 A 0002 **Non-Responsive**
4. Contact Person: **Non-Responsive**
5. Submitted By: **Non-Responsive**

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

AFTER HOURS (must be pre-scheduled)		NORMAL BUSINESS HOURS	
<input type="checkbox"/> Immediate Date Due: _____	<input type="checkbox"/> Immediate	<input type="checkbox"/> 3 Day	<input type="checkbox"/> Results Required By Noon
<input type="checkbox"/> 24 Hours Time Due: _____	<input type="checkbox"/> Next Day	<input checked="" type="checkbox"/> 5 Day + <u>4/24/13</u>	(Every Attempt Will Be Made to Accommodate)
Comments: _____	<input type="checkbox"/> 2 Day	Date Due: <u>4/24/13</u>	

☐ Include _____ with Report **Non-Responsive**

☐ Fax _____ **Non-Responsive**

☐ Ver _____ **Non-Responsive**

us.com
us.army.mil
us.army.mil

Asbestos Analysis

PCMAir - Please Indicate Filter Type:

- ☐ NIOSH 7400 _____ (QTY)
- ☐ Fiberglass _____ (QTY)

TEM Air - Please Indicate Filter Type:

- ☐ AHERA _____ (QTY)
- ☐ NIOSH 7402 _____ (QTY)
- ☐ Other (specify _____) _____ (QTY)

PLM Bulk

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

MISC

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

TEM Bulk

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

TEM Dust

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

TEM Water

- ☐ Qual. (pres/abs) _____ (QTY)
- ☐ ELAP 198.2/EPA 100.2 _____ (QTY)
- ☐ EPA 100.1 _____ (QTY)

☒ All samples received in good condition unless otherwise noted.

TEM Water samples _____ °C

Metals Analysis

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

Collection Apparatus for Spore Traps/Air Samples:

- Collection Media _____
- ☐ Spore-Trap _____ (QTY) ☐ Surface Vacuum Dust _____ (QTY)
- ☐ Surface Swab _____ (QTY) ☐ Culturable ID Gens (Media _____) _____ (QTY)
- ☐ Surface Tape _____ (QTY) ☐ Culturable ID Species (Media _____) _____ (QTY)
- ☐ Other (Specify _____) _____ (QTY)

SAMPLE INFORMATION

CLIENT ID NUMBER	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPER AREA	TEM	PCMA	PLM	LEAD	MOLD	AIR	BULK	DUST	WATER AND OTHER	SPORE TRAP	TAPE	SWAB
DANVERS BC Wipe-01	Maintenance	4/11/13		100cm ²				X				X				
DANVERS BC Wipe-02	Not Submitted							X				X				
DANVERS BC Wipe-03								X				X				
DANVERS BC Wipe-04								X				X				
DANVERS BC Wipe-05								X				X				
DANVERS BC Wipe-06	Admin							X				X				
DANVERS BC Wipe-07								X				X				
DANVERS BC Wipe-08								X				X				
DANVERS BC Wipe-09								X				X				
DANVERS BC Wipe-10								X				X				
DANVERS BC Wipe-11								X				X				
DANVERS BC Wipe-12	Field Blank							X				X				
DANVERS BC Wipe-13	White Paint							X				X				

LABORATORY**STAFF ONLY:**1. Date/Time RCVD: 4/11/13 @ 9:45 Via: FedEx By (Print): _____

2. Date/Time Analyzed: _____ / _____ / _____ @ _____ By (Print): _____

3. Results Reported To: _____

4. Comments: _____

BEST AVAILABLE COPY

Date: _____

Non-Responsive



CERTIFICATE OF ANALYSIS

Client:	National Guard Bureau	Job Name:	MA ARNG	Chain Of Custody:	515617
Address:	301-III Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	2 Armory Road, Danvers, MA	Date Analyzed:	4/24/2013
		Job Number:	Danvers RC	Person Submitting:	Non-Responsive
		P.O. Number:	W912K6-09-A-0003		

Attention: Non-Responsive

Page 1 of 2

Summary of Polarized Light Microscopy

AMA Sample Number	Client Sample #	Total Asbestos	Chrysotile Percent	Amosite Percent	Crocidolite Percent	Other Asbestos Percent	Mineral Wool Percent	Fiberglass Percent	Organic Percent	Synthetic Percent	Other Percent	Particulate Percent	Sample Type	Sample Color	Homogeneity	Analyst ID	Comments
13054217	DanversRC PLM 01A	NAD	--	--	--	--	30	--	--	--	--	70	PI	Gray	Homogeneous	LBP	
13054218	DanversRC PLM 01B	NAD	--	--	--	--	30	--	--	--	--	70	PI	Gray	Homogeneous	LBP	
13054219	DanversRC PLM 01C	NAD	--	--	--	--	30	--	--	--	--	70	PI	Gray	Homogeneous	LBP	

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.



CERTIFICATE OF ANALYSIS

Client:	National Guard Bureau	Job Name:	MA ARNG	Chain Of Custody:	515617
Address:	301-IH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	2 Armory Road, Danvers, MA	Date Analyzed:	4/24/2013
		Job Number:	Danvers RC	Person Submitting:	Non-Responsive
		P.O. Number:	W912K6-09-A-0003		

Attention: Non-Responsive

Page 2 of 2

Summary of Polarized Light Microscopy

AMA Sample Number	Client Sample #	Total Asbestos	Chrysotile Percent	Amosite Percent	Crocidolite Percent	Other Asbestos Percent	Mineral Wool Percent	Fiberglass Percent	Organic Percent	Synthetic Percent	Other Percent	Particulate Percent	Sample Type	Sample Color	Homogeneity	Analyst ID	Comments
-------------------	-----------------	----------------	--------------------	-----------------	---------------------	------------------------	----------------------	--------------------	-----------------	-------------------	---------------	---------------------	-------------	--------------	-------------	------------	----------

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

- 1 TEM RECOMMENDATION - Please note, due to resolution limitations with optical microscopy and/or interference from matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos. It is recommended that the additional analytical technique of TEM be used to check for asbestos fibers below the resolution limits of optical microscopy.
- 2 MATRIX REDUCTION RECOMMENDATION - Please note, due to interference from the matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos which is obscured from view. It is recommended that the additional preparation technique of gravimetric reduction be performed on this sample to minimize the obscuring effects of matrix components, followed by reanalysis by PLM and/or TEM.

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

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

Uncertainty: For samples containing asbestos in range of 1-10%
the CV is 0.43, 11-35% CV=0.55, >35 CV=0.23

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

Technical Director

Non-Responsive

Analyst(s)

Non-Responsive

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.

**AMA Analytical Services, Inc.**

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

CHAIN OF CUSTODY

(Please Refer To This
Number For Inquiries)

515617

Mailing/Billing Information:

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

Submittal Information:

1. Job Name: MA ABNG
2. Job Location: MA 2 Armory Rd., Danvers, MA
3. Job #: DANVERS BC
4. Contact Person: Non-Responsive
5. Submitted By: Non-Responsive

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

AFTER HOURS (must be pre-scheduled)		NORMAL BUSINESS HOURS		REPORT TO:
<input type="checkbox"/> Immediate Date Due: _____	<input type="checkbox"/> 24 Hours Time Due: _____	<input type="checkbox"/> Immediate	<input type="checkbox"/> 3 Day	<input type="checkbox"/> In-person
<input type="checkbox"/> 24 Hours Time Due: _____	<input type="checkbox"/> Next Day	<input checked="" type="checkbox"/> 5 Day + <u>4/24/13</u>	<input type="checkbox"/> Results Required By Noon (Every Attempt Will Be Made to Accommodate)	<input checked="" type="checkbox"/> With Report
Comments: _____		<input type="checkbox"/> 2 Day		<input type="checkbox"/> Fax
				<input type="checkbox"/> Ver

Asbestos Analysis**PCM Air** - Please Indicate Filter Type:

- ☐ NIOSH 7400 (QTY) _____
☐ Fiberglass (QTY) _____

TEM Air - Please Indicate Filter Type:

- ☐ AHERA (QTY) _____
☐ NIOSH 7402 (QTY) _____
☐ Other (specify) _____ (QTY) _____

PLM Bulk

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

MISC

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

TEM Bulk

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

TEM Dust

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

TEM Water

- ☐ Qual. (pres/abs) (QTY) _____
☐ ELAP 198.2/EPA 100.2 (QTY) _____
☐ EPA 100.1 (QTY) _____

☒ All samples received in good condition unless otherwise noted.
TEM Water samples _____ °C

Visual Analysis

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

Fungal Analysis

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

SAMPLE INFORMATION

CLIENT ID NUMBER	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPE AREA	TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	SWAB	TAPE	SWAB
DANVERS BC Wipe 01	MAINTENANCE	4/11/13		100cm ²				X				X			
DANVERS BC Wipe 02								X				X			
DANVERS BC Wipe 03								X				X			
DANVERS BC Wipe 04								X				X			
DANVERS BC Wipe 05								X				X			
DANVERS BC Wipe 06	ADMIN							X				X			
DANVERS BC Wipe 07								X				X			
DANVERS BC Wipe 08								X				X			
DANVERS BC Wipe 09								X				X			
DANVERS BC Wipe 10								X				X			
DANVERS BC Wipe 11	FIELD BLANK							X				X			
DANVERS BC Wipe 12	WINDY POINT							X				X			

LABORATORY**STAFF ONLY:****(CUSTODY)**1. Date/Time RCVD: 4/11/13 @ 9:45 Via: FEDEX By (Print): _____

2. Date/Time Analyzed: _____ / _____ / _____ @ _____ By (Print): _____

3. Results Reported To: _____

4. Comments: _____

BEST AVAILABLE COPY

Date: _____

Non-Responsive



AMA Analytical Services, Inc.

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

CHAIN OF CUSTODY

(Please Refer To This
Number For Inquires)

pg 2 of 2

Mailing/Billing Information:

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

Submittal Information:

1. Job Name: MA JAB09
2. Job Location: 2 Armory Rd, Danvers, MA
3. Job #: DANVERS RD
4. Contact Person: [REDACTED] Non-Responsive
5. Submitted by: [REDACTED] Non-Responsive

Reporting Information (Results will be provided)

AFTER HOURS (must be pre-scheduled)		NORMAL BUSINESS HOURS		REPORTING OFFICER'S SIGNATURE	REPORTING OFFICER'S NAME	REPORTING OFFICER'S PHONE NUMBER	REPORTING OFFICER'S EMAIL ADDRESS
<input type="checkbox"/> Immediate	Date Due: _____	<input type="checkbox"/> Immediate	<input type="checkbox"/> 3 Day	<input type="checkbox"/> Results Required By Noon (Every Attempt Will Be Made to Accomodate)	<input checked="" type="checkbox"/> Incomplete	<input type="checkbox"/> Not Reported	<input type="checkbox"/> With Report
<input type="checkbox"/> 24 Hours	Time Due: _____	<input type="checkbox"/> Next Day	<input checked="" type="checkbox"/> 5 Day + Date Due: _____		<input type="checkbox"/> On Time	<input type="checkbox"/> Partially Reported	@ <u>URS.com</u>
Comments: _____		<input type="checkbox"/> 2 Day			<input type="checkbox"/> Failed	<input type="checkbox"/> Fully Reported	@us.army.mil
					<input type="checkbox"/> Verbal	<input type="checkbox"/> Fully Reported	@us.army.mil

Asbestos Analysis

- PCM Air** – Please Indicate Filter Type:
☐ NIOSH 7400 _____ (QTY)
☐ Fiberglass _____ (QTY)
- TEM Air** – Please Indicate Filter Type:
☐ AHERA _____ (QTY)
☐ NIOSH 7402 _____ (QTY)
☐ Other (specify _____) _____ (QTY)

PLM Bulk

- ☒ EPA 600 - Visual Estimate 5 (QTY)
☐ EPA Point Count _____ (QTY)
☐ NY State Friable 198.1 _____ (QTY)
☐ Grav. Reduction ELAP 198.6 _____ (QTY)
☐ Other (specify) _____ (QTY)

MISC

- ☐ Vermiculite
☐ Asbestos Soil PLM__(Qual) PLM__(Qual) PLM/TEM__(Qual) PLM/TEM__(Qual)

TEM Bulk

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

TEM Dust

- ☐ Qual. (pres/abs) Vacuum/Dust _____ (QTY)
☐ Quan. (s/area) Vacuum D5755-95 _____ (QTY)
☐ Quan. (s/area) Dust D6180-99 _____ (QTY)

TEM Water

- ☐ Qual. (pres/abs)_____ (QTY)
☐ ELAP 198.2/EPA 100.2_____ (QTY)
☐ EPA 100.1_____ (QTY)

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

Western Agency

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

THE UNIVERSITY OF CHICAGO PRESS

- Collection Apparatus for Spore Traps/Air Samples: _____
Collection Media _____
- | | |
|--|---|
| <input type="checkbox"/> Spore-Trap _____ (QTY) | <input type="checkbox"/> Surface Vacuum Dust _____ (QTY) |
| <input type="checkbox"/> Surface Swab _____ (QTY) | <input type="checkbox"/> Cultureable ID Genus (Media _____) (QTY) |
| <input type="checkbox"/> Surface Tape _____ (QTY) | <input type="checkbox"/> Cultureable ID Species (Media _____) (QTY) |
| <input type="checkbox"/> Other (Specify _____) (QTY) | |

SAMPLE INFORMATION

[illegible]

LABORATORY

STAFF ONLY:

to NGB FOIA
(CUSTODY)

1. Date/Time RCVD: ____/____/____ @ ____ Via: ____ By (Print): ____ Sign: ____
2. Date/Time Analyzed: ____/____/____ @ ____ By (Print): ____ Sign: ____
3. Results Reported To: ____ BEST AVAILABLE COPY Date: ____/____/____ FOIA Requested Record #J-15-0085 (MA)
4. Comments: ____ Released by National Guard Bureau Page 1037 of 3473

APPENDIX D
PHOTOGRAPHIC LOG



PHOTOGRAPHIC LOG

Client Name: MA ARNG- Danvers RC		Site Location: 2 Armory Rd., Danvers, MA	Project No. 39743799
Photo No. 1	Date: 4/11/13		
Description: Blocked fire extinguisher along the north perimeter of the Assembly Hall.			

Photo No. 2	Date: 4/11/13	
Description: Damaged presumed asbestos-containing floor tiles and associated mastic at west Storage entrance.		



PHOTOGRAPHIC LOG



Client Name: MA ARNG- Danvers RC		Site Location: 2 Armory Rd., Danvers, MA	Project No. 39743799
Photo No. 3	Date: 4/11/13		
Description: Evidence of water intrusion on boxes, reportedly from a pipe break, in Supply Room.			

Photo No. 4	Date: 4/11/13	
Description: Doorways in west Storage room with no illuminated exit signs or emergency escape plans.		

APPENDIX E

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 ($\mu\text{g}/\text{ft}^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.
 - a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors ($40 \mu\text{g}/\text{ft}^2$) and windowsills ($250 \mu\text{g}/\text{ft}^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.
 - b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.
 - c. OSHA used to cite a level of $200 \mu\text{g}/\text{ft}^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.
 - d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that $200 \mu\text{g}/\text{ft}^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.
 - e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no

correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:
 - a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under ($40 \mu\text{g}/\text{ft}^2$ on floors and $250 \mu\text{g}/\text{ft}^2$ 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 milligrams per cubic meter (mg/m^3) averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.



Prepared For:

National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
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
DORCHESTER READINESS CENTER
70 VICTORY ROAD
DORCHESTER, MASSACHUSETTS

Non-Responsive

Office Manager

Non-Responsive

Project Manager

July 2005
PN: 39741508

TABLE OF CONTENTS

Section	Page
1.0 SUMMARY	1
2.0 ADMINISTRATIVE AREA.....	2
2.1 OPERATION DESCRIPTION.....	2
2.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED.....	2
2.2.1 Relative Humidity.....	2
2.2.2 Carbon Dioxide.....	2
2.2.3 Carbon Monoxide	3
2.2.4 Lighting.....	3
2.2.5 Lead	4
2.2.5 Asbestos.....	5
2.3 VENTILATION SYSTEM EVALUATION	5
2.4 NOISE MEASUREMENTS.....	5
2.5 PERSONAL PROTECTIVE EQUIPMENT.....	5
2.6 INTERPRETATION OF RESULTS.....	5
3.0 FORMER FIRING RANGE	7
3.1 OPERATION DESCRIPTION.....	7
3.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED.....	7
3.2.1 Lead	7
3.3 VENTILATION SYSTEM EVALUATION	8
3.4 NOISE MEASUREMENTS.....	8
3.5 PERSONAL PROTECTIVE EQUIPMENT.....	8
3.6 INTERPRETATION OF RESULTS.....	8
4.0 DRILL HALL	9
4.1 OPERATION DESCRIPTION.....	9
4.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED.....	9
4.2.1 Lead	9
4.3 VENTILATION SYSTEM EVALUATION	9
4.4 NOISE MEASUREMENTS.....	10
4.5 PERSONAL PROTECTIVE EQUIPMENT.....	10
4.6 INTERPRETATION OF RESULTS.....	10
5.0 BOILER ROOM / BASEMENT AREA.....	11
5.1 OPERATION DESCRIPTION.....	11
5.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED.....	11
5.2.1 Lead	11
5.2.2 Asbestos.....	11
5.3 VENTILATION SYSTEM EVALUATION	11
5.4 NOISE MEASUREMENTS.....	11
5.5 PERSONAL PROTECTIVE EQUIPMENT.....	11
5.6 INTERPRETATION OF RESULTS.....	12
6.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS	13
6.1 CONFINED SPACES	13

TABLE OF CONTENTS (cont)

6.2	HEARING CONSERVATION	13
6.3	RESPIRATORY PROTECTION	13
6.4	HAZARD COMMUNICATION.....	13
6.5	PERSONAL PROTECTIVE EQUIPMENT.....	13
7.0	REFERENCES	14

APPENDICES

Appendix A Shop Drawing

Appendix B Personnel List

Appendix C Hazardous Materials List

Appendix D Analytical Results

Appendix E Training Certificates

Appendix F Photographs

Appendix G Recommendations for Surface Dust in Armories

FINDINGS AND RECOMMENDATIONS

Findings	Recommendation	Risk Assessment Code
Ergonomic		
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
Lighting		
On the day of the survey, the illuminance in the administrative area was inadequate in approximately half of the 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 RP-1-04)	RAC 4
Lead		
Peeling lead-based paint was present in Kitchen #19 and the boiler room # 18.	Personnel trained in accordance with the OSHA Lead Standard should stabilize peeling lead paint (OSHA 29 CFR 1910.1025(h)(1))	RAC 4
Lead was detected in wipe samples collected from the former firing range in amounts greater than 200 µg/ft ²	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))	RAC 4
Asbestos		
Exposed pipe insulation, worn out 9"x9" floor tile, and cracking and loose window glazing were found in various places of this facility.	Repair and/or remove all asbestos containing materials that are exposed. Work should be completed by personnel trained in accordance with federal regulations (OSHA 29 CFR 1910.1001(k)(1))	RAC 3
A site-specific asbestos operations and maintenance plan was available.	Implement the site specific asbestos operations and maintenance plan to manage asbestos-containing materials (OSHA 29 CFR 1910.1001(j))	RAC 3
Hazard Communication		
No site specific hazard communication plan was available.	Develop a site specific hazard communication plan to manage hazardous materials (OSHA 29 CFR 1910.1200(e))	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 70 Victory Road in Dorchester, Massachusetts. 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 March 2, 2004, Mr. **Non-Responsive** an industrial hygienist with URS, conducted a site visit to the Readiness Center in Dorchester, Massachusetts. 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. Mr. **Non-Responsive** of the State of Massachusetts 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 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 and armrests were in a fixed position and keyboards could not be adjusted in office #1 (Photos # 4075-77), office #9 (Photo # 4082), office #10 (Photo # 4083), office #13 (Photo # 4086), office #23 (Photo # 4089) and room #24C (Photo # 4097). If more than one person is using that station, then proper adjustments need to be made to accommodate each person.

Watermarks and damage to the ceilings and/or walls were observed in office #4 (Photo # 4080); office # 14 (Photo # 4087) and room #24B (Photo # 4096).

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 16.8 – 19.2% with an average of 17.9%. These readings were below the recommended comfort levels of between 30.0% and 60.0% set by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ANSI / ASHRAE Standard 55-2004).

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 463 to 491 parts per million (ppm), with an average of 476 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 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.

2.2.3 Carbon Monoxide

Carbon monoxide was also measured in the Readiness Center. Carbon monoxide concentrations read 0 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 B-1).

Table 2-1
Lighting Measurements and Recommended Lighting Requirements

Location	Function	Measured Illuminance (lux)	Recommended Minimum Illuminance (lux)
Office # 1 - Near Door	Administrative Duties	315	500
Office # 1 - Near Window	Administrative Duties	2,640	500
Office # 2	Administrative Duties	540	500
Office # 3	Administrative Duties	424	500
Classroom # 6	Administrative Duties	802	500
Office # 9 - Right Desk	Administrative Duties	651	500
Office # 9 - Left Desk	Administrative Duties	629	500
Office # 10	Administrative Duties	1,539	500
Office # 11	Administrative Duties	2,650	500
Office # 12	Administrative Duties	596	500
Office # 13	Administrative Duties	588	500
Office # 14	Administrative Duties	779	500
Office # 17	Administrative Duties	799	500
Office # 23 - Front Desk	Administrative Duties	421	500
Office # 23 - Rear Desk	Administrative Duties	417	500

July 22, 2005

PN: 39741508

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (MA)
Released by National Guard Bureau
Page 1040 of 3473

URS

3

Office # 22 - 1 st Room	Administrative Duties	394	500
Office # 22 - 2 nd Room	Administrative Duties	746	500
Office # 24B	Administrative Duties	487	500
Office # 24C	Administrative Duties	385	500
Office # 24A	Administrative Duties	117	500
Office # 27 - Desk Near Door	Administrative Duties	306	500
Office # 27 - Desk Near Window	Administrative Duties	1,105	500
Office # 28	Administrative Duties	778	500
Hallway # 18	Accessway	165	30
Hallway # 9	Accessway	213	30
Hallway # 25	Accessway	144	30

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

2.2.5 Lead

Three paint chips were collected where paint was peeling and sent to AMA Analytical Services, Inc. (AMA) for analysis. Sample # 0302-LPC03 was found to contain lead in a concentration above 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 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 Location	URS Sample Number	Reporting Limit (% by Weight)	Final Result (% by Weight)
Office # 11	0302-LPC01	0.01	<0.011
Kitchen # 19	0302-LPC02	0.01	0.1
Kitchen # 19	0302-LPC03	0.01	1.2

The analytical report from AMA is contained in Appendix D

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 (ft ²)	Result (µg/ft ²)	Maximum Safe Surface Contamination Level (µg/ft ²)
Office # 23 – Top of a Bookcase	0302-LW01	0.111	17	200
Kitchen # 19 – Top of a File Cabinet	0302-LW02	0.111	180	200
Office # 27 – Top of Desk Bookcase	0302-LW03	0.111	21	200
Kitchen # 5 – Top of a Refrigerator	0302-LW05	0.111	15	200
Office # 14 – Top of a File Cabinet	0302-LW06	0.111	8.8	200
Blank	0302-LWBlank	0.111	1.2	200

2.2.5 Asbestos

ATC Associates of Woburn, Massachusetts conducted an asbestos survey in June of 2000. Worn out asbestos containing 9"x9" floor tile was found in office # 27 (Photo # 4098). Exposed air cell pipe insulation was found in the supply room # 20 (Photo # 4073), office # 22 (Photo # 4094) and supply room # 32 (Photo # 4095). Cracked and loose window chalking was found in supply room # 20 (Photo # 4074) and in office # 1 (Photo # 4078).

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

GENERAL: In general, the administrative area was neat and orderly.

LIGHTING: On the day of the survey, the illuminance in the administrative area was inadequate in approximately half of the offices. URS recommends increasing lighting in the administrative areas through the use of task lighting.

LEAD: The white paint chip from kitchen # 19 (Photo # 4091) that was tested for lead was found to contain lead above the allowable limits. 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 CFR 1910.1025 and 29 CFR 1926.62 are designed to protect workers potentially exposed to elevated airborne levels of lead from lead-based paint.

ASBESTOS: The identified damaged and/or exposed asbestos-containing materials need to be removed or repaired by a properly trained licensed technician.

MOLD: The water stains and damage on the ceilings and/or walls could lead to mold problems if not addressed.

3.0 FORMER FIRING RANGE

3.1 Operation Description

The firing range has been dismantled and is now 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 Former Firing Range

Sample Location	URS Sample Number	Area Wiped (ft ²)	Result (µg/ft ²)	Maximum Safe Surface Contamination Level (µg/ft ²)
Former Firing Range-Top of a Light Guard	0302-LW07	0.111	1,200	200
Former Firing Range-Top of a File Cabinet	0302-LW08	0.111	190	200
Former Firing Range-Floor of the Bullet Trap	0302-LW09	0.111	180	200
Former Firing Range-Floor – Center	0302-LW10	0.111	150	200
Former Firing Range-Floor – Front	0302-LW11	0.111	350	200
Blank	0302-LWBlank	N/A	1.2	200

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
Level of Lead Found in the Air

Sample Location	URS Sample Number	Air Volume (L)	Result (µg/m ³)	OSHA's PEL (µg/m ³)
Former Firing Range	0302-LA01	988	<3.0	50.0
Blank	0302-LA03	0	<3.0	50.0

On the day of the survey, the airborne lead dust level 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 $50.0 \mu\text{g}/\text{m}^3$ 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

LEAD: Two of the five surface wipe samples collected in the former firing range were found to contain lead dust levels which exceeded the maximum limit set by the National Guard Bureau (See Appendix G). The three that were below the maximum limit were close to the 200 microgram per square foot limit. URS recommends that an appropriately licensed lead contractor clean the former firing range.

4.0 DRILL HALL

4.1 Operation Description

The drill hall is a 9,360 square foot area used for unit formations and activities as well as for storing equipment. There is a concrete floor and the walls are constructed of cinder-block.

4.2 Chemical and Physical Agents Sampled

4.2.1 Lead

Wipe testing for lead dust was conducted in the drill hall 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
Level of Lead Dust Found in the Drill Hall

Sample Location	URS Sample Number	Area Wiped (ft ²)	Result (µg/ft ²)	Maximum Safe Surface Contamination Level (µg/ft ²)
Drill Hall – Top of a Display Case	0302-LW04	0.111	14	200
Blank	0302-LWBlank	N/A	1.2	200

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

Table 4-2
Level of Lead Found in the Air

Sample Location	URS Sample Number	Air Volume (L)	Result (µg/m ³)	OSHA's PEL (µg/m ³)
Drill Hall	0302-LA02	964	<3.1	50.0
Blank	0302-LA03	0	<3.0	50.0

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 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 Results

LEAD: The surface wipe sample collected in this area for lead was found to be within the allowable limits and requires no further action at this time.

5.0 BOILER ROOM / BASEMENT AREA

5.1 Operation Description

The boiler room is a mechanical space which contains a furnace and associated piping. There is a concrete floor and the walls are constructed of cinder blocks.

5.2 Chemical and Physical Agents Sampled

5.2.1 Lead

Paint chips were collected in two areas where paint was peeling and sent to AMA for analysis. The brown paint chip (Photo # 4093) was found to contain lead in a concentration above 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 5-1 below shows the results of the lead paint testing.

Table 5-1
Levels of Lead in Paint Found in the Boiler Room

Sample Location	URS Sample Number	Reporting Limit (% by Weight)	Final Result (% by Weight)
Boiler Room # 18	0302-LPC04	0.01	0.27
Boiler Room # 18	0302-LPC05	0.01	2.8

The analytical report from AMA is contained in Appendix D.

5.2.2 Asbestos

No issues were found concerning asbestos-containing materials.

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

LEAD: The brown paint chip that was tested for lead was found to contain lead above the allowable limits. 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 CFR 1910.1025 and 29 CFR 1926.62 are designed to protect workers potentially exposed to elevated airborne levels of lead from lead-based paint.

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

No safety program was found regarding hearing conservation. No training records were found on site. A hearing conservation program is not required for this site.

6.3 Respiratory Protection

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

6.4 Hazard Communication

No program was found regarding hazard communication. No training records were found on site. A site-specific hazard communication program is required for this site and should include communication of hazards to employees, management of material safety data sheets, chemical labeling and spill protection.

6.5 Personal Protective Equipment

No safety program was found regarding personal protective equipment. No training records were found on site. A written personal protection 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

Department of the Army

Ergonomics Program Pamphlet 40-21 (15 August 2003)

Policy and Responsibilities For Inspection, Evaluation and Operation of Army National Guard

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

July 22, 2005

PN: 39741508 [U] Army National Guard:39741508 - Dorchester MA:Reports:MASS Dorchester Army - Final.doc

URS

14

APPENDIX A
SHOP DRAWING

DOOR
EXIT

OFFICE FIRE EXT.

OFFICE

SUPPLY ROOM

OFFICE

SUPPLY ROOM

SUPPLY ROOM

IR EXT.

CRMS

VAULT

SUPPLY ROOM

W.E.S.

SECTION

KITCHEN

SUPPLY ROOM

Room

SUPPLY

LATRINE

OFF

OFFICE

OFF

EXIT

OFFICE

UNIT SUPPLY

OFF

DRILL

SHED

FLOOR

31

"1ST FLOOR
EVACUATION PLAN"

120'

78'

DRILL

SHED

DOOR

EXIT

EXIT

ARMS

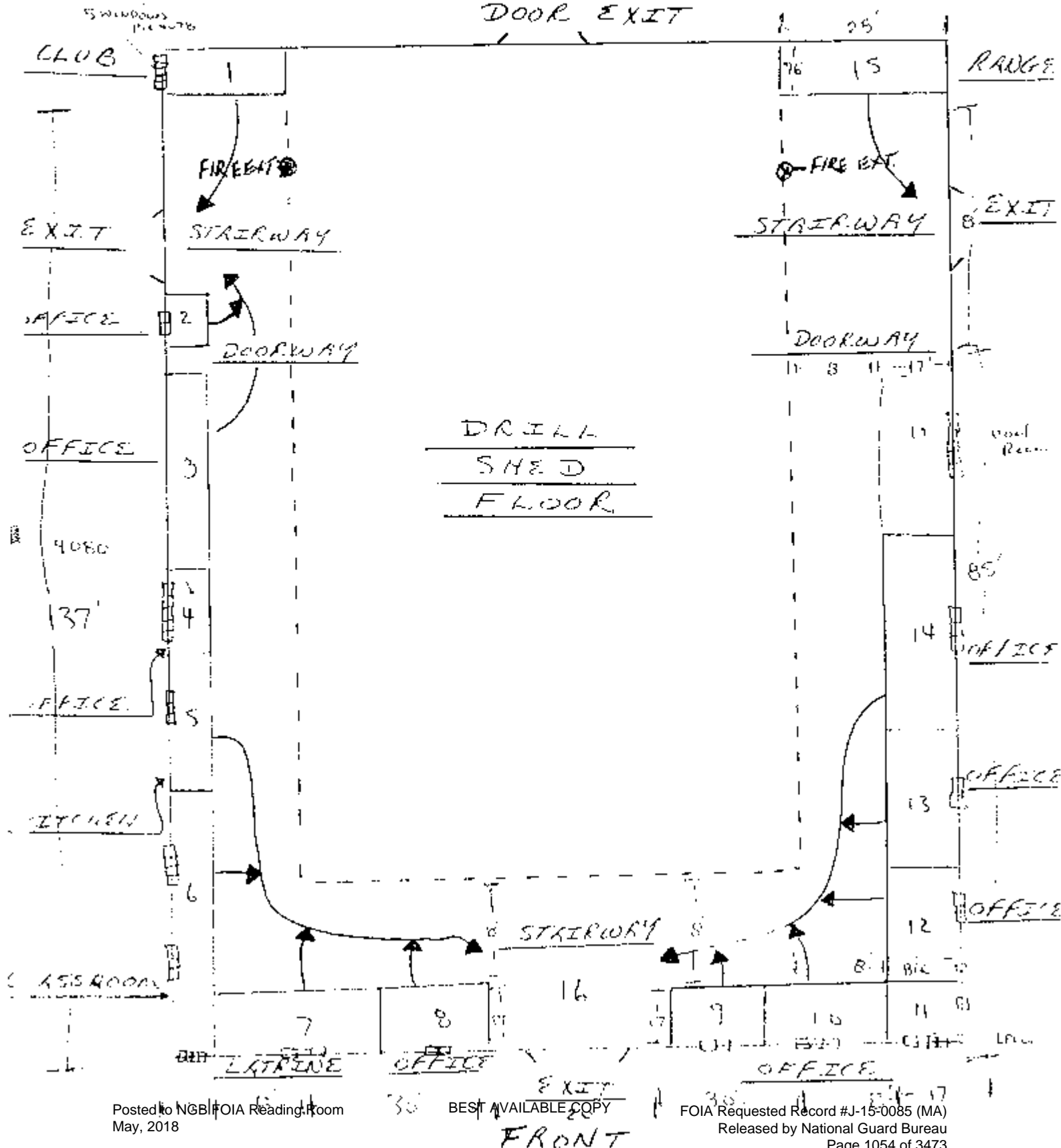
VAULT

SUPPLY

ROOM

"2ND FLOOR EVACUATION PLAN"

DRILL SHED
DOOR EXIT



APPENDIX B
PERSONNEL LIST

BEST AVAILABLE COPY
PERSONEL LIST
DORCHESTER ARMORY

Name	Rank
Non-Responsive	MAJ
	SGT
	SFC
	CIV
	SGT
	SFC
	SFC
	SSG
	SGT
	SSG

APPENDIX C
HAZARDOUS MATERIALS LIST

NO CHEMICAL INVENTORY AVAILABLE

APPENDIX D
ANALYTICAL RESULTS

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client: National Guard Bureau
Address: 301-IH Old Bay Lane, Attn: NGB-AVN-SI,
State Military Reservation
Havre de Grace, Maryland 21078

Job Name: Armory
Job Location: 70 Victory Road, Dorchester, MA
Job Number: Not Provided
P.O. Number: Not Provided

Chain Of Custody: 123988
Date Analyzed: 03/30/2004
Person Submitting: [REDACTED]
Report Date: 04/01/04

Attention: [REDACTED]

Page 1 of 2

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft ²)	Reporting Limit	Final Result	Comments
0432329	0302-LPC 01	Flame	Paint Chip	****	N/A	0.01 %Pb	< 0.011 %Pb	
0432330	0302-LPC 02	Flame	Paint Chip	****	N/A	0.01 %Pb	0.1 %Pb	
0432331	0302-LPC 03	Flame	Paint Chip	****	N/A	0.01 %Pb	1.2 %Pb	
0432332	0302-LPC 04	Flame	Paint Chip	****	N/A	0.01 %Pb	0.27 %Pb	
0432333	0302-LPC 05	Flame	Paint Chip	****	N/A	0.01 %Pb	2.8 %Pb	
0432334	0302-LW 01	Furnace	Wipe	****	0.111	2.70 ug/ft ²	17 ug/ft ²	
0432335	0302-LW 02	Furnace	Wipe	****	0.111	33.75 ug/ft ²	180 ug/ft ²	
0432336	0302-LW 03	Furnace	Wipe	****	0.111	2.70 ug/ft ²	21 ug/ft ²	
0432337	0302-LW 04	Furnace	Wipe	****	0.111	2.70 ug/ft ²	14 ug/ft ²	
0432338	0302-LW 05	Furnace	Wipe	****	0.111	2.70 ug/ft ²	15 ug/ft ²	
0432339	0302-LW 06	Furnace	Wipe	****	0.111	2.70 ug/ft ²	8.8 ug/ft ²	
0432340	0302-LW 07	Flame	Wipe	****	0.111	108.01 ug/ft ²	1200 ug/ft ²	
0432341	0302-LW 08	Furnace	Wipe	****	0.111	33.75 ug/ft ²	190 ug/ft ²	
0432342	0302-LW 09	Furnace	Wipe	****	0.111	33.75 ug/ft ²	180 ug/ft ²	
0432343	0302-LW 10	Furnace	Wipe	****	0.111	33.75 ug/ft ²	150 ug/ft ²	
0432344	0302-LW 11	Flame	Wipe	****	0.111	108.01 ug/ft ²	350 ug/ft ²	
0432345	0302-LW BLANK	Furnace	Wipe Blank	****	N/A	0.30 ug	1.2 ug	
0432346	0302-LA 01	Flame	Air	988	N/A	3.04 ug/m ³	< 3 ug/m ³	
0432347	0302-LA 02	Flame	Air	964	N/A	3.11 ug/m ³	< 3.1 ug/m ³	
0432348	0302-LA 03	Flame	Air Blank	0	N/A	3.00 ug/m ³	< 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. 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, NIST, or any agency of the Federal Government.

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

Posted to NGB FOIA Reading Room 4475 Forbes Blvd., Lanham, MD 20706 • (301) 459-2640 • Toll Free (800) 346-0961 • Fax (301) 459-2643
May, 2018

BEST AVAILABLE COPY

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

Released by National Guard Bureau

dsc/Ragot1060010473 JEM

BEST AVAILABLE COPY

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client: National Guard Bureau
Address: 301-JH Old Bay Lane, Attn: NCIB-AVN-SI,
State Military Reservation
Havre de Grace, Maryland 21078

Job Name: Armory
Job Location: 70 Victory Road, Dorchester, MA
Job Number: Not Provided
P.O. Number: Not Provided

Chain Of Custody: 123988
Date Analyzed: 03/30/2004
Person Submitting: [REDACTED]
Report Date: 30-Mar-04

Attention: [REDACTED]

Page 2 of 2

Summary of Atomic Absorption Analysis for Lead

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

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7420; Water: SM-3111B
Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7421; Water: SM-3113B
N/A = Not Applicable mg/Kg = parts per million (ppm) by weight mg/L = parts per million (ppm)
%Pb = percent lead by weight ug = micrograms ug/L = parts per billion (ppb)
Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Analyst: [REDACTED]

ical Manager: [REDACTED]

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

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

Posted to NGB FOIA Reading Room 4475 Forbes Blvd. • Lanham, MD 20706 • (301) 459-2640 • Toll Free (800) 346-0961 • Fax (301) 459-2643
May, 2018

BEST AVAILABLE COPY

BEST AVAILABLE COPY

FOIA Requested Record #1-15-0085 (MA)

Released by National Guard Bureau

Doc Page 1064 06/34/31/11

**SCILAB BOSTON, INC.**8 SCHOOL STREET
WEYMOUTH, MA 02189

TEL: (781) 337-9334 • FAX: (781) 337-7642

June 5, 2000

ATC Associates Inc., Woburn
Attn: **Non-Responsive**
600 West Cummings Park
Suite 6500
Woburn, MA 01801

RE: ATC Associates Inc., Woburn
Job Number 500062259
P.O. # 91348
60-17533-0001; State Quartermaster; Dorchester Armory

Dear Mr. **Non-Responsive**

Enclosed are the results for PLM asbestos analysis of the following ATC Associates Inc., Woburn samples received at SCILAB on Thursday, June 01, 2000, for a 3 day turnaround:

01A, 01B, 02A, 02B, 03A, 03B, 03C, 04A, 04B, 04C, 05, 06, 07A, 07B, 08, 09, 10, 11, 11M, 12, 12M, 13, 13M, 14, 15, 16, 17, 18, 19, 20, 21, 22A, 22B, 23, 24

The 35 samples contained in plastic sample bags were shipped to SciLab via Courier. These samples were prepared and analyzed according to the EPA Interim Method (40 CFR 763, subpt F, App. A). The required analytical information, analysis results, analyst signature and laboratory identification is contained in the Analyst's Report.

This report relates ONLY to the sample analysis expressed as percent asbestos. SciLab assumes no responsibility for customer supplied data such as "sample type", "location", or "area sampled". This report must not be used to claim product endorsement by SciLab, NVLAP or any agency of the U. S. Government. The National Institute of Standards and Technology Accreditation requirements, mandate that this report must not be reproduced, except in full with the approval of the laboratory.

SciLab appreciates this opportunity to serve your organization. Please contact us for any further assistance or with any questions.

Sincerely,

Non-Responsive

Asbestos Laboratory Manager



BEST AVAILABLE COPY

SCILAB BOSTON, INC.8 SCHOOL STREET
WEYMOUTH, MA 02189

TEL: (781) 337-9334 • FAX: (781) 337-7642

PLM Bulk Asbestos Report

ATC Associates Inc., Woburn
Attn: **Non-Responsive**
600 West Cummings Park
Suite 6500
Woburn, MA 01801**Date Received** 06/01/2000 **SciLab Job No.** 500062259**Date Examined** 06/05/2000 **P.O. #** 91348**Page 1 of 8****RE:** 60-17533-0001; State Quartermaster; Dorchester Armory

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
01A	500062259-01	Yes	65 %

1 **Location:****Description:** Grey, Homogeneous, Pipe Insulation
Asbestos Types: Chrysotile 65. %
Other Material: Cellulose 10. %, Non-fibrous 25. %

01B	500062259-02		NA/PS
-----	--------------	--	-------

1 **Location:****Description:** Pipe Insulation
Asbestos Types:
Other Material:

02A	500062259-03	Yes	40 %
-----	--------------	-----	------

2 **Location:****Description:** Beige, Homogeneous, Pipe Fitting Insulation
Asbestos Types: Chrysotile 40. %
Other Material: Fibrous glass 10. %, Non-fibrous 50. %

02B	500062259-04		NA/PS
-----	--------------	--	-------

2 **Location:****Description:** Pipe Fitting Insulation
Asbestos Types:
Other Material:

03A	500062259-05	Yes	70 %
-----	--------------	-----	------

3 **Location:****Description:** Tan, Homogeneous, Boiler Jacket
Asbestos Types: Amosite 40. %, Chrysotile 30. %
Other Material: Non-fibrous 30. %



BEST AVAILABLE COPY

SCILAB BOSTON, INC.8 SCHOOL STREET
WEYMOUTH, MA 02189

TEL: (781) 337-9334 • FAX: (781) 337-7642

PLM Bulk Asbestos Report

ATC Associates Inc., Woburn
Attn **Non-Responsive**
600 West Cummings Park
Suite 6500
Woburn, MA 01801Date Received 06/01/2000 SciLab Job No. 500062259
Date Examined 06/05/2000 P.O. # 91348
Page 2 of 8
RE: 60-17533-0001; State Quartermaster; Dorchester Armory

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
03B 3 Location: Description: Boiler Jacket Asbestos Types: Other Material:	500062259-06		NA/PS
03C 3 Location: Description: Boiler Jacket Asbestos Types: Other Material:	500062259-07		NA/PS
04A 4 Location: Description: White, Homogeneous, Tank Insulation Asbestos Types: Amosite 45. %, Chrysotile 20. % Other Material: Non-fibrous 35. %	500062259-08	Yes	65 %
04B 4 Location: Description: Tank Insulation Asbestos Types: Other Material:	500062259-09		NA/PS
04C 4 Location: Description: Tank Insulation Asbestos Types: Other Material:	500062259-10		NA/PS

PLM Bulk Asbestos Report

ATC Associates Inc., Woburn
Attn: **Non-Responsive**
600 West Cummings Park
Suite 6500
Woburn, MA 01801

Date Received 06/01/2000 **SciLab Job No.** 500062259
Date Examined 06/05/2000 **P.O. #** 91348
Page 3 of 8
RE: 60-17533-0001; State Quartermaster; Dorchester Armory

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
05	500062259-11	No	NAD

Location: Yankee Division

Description: Grey, Homogeneous, Sheetrock
Asbestos Types:
Other Material: Cellulose 4. %, Non-fibrous 96. %

06	500062259-12	No	NAD
----	--------------	----	-----

Location: Yankee Division

Description: Off-White, Homogeneous, Joint Compound
Asbestos Types:
Other Material: Non-fibrous 100. %

07A	500062259-13	Yes	3 %
-----	--------------	-----	-----

7 **Location:** Supply

Description: Beige, Homogeneous, Interior Window Glazing
Asbestos Types: Chrysotile 3. %
Other Material: Non-fibrous 97. %

07B	500062259-14		NA/PS
-----	--------------	--	-------

7 **Location:** Kitchen

Description: Interior Window Glazing
Asbestos Types:
Other Material:

08	500062259-15	No	NAD
----	--------------	----	-----

Location: Recruiters

Description: Brown/White, Homogeneous, 2'x4' Ceiling Tile
Asbestos Types:
Other Material: Cellulose 35. %, Fibrous glass 30. %, Non-fibrous 35. %



BEST AVAILABLE COPY

SCILAB BOSTON, INC.

8 SCHOOL STREET
WEYMOUTH, MA 02189

TEL: (781) 337-9334 • FAX: (781) 337-7642

PLM Bulk Asbestos Report

ATC Associates Inc., Woburn
Attn: **Non-Responsive**
600 West Cummings Park
Suite 6500
Woburn, MA 01801Date Received 06/01/2000 SciLab Job No. 500062259
Date Examined 06/05/2000 P.O. # 91348
Page 4 of 8
RE: 60-17533-0001; State Quartermaster; Dorchester Armory

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
09	500062259-16	No	NAD

Location: Recruiters Office

Description: Brown, Homogeneous, 2'x4' Ceiling Tile
Asbestos Types:
Other Material: Cellulose 90. %, Non-fibrous 10. %

10	500062259-17	Yes	65 %
----	--------------	-----	------

Location: Weight Room

Description: Grey, Homogeneous, Damper Cloth on HVAC
Asbestos Types: Chrysotile 65. %
Other Material: Cellulose 10. %, Non-fibrous 25. %

11	500062259-18	Yes	20 %
----	--------------	-----	------

11 Location:

Description: Black, Homogeneous, 9"x9" FT (Black w/ White Str)
Asbestos Types: Chrysotile 20. %
Other Material: Non-fibrous 80. %

11M	500062259-19	Yes	≤1. %
-----	--------------	-----	-------

11 Location:

Description: Black, Homogeneous, Assoc. Black Mastic
Asbestos Types: Chrysotile <1. %
Other Material: Cellulose <1. %, Non-fibrous 100. %

12	500062259-20	Yes	10 %
----	--------------	-----	------

12 Location:

Description: Green, Homogeneous, 9"x9" FT (Green)
Asbestos Types: Chrysotile 10. %
Other Material: Non-fibrous 90. %



BEST AVAILABLE COPY

SCILAB BOSTON, INC.

8 SCHOOL STREET
WEYMOUTH, MA 02189

TEL: (781) 337-9334 • FAX: (781) 337-7642

PLM Bulk Asbestos Report

ATC Associates Inc., Woburn
Attn: **Non-Responsive**
600 West Cummings Park
Suite 6500
Woburn, MA 01801

Date Received 06/01/2000 SciLab Job No. 500062259
Date Examined 06/05/2000 P.O. # 91348
Page 5 of 8
RE: 60-17533-0001; State Quartermaster; Dorchester Armory

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
12M	500062259-21	Yes	6 %
12	Location:		
	Description: Black, Homogeneous, Assoc. Black Mastic		
	Asbestos Types: Chrysotile 6. %		
	Other Material: Non-fibrous 94. %		
13	500062259-22	Yes	7 %
13	Location:		
	Description: Black, Homogeneous, 12"x12" FT (Beige Mottled)		
	Asbestos Types: Chrysotile 7. %		
	Other Material: Non-fibrous 93. %		
13M	500062259-23	No	NAD
13	Location:		
	Description: Black, Homogeneous, Assoc. Black Mastic		
	Asbestos Types:		
	Other Material: Non-fibrous 100. %		
14	500062259-24	No	NAD
	Location:		
	Description: Tan, Homogeneous, Tan Covebase Mastic		
	Asbestos Types:		
	Other Material: Non-fibrous 100. %		
15	500062259-25	No	NAD
	Location: Caulk-XO's		
	Description: Grey, Homogeneous, Cementitious, Interior Window Cement		
	Asbestos Types:		
	Other Material: Non-fibrous 100. %		



BEST AVAILABLE COPY

SCILAB BOSTON, INC.8 SCHOOL STREET
WEYMOUTH, MA 02189

TEL: (781) 337-9334 • FAX: (781) 337-7642

PLM Bulk Asbestos Report

ATC Associates Inc., Woburn
Attn: **Non-Responsive**
600 West Cummings Park
Suite 6500
Woburn, MA 01801**Date Received** 06/01/2000 **SciLab Job No.** 500062259
Date Examined 06/05/2000 **P.O. #** 91348
Page 6 of 8
RE: 60-17533-0001; State Quartermaster; Dorchester Armory

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
16	500062259-26	No	NAD

Location: @ Roof Hatch**Description:** Brown/Off-White, Homogeneous, 1'x1' Ceiling Tile
Asbestos Types:
Other Material: Fibrous glass 85. %, Non-fibrous 15. %

17	500062259-27	No	NAD
----	--------------	----	-----

Location: @ Roof Hatch**Description:** Tan, Homogeneous, Glue Dot Mastic
Asbestos Types:
Other Material: Talc <1. %, Non-fibrous 100. %

18	500062259-28	No	NAD
----	--------------	----	-----

Location: S1**Description:** Off-White, Homogeneous, Textured Ceiling & Wall Paint
Asbestos Types:
Other Material: Talc 3. %, Non-fibrous 97. %

19	500062259-29	No	NAD
----	--------------	----	-----

Location: S1**Description:** Tan, Homogeneous, Carpet Mastic
Asbestos Types:
Other Material: Non-fibrous 100. %

20	500062259-30	No	NAD
----	--------------	----	-----

Location: S1**Description:** Black, Homogeneous, Black Covebase Mastic
Asbestos Types:
Other Material: Non-fibrous 100. %



BEST AVAILABLE COPY

SCILAB BOSTON, INC.

8 SCHOOL STREET
WEYMOUTH, MA 02189

TEL: (781) 337-9334 • FAX: (781) 337-7642

PLM Bulk Asbestos Report

ATC Associates Inc., Woburn
Attn: **Non-Responsive**
600 West Cummings Park
Suite 6500
Woburn, MA 01801Date Received 06/01/2000 SciLab Job No. 500062259
Date Examined 06/05/2000 P.O. # 91348
Page 7 of 8
RE: 60-17533-0001; State Quartermaster; Dorchester Armory

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
21	500062259-31	Yes	8 %

Location: Drill Shed

Description: Brown, Homogeneous, Exterior Door Caulk
Asbestos Types: Chrysotile 8. %
Other Material: Talc 10. %, Non-fibrous 82. %

22A	500062259-32	Yes	8 %
-----	--------------	-----	-----

22 Location: Boiler Room

Description: Brown, Homogeneous, Exterior Window Caulk
Asbestos Types: Chrysotile 8. %
Other Material: Talc 10. %, Non-fibrous 82. %

22B	500062259-33		NA/PS
-----	--------------	--	-------

22 Location: XO's

Description: Exterior Window Caulk
Asbestos Types:
Other Material:

23	500062259-34	No	NAD
----	--------------	----	-----

Location: Shop

Description: Grey, Homogeneous, 12"x12" FT (Grey Mottled)
Asbestos Types:
Other Material: Non-fibrous 100. %

24	500062259-35	No	NAD
----	--------------	----	-----

Location: Shop

Description: Grey, Homogeneous, Grey HVAC Duct Sealant
Asbestos Types:
Other Material: Non-fibrous 100. %



BEST AVAILABLE COPY

SCILAB BOSTON, INC.

8 SCHOOL STREET
WEYMOUTH, MA 02189

TEL: (781) 337-9334 • FAX: (781) 337-7642

PLM Bulk Asbestos Report

ATC Associates Inc., Woburn

Attn: **Non-Responsive**

600 West Cummings Park

Suite 6500

Woburn, MA 01801

Date Received 06/01/2000 SciLab Job No. 500062259

Date Examined 06/05/2000 P.O. # 91348

Page 8 of 8

RE: 60-17533-0001; State Quartermaster; Dorchester Armory

Reporting Notes:

Analyzed by

Non-Responsive
*NAD/NSD = no asbestos detected; NA = not analyzed; Bulk Asbestos Analysis per 40 CFR 763, Subpart F, Appendix A and ELAP Analysis Protocols 198.1/198.4 for New York samples; Note: PLM is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. TEM is currently the only method that can be used to determine if this material can be considered or treated as non-asbestos-containing in New York State (also see EPA Advisory for floor tile, FR 59, 146, 38970, 8/1/94). National Institute of Standards and Technology Accreditation requirements mandate that this report must not be reproduced except in full with the approval of the laboratory. This report relates ONLY to the items tested.

Reviewed by:

TABLE II – COST ESTIMATES FOR IMMEDIATE RESPONSE ACTIONS

Asbestos-Containing Material	Estimated Quantity	Repair Cost	Removal Cost
Boiler Insulation Debris and Damage Boiler Room	1 Boilers	\$500.00	\$4,500.00
Boiler Tank Insulation	1 Tank	500.00	2,000.00
Pipe Insulation Boiler Room	140 LF	1,400.00	2,800.00
Pipe Insulation Locked Storage One	60 LF	600.00	1,200.00
Pipe Insulation Locked Storage One	55 LF	550.00	1,100.00
Pipe Insulation Supply Room	660 LF	6,600.00	13,200.00
Pipe Insulation Supply Room Vault	50 LF	500.00	1,000.00
Pipe Insulation Kitchen Vault	50 LF	500.00	1,000.00
Pipe Insulation Kitchen	270 LF	2,700.00	5,400.00
Pipe Insulation Weight Room	275 LF	500.00	5,500.00
Pipe Insulation Scout's Room	160 LF	500.00	3,200.00
Pipe Insulation Yankee Division	250	2,500.00	5,000.00
Pipe Insulation Rear Exit Hall	20 LF	500.00	500.00
9" x 9" Floor Tile and Mastie	3,100 SF	1,000.00	9,300.00
Contaminated 2" x 4" Ceiling Tiles Yankee Division	1,400 SF	-	4,200.00
Total Cost Estimates:		Repair: \$18,850.00	Removal: \$59,900.00

The following is a listing of those materials identified as asbestos-containing:

- Pipe Insulation
- Boiler Jacket Insulation
- Boiler Vent Gasket Insulation (Assumed)
- Boiler Holding Tank Insulation
- 9" x 9" Green Floor Tiles and Mastic
- 9" x 9" Black Floor Tiles and Mastic
- HVAC Duct Insulation (Assumed)
- HVAC Damper Cloth
- Exterior HVAC Vent Caulking
- 12" x 12" Beige Floor Tiles and Mastic
- Exterior Door Caulking
- Window Glazing and Caulking
- Door Caulking

The following table provides the material location, estimated quantity, and general condition of the above identified asbestos-containing materials within the facility:

TABLE 1 - Asbestos-Containing Building Materials

Location	Material	Estimated Quantity	Condition
Ground Floor			
<i>Locker Storage One</i>	Pipe Insulation	60 LF	Fair-Poor
	Pipe Fitting Insulation	7 EA	Poor
<i>Locker Storage Two</i>	Pipe Insulation	45 LF	Fair
	Pipe Insulation	10 LF	Poor
<i>Boiler Room</i>	Pipe Fitting Insulation	10 EA	Fair
	Pipe Insulation	120 LF	Fair
	Pipe Insulation	20 LF	Poor
	Pipe Fitting Insulation	20 EA	Fair
	Pipe Fitting Insulation	12 EA	Poor
	Boiler Jacket Insulation - <i>Damaged End</i>	520 SF	Fair
	Boiler Tank Insulation	300 SF	Fair
	Boiler Vent Gasket Insulation (Assumed)	12 LF	Fair
	Gross Contamination on Floor	15 SF	Poor
	Window Caulking and Glazing	6 EA	Fair
	Door Caulking	1 EA	Good
<i>Supply Room</i>	Pipe Insulation	630 LF	Fair
	Pipe Insulation	30 LF	Poor
	Pipe Fitting Insulation	30 EA	Fair
	Pipe Fitting Insulation	3 EA	Poor
	Exterior Window Caulking and Glazing	4 EA	Fair
	Door Caulking	1 EA	Fair
<i>Supply Room - Vault</i>	Pipe Insulation	50 LF	Poor
	Pipe Fitting Insulation	6 EA	Fair
<i>Kitchen - Vault</i>	Pipe Insulation	50 LF	Poor
	Pipe Fitting Insulation	5 EA	Fair

TABLE 1 - Asbestos-Containing Building Materials (Continued)

Location	Material	Estimated Quantity	Condition
Ground Floor (Continued)			
<i>Kitchen</i>	Pipe Insulation	240 LF	Fair-Good
	Pipe Insulation	30 LF	Poor
	Pipe Fitting Insulation	25 EA	Fair
	Exterior Window Caulking and Glazing	5 EA	Fair
<i>Janitor Supply</i>	Pipe Insulation	130 LF	Fair
	Pipe Fitting Insulation	12 EA	Fair
	Window Caulking and Glazing	1 EA	Fair
<i>Company Commander's Office, DAV Room & Ready Room</i>	Pipe Insulation	250 LF	Fair
	Pipe Fitting Insulation	40 EA	Fair
	9" x 9" Floor Tile and Mastic	650 SF	Good
	Window Caulking and Glazing	4 EA	Fair
<i>Unit Rooms (Access to Outside Hall Only)</i>	Pipe Insulation	275 LF	Fair
	Pipe Fitting Insulation	40 EA	Fair
	Window Caulking and Glazing	8 EA	Fair
	HVAC Damper Cloth	12 SF	Fair
	Exterior HVAC Vent Caulk	10 LF	Fair
<i>Registry of Motor Vehicles Office</i>	Pipe Insulation	50 LF	Fair
	Pipe Fitting Insulation	5 EA	Fair
	9" x 9" Floor Tile and Mastic	130 SF	Good
	Window Caulking and Glazing	2 EA	Good
<i>Recruiting Office</i>	Pipe Insulation	120 LF	Good
	Pipe Fitting Insulation	6 EA	Good
	9" x 9" Floor Tile and Mastic	500 SF	Good
	Exterior Window Caulking and Glazing	3 EA	Good
<i>Recruiting Office Supply Closet</i>	Pipe Insulation	25 LF	Good
	Pipe Fitting Insulation	4 EA	Good
	9" x 9" Floor Tile and Mastic	15 SF	Good
<i>Clerk's Office</i>	Pipe Insulation	60 LF	Fair-Good
	Pipe Fitting Insulation	7 EA	Good
	9" x 9" Floor Tile and Mastic	400 SF	Good
	Exterior Window Caulking and Glazing	3 EA	Good
<i>Readiness NCO</i>	Pipe Insulation	80 LF	Fair
	Pipe Fitting Insulation	6 EA	Fair
	9" x 9" Floor Tile and Mastic	250 SF	Good
	Exterior Window Caulking and Glazing	2 EA	Fair
<i>Foyer Entrance to Clerk's and Readiness NCO Offices</i>	Pipe Insulation	125 LF	Fair-Good
	Pipe Fitting Insulation	6 EA	Fair
	9" x 9" Floor Tile and Mastic	300 SF	Good

TABLE I - Asbestos-Containing Building Materials (Continued)

Location	Material	Estimated Quantity	Condition
Main Floor (Continued)			
<i>Weight Room</i>	Pipe Insulation	250 LF	Fair-Good
	Pipe Fitting Insulation	25 EA	Fair-Good
	Pipe Fitting Insulation	5 EA	Poor
	HVAC Damper Cloth	12 SF	Fair
	HVAC Vent Caulk	10 SF	Fair
	Window Caulking and Glazing	2 EA	Poor-Fair
<i>Scout's Room</i>	Pipe Insulation	150 LF	Fair
	Pipe Insulation <i>Risers</i>	10 LF	Poor
	Pipe Fitting Insulation	22 EA	Good
	Window Caulking and Glazing	6 EA	Poor-Fair
<i>Men's Showers and Bathroom</i>	Pipe Insulation	185 LF	Fair
	Pipe Fitting Insulation	28 EA	Good
	Window Caulking and Glazing	2 EA	Fair
<i>Yankee Division</i>	Pipe Insulation	250 LF	Poor-Fair
	Pipe Fitting Insulation	32 EA	Poor-Fair
	2' x 4' Contaminated Ceiling Tiles	1,400 SF	Good
	HVAC Damper Cloth	12 SF	Fair
	Exterior HVAC Vent Caulk	10 LF	Fair
	Window Caulking and Glazing	3 EA	Poor-Fair
<i>Rear Exit Hall</i>	Pipe Insulation	20 LF	Poor
	Door Caulking	1 EA	Fair
<i>Transportation Support Offices</i>	Pipe Insulation	265 LF	Fair
	Pipe Fitting Insulation	19 EA	Fair
	9" x 9" Floor Tile and Mastic	950 SF	Fair
	Window Caulking and Glazing	5 EA	Fair
			Fair
<i>Drill Shed</i>	Pipe Insulation	300 LF	Fair
	Pipe Fitting Insulation	20 EA	Fair-Good
	HVAC Duct Insulation	500 SF	Fair
	HVAC Damper Cloth	35 SF	Fair
	Door Caulking	2 EA	Fair
	Garage Door Caulking	1 EA	Fair
<i>Main Entrance Foyer</i>	Pipe Insulation	120 LF	Fair
	Window Caulking and Glazing	24 EA	Fair
	Door Caulking	4 EA	Fair
Second Floor			
<i>Hallway Outside All Offices</i>	9" x 9" Floor Tile and Mastic	2,800 SF	Fair
	9" x 9" Floor Tile and Mastic <i>Outside SI</i>	300 SF	Loose
	9" x 9" Floor Tile and Mastic	800 SF	Fair
<i>OPN Sgt.</i>	Window Caulking and Glazing	4 EA	Fair

TABLE 1 - Asbestos-Containing Building Materials (Continued)

Location	Material	Estimated Quantity	Condition
Second Floor (Continued)			
<i>Medic's Room</i>	HVAC Damper Cloth	15 SF	Fair
	Window Caulking and Glazing	1 EA	Poor-Fair
<i>Mortar's Room</i>	HVAC Damper Cloth	2 SF	Fair
<i>CSM Office</i>	9" x 9" Floor Tile and Mastic	310 SF	Fair
	Window Caulking and Glazing	3 EA	Poor-Fair
<i>Battalion Training Officer's Office</i>	9" x 9" Floor Tile and Mastic	490 SF	Fair
	Window Caulking and Glazing	1 EA	Poor-Fair
<i>S3 Office and Bathroom</i>	9" x 9" Floor Tile and Mastic	330 SF	Fair
	Window Caulking and Glazing	3 EA	Poor-Fair
<i>Battalion Commanders Office</i>	9" x 9" Floor Tile and Mastic	420 SF	Fair
	Window Caulking and Glazing	5 EA	Poor-Fair
<i>XO's Office</i>	9" x 9" Floor Tile and Mastic	500 SF	Fair
	Window Caulking and Glazing	3 EA	Poor-Fair
<i>S2 Office</i>	9" x 9" Floor Tile and Mastic	450 SF	Fair
	Window Caulking and Glazing	2 EA	Poor-Fair
<i>Office - 28 (At Top of Entrance Stairs)</i>	9" x 9" Floor Tile and Mastic	330 SF	Fair
	Window Caulking and Glazing	2 EA	Poor-Fair
<i>Women's Bathroom</i>	Window Caulking and Glazing	3 EA	Poor-Fair
<i>Classroom</i>	9" x 9" Floor Tile and Mastic	1,300 SF	Fair
	Window Caulking and Glazing	14 EA	Poor-Fair
<i>Kitchen</i>	12" x 12" Floor Tile and Mastic	240 SF	Fair
	Window Caulking and Glazing	5 EA	Poor-Fair
<i>Staff Room</i>	9" x 9" Floor Tile and Mastic	450 SF	Fair
	Window Caulking and Glazing	5 EA	Poor-Fair
<i>Maintenance Office</i>	9" x 9" Floor Tile and Mastic	450 SF	Fair
	Window Caulking and Glazing	2 EA	Poor-Fair
<i>S1 Office</i>	9" x 9" Floor Tile and Mastic (Possibly Under Carpet)	800 SF	Fair
	Window Caulking and Glazing	6 EA	Poor-Fair

Bulk samples of suspect materials were analyzed by our affiliated laboratory, *SciLab Boston, Inc.* (*SciLab*), using the EPA approved polarized light microscopy with dispersion staining (PLMDS) method. By using the PLMDS method, a trained microscopist is able to identify and distinguish between asbestos group minerals and other fibrous materials such as cellulose (paper), mineral (rock), wood, or glass fiber. The quantity of each of these substances is estimated on a weight basis and recorded as a percent. Only the asbestos content, if any, is recorded in the bulk sample Report of Analysis (Appendix A). If a material contains greater than 1% asbestos, it is considered to be asbestos-containing material.

APPENDIX E
TRAINING CERTIFICATES

BEST AVAILABLE COPY

NOT APPLICABLE

APPENDIX F
PHOTOGRAPHS



Photo 4073: Supply Room #20 - exposed ends to asbestos-containing pipe insulation



Photo 4074: Supply Room #20 - Cracking and peeling window glazing



Photo 4078: Office #1 - Damaged window glazing

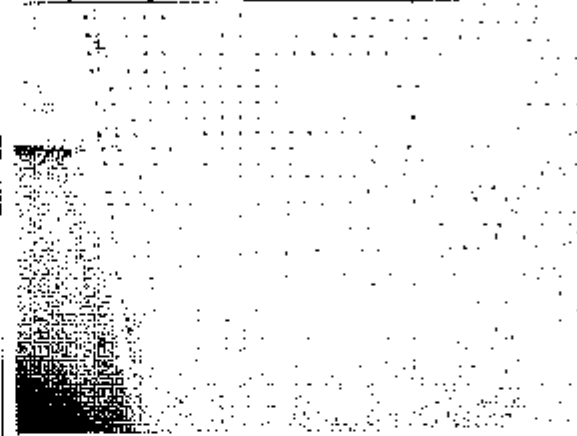


Photo 4080: Office #4 - Water damaged ceiling tile

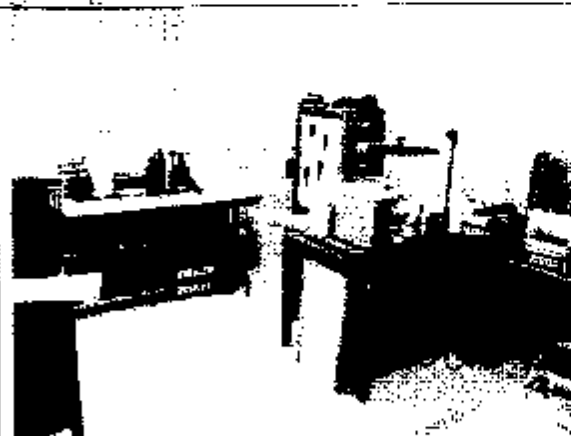


Photo 4082: Office #9 - Computer work stations



Photo 4083: Office #10 - Computer work stations



Photo 4086: Office #13 Computer work station



Photo 4087: Office #14 Water stained ceiling



Photo 4089: Computer Work station

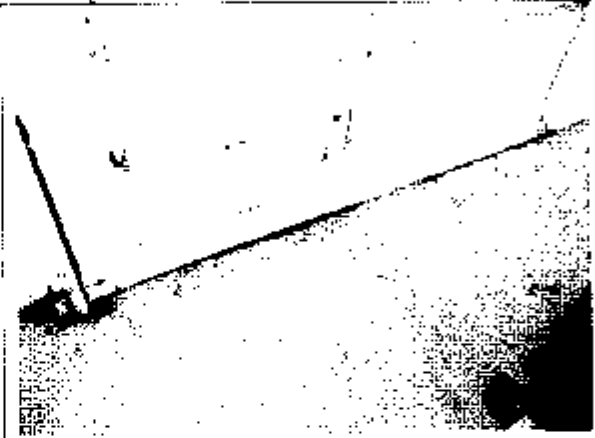


Photo 4091: Kitchen #19 Peeling paint

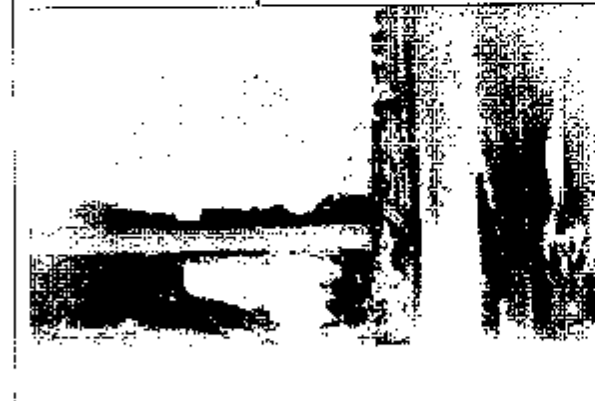


Photo 4093: Boiler Room #18 Brown paint peeling around fresh air vent



Photo 4094: Office #22 Damaged asbestos-containing pipe insulation

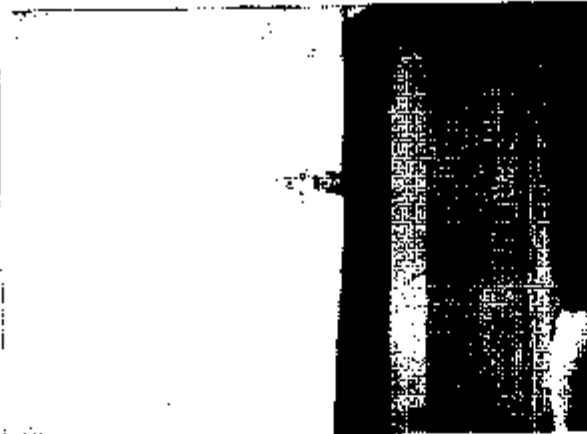


Photo 4095: Supply #32 - Damaged asbestos-containing pipe insulation

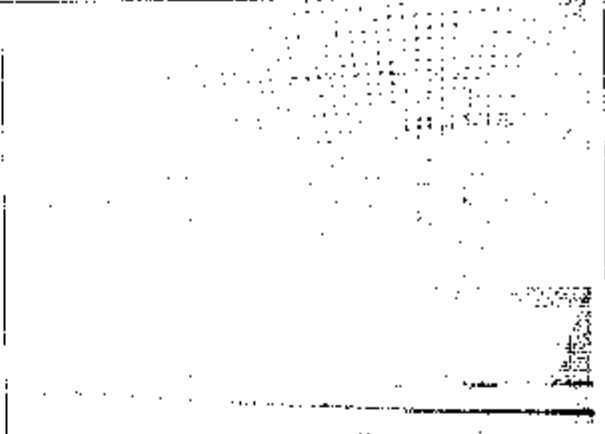


Photo 4096: Room 24B - Water stains on ceiling in women's latrine

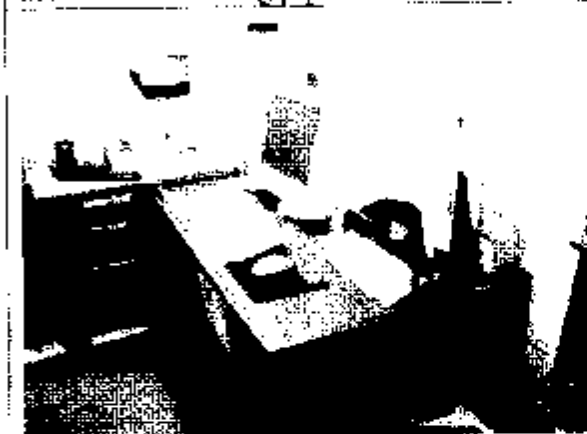


Photo 4097: Room 24C - Computer work station

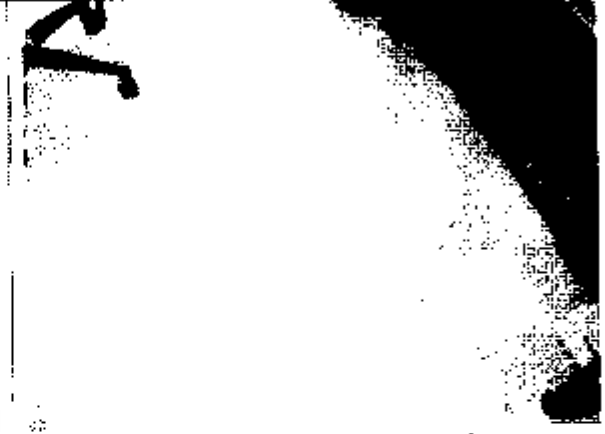


Photo 4098: Office #27 - Worn asbestos-containing floor tile

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 ($\mu\text{g}/\text{ft}^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

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

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

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

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

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

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

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under ($40 \mu\text{g}/\text{ft}^2$ on floors and $250 \mu\text{g}/\text{ft}^2$ 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 $0.05 \text{ mg}/\text{m}^3$ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.



Prepared For:

National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
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
MASSACHUSETTS NATIONAL GUARD READINESS CENTER
70 VICTORY ROAD
DORCHESTER, MA 02122**

June 17, 2013
PN: 39743799

Non-Responsive

Director, Industrial Hygiene Services

Non-Responsive

Project Manager

TABLE OF CONTENTS

Section	Page
1.0 SUMMARY	1
2.0 SUPPLY / TRAINING AREA.....	3
2.1 Operation Description.....	3
2.2 Chemical and Physical Agents Sampled	3
2.2.1 Carbon Dioxide.....	3
2.2.2 Carbon Monoxide	4
2.2.3 Relative Humidity	4
2.2.4 Temperature.....	4
2.2.5 Lighting.....	5
2.2.6 Lead	6
2.2.7 Asbestos.....	8
2.3 Ventilation System Evaluation	8
2.4 Noise Measurements.....	9
2.5 Personal Protective Equipment	9
3.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS.....	10
3.1 Confined Spaces	10
3.2 Hearing Conservation.....	10
3.3 Respiratory Protection	10
3.4 Hazard Communication	10
3.5 Personal Protective Equipment	10
3.6 Asbestos Operations and Maintenance Program	10
3.7 Safety	11
4.0 REFERENCES.....	12

APPENDICES

APPENDIX A	SHOP DRAWING
APPENDIX B	PERSONNEL LIST
APPENDIX C	ANALYTICAL RESULTS
APPENDIX D	PHOTOGRAPHIC LOG
APPENDIX E	RECOMMENDATIONS FOR SURFACE LEAD DUST IN ARMORIES

FINDINGS AND RECOMMENDATIONS
MASSACHUSETTS NATIONAL GUARD READINESS CENTER
70 VICTORY ROAD, DORCHESTER, MA

Findings	Recommendations	Risk Assessment Code (RAC)
Lighting		
On the day of the survey, the illuminance was inadequate in several locations tested.	Increase lighting in the work areas. While work is in progress, these areas must be lighted by at least the minimum lighting intensities (ANSI / IESNA RP-1-04).	RAC 4
Ergonomics		
Computer workstations in the Administrative Areas were observed with un-adjustable chairs, arm rests and keyboards.	Ergonomic issues with regard to 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
Lead		
Five of the 10 lead wipe samples indicated elevated lead levels.	Personnel trained in accordance with the OSHA Lead Standard should clean the areas where elevated lead dust levels were identified (OSHA 29 CFR 1910.1025(h)(1)).	RAC 3
Former Indoor Firing Range		
The former Indoor Firing Range has been posted as unsafe due to lead contamination; however the area is still regularly used. The door to the area was not secured.	Personnel trained in accordance with the OSHA Lead Standard should decontaminate the areas where elevated lead dust levels were identified in accordance with National Guard Pamphlet 420-15 (OSHA 29 CFR 1910.1025(h)(1)).	RAC 3
Since the former indoor firing range is contaminated with lead and several wipe samples were found to contain elevated lead levels, access should be restricted and an assessment should be made as to whether respiratory protection and other PPE should be worn by individuals who must enter this area.	A respirator shall be provided for each employee when such equipment is necessary to protect the health of the employee (29 CFR 1910.134 (a)(2)).	RAC 3

Findings	Recommendations	Risk Assessment Code (RAC)
Emergency Exits		
Emergency exit signs were not visible from all areas of the facility or illuminated.	Emergency exits should be properly illuminated (29 CFR 1910.37 (q)(6)).	RAC 3
Asbestos		
Presumed asbestos-containing floor tile and mastic were observed throughout the facility; an Asbestos Operations and Maintenance Program was not available on-Site.	Develop a site-specific asbestos operations and maintenance program for management of asbestos-containing materials in place as required by OSHA 29 CFR 1910.1001(j)(2).	RAC 3
PPE		
Hazard assessments have not been conducted to determine whether personal protective equipment is required.	Conduct a hazard assessment of site operations to determine what types of PPE are required for each type of work (29 CFR 1910.132(d)(1)).	RAC 4
Water Intrusion		
Water staining was observed on ceiling tiles in the 2 nd floor north hallway.	The source of the water intrusion should be identified and repaired. The water-stained materials should be repaired or replaced (ACGIH – Guidelines for the Assessment of Bio-aerosols in the Indoor Environment).	RAC 4
Fire Extinguishers		
A fire extinguisher along the north perimeter of the Assembly Hall was blocked.	Portable fire extinguishers shall be provided, mounted and located so that they are readily available (29 FR 1910.157 (c)(1) and 29 CFR 1910.38 (c)(2)).	RAC 4
Walking Surfaces		
Duct tape was used to secure cords across walkways.	Flooring should be maintained in good repair to minimize uneven and slippery surfaces and tripping hazards (29 CFR 1910.22(b)(1)).	RAC 3
Housekeeping		
Storage areas were cluttered, including exits and passageways.	All places of employment, passageways, storerooms and service rooms shall be kept clean and orderly and in a sanitary condition (29 CFR 1910.22 (a)(1)).	RAC 3

Findings	Recommendations	Risk Assessment Code (RAC)
Ladders		
Two ladders were observed not properly stored in the first floor classroom and basement boiler room.	Ladders not in use shall be properly stored in a vertical position fastened to walls. (29 CFR 1910.25 (c)(2)(i)).	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 in Dorchester, Massachusetts.

URS representative, Ms. [Non-Responsive], conducted the Industrial Hygiene Survey on April 25, 2013. The scope of work included an overall assessment of the facility as it relates to industrial hygiene and included a walkthrough of the facility, collection of photographs, and when required, measurements for illumination (light), area and personal air sampling, and noise mapping.

The Dorchester Readiness Center is a two-story brick building, consisting of offices, a classroom, supply areas, gender separate bathrooms, storage rooms, a kitchen, an Assembly Hall and a former Indoor Firing Range. A layout of the Readiness Center is provided in Appendix A.

GENERAL: The former Indoor Firing Range was taken out of service but is actively being used for storage. The door to the former Range was open when URS arrived at the facility. Emergency exit signs were not posted and illuminated throughout the facility. Emergency escape plans were not posted throughout the facility. A fire extinguisher along the north perimeter of the Assembly Hall was blocked. An exit in the 2nd floor Plans Room was blocked. Extension cords were being used as permanent wiring. Cords were extended across walkways and secured with duct tape. Ladders were not properly secured and stored.

LIGHTING: Lighting in the Readiness Center was found to be inadequate in several of the areas measured. Areas noted within the report as having inadequate lighting require upgrading by either increasing the general lighting or through the use of task lighting. While work is in progress, work areas must be lighted by at least the minimum light intensities.

LEAD: Five of ten wipe samples collected in the Readiness Center were found to contain lead in a concentration above the recommended limit set by the NGB, Region North IH Office.

On the day of the survey, the one paint chip sample collected from peeling paint was found to contain a level of lead below the HUD criteria for determination of paint as lead-based.

ASBESTOS: Presumed asbestos-containing floor tiles and mastic were noted throughout the facility. No Asbestos Operations and Maintenance Program was found onsite. Until suspect materials have been sampled and determined not to contain asbestos, they must be presumed to be asbestos-containing and managed accordingly.

ERGONOMICS: Many of the work stations had ergonomic issues which require attention. Computer workstations were assessed during the walkthrough for ergonomic issues. The computer workstations in the facility did not meet the current Occupational Safety and Health Administration (OSHA) ergonomic recommendations. The chair armrests, keyboards, and monitors were not adjustable. All workstations in the facility should be adjusted and monitored. The ergonomic issues with regard to the workstations and chairs need to be corrected by fitting the workplace to the worker.

NOISE: Noise monitoring and mapping levels in the Readiness Center determined that noise levels were below the OSHA permissible exposure limit (PEL) and Department of Defense Instruction (DoDI) Hearing Conservation Standard (6055.12 3 December 2010) on the day of URS' site visit.

2.0 SUPPLY / TRAINING AREA

2.1 Operation Description

This Readiness Center is primarily used for weekend training drills and conducting administrative functions. The building includes offices, a classroom, supply areas, gender separate bathrooms, storage rooms, a kitchen, an Assembly Hall and a former Indoor Firing Range.

The Readiness Center was found to be slightly cluttered and unorganized at the time of URS' site visit.

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. Interior carbon dioxide concentrations were found to be between 443 and 569 parts per million (ppm). Carbon dioxide levels were measured using a direct-reading TSI Q-Trak (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 human respiration. 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 but is typically 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.

To minimize air quality complaints, the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) has proposed that the carbon dioxide concentration within an occupied workspace be maintained below 700 ppm above ambient outside levels. For example, on the day of the survey, the outside carbon dioxide level was measured at 402 ppm. Therefore ASHRAE (Standard 62.1-2010) would recommend that interior carbon dioxide concentrations be maintained at or below

1102 ppm. Using the ASHRAE guideline, the readings at the subject site were found to be below the suggested indoor to outdoor differential concentration.

2.2.2 Carbon Monoxide

The carbon monoxide concentration in the Readiness Center was measured between 0.0 ppm and 0.1 ppm on the day of the survey. ASHRAE recommends that average carbon monoxide concentrations not exceed 9 ppm. Typical average concentrations found in commercial buildings range from 0 to 6 ppm. The measured levels were below the ASHRAE guideline for indoor environments. Carbon monoxide was measured using a TSI Q-Trak Plus (Model 8554).

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.

2.2.3 Relative Humidity

The average relative humidity within the Readiness Center measured with the Q-Trak Plus was 32.2%, which was within the guideline of less than 65% recommended by ASHRAE.

2.2.4 Temperature

Temperature should be maintained within the thermal comfort envelope suggested in ASHRAE Standard 55-2010. This standard on thermal environments specifies conditions in which 80% or more of building occupants should find the thermal environment acceptable. ASHRAE 55-2010 suggests temperatures of 68 to 75 degrees Fahrenheit (°F), during winter months, for people in typical seasonal clothing during light sedentary activity. For summer, the temperature should be in the range of 73 to 79 °F.

The average temperature inside the Readiness Center was, 71.5 °F, which was within the guideline of 68 to 75 °F recommended by ASHRAE for thermal comfort. URS received several complaints regarding temperature (too hot, too cold) during this survey.

2.2.5 Lighting

Lighting in the Readiness Center was measured using a cal-Light 400 Light Meter. Table 2-1 below shows lighting measurements in foot candles (FC) and the recommended lighting requirements (Illuminating Engineering Society of North America (IESNA) RP-7-01).

Table 2-1
Lighting Measurements and Recommended Lighting Requirements

Location	Function	Measured Illuminance in Foot Candles (FC)	Recommended Minimum Illuminance in Foot Candles (FC)
2 nd Floor, S1 Office, desk by conference room	Admin	149.2	50
2 nd Floor, desk- Non-Responsive	Admin	194.2	50
2 nd Floor, S1 desk	Admin	84.7	50
2 nd Floor, Conference Room, table	Admin	79.8	50
2 nd Floor, Kitchen, counter	Break Room	256.2	10
2 nd Floor, Classroom, computer workstation	Admin	157.9	50
2 nd Floor, Classroom, computer workstation	Admin	297.1	50
2 nd Floor, Classroom, table	Admin	115.1	50
2 nd Floor, S-4 Offices, desk- Non-Responsive	Admin	60.2	50
2 nd Floor, CSM Office, desk- Non-Responsive	Admin	101.2	50
2 nd Floor, BN CDR Office, conference table	Admin	285.2	50
2 nd Floor, BN CDR Office, desk	Admin	58.2	50
2 nd Floor, OX Office, desk- Non-Responsive	Admin	84.5	50
2 nd Floor, SPO Office, desk	Admin	96.0	50
2 nd Floor, OPS SGT Office, desk- Non-Responsive	Admin	41.7	50
2 nd Floor, Plans Room, table	Admin	31.9	50
2 nd Floor, Plans Room, computer workstation	Admin	60.3	50
2 nd Floor, Plans Room, computer workstation	Admin	46.7	50
2 nd Floor, east hall	Hall	25.5	5
1 st Floor, Storage Room	Storage	13.3	30
1 st Floor, Supply Room, conference table	Admin	87.2	50

Location	Function	Measured Illuminance in Foot Candles (FC)	Recommended Minimum Illuminance in Foot Candles (FC)
1 st Floor, Kitchen	Break Room	60.3	10
1 st Floor, West Conference Room, conference desk	Admin	34.9	50
1 st Floor, West Wing, desk- Non-Responsive	Admin	31.1	50
1 st Floor, West Wing, desk	Admin	26.4	50
1 st Floor, West Wing, desk	Admin	44.9	50
1 st Floor, PT Room	Break Room	26.9	10
1 st Floor, West Wing, Commander desk	Admin	62.1	50
1 st Floor, West Wing, desk- Non-Responsive	Admin	119.8	50
1 st Floor, West Wing, desk- Non-Responsive	Admin	61.5	50
2 nd Floor, EOC Office, workstation	Admin	62.1	50
2 nd Floor, EOC Office, workstation	Admin	49.7	50
2 nd Floor, EOC Office, workstation	Admin	164.0	50

On the day of the survey, the illuminance in the Readiness Center was determined to be inadequate in nine of the locations measured throughout the facility based on recommended lighting intensities contained in the American National Standards Institute/ Illuminating Engineering Society of North America (ANSI / IESNA) RP-1-04.

2.2.6 Lead

Wipe testing for lead dust was conducted in the Readiness Center using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA Analytical Services, Inc. (AMA) is contained in Appendix C. Table 2-2 below shows the results of the lead wipe testing.

Table 2-2
Levels of Lead Dust Found in the Readiness Center

Sample Location	URS Sample Number	Area Wiped in Square Feet (ft ²)	Result in Micrograms/Square Foot (µg/ft ²)	Maximum Surface Contamination Level in Micrograms/Square Foot (µg/ft ²)
1 st Floor, Kitchen, floor under fridge	Dorchester RC Wipe-01	0.108	<110	200
2 nd Floor, Classroom/Mess Hall, top of heater	Dorchester RC Wipe-02	0.108	480	200
2 nd Floor, West Wing, Conference Room, window sill	Dorchester RC Wipe-03	0.108	310	200
1 st Floor, PT Room, Floor	Dorchester RC Wipe-04	0.108	<110	200
2 nd Floor, East Wing, S4 Offices, floor under table	Dorchester RC Wipe-05	0.108	<110	200
Former Indoor Firing Range, door at south entrance, floor	Dorchester RC Wipe-06	0.108	210	200
Former Indoor Firing Range, door at north entrance, floor	Dorchester RC Wipe-07	0.108	2500	200
1 st Floor, Supply, floor at storage pallets	Dorchester RC Wipe-08	0.108	710	200
1 st Floor, East Wing, Storage, under storage crate	Dorchester RC Wipe-09	0.108	160	200
Drill Hall, top of flammable cabinet	Dorchester RC Wipe-10	0.108	<110	200

Five of the ten surface dust level measurements were found to contain lead at a level above the NGB recommended level, based on the OSHA clarification letter which states “as free as practicable” of lead contamination as specified under OSHA 29 CFR 1926.62.

One paint chip sample was collected from an area of peeling paint in the storage area and was analyzed for lead content. The analytical report from AMA is contained in Appendix C.

According to the U.S. Department of Housing and Urban Development (HUD), paint is considered to be lead-based if the quantity of lead is greater than 0.5% by weight. OSHA has not established a minimum percentage of lead to be defined as lead-based paint, therefore paint with lead in any amount above the analytical detection limit is considered to be lead-based under these regulations. The results of URS' lead paint testing are contained in Table 2-3.

Table 2-3
Lead Content in Painted Surfaces

Paint Location	Lead Concentration (Percent Weight)	HUD Lead-Based Quantity (Percent Weight)
Beige paint, walls, 1 st Floor Storage Room	0.054	0.5

On the day of the survey, the paint chip sample was not found to have a lead content above the HUD criteria for determination of paint as lead-based.

2.2.7 Asbestos

No damaged, friable materials were identified during this survey for sample collection.

Presumed asbestos-containing floor tiles and associated mastic were identified during this survey. Until suspect materials have been sampled and determined not to contain asbestos, they must be presumed to be asbestos-containing and managed accordingly.

2.3 Ventilation System Evaluation

The facility, not designed for vehicle maintenance, contains a ventilation system that is limited to localized personal ventilation (i.e. room fans, window air conditioning units) within the majority of rooms, and main negative draw fans in the Assembly Hall.

2.4 Noise Measurements

Personal noise dosimetry was conducted within the administrative office area. Noise exposures were measured using a data-logging Spark 703+ Noise Dosimeter. Personal noise dosimetry results indicated that, on the day of the survey, workers were not exposed to noise levels above the DoDI Hearing Conservation Standard (6055.12 3 December 2010) of 85 decibels, A scale (dBA)/8-hour day. Table 2-5 indicates the individual monitored, the tasks performed and noise exposures.

**Table 2-5
Noise Dosimetry Data**

Location	Task	Sample Duration in Minutes	Monitoring Result TWA (dBA)*	Hearing Protection
Non-Responsive	Administrative	361	62.4	N/A

* The calculated 8-hour, time-weighted average (TWA) noise exposure in dBA. The OSHA PEL for noise exposure is 90 dBA. DoDI has established an employee exposure level of 85 dBA for requirement of a hearing conservation program.

In addition, noise mapping was conducted throughout the Readiness Center. Area noise mapping results indicated that, on the day of the survey, noise levels throughout the Readiness Center ranged from 51.9 decibels to 60.6 decibels. All noise mapping results were below the DoDI Hearing Conservation Standard (6055.12 3 December 2010) of 85 dBA/8-hour day.

2.5 Personal Protective Equipment

Personal protective equipment was orderly and readily available to employees in the Readiness Center. Personal protective equipment included safety glasses, ear plugs and nitrile gloves.

3.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS

3.1 Confined Spaces

A written confined spaces program is not applicable to this facility.

3.2 Hearing Conservation

A written hearing conservation program was identified on site. A review of normal site activities determined that no operations were identified that would warrant hearing protection. Based on area noise dosimetry and noise mapping results and a review of normal site operations, a hearing conservation program is not required for this site.

3.3 Respiratory Protection

A site-specific written program regarding Respiratory Protection was identified on site. No operations were observed by URS that would require the use of respiratory protection. No documentation was available that the former firing range had been contaminated. Bullet traps and firing lanes were not observed. If individuals are allowed access into this area, a hazard assessment should be conducted to determine whether respiratory protection and other forms of PPE should be required in this area.

3.4 Hazard Communication

A site-specific hazard communication program was identified on site.

Material safety data sheets, a site map, and list of full time personnel were readily available on the day of the survey.

3.5 Personal Protective Equipment

A written personal protective equipment program was identified on site. A hazard assessment should be conducted to determine whether personal protective equipment is required for activities typically undertaken at the Readiness Center.

3.6 Asbestos Operations and Maintenance Program

A written asbestos operations and maintenance program was not identified on site.

3.7 Safety

The former Indoor Firing Range was taken out of service but is actively being used for storage. The door to the former Range was open when URS arrived at the facility. Emergency exit signs were not posted and illuminated throughout the facility. Emergency escape plans were not posted throughout the facility. A fire extinguisher along the north perimeter of the Assembly Hall was blocked. An exit in the 2nd floor Plans Room was blocked. Extension cords were being used as permanent wiring. Cords were extended across walkways and secured with duct tape. Ladders were not properly secured and stored.

4.0 REFERENCES

American Conference of Governmental Industrial Hygienists

Industrial Ventilation: A Manual of Recommended Practice, 27th Edition, 2010

Guidelines for the Assessment of Bio-aerosols in the Indoor Environment, 1989

American National Standards Institute

American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-04: American National Standard Practice for Office Lighting

ANSI/IESNA RP-7-01: Recommended Practice for Lighting Industrial Facilities

American Society of Heating, Refrigerating and Air-Conditioning Engineers

ANSI/ASHRAE Standard 62.1-2010: Ventilation for Acceptable Indoor Air Quality

ANSI/ASHRAE Standard 55-2010: Thermal Environmental Conditions for Human Occupancy.

Department of the Army

DA PAM 40-21, Ergonomics Program, 15 August 2003

Unified Facilities Criteria, Heating, Ventilating and Air Conditioning, 3-520-05, 14 April 2008

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

AR 385-10, The Army Safety Program, 23 August 2007; RAR Issue Date: 4 October 2011

National Guard Pamphlet 420-15

Department of Defense

DoDI 6055.12, Hearing Conservation, 3 December 2010

Creating the Ideal Computer Workstation: A Step-by-Step Guide, June 2000

National Institute for Occupational Safety and Health

Current Intelligence Bulletin 50: Carcinogenic Effects of Exposure to Diesel Exhaust, August 1988

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. Department of Housing and Urban Development

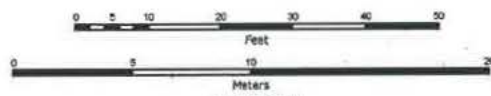
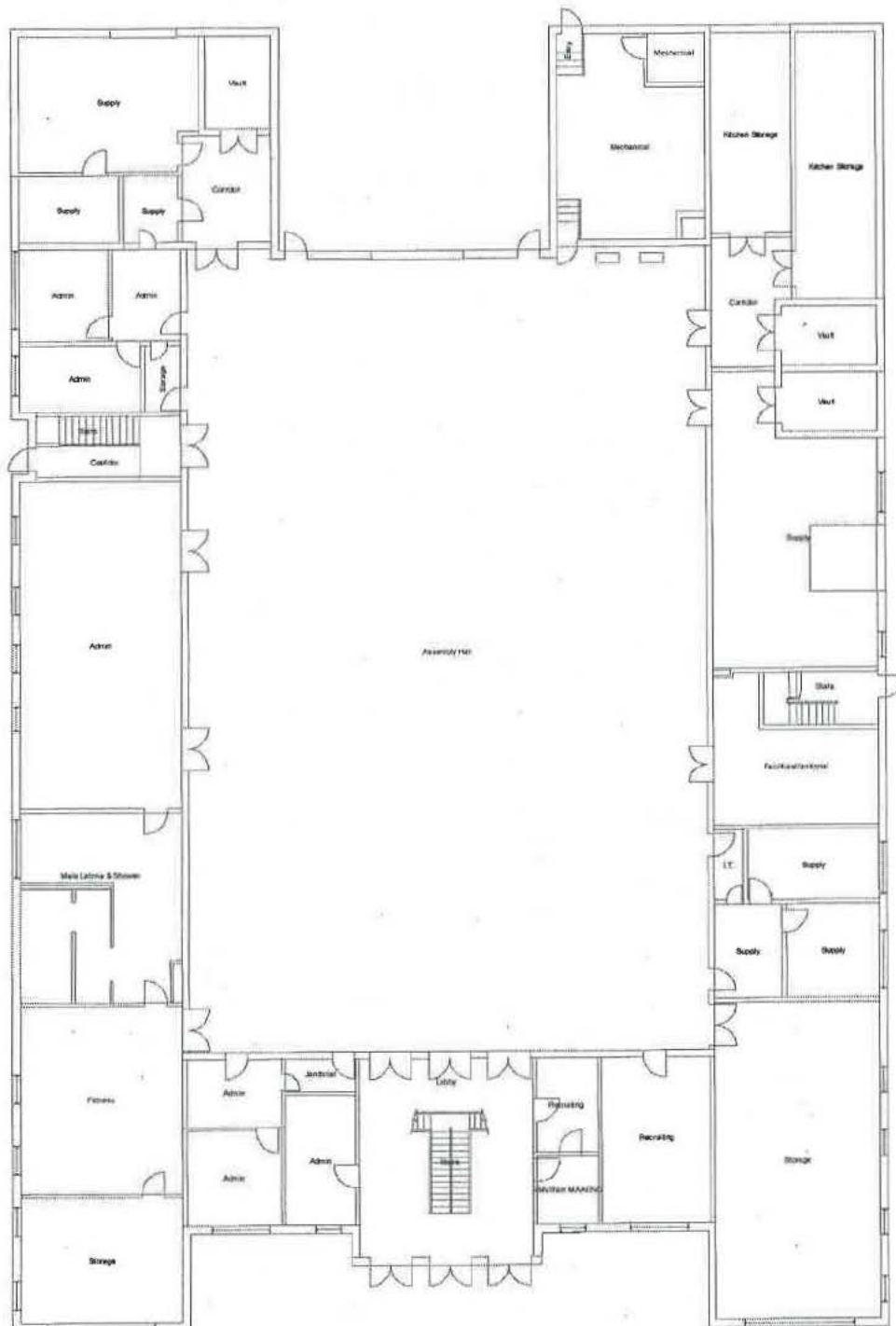
Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (1995, 1997, 2012)

U. S. Occupational Safety and Health Administration

Standard for General Industry: 29 CFR 1910

OSHA Clarification Letter – Clarification of “as free as practicable” of lead contamination under 29 CFR 1926.62, 13 January 2003.

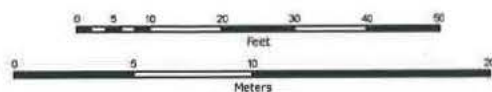
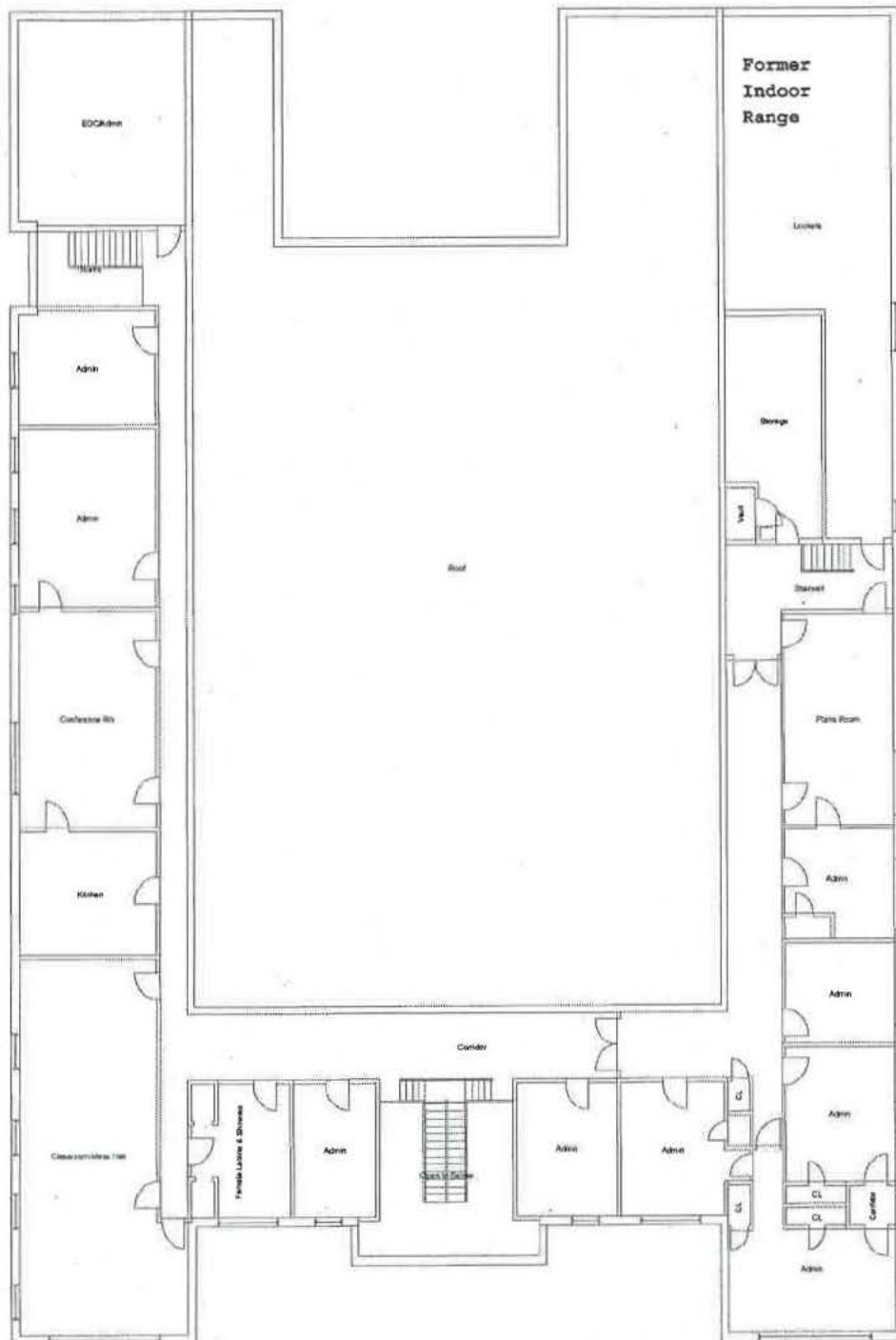
APPENDIX A
SHOP DRAWING



This information is for planning purposes only.
This information is not intended for legal boundary definition,
regulatory identification, or a physical analysis.



7 June 2011



The information on this map is for planning purposes only.
The information is not intended for legal boundary definition
regarding interpretation, or potential analysis.



7 June 2011

APPENDIX B
PERSONNEL LIST

Non-Responsive



APPENDIX C

ANALYTICAL RESULTS



CERTIFICATE OF ANALYSIS



Client:	National Guard Bureau	Job Name:	MA ARNG	Chain Of Custody:	515723
Address:	301-IH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	70 Victory Road, Dorchester, MA	Date Submitted:	4/29/2013
		Job Number:	Dorchester RC	Person Submitting:	Non-Responsive
		P.O. Number:	W912K6-09-A-0003	Date Analyzed:	5/6/2013
Attention:	Non-Responsive			Report Date:	5/6/2013

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 (ft ²)	Reporting Limit	Total ug	Final Result	Comments
13058039	DorchesterRC Wipe-01	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13058040	DorchesterRC Wipe-02	Flame	Wipe	****	0.108	110 ug/ft ²	52	480 ug/ft ²	
13058041	DorchesterRC Wipe-03	Flame	Wipe	****	0.108	110 ug/ft ²	34	310 ug/ft ²	
13058042	DorchesterRC Wipe-04	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13058043	DorchesterRC Wipe-05	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13058044	DorchesterRC Wipe-06	Flame	Wipe	****	0.108	110 ug/ft ²	22	210 ug/ft ²	
13058045	DorchesterRC Wipe-07	Flame	Wipe	****	0.108	110 ug/ft ²	270	2500 ug/ft ²	
13058046	DorchesterRC Wipe-08	Flame	Wipe	****	0.108	110 ug/ft ²	76	710 ug/ft ²	
13058047	DorchesterRC Wipe-09	Flame	Wipe	****	0.108	110 ug/ft ²	17	160 ug/ft ²	
13058048	DorchesterRC Wipe-10	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13058049	DorchesterRC Wipe-FB	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.



CERTIFICATE OF ANALYSIS



Client:	National Guard Bureau	Job Name:	MA ARNG	Chain Of Custody:	515723
Address:	301-IH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	70 Victory Road, Dorchester, MA	Date Submitted:	4/29/2013
		Job Number:	Dorchester RC	Person Submitting:	Non-Responsive
		P.O. Number:	W912K6-09-A-0003	Date Analyzed:	5/6/2013
Attention:	Non-Responsive			Report Date:	5/6/2013

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 (ft ²)	Reporting Limit	Total ug	Final Result	Comments
13058050	DorchesterRC LBP-01	Flame	Paint Chip	****	N/A	0.0064 %Pb		0.054 %Pb	

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B
 Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B
 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)

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

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

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

Air and Wipe results are not corrected for any blank results

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

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

Non-Responsive

Analyst:

Non-Responsive

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.



(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This
Number For Inquires)

pg 1 of 1

Mailing/Billing Information:

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

Submittal Information:

1. Job Name: MA JARNG
2. Job Location: 70 Victory Road, Dorchester, MA
3. Job #: Dorchester, MA
4. Contact Person: Non-Responsive
5. Submitted: Non-Responsive

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

AFTER HOURS (must be pre-scheduled) <input type="checkbox"/> Immediate Date Due: _____ <input type="checkbox"/> 24 Hours Time Due: _____ Comments: _____		NORMAL BUSINESS HOURS <input type="checkbox"/> Immediate <input type="checkbox"/> 3 Day <input type="checkbox"/> Next Day <input checked="" type="checkbox"/> 5 Day Date Due: <u>5/6/13</u>		RESULTS REQUIRED BY NOON (Every Attempt Will Be Made to Accommodate) <input type="checkbox"/> Results Required By Noon (Every Attempt Will Be Made to Accommodate)		REP [Redacted] with Report us.army.mil us.army.mil
--	--	---	--	--	--	---

Asbestos Analysis

PCM Air – Please Indicate Filter Type:

- ☐ NIOSH 7400 _____ (QTY)
☐ Fiberglass _____ (QTY)

TEM Air - Please Indicate Filter Type:

- ☐ AHERA _____ (QTY)
☐ NIOSH 7402 _____ (QTY)
☐ Other (specify _____) _____ (QTY)

PLM Bulk

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

MISC

- ☐ Vermiculite
☐ Asbestos Soil PLM__ (Qual) PLM__ (Quan) PLM/TEM__ (Qual) PLM/TEM__ (Quan)

TEM Bulk

- ☐ ELAP 198.4/Chatfield_____ (QTY)
☐ NY State PLM/TEM_____ (QTY)
☐ Residual Ash_____ (QTY)

TEM Dust

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

TEM Water

- ☐ Qual. (pres/abs)_____ (QTY)
☐ H LAP 198.2/EPA 100.2_____ (QTY)
☐ EPA 100.1_____ (QTY)

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

Measuring Ability

- ☒ Pb Paint Chip _____ (QTY) _____
☒ Pb Dust Wipe (wipe type 6054) _____, 11 _____ (QTY) _____
☐ Pb Air _____ (QTY) _____
☐ Pb Soil/Solid _____ (QTY) _____
☐ Pb TCLP _____ (QTY) _____
☐ Drinking Water ☐ Pb _____ (QTY) ☐ Cu _____ (QTY) ☐ As _____ (QTY)
☐ Waste Water ☐ Pb _____ (QTY) ☐ Cu _____ (QTY) ☐ As _____ (QTY)
☐ Pb Furnace (Media _____) _____ (QTY) _____

Physical Activity

Collection Apparatus for Spore Traps/Air Samples:

- Collection Media _____
- ☐ Spore-Trap _____ (QTY) ☐ Surface Vacuum Dust _____ (QTY)
- ☐ Surface Swab _____ (QTY) ☐ Culturable ID Genus (Media _____) _____ (QTY)
- ☐ Surface Tape _____ (QTY) ☐ Culturable ID Species (Media _____) _____ (QTY)
- ☐ Other (Specify _____) _____ (QTY)

SAMPLE INFORMATION

CLIENT ID NUMBER	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPE AREA	TEM	PCM	PLM	LEAD	MOLY	AIR	BULK	DUST	WATER AND OTHERS	SPORE TREAT	TAPE	SWAB	CLIENT CONTACT (LABORATORY STAFF ONLY)		
Dorchester RC wipe-01	Admin	4/25		100cm ²				X				X					Date/Time:	Contact:	By:
Dorchester RC wipe-02	Admin							X				X							
Dorchester RC wipe-03	Admin							X				X							
Dorchester RC wipe-04	Admin							X				X							
Dorchester RC wipe-05	Admin							X				X					Date/Time:	Contact:	By:
Dorchester RC wipe-06	Maintenance							X				X							
Dorchester RC wipe-07	Maintenance							X				X							
Dorchester RC wipe-08	Maintenance							X				X							
Dorchester RC wipe-09	Maintenance							X				X					Date/Time:	Contact:	By:
Dorchester RC wipe-10	Maintenance							X				X							
Dorchester RC wipe FB								X				X							
LBP-01 Dorchester RC - Bernz Point								X			X						Not Responsive		

LABORATORY

STAFF ONLY:

to NGB FOIA
(CUSTODY)

1. Date/Time RCVD: 4/29/13 @ 9:00 Via: FEDEX By: (Print)
2. Date/Time Analyzed: / / @ By (Print):
3. Results Reported To: BEST AVAILABLE COPY
4. Comments: 7940 6954 8872

Signature _____

FOIA Requested Record #1-15-0085 (MA)

Released by National Guard Bureau

APPENDIX D
PHOTOGRAPHIC LOG



PHOTOGRAPHIC LOG



Client Name: MA ARNG- Dorchester RC		Site Location: 70 Victory Rd., Dorchester, MA	Project No. 39743799
Photo No. 1	Date: 4/25/13		
Description: Exit blocked in second floor Plans Room.			

Photo No. 2	Date: 4/25/13	
Description: Doorway to second floor conference room with no exit sign or emergency escape sign.		



PHOTOGRAPHIC LOG


Client Name: MA ARNG- Dorchester RC		Site Location: 70 Victory Rd., Dorchester, MA	Project No. 39743799
Photo No. 3	Date: 4/25/13		
Description: Cords duct taped across walkways.			

Photo No. 4	Date: 4/25/13	
Description: Peeling paint on water damaged ceiling tiles in second floor, north hallway.		

APPENDIX E

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 ($\mu\text{g}/\text{ft}^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.
 - a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors ($40 \mu\text{g}/\text{ft}^2$) and windowsills ($250 \mu\text{g}/\text{ft}^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.
 - b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.
 - c. OSHA used to cite a level of $200 \mu\text{g}/\text{ft}^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.
 - d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that $200 \mu\text{g}/\text{ft}^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.
 - e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no

correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:
 - a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under ($40 \mu\text{g}/\text{ft}^2$ on floors and $250 \mu\text{g}/\text{ft}^2$ 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 milligrams per cubic meter (mg/m^3) averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

Prepared For:

National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
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
FALL RIVER READINESS CENTER
1089 DWELLY STREET
FALL RIVER, MASSACHUSETTS**

April 2006
PN: 39741508

Non-Responsive

Office Manager

Non-Responsive

Project Manager

TABLE OF CONTENTS

Section	Page
1.0 SUMMARY	1
2.0 ADMINISTRATIVE AREA	2
2.1 OPERATION DESCRIPTION	2
2.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED	2
2.2.1 Relative Humidity	2
2.2.2 Carbon Dioxide	2
2.2.3 Carbon Monoxide	3
2.2.4 Lighting	3
2.2.5 Lead	4
2.2.6 Asbestos	5
2.3 VENTILATION SYSTEM EVALUATION	5
2.4 NOISE MEASUREMENTS	5
2.5 PERSONAL PROTECTIVE EQUIPMENT	5
2.6 INTERPRETATION OF RESULTS	5
3.0 FORMER FIRING RANGE	7
3.1 OPERATION DESCRIPTION	7
3.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED	7
3.2.1 Lead	7
3.2.2 Asbestos	8
3.3 VENTILATION SYSTEM EVALUATION	9
3.4 NOISE MEASUREMENTS	9
3.5 PERSONAL PROTECTIVE EQUIPMENT	9
3.6 INTERPRETATION OF RESULTS	9
4.0 DRILL HALL	10
4.1 OPERATION DESCRIPTION	10
4.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED	10
4.2.1 Lead	10
4.2.2 Asbestos	11
4.3 VENTILATION SYSTEM EVALUATION	12
4.4 NOISE MEASUREMENTS	12
4.5 PERSONAL PROTECTIVE EQUIPMENT	12
4.6 INTERPRETATION OF RESULTS	12
5.0 BOILER ROOM / BASEMENT AREA	14
5.1 OPERATION DESCRIPTION	14
5.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED	14
5.2.1 Lead	14
5.2.2 Asbestos	14
5.3 VENTILATION SYSTEM EVALUATION	15
5.4 NOISE MEASUREMENTS	15
5.5 PERSONAL PROTECTIVE EQUIPMENT	15
5.6 INTERPRETATION OF RESULTS	15
6.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS	16
6.1 CONFINED SPACES	16
6.2 HEARING CONSERVATION	16
6.3 RESPIRATORY PROTECTION	16

TABLE OF CONTENTS (Cont.)

6.4	HAZARD COMMUNICATION.....	16
6.5	PERSONAL PROTECTIVE EQUIPMENT.....	16
7.0	REFERENCES	17

APPENDICES

APPENDIX A	READINESS CENTER DRAWING
APPENDIX B	PERSONNEL LIST
APPENDIX C	HAZARDOUS MATERIALS LIST
APPENDIX D	ANALYTICAL RESULTS
APPENDIX E	TRAINING CERTIFICATES
APPENDIX F	PHOTOGRAPHS
APPENDIX G	RECOMMENDATIONS FOR SURFACE LEAD DUST IN ARMORIES
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)

FINDINGS AND RECOMMENDATIONS

Findings	Recommendation	Risk Assessment Code
Ergonomic		
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
Lighting		
On the day of the survey, the illuminance in the administrative area was inadequate in over half of all 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 RP-1-04)	RAC 4
Lead		
Lead was detected in wipe samples collected from the former firing range and drill hall in amounts greater than 200 µg/ft ²	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))	RAC 4
Asbestos		
Exposed pipefittings and pipe insulation was found throughout the facility.	Repair or remove exposed asbestos pipefittings and pipe insulation. Work should be completed by personnel trained in accordance with federal regulations (OSHA 29 CFR 1910.1001(k)(1))	RAC 3
A site-specific asbestos operations and maintenance plan was not available.	Develop a site specific asbestos operations and maintenance plan to manage asbestos-containing materials (OSHA 29 CFR 1910.1001(j))	RAC 3
Hazard Communication		
No site specific hazard communication plan available.	Develop a site specific hazard communication plan to manage hazardous materials (OSHA 29 CFR 1910.1200(e))	RAC 4
Housekeeping		
Found a few areas that were in disarray, which could cause trips and falls.	All places of employment, passageways, storerooms, and service rooms shall be kept clean and orderly and in a sanitary condition (OSHA 29 CFR 1910.22(a)(1))	RAC 4
Mold		
Evidence of water incursions throughout building that may promote growth of mold.	Repair leaks in roof and institute a moisture management plan to inform employees of best practice in handling water incursions (Best management practice)	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 at 1089 Dwelly Street in Fall River, Massachusetts 02724. 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 February 5, 2004, Mr. **Non-Responsive** an industrial hygienist with URS, conducted a site visit to the Readiness Center in Fall River, Massachusetts. 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. Mr. **Non-Responsive** of the State of Massachusetts was Mr. **Non-Responsive** site contact for this survey.

A 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 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 and armrests were in a fixed position and keyboards could not be adjusted in only a few offices. If more than one person is using that station, then proper adjustments need to be made to accommodate each person.

Water marks on the ceiling in hallway #15 (Photo # 3587). Mold growth could become an issue if not addressed.

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 19.2 – 21.0% with an average of 20.2% on the 1st floor. The 2nd floor ranged from 18.7 – 20.5% with an average of 19.7%. These readings were below the recommended maximum of 65% 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 446 to 508 parts per million (ppm), with an average of 464 ppm on the 1st floor. The 2nd floor concentrations ranged from 451 to 498 ppm, with an average of 473 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. Given a background level of 350 ppm on the day of the survey, the ASHRAE limit would be 1050 ppm.

2.2.3 Carbon Monoxide

Carbon monoxide was also measured in the Readiness Center. Carbon monoxide concentrations were 0 ppm throughout the survey period for both floors. The measured levels were below the ASHRAE guideline for indoor environments (62.1-2004). 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 2-1
Lighting Measurements and Recommended Lighting Requirements

Location	Function	Measured Illuminance (foot candles)	Recommended Minimum Illuminance (foot candles)
Office # 9 – Front Desk	Administrative Duties	27	50
Office # 9 – Rear Desk	Administrative Duties	32	50
Office #11– Front Desk	Administrative Duties	47	50
Office #12– Rear Desk	Administrative Duties	16	50
Office # 21	Administrative Duties	10	50
Office # 22	Administrative Duties	22	50
Office # 23	Administrative Duties	92	50
Office # 24	Administrative Duties	39	50
Office # 25	Administrative Duties	139	50
Office # 26	Administrative Duties	110	50
Office # 28	Administrative Duties	200	50
Office # 29	Administrative Duties	268	50
Office # 30	Administrative Duties	103	50
Hallway # 10	Accessway	54	3
Hallway # 5	Accessway	12	3
Hallway # 31	Accessway	24	3

On the day of the survey the illuminance in the administrative area was adequate in most office spaces.

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 2-2 below shows the results of the lead sampling.

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

Sample Location	URS Sample Number	Area Wiped (ft ²)	Result (µg/ft ²)	Maximum Surface Contamination Level (µg/ft ²)
Office # 14 – Top of a File Cabinet	0205-LW05	1.000	24	200
Office # 21 – Top of a File Cabinet	0205-LW06	1.000	50	200
Blank	0205-LWBlank	N/A	<12 µg	N/A

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	URS Sample Number	Total Asbestos (%)
Office # 21	12"x12" White Ceiling Tile	0205-AB05A	NAD
Room # 21	12"x12" White Ceiling Tile	0205-AB05B	NAD

NAD = "No Asbestos Detected"

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. Non-Responsive 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

GENERAL: In general, the administrative area was neat and orderly.

LIGHTING: On the day of the survey, the illuminance in the administrative area was inadequate in some office spaces. URS recommends increasing lighting in the administrative areas through task lighting. While work is in progress the administrative area shall be lighted by at least the minimum light intensities.

LEAD: The two surfaces tested in this area for lead were found to be within the allowable limits and require no further action at this time.

ASBESTOS: There is exposed air-cell pipe insulation in room #3 (Photos # 3577-78), room #8 (Photo # 3579), office #9 (Photos # 3580-81), office #11 (Photo # 3582), office #13 (Photo # 3583), room #14 (Photo # 3584-85), bathroom #16 (Photo # 3588) and in the kitchen #36 (Photo # 3594). Most of these exposures are near the individual rooms heating units.

MOLD: The water stains on the ceilings could lead to mold problems if not addressed.

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 Former Firing Range**

Sample Location	URS Sample Number	Area Wiped (ft ²)	Result (µg/ft ²)	Maximum Surface Contamination Level (µg/ft ²)
Former Firing Range-Top of a Desk	0205-LW07	1.000	13	200
Former Firing Range-Top of a Heating Unit	0205-LW08	1.000	76,000	200
Former Firing Range-Floor	0205-LW09	1.000	160	200
Former Firing Range-Top of a Light Guard	0205-LW10	1.000	16,000	200
Former Firing Range-Floor	0205-LW011	1.000	3,300	200
Blank	0205-LWBlank	N/A	<12 µg	N/A

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
Level of Lead Found in the Air

Sample Location	URS Sample Number	Air Volume (L)	Result ($\mu\text{g}/\text{m}^3$)	OSHA's PEL ($\mu\text{g}/\text{m}^3$)
Former Firing Range	0205-LA01	1132	<2.7	50.0
Blank	0205-LA03	N/A	<3.0 μg	N/A

On the day of the survey, the airborne lead dust level 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 $\mu\text{g}/\text{m}^3$ averaged over an 8-hour day. The analytical report from AMA is contained in Appendix D.

Paint chips were collected in two areas where paint was peeling and sent to AMA for analysis. The two samples were 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 3-3 below shows the results of the lead paint testing.

Table 3-3
Levels of Lead in Paint Found in the Former Firing Range

Sample Location	URS Sample Number	Reporting Limit (% by Weight)	Final Result (% by Weight)
Former Firing Range #17	0205-LPC03	0.01	0.052
Former Firing Range #17	0205-LPC04	0.01	0.05

The analytical report from AMA is contained in Appendix D.

3.2.2 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 3-4 below presents the results of the sample analysis.

Table 3-4
Sample Results of Suspect ACM

Sample Location	Material Sampled	URS Sample Number	Total Asbestos (%)
Former Firing Range	12"x12" Floor Tile	0205-AB03A	NAD
Former Firing Range	12"x12" Floor Tile	0205-AB03B	NAD
Former Firing Range	12"x12" Floor Tile	0205-AB03C	NAD

NAD = "No Asbestos Detected"

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. **Non-Responsive** asbestos inspector training certificate is provided in Appendix E.

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: Three of the five surface wipe samples collected in the former firing range were found to contain lead dust levels which exceeded the maximum limit set by the National Guard Bureau Region North Industrial Hygiene Office(See Appendix G). URS recommends that an appropriately licensed lead contractor clean the former firing range. Guideline for the cleanup and rehabilitation of indoor firing ranges are included in Appendix H.

4.0 DRILL HALL

4.1 OPERATION DESCRIPTION

The drill hall is a 9,000 square foot area used for assembling personnel and storing equipment. 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 hall 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 Number	Area Wiped (ft ²)	Result (µg/ft ²)	Maximum Surface Contamination Level (µg/ft ²)
Drill Hall – Floor – Rear	0205-LW01	1.000	84	200
Drill Hall – Floor – Center	0205-LW02	1.000	1000	200
Drill Hall – Top of the Flammable Storage Cabinet	0205-LW03	1.000	<12	200
Drill Hall – Top of the Powerade Machine	0205-LW04	1.000	320	200
Blank	0205-LWBlank	N/A	<12 µg	N/A

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

Table 4-2
Levels of Lead Found in the Air

Sample Location	URS Sample Number	Air Volume (L)	Result ($\mu\text{g}/\text{m}^3$)	OSHA's PEL ($\mu\text{g}/\text{m}^3$)
Drill Hall	0205-LA02	1132	<2.7	50.0
Blank	0205-LA03	N/A	<3.0 μg	N/A

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 $50.0 \mu\text{g}/\text{m}^3$ averaged over an 8-hour day.

Three paint chip samples were collected from the drill hall where paint was peeling and sent to AMA for analysis. The samples were found to contain lead in a concentration below 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	URS Sample Number	Reporting Limit (% by Weight)	Final Result (% by Weight)
Drill Hall	0205-LPC05	0.01	0.23
Drill Hall	0205-LPC06	0.01	0.15
Drill Hall	0205-LPC07	0.01	0.22

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 Sample Number	Total Asbestos (%)
Drill Hall # 19	9"x9" Brown Floor Tile	0205-AB04A-FT	3
Drill Hall # 19	9"x9" Brown Floor Tile	0205-AB04B-FT	3
Drill Hall # 19	9"x9" Brown Floor Tile	0205-AB04C-FT	2
Drill Hall # 19	Associated Mastic	0205-AB04A-M	5
Drill Hall # 19	Associated Mastic	0205-AB04B-M	5
Drill Hall # 19	Associated Mastic	0205-AB04C-M	5

NAD = "No Asbestos Detected"

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.

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

LEAD: Two of the four surface wipe samples collected in the drill hall were found to contain lead dust levels which exceeded the maximum limit set by the National Guard Bureau Region North Industrial Hygiene Office (See Appendix G). URS recommends that an appropriately licensed lead contractor clean the drill hall.

ASBESTOS: The 9"x9" brown floor tile on the drill hall floor tested positive for asbestos and is in poor condition, especially by the overhead door (Photo # 3591). An exposed pipe fitting was found on a rear air-handling unit (Photo # 3590). These areas of concern need to be repaired by an appropriately licensed contractor.

HOUSEKEEPING: The drill hall has many items stored in it that can cause trips and falls (Photo # 3592).

5.0 BOILER ROOM / BASEMENT AREA

5.1 OPERATION DESCRIPTION

The boiler room is a mechanical space constructed of cinder block walls with a concrete floor, containing a furnace and associated piping.

5.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED

5.2.1 Lead

Paint chips were collected where paint was peeling and sent to AMA for analysis. Both samples were found to contain lead in a concentration within 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 5-1 below shows the results of the lead paint testing.

Table 5-1
Levels of Lead in Paint Found in the Boiler Room

Sample Location	URS Sample Number	Reporting Limit (% by Weight)	Final Result (% by Weight)
Boiler Room # 1	0205-LPC01	0.01	0.33
Boiler Room # 1	0205-LPC02	0.01	0.34

The analytical report from AMA is contained in Appendix D.

5.2.2 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 5-2 below presents the results of the sample analysis.

Table 5-2
Sample Results of Suspect ACM

Sample Location	Material Sampled	URS Sample Number	Total Asbestos (%)
Boiler Room #1	Air Cell Pipe Insulation	0205-AB01A	30
Boiler Room #1	Air Cell Pipe Insulation	0205-AB01B	25
Boiler Room #1	Air Cell Pipe Insulation	0205-AB01C	20
Boiler Room #1	Pipe Fitting Insulation	0205-AB02A	40
Boiler Room #1	Pipe Fitting Insulation	0205-AB02B	60
Boiler Room #1	Pipe Fitting Insulation	0205-AB02C	60

NAD = "No Asbestos Detected"

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.

Non-Responsive asbestos inspector training certificate is provided in Appendix E.

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

LEAD: The two paint chip samples collected in the boiler room for lead were found to contain levels within the acceptable limits of the U.S. Housing and Urban Development (HUD) Lead-Based Paint Guidelines.

ASBESTOS: The air cell and pipe fitting insulation in the boiler room was in poor condition. It is recommended that the insulation (Photos # 3572-73 & 3575) be removed or repaired. The work should be performed by an appropriately trained technician.

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

The hearing conservation program was found in the safety book, under tab M, chapter 3. No training records were found on site. A program is not required for this site.

6.3 RESPIRATORY PROTECTION

The respiratory protection program was found in the safety book, under tab M, chapter 4. No training records were found on site. A respiratory protection program is not required for this site.

6.4 HAZARD COMMUNICATION

The hazard communication program was found in the safety book, under tab L. An Operations and Maintenance (O & M) Plan was provided to URS before the inspection with regard to the asbestos on site. The main issues concerning this program were that the asbestos had not been labeled as containing asbestos and no training records were available. These are important parts of the O & M Plan.

6.5 PERSONAL PROTECTIVE EQUIPMENT

The personal protective equipment program was found in the safety book, under tab N, chapter 10. 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/IESNA 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

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)

U. S. Occupational Safety and Health Administration

Standard for General Industry: 29 CFR 1910

April 10, 2006

PN: 39741508 J:\1_Army National Guard\39741508 - Fall River, MA\Report\MA\S&S Fall River Armory Final.doc

URS

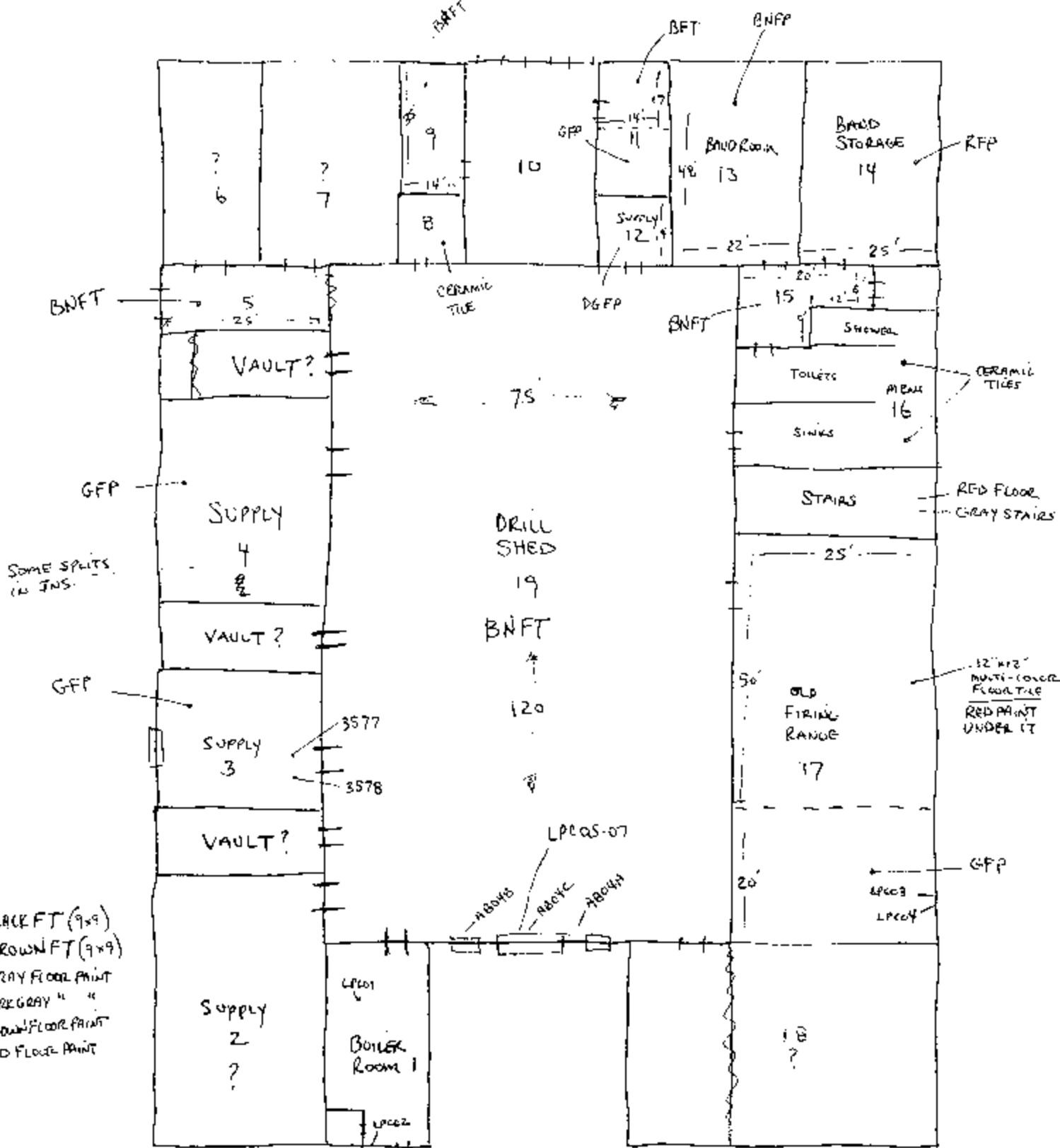
17

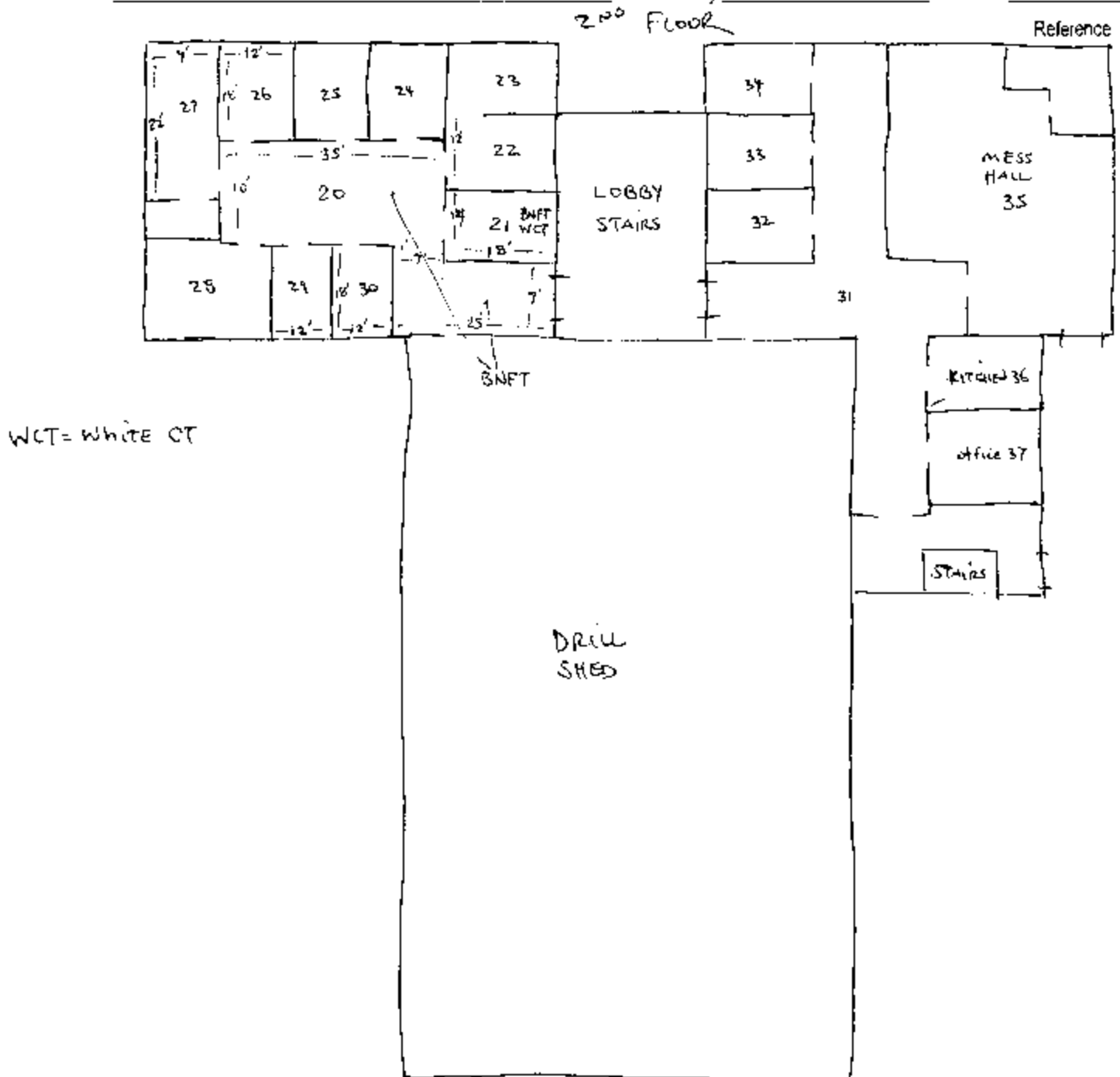
APPENDIX A
READINESS CENTER DRAWING

Job _____ Project No. _____ Page _____ of _____
 Description _____ Computed by _____ Sheet _____ of _____
 _____ Checked by _____ Date _____

1ST FLOOR

Reference





APPENDIX B
PERSONNEL LIST

BEST AVAILABLE COPY
PERSONNEL ROSTER
FALL RIVER ARMORY

Non-Responsive



C BATTERY 1-101 FA

C BATTERY 1-101 FA

215TH ARMY BAND

215TH ARMY BAND

RECRUITER

RECRUITER

ARMORER

ARMORER

APPENDIX C
HAZARDOUS MATERIALS LIST

1-29-04

SHELF - A FROM - LEFT TO RIGHT

1- QUART TWO CYCLE ENGINE OIL

2-12OZ. CANS LITHIUM GREASE

2-12OZ CANS CARBURETOR & CHOKE CLEANER

1-GALLON LAQUER THINNER

1-11OZ. SPRAY CAN OF ENGINE STARTER

SHELF - B - FROM LEFT TO RIGHT

1-1-GALLON CAN OF GASOLINE

1-2½-GALLON OF GASOLINE

1-2½-GALLON OF GASOLINE & OIL MIX

2-1-GALLON CANS OF FLOOR TILE ADHESIVE


1-1-GALLON CAN OF TRAFFIC PAINT

Non-Responsive

APPENDIX D
ANALYTICAL RESULTS

Client: National Guard Bureau
Address: 301-1H Old Bay Lane, Attn: NGB-AVN-SI,
State Military Reservation
Havre de Grace, Maryland 21078

Job Name: Army National Guard
Job Location: 1089 Dwelly St. Fall River, MA
Job Number: 42056-012-211
P.O. Number: Not Provided

Chain Of Custody: 122893
Date Analyzed: 02/17/2004
Person Submitting: 
Report Date: 04-May-04

Attention: 

Page 1 of 2

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Final Result	Comments
0425001	0205-LPC 01	Flame	Paint Chip	****	N/A	0.01 %Pb	0.33 %Pb	
0425002	0205-LPC 02	Flame	Paint Chip	****	N/A	0.01 %Pb	0.34 %Pb	
0425003	0205-LPC 03	Flame	Paint Chip	****	N/A	0.01 %Pb	0.052 %Pb	
0425004	0205-LPC 04	Flame	Paint Chip	****	N/A	0.01 %Pb	0.05 %Pb	
0425005	0205-LPC 05	Flame	Paint Chip	****	N/A	0.01 %Pb	0.23 %Pb	
0425006	0205-LPC 06	Flame	Paint Chip	****	N/A	0.01 %Pb	0.15 %Pb	
0425007	0205-LPC 07	Flame	Paint Chip	****	N/A	0.01 %Pb	0.22 %Pb	
0425008	0205-LA 01	Flame	Air	1132	N/A	2.65 ug/m³	< 2.7 ug/m³	
0425009	0205-LA 02	Flame	Air	1132	N/A	2.65 ug/m³	< 2.7 ug/m³	
0425010	0205-LA 03	Flame	Air Blank	0	N/A	3.00 ug/m³	< 3 ug	
0425011	0205-LW 01	Flame	Wipe	****	1.000	12.00 ug/ft²	84 ug/ft²	
0425012	0205-LW 02	Flame	Wipe	****	1.000	12.00 ug/ft²	1000 ug/ft²	
0425013	0205-LW 03	Flame	Wipe	****	1.000	12.00 ug/ft²	< 12 ug/ft²	
0425014	0205-LW 04	Flame	Wipe	****	1.000	12.00 ug/ft²	320 ug/ft²	
0425015	0205-LW 05	Flame	Wipe	****	1.000	12.00 ug/ft²	24 ug/ft²	
0425016	0205-LW 06	Flame	Wipe	****	1.000	12.00 ug/ft²	50 ug/ft²	
0425017	0205-LW 07	Flame	Wipe	****	1.000	12.00 ug/ft²	13 ug/ft²	
0425018	0205-LW 08	Flame	Wipe	****	1.000	12.00 ug/ft²	76000 ug/ft²	
0425019	0205-LW 09	Flame	Wipe	****	1.000	12.00 ug/ft²	160 ug/ft²	
0425020	0205-LW 10	Flame	Wipe	****	1.000	12.00 ug/ft²	16000 ug/ft²	

BEST AVAILABLE COPY

Client: National Guard Bureau
Address: 301-IH Old Bay Lane, Attn: NGB-AVN-SI,
State Military Reservation
Havre de Grace, Maryland 21078

Job Name: Army National Guard
Job Location: 1089 Dwelly St. Fall River, MA
Job Number: 42056-012-211
P.O. Number: Not Provided

Chain Of Custody: 122893
Date Analyzed: 02/17/2004
Person Submitting: [REDACTED]
Report Date: 04-May-04

Attention: [REDACTED]

Page 2 of 2

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Final Result	Comments
0425021	0205-I.W 11	Flame	Wipe	****	1.000	12.00 ug/ft²	3300 ug/ft²	
0425022	0205-LW BLANK	Flame	Wipe Blank	****	N/A	12.00 ug	< 12 ug	

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

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

N/A = Not Applicable mg/Kg = parts per million (ppm) by weight mg/L = parts per million (ppm)

%Pb = percent lead by weight ug = micrograms ug/L = parts per billion (ppb)

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

Analyst: [REDACTED]

Manager: [REDACTED]

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Feb 17 04 09:11a

AMA Analytical Services

(301) 459 - 2643

P.1

Client: National Guard Bureau
Address: 301-1H Old Bay Lane, Attn: NGB-AVN-SI,
State Military Reservation
Havre de Grace, Maryland 21078

Job Name: Army National Guard
Job Location: 1089 Dwelly St. Fall River, MA
Job Number: 42056-012-211
P.O. Number: Not Provided

Chain Of Custody: 122893
Date Analyzed: 02/17/2004
Person Submitting: [REDACTED]

Attention: [REDACTED]

Page 1 of 2

Summary of Polarized Light Microscopy

AMA Sample Number	Client Sample #	Total Asbestos	Chrysotile Percent	Amosite Percent	Crocidolite Percent	Other Asbestos Percent	Mineral Wool Percent	Fiberglass Percent	Organic Percent	Synthetic Percent	Other Percent	Particulate Percent	Sample Color	Analyst ID	Comments
0425023	0205-AB 01 A	30	30	--	--	--	--	--	10	--	--	60	Gray	CK	
0425024	0205-AB 01 B	25	25	--	--	--	--	--	15	--	--	60	Gray	CK	
0425025	0205-AB 01 C	20	20	--	--	--	--	--	15	--	--	65	Gray	CK	
0425026	0205-AB 02 A	40	35	5	--	--	--	--	--	--	--	60	Gray	CK	
0425027	0205-AB 02 B	60	45	15	--	--	--	--	--	--	--	40	Gray	CK	
0425028	0205-AB 02 C	60	45	15	--	--	--	--	10	--	--	30	Gray	CK	
0425029	0205-AB 03 A	NAD	--	--	--	--	--	--	--	--	--	100	Multi	CK	
0425030	0205-AB 03 B	NAD	--	--	--	--	--	--	--	--	--	100	Multi	CK	
0425031	0205-AB 03 C	NAD	--	--	--	--	--	--	--	--	--	100	Multi	CK	
0425032	0205-AB 04 A-FT	3	3	--	--	--	--	--	--	--	--	97	Brown	CK	
0425033	0205-AB 04 B-FT	3	3	--	--	--	--	--	--	--	--	97	Brown	CK	
0425034	0205-AB 04 C-FT	2	2	--	--	--	--	--	--	--	--	98	Brown	CK	
0425035	0205-AB 04 A-M	5	5	--	--	--	--	--	TR	--	--	95	Black	CK	
0425036	0205-AB 04 B-M	5	5	--	--	--	--	--	TR	--	--	95	Black	CK	
0425037	0205-AB 04 C-M	5	5	--	--	--	--	--	TR	--	--	95	Black	CK	

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples. All rights reserved. AMA Analytical Services, Inc.

An AIHA (#8863), NVLAP (# 101143), & New York ELAP (#10920) Accredited Laboratory
4475 Forbes Blvd. • Lanham, MD 20706 • (301) 459-2640 • Toll Free (800) 336-0961 • Fax (301) 459-2643

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (MA)
Released by National Guard Bureau
Page 1149 of 3473

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Feb 17 04 09:11a

AMA Analytical Services
BEST AVAILABLE COPY

(301) 459 - 2643

P.2

Client: National Guard Bureau
Address: 301-1H Old Bay Lane, Attn: NGB-AVN-SI,
State Military Reservation
Havre de Grace, Maryland 21078

Job Name: Army National Guard
Job Location: 1089 Dwelly St. Fall River, MA
Job Number: 42056-012-211
P.O. Number: Not Provided

Chain Of Custody: 122893
Date Analyzed: 02/17/2004
Person Submitting: [REDACTED]

Attention: [REDACTED]

Page 2 of 2

Summary of Polarized Light Microscopy

AMA Sample Number	Client Sample #	Total Asbestos	Chrysotile Percent	Amosite Percent	Crocidolite Percent	Other Asbestos Percent	Mineral Wool Percent	Fiberglass Percent	Organic Percent	Synthetic Percent	Other Percent	Particulate Percent	Sample Color	Analyst ID	Comments
0425038	0205-AB 05 A	NAD	--	--	--	--	60	--	TR	--	--	40	Off-White	CK	
0425039	0205-AB 05 B	NAD	--	--	--	--	40	--	TR	--	--	60	Off-White	CK	

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

- 1 TEM RECOMMENDATION - Please note, due to resolution limitations with optical microscopy and/or interference from matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos. It is recommended that the additional analytical technique of TEM be used to check for asbestos fibers below the resolution limits of optical microscopy.
- 2 MATRIX REDUCTION RECOMMENDATION - Please note, due to interference from the matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos which is obscured from view. It is recommended that the additional preparation technique of gravimetric reduction be performed on this sample to minimize the obscuring effects of matrix components, followed by reanalysis by PLM and/or TEM.

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

NAD = "No Asbestos Detected"

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



This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples.

All rights reserved. AMA Analytical Services, Inc.

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

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (MA)
Released by National Guard Bureau
Page 1150 of 3473

APPENDIX E
TRAINING CERTIFICATES

Non-Responsive



**INSTITUTE FOR
ENVIRONMENTAL EDUCATION, INC.**

16 Upton Drive, Wilmington, MA 01887
(978) 658-5272

IEE

IEE

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

April 11, 2003

Examination Date

03518010625349

Certificate Number

April 10, 2004

Expiration Date



President/Director of Training

BEST AVAILABLE COPY

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (MA)
Released by National Guard Bureau
Page 1153 of 3473

APPENDIX F
PHOTOGRAPHS

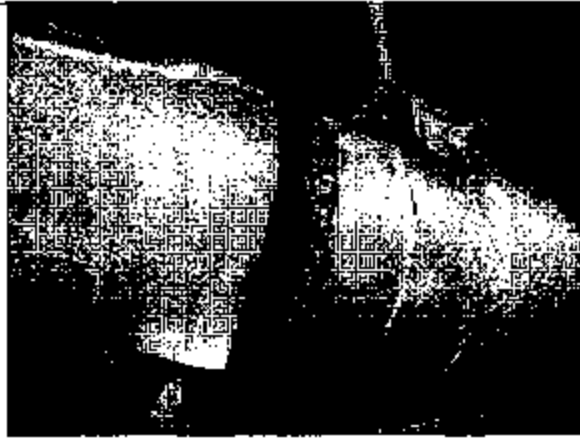


Photo 3572: Boiler Room - Damaged asbestos-containing pipe insulation

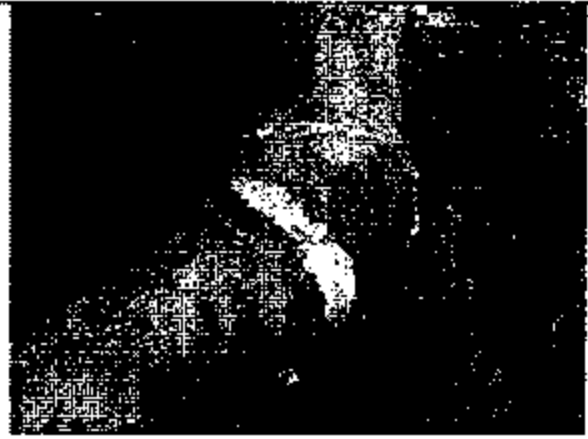


Photo 3573: Boiler Room - Damaged asbestos-containing pipe insulation

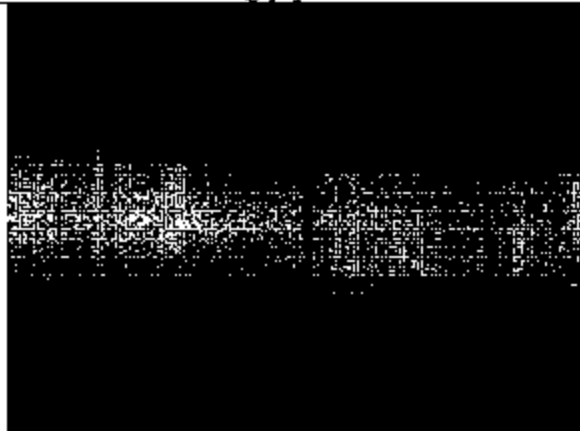


Photo 3575: Boiler Room - Damaged asbestos-containing pipe insulation

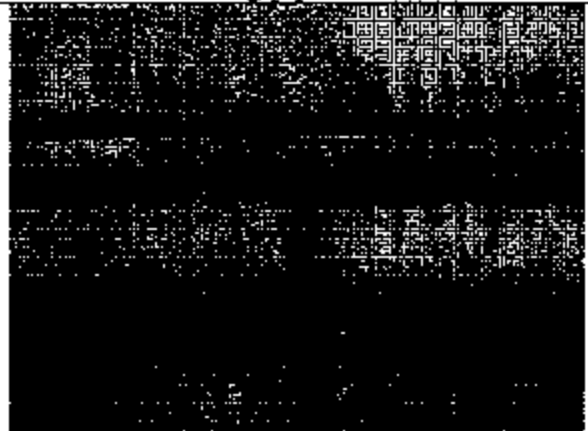


Photo 3577: Supply Room #3 - Damaged asbestos-containing pipe insulation



Photo 3578: Supply Room #3 - Damaged asbestos-containing pipe insulation



Photo 3579: Women's Room #8 - Damaged asbestos-containing pipe insulation



Photo 3580: Office #9 - Damaged asbestos-containing pipe insulation

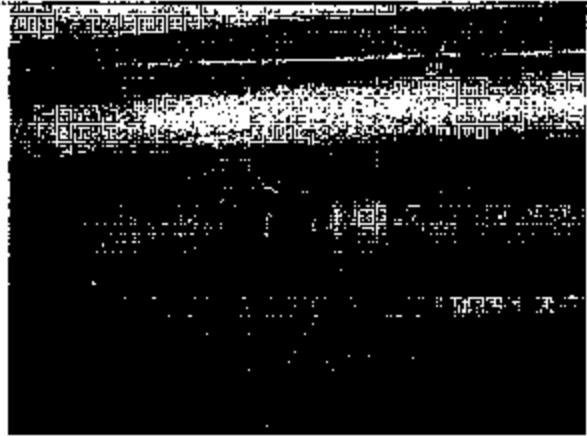


Photo 3581: Office #9 - Damaged asbestos-containing pipe insulation



Photo 3582: Office #11 - Damaged asbestos-containing pipe insulation



Photo 3583: Room #13 - Damaged asbestos-containing pipe insulation



Photo 3584: Room #14 - Damaged asbestos-containing pipe insulation

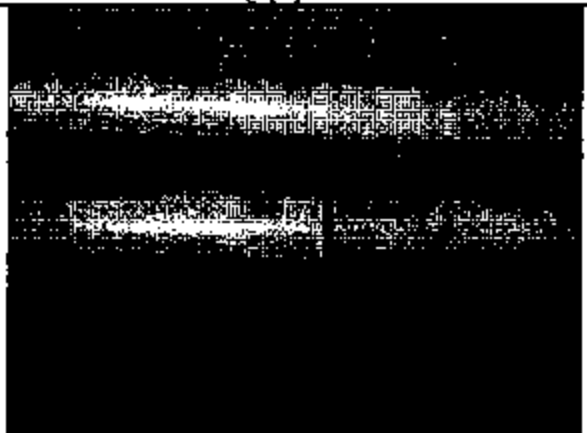


Photo 3585: Room #14 - Damaged asbestos-containing pipe insulation

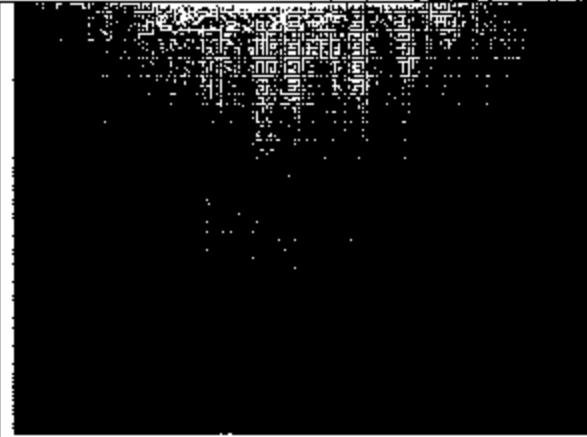


Photo 3587: Hall #15 Water stained ceiling

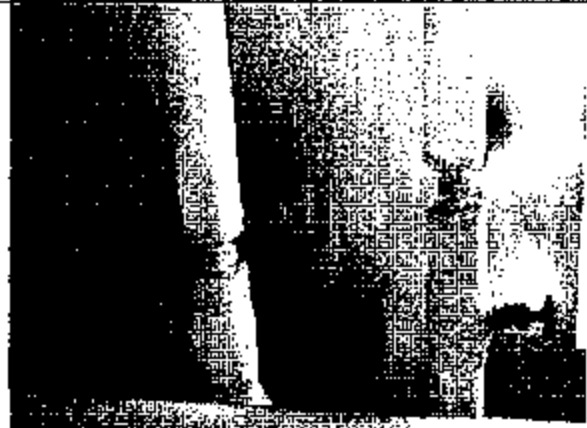


Photo 3588: Bathroom #16- Damaged asbestos-containing pipe insulation

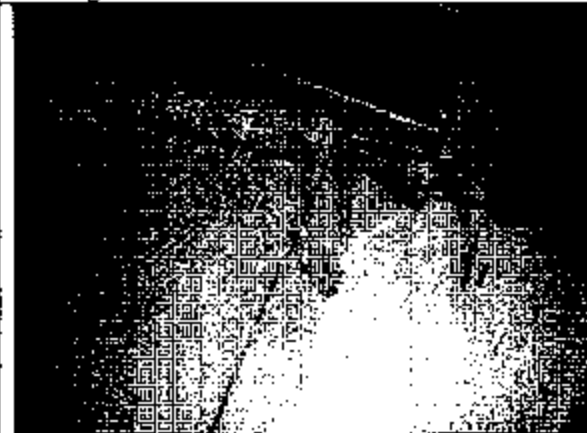


Photo 3589: Old Firing Range - Bullet trap has been covered with plywood

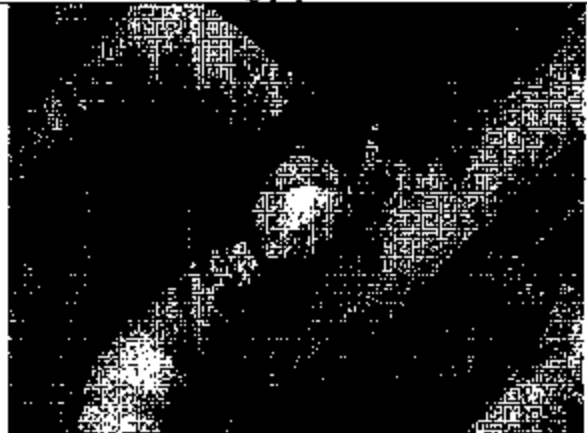


Photo 3590: Drill Shed #19- Damaged asbestos-containing pipe insulation

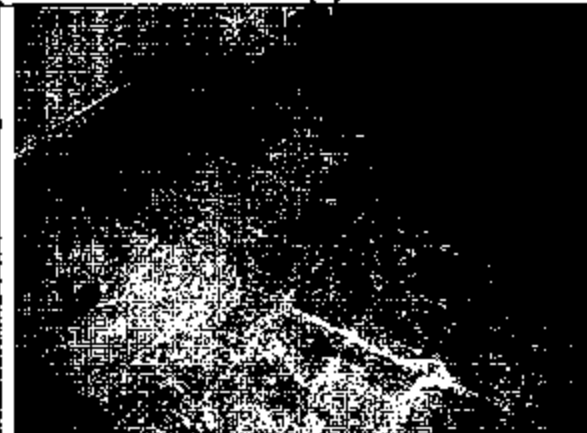


Photo 3591: Drill Shed #19 - Damaged asbestos-containing floor tile



Photo 3592: Drill Shed #19 - Housekeeping



Photo 3591: Kitchen #36 – Damaged
asbestos-containing pipe insulation

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 ($\mu\text{g}/\text{ft}^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

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

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

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

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

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

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

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under ($40 \mu\text{g}/\text{ft}^2$ on floors and $250 \mu\text{g}/\text{ft}^2$ 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 $0.05 \text{ mg}/\text{m}^3$ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

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-AV5-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
Goal	5
Background	6
Wipe Sample Media	7
Wipe Sampling Protocol	8
Range Cleaning Instructions	9
Cleaning Stored Contaminated Equipment	10
Contaminated Sand and Lead Waste	11
Medical Surveillance	12
Worker Education	13
Personal Protection Equipment	14
Housekeeping	15
Maintenance	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	

Purpose

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. 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 1910, 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).

iii

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

3. 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, 5th 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 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 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. 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.

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

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 deionized 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 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.

~~INTERVENING (1) CONFIRMATION TESTS SHOULD BE PERFORMED AT 7-10 DAY INTERVALS~~

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

(2) Unacceptable Media consists of but is not limited to—

- (a) Cotton balls
- (b) Baby wipes or wet 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.

8. 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 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 maintained. 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 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, Spic and Span™ has been found to be an effective cleaning solution by other Army organizations. Mix new solutions of cleaning solution frequently. Wet wiping will require dual containers of water; one container for wetting the applicator (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 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 deck enamel or urethane; concrete floors should be sealed with deck enamel and linoleum 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 plate(s) should be cleaned. Next, clean the ceiling, 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 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.

l. 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 lead dust must be decontaminated before it is removed from the range.

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

b. Equipment located near the bullet trap and firing line should be cleaned first and then removed. The cleaning method depends on the size of the equipment and the material it is comprised of, i.e. metal, wood, concrete, porous, non-porous, smooth or rough finish etc. However, either HEPA vacuum or the wet wipe method will be used. Refer to paragraph 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 (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 all individuals who are subject to exposure to lead at or above the action level or for whom the possibility of skin or eye irritations 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, 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, fitting, 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.
- f. Smoking and smoking materials will not be permitted in contaminated areas.

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**

- 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 clothing 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, 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. 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 belts to ensure that they are not frayed or slipping.

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

- 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 trap for pitting or other damage and for sharp edges on venetian blind type bullet traps.
- e. Bullet Trap. The bullet 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 bullet 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 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.

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.
- c. 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 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 decontaminated or removed.
- h. 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.

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 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™, 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, moisten the filter with distilled or deionized 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 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 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 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 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 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 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 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 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 cassette 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.

<u>Order From</u>	<u>Catalog Number</u>
a. Millipore Corp. Ashby Road Bedford, MA 01730 617-275-9200 800-225-1380	MAWP-037-A0
b. Gelman Sciences 600 South Wagner Rd Ann Arbor, MI 48106 313-665-0651 800-521-1520	64678 (GN-4)
c. Supelco, Inc. Supelco Park Bellefonte, PA 16823 800-247-6628 800-359-3041	2-3388M

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

<u>Order From</u>	<u>Catalog Number</u>
a. Supelco Inc. Supelco Park Bellefonte, PA 16823	2-3381M

NGB-AVS-SG

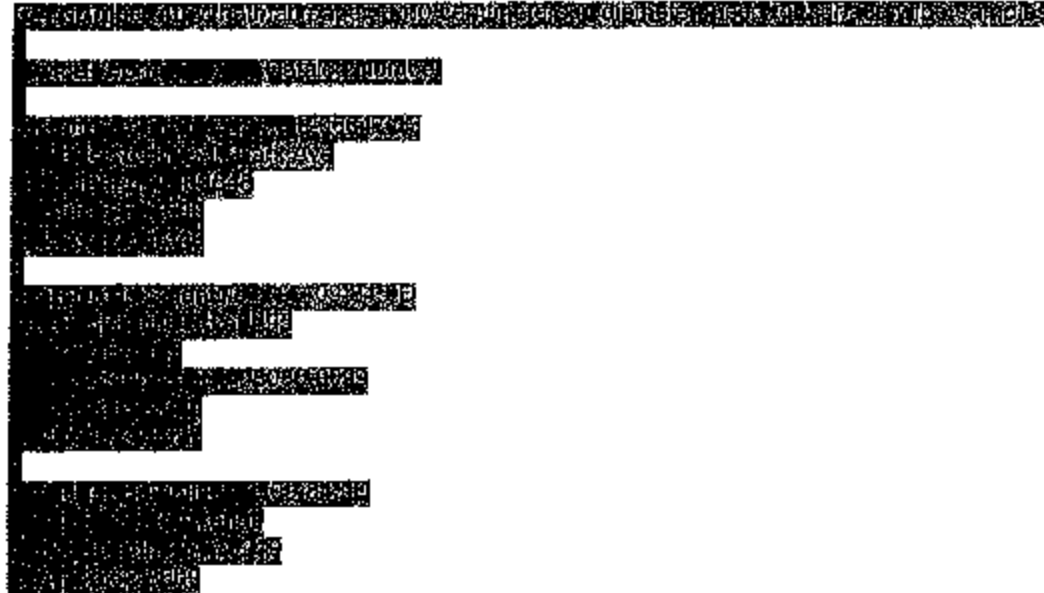
SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program - POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

APPENDIX E (Continued)

800-247-6628
800-359-3041

- b. Millipore Corp. AAWP-037-00
Ashby 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.

<u>Order From</u>	<u>Catalog Number</u>
-------------------	-----------------------

- | | |
|--|-------------------|
| a. Pierce Chemical Co.
P.O. Box 117
Rockford, IL 61105
815-968-0747
800-874-3723 | 13219 (screw cap) |
| b. Alltech Associates, Inc.
Applied Science Labs
2051 Waukegan Rd
Deerfield, IL 60015
312-948-8600 | 95321 (screw cap) |

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 E (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 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. 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:

$$\frac{75 \text{ ug}}{100 \text{ cm}^2} \times \frac{929 \text{ cm}^2}{1 \text{ sq ft}} = \frac{75 \times 929}{100} = \frac{69675}{100} = 696.75 \text{ ug/sq ft}$$

ug – Microgram

Cm2 – Centimeters squared

Sq ft – Square foot

NGE-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 G
SURFACE WIPE SAMPLING SHEET

Industrial Hygiene Surface Wipe Sample Sheet					
Return Address			Point of Contact (<i>name & phone #</i>)		
			Samples Collected By		
Sampled Facility	City	State	Location (<i>bldg/area</i>)		
Description of Operation		Date Collected	Date Shipped		
Analysis Desired					
Sampling Data					
Lab Use Only	Sample #	Results	Remarks		
Comments to Lab:					

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 H
AIR SAMPLING SHEET

Industrial Hygiene Air Sample Sheet									
Return Address					Point of Contact (name/phone #)				
					Samples Collected By				
Sampled Facility		City		State		Location (bldg/area)			
Description of Operation		Persons Exposed		Hrs/Day		Method of Collection			
Analysis Desired									
Sampling Data									
Sample No.									
Pump No.									B
Time On									L
Time Off									A
Total Time (min)									N
Flow Rate (LPM)									K
Volume (liters)									
CAV/BZ									
Employee Name/ID									
Laboratory No.									
Calibration Information									
Pump No.	Calibration (LPM)		Rotameter Setting		Date				
	Pre-Use	Post-Use							
Name of Calibrator		Calibration Date		Pump Manufacturer					
Comments to Lab									

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 I
ABBREVIATIONS AND TERMS

Section I
Abbreviations

ARNG

Army National Guard

BUN

Blood urea nitrogen

BZ

Breathing zone

CBC

Complete blood count

CFR

Code of Federal Regulations

cm

Centimeter

DHEW

Department of Health, Education and Welfare

EPA

Environmental Protection Agency

GA

General area

OMPF

Official Military Personnel File

OPF

Official Personnel File

OSHA

Occupational Safety and Health Administration

TCLP

Toxic Characteristic Leaching Procedures

ug/sq ft

Micrograms per square foot

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 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.

Industrial Hygiene Survey

Massachusetts Army National Guard (MA ARNG)

Prepared For: NGB ARNG – Region North IH Office

Survey Location:

**Fall River Readiness Center
1089 Dwelly Street
Fall River, MA 02724-3199**

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

**Survey Date: August 17, 2010
Report Date: September 30, 2010**

AEI Project #: J10-515 3d MA Fall River RC

Non-Responsive

Industrial Hygienist



BEST AVAILABLE COPY
Industrial Hygiene Survey Report
Massachusetts Army National Guard (MA ARNG)
Fall River Readiness Center

Table of Contents

Executive Summary	ii
1 Introduction	1
2 Evaluation Methods	1
3 Operations.....	1
4 Noise Hazards.....	1
5 Hazard Controls	2
Ventilation Systems.....	2
6 Physical Condition of the Facility and Personnel Concerns.....	2
Paint Chip and Dust Wipe Samples for Lead Contamination.....	2
Visual Inspection for Damaged Asbestos-Containing Materials	3
Visual Inspection for Water Damage and Mold Growth	4
Visual Inspection for Housekeeping Concerns.....	4
Lighting.....	4
Indoor Air Quality (IAQ)	4
Temperature and Relative Humidity	5
Carbon Dioxide (CO ₂) and Carbon Monoxide (CO)	5
7 Conclusions	5
8 Limitations	6

List of Tables and Appendices

Table 1 - Results of Dust Wipe Sampling for the MA ARNG Fall River Readiness Center on August 17, 2010.

Table 2 – Results of Asbestos Sampling for the MA ARNG Fall River Readiness Center on August 17, 2010.

Table 3 - Acceptable Ranges of Temperature and Relative Humidity in Summer and Winter

Appendix A – Building Layout

Appendix B – Certificates of Analysis for Air, Dust Wipe and Bulk Samples

Appendix C – Photo Documentation

Appendix D – IAQ and Lighting Survey Log Sheets

BEST AVAILABLE COPY
Industrial Hygiene Survey Report
Massachusetts Army National Guard (MA ARNG)
Fall River Readiness Center

Executive Summary

Aria Environmental, Inc. (AEI) was contracted to perform an industrial hygiene evaluation for the Readiness Center located at 1089 Dwelly Street, Fall River, MA, 02724-3199. **Non-Responsive** performed the evaluation on August 17, 2010. The point of contact for the facility was Sergeant First Class **Non-Responsive**. The purpose of the evaluation was to identify and measure the existence and extent of potentially hazardous operations or conditions at Army National Guard (ARNG) facilities. The survey included: (1) evaluations of operations including operation description, sampling for chemicals or particulates if appropriate, ventilation system evaluations, noise dosimetry if appropriate, lighting surveys, hazard control evaluations and any additional information pertinent to the operations; (2) an evaluation of the physical condition of the facility and personnel concerns including visual inspections for peeling lead-based paint, damaged asbestos-containing materials, water damage or mold problems; indoor air quality concerns; potential ergonomic problems; hazardous material storage; and housekeeping practices; and (3) photographs of the exterior and interior of the FMS. The results of the evaluation indicated industrial hygiene concerns in the following areas:

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

Lead in Air Samples: Lead in air samples to determine if any airborne contamination of lead existed in the facility were not collected at the Fall River Readiness Center due to sample pump malfunction.

Paint Chip and Wipe Samples for Lead Contamination: A visual inspection was performed to determine if there were any areas of peeling paint at the facility that could pose a lead exposure hazard. No areas of peeling or flaking paint were observed. Three wipe samples collected from the former firing range that has not been converted and that is being used as storage were above the National Guard criteria for lead contamination (200 µg/ft²). Samples ranged from 2.45 to 125 times the National Guard criteria. Lead was identified in samples collected the overhead heater vent, the bullet trap, and on the floor of the range.

Visual Inspection for Damaged Asbestos-Containing Materials: Damaged TSI pipe insulation was observed in the kitchen and damaged floor tile was located in the gym/band storage area and the drill hall. Bulk samples of the floor tiles were analyzed and reported as non-asbestos-containing. The submitted sample of TSI pipe insulation resulted in 50% and trace amounts of Chrysotile asbestos respectively.

Visual Inspection for Water Damage and Mold Growth: A visual inspection was performed to determine if there was any water damage or visible mold growth at the facility. Extensive water damage was observed in the gym/band storage area. The water had loosened and removed floor tile from the area. No visible mold was observed in the space.

Visual Inspection for Housekeeping Concerns: A visual inspection was performed to assess the state of housekeeping in the facility. The housekeeping was good. All areas were clean and tidy.

Lighting: The evaluation indicated that there are some illumination deficiencies in several offices and the kitchen. The illumination measurements indoors ranged from a low of 10.3 foot candles (fc) to a high of 97 fc.

BEST AVAILABLE COPY
Industrial Hygiene Survey Report
Massachusetts Army National Guard (MA ARNG)
Fall River Readiness Center

Indoor Air Quality: Temperatures and relative humidity measurements were outside the acceptable range in most of the facility. These results are not unexpected due to outdoor conditions on the day of the survey and the lack of air conditioning in most of the facility. Those areas with window air conditioning units were within acceptable ranges. Indoor levels of CO₂ ranged from 303 to 436 parts per million (ppm) and outdoor CO₂ levels were approximately 310 ppm during the monitored period. CO₂ measurements were below the guideline in all areas, indicating adequate fresh air exchange. Indoor levels of CO ranged from 0 to 0.7 ppm; therefore, concentrations are below occupational exposure limits, ASHRAE and the NAAQS-recommended CO concentrations.

BEST AVAILABLE COPY
Industrial Hygiene Survey Report
Massachusetts Army National Guard (MA ARNG)
Fall River Readiness Center

1 Introduction

Aria Environmental, Inc. (AEI) was contracted to perform an industrial hygiene evaluation for the Massachusetts Army National Guard (MA ARNG) Readiness Center located at 1089 Dwelly Street, Fall River, MA, 02724-3199. Non-Responsive performed the evaluation on August 17, 2010. The point of contact for the facility was Sergeant First Class Non-Responsive. The purpose of the evaluation was to identify and measure the existence and extent of potentially hazardous operations or conditions at Army National Guard (ARNG) facilities.

The Fall River Readiness Center is staffed with 3 administrative personnel. The operations conducted at the facility include supply and administrative duties. A diagram of the building layout is provided in Appendix A. All sampling sheets and laboratory certificates of analysis are provided in Appendix B. Selected photographs taken during the evaluation are provided in Appendix C. Indoor air quality and lighting survey measurement log sheets are provided in Appendix D. Lists of all references used during the evaluation are included in the main body of the report.

2 Evaluation Methods

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

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

3 Operations

Operations conducted at the Fall River facility consists exclusively of supply and administrative duties. No maintenance of vehicles, painting of equipment or other physical tasks are performed at the facility. Ground maintenance and upkeep of the building are the responsibility of the state employed Armorer and not part of the duties of National Guard personnel.

4 Noise Hazards

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

5 Hazard Controls

Ventilation Systems

Heat is supplied to the facility through a boiler located in the boiler room and overhead heaters in the drill hall. The boiler certificate for the Fall River facility is expired and is not up to date. Any air conditioning provided to the building is through window air conditioning units. No local ventilation systems were present at the facility.

6 Physical Condition of the Facility and Personnel Concerns

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

Lead in Air Samples

Lead in air samples to determine if any airborne contamination of lead existed in the facility were not collected at the Fall River Readiness Center due to sample pump malfunction.

Paint Chip and Dust Wipe Samples for Lead Contamination

A visual inspection was performed to determine if there were any areas of peeling paint at the facility that could pose a lead exposure hazard. No areas of peeling or flaking paint were observed.

To determine if any cross contamination of lead from any source into areas of the facility existed, wipe samples were collected using ghost wipes and 10cm x 10cm templates. Wipe samples for surface dust were collected in 19 locations. The Environmental Protection Agency (EPA) and the Commonwealth of Massachusetts limits for lead in dust are 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) on floors, 250 $\mu\text{g}/\text{ft}^2$ on window sills, and 400 $\mu\text{g}/\text{ft}^2$ in window troughs. These limits apply to pre-1978 Army facilities only if children under 6 years of age occupy them for 60 or more hours per year. The NGB Region North Industrial Hygiene Office concurs with the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) recommended maximum level for adult exposures of 200 $\mu\text{g}/\text{ft}^2$ on floors and frequently contacted surfaces, which is more stringent for window sills than the EPA/State standards. Dust wipe samples were submitted to Aerosol Monitoring and Analysis Analytical Services, Inc. (AMA) for atomic absorption spectrophotometry (AAS) following the analytical method ASTM D3335-85A. Three wipe samples collected from the former firing range were above the National Guard criteria for lead contamination (200 $\mu\text{g}/\text{ft}^2$). Samples ranged from 2.45 to 125 times the National Guard criteria. Lead was identified in samples collected from the overhead heater vent, the bullet trap, and on the floor of the range. The history of the indoor firing range was not known to current employees at the Readiness Center. It appeared not to have been converted in accordance with NG PAM 420-15 and it was being used for storage. Results are given in Table 1 and certificates of analysis are included in Appendix B.

BEST AVAILABLE COPY
Industrial Hygiene Survey Report
Massachusetts Army National Guard (MA ARNG)
Fall River Readiness Center

**Table 1 – Results of Dust Wipe Sampling for MA ARNG
Fall River Readiness Center on August 17, 2010.**

Wipe Sample #	Sample Location	Result (µg/ft²)*
FAL-PB-01	Drill Hall, Ceremonial Artillery	<110
FAL-PB-02	Drill Hall, Middle of Floor	<110
FAL-PB-03	Drill Hall, From Bench Top	<110
FAL-PB-04	Kitchen, From Prep Table	<110
FAL-PB-05	SFC Non-Responsive Office, From Supply Grill on Radiator	<110
FAL-PB-06	Old Firing Range, From Overhead Heater	25,000
FAL-PB-07	Old Firing Range, Bullet Trap	840
FAL-PB-08	Old Firing Range, Light Fixture	<110
FAL-PB-09	Old Firing Range, Stored Equipment	<110
FAL-PB-10	Old Firing Range, Middle of Floor	490
FAL-PB-11	Drill hall, Immediately Outside Old Firing Range on Floor	<110
FAL-PB-12	Office (1), From Desktop	<110
FAL-PB-13	Copy Room, From Top of Cabinet	<110
FAL-PB-14	Storage Room (14), From Top of Footlocker	<110
FAL-PB-15	Office (24), From Top of Cabinet	<110
FAL-PB-16	Entry, Middle of Main Door on Floor	<110
FAL-PB-17	Mess Hall, From Table	<110
FAL-PB-18	Office (22), Window Sill	<110
FAL-PB-19	Supply Room (5), From Supply Shelf	<110

*The US Army CHPPM recommends a maximum level for adult exposures of 200 µg/ft² lead on floors

Visual Inspection for Damaged Asbestos-Containing Materials

A visual inspection was performed to determine if there were any suspect asbestos-containing material and its condition. Damaged TSI pipe insulation was observed in the kitchen and damaged floor tile was located in the gym/band storage area and the drill hall. Three bulk samples were collected and submitted to AMA Analytical Services, Inc. of Lanham, MD 20706 (NIST-NVLAP Accreditation No. 101143-0) for analysis by Polarized Light Microscopy (PLM) using EPA method 600/R-93/116. The EPA defines an asbestos-containing material as one percent (1%) or more asbestos by visual estimation. Submitted samples of the floor tiles were reported as non-asbestos-containing. The submitted sample of TSI pipe insulation resulted in 50% and Trace

BEST AVAILABLE COPY
Industrial Hygiene Survey Report
Massachusetts Army National Guard (MA ARNG)
Fall River Readiness Center

amounts of Chrysotile asbestos respectively. Results are given in Table 2 and certificates of analysis are included in Appendix B.

Table 2 – Results of Asbestos Sampling for the MA ARNG RC
Fall River, MA on August 17, 2010.

Bulk Sample #	Sample Location	Result* (% by wt)
FAL-ASB-01	12"x12" Brown Floor Tile, Gym/Former Firing Range	NAD**
FAL-ASB-02	Aircell Pipe Insulation, Kitchen at Damage by Door	50% Chrysotile
FAL-ASB-03	9"x9" Floor Tile and Mastic, Drill Hall	NAD

*The EPA defines an asbestos-containing material as one percent or more asbestos by visual estimation.

**NAD = No asbestos detected.

Visual Inspection for Water Damage and Mold Growth

A visual inspection was performed to determine if there was any water damage or visible mold growth at the facility. Extensive water damage was observed in the gym/band storage area. The water had loosened and removed floor tile from the area. No visible mold was observed in the space.

Visual Inspection for Housekeeping Concerns

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

Lighting

Illumination levels were measured using a Cal-Light 400L, calibrated on July 30, 2010, and compared to minimum lighting requirements for various facilities and functions based on the following references: American National Standards Institute/Illumination Engineering Society of North America (ANSI/IESNA) Standard RP-1-04 (Office Lighting) and ANSI/IESNA Standard RP-7-01 (Lighting Industrial Facilities).

A lighting survey was performed in all areas within the readiness center. The evaluation indicated that there are some illumination deficiencies in several offices and the kitchen. The illumination measurements indoors ranged from a low of 10.3 foot candles (fc) to a high of 97 fc. The complete results of the evaluation are presented in Appendix D, including whether the results met minimum requirements for illumination. Additional illumination can be achieved by replacing burned-out lamps, cleaning fixtures, relocating detailed work to more illuminated areas, using supplemental task lighting, and opening doors or windows to provide more natural lighting.

Indoor Air Quality (IAQ)

Indoor air quality measurements (i.e., temperature, relative humidity, carbon dioxide and carbon monoxide) were taken using a TSI Q-Trak Plus Model 8554, factory calibrated in March 2010. Temperature, relative humidity and carbon dioxide (CO₂) measurements were compared to the recommended levels established by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE). Carbon monoxide (CO) concentrations were compared to the ACGIH Threshold Limit Value (TLV) for CO and the Environmental Protection Agency's (EPA's) National Ambient Air Quality Standard (NAAQS) for CO.

BEST AVAILABLE COPY
Industrial Hygiene Survey Report
Massachusetts Army National Guard (MA ARNG)
Fall River Readiness Center

Industry guidelines or standards for seasonal temperature and humidity ranges for thermal comfort are established by ASHRAE standard 55-2004. These ranges are presented in Table 3. The U.S. EPA also recommends maintaining relative humidity below 60% and ideally between 30 and 50% to prevent mold growth. Complete results are provided in Appendix G with the lighting survey measurements.

Table 3 - Acceptable Ranges of Temperature and Relative Humidity in Summer and Winter^a

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

^aadapted from ASHRAE Standard 55-2004

Temperature and Relative Humidity

Indoor temperature and relative humidity (Rh) measurements in the facility ranged from 74.7 to 79.5° F and 62.4 to 88.5% Rh. Outdoor temperature and humidity measurements were 77.0° F and 80.4% on the day of monitoring. Temperatures and relative humidity measurements were outside the acceptable range in most of the facility. These results are not unexpected due to outdoor conditions on the day of the survey and the lack of air conditioning in most of the facility. Those areas with window air conditioning units were within acceptable ranges.

Carbon Dioxide (CO₂) and Carbon Monoxide (CO)

Carbon dioxide and carbon monoxide measurements are used to assess ventilation system performance. The exhaled breath of building occupants is the main indoor source of carbon dioxide; therefore, the build up of CO₂ indicates inadequate ventilation. The concentration of concern for carbon dioxide is set by ASHRAE standard 62.1 – 2007 as 700 ppm above outdoor concentrations. Indoor levels of CO₂ ranged from 303 to 436 parts per million (ppm) and outdoor CO₂ levels were approximately 310 ppm during the monitored period. CO₂ measurements were below the guideline in all areas, indicating adequate fresh air exchange.

Carbon monoxide is a byproduct of incomplete combustion. Indoor concentrations indicate contamination caused by improperly vented or malfunctioning boilers, furnaces or stoves or from vehicle exhaust entering the building from garages, loading docks, nearby roads or parking lots. The concentration of interest set by ASHRAE standard 62.1-2007 and the National Ambient Air Quality Standards (NAAQS) for carbon monoxide is an 8 hour average of 9 ppm. The ACGIH TLV for CO is 25 ppm. Indoor levels of CO ranged from 0 to 0.7 ppm; therefore, concentrations are below occupational exposure limits, ASHRAE and the NAAQS-recommended CO concentrations.

7 Conclusions

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

BEST AVAILABLE COPY
Industrial Hygiene Survey Report
Massachusetts Army National Guard (MA ARNG)
Fall River Readiness Center

8 Limitations

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

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

9 References

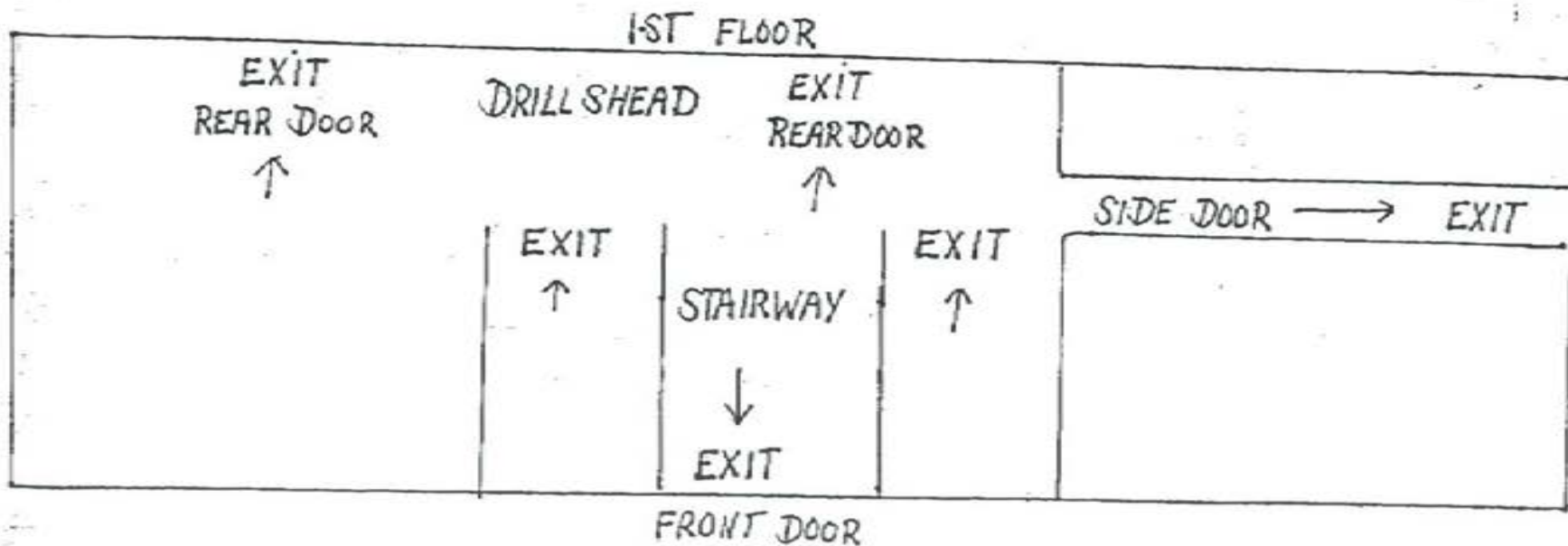
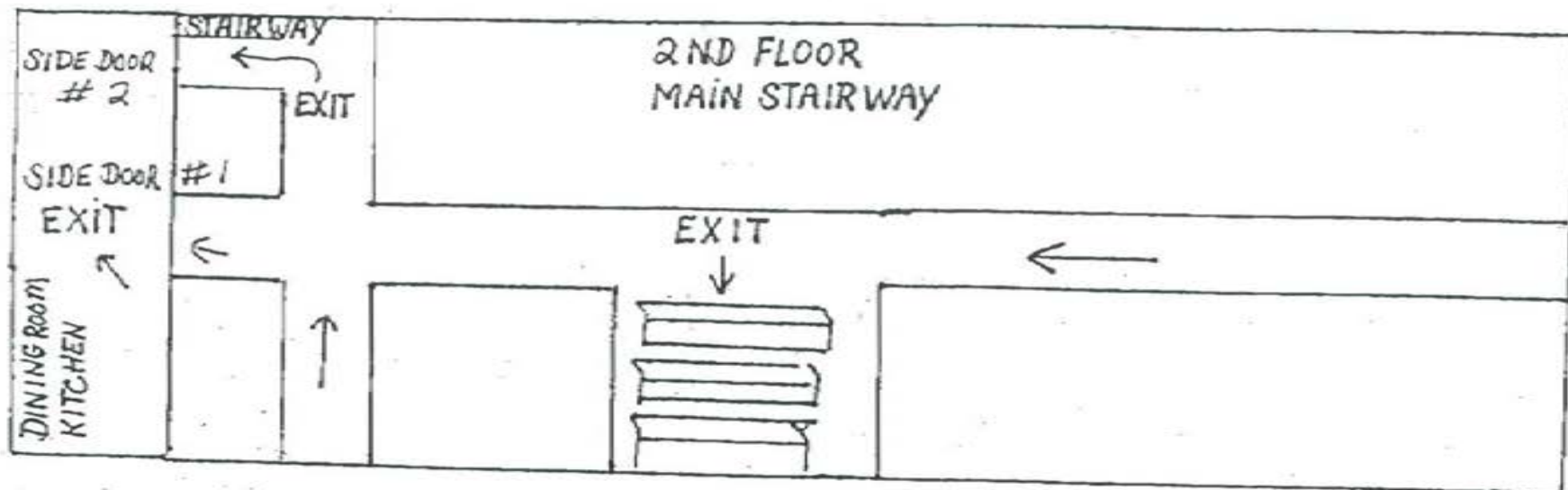
1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current edition.
2. Title 24, Code of Federal Regulations (CFR), Part 35, Subpart B, Sections 35.110, Definitions of Lead-Based Paint, Housing and Urban Development, U.S. Department of Housing.
3. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998.
4. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, May 25, 2007.
5. Army Regulation (AR) 385-10, The Army Safety Program, August 23, 2007.
6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Service, Hearing Conservation Program, December 15, 1998.
7. Department of the Army Pamphlet (DA PAM) 40-503, Medical Service, Industrial Hygiene Program, October 30, 2000.
8. Technical Manual (TM) 5-810-1, Mechanical Design, Heating, Ventilation, and Air Conditioning, June 1991.
9. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current edition.
10. RP-1-2004 (Office Lighting) and RP-7-2001 (Industrial Lighting), Illuminating Engineering Society of North America (IESNA)/ANSI.

**Industrial Hygiene Survey Report
Massachusetts Army National Guard (MA ARNG)
Fall River Readiness Center**

11. The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), Standard 62.1-2007, "Ventilation for Acceptable Indoor Air Quality" and Standard 55-2004, "Thermal Environmental Conditions for Human Occupancy".
12. NIOSH website: <http://www.cdc.gov/niosh/>
13. OSHA website: <http://www.osha.gov/>.
14. Army CHPPM website: <http://chppm-www.apgea.army.mil/>.
15. EPA website: <http://www.epa.gov>.

Appendix A Building Layout

AUG. 17. 2010 11:08AM



EVACUATION PLAN FALL RIVER ARMORY

No. 1254 P. 20

Appendix B

Certificates of Analysis for Dust Wipe and Bulk Samples



CERTIFICATE OF ANALYSIS

Client:	National Guard Bureau	Job Name:	Fall River Readiness Center	Chain Of Custody:	508591
Address:	301-IH Old Bay Lane, Attn: NGB-AVN-SI, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	Fall River, MA	Date Analyzed:	8/25/2010
		Job Number:	Not Provided	Person Submitting:	Non-Responsive
		P.O. Number:	W912K6-09-0003		

Attention: Non-Responsive

Page 1 of 1

Summary of Polarized Light Microscopy

AMA Sample Number	Client Sample #	Total Asbestos	Chrysotile Percent	Amosite Percent	Crocidolite Percent	Other Asbestos Percent	Mineral Wool Percent	Fiberglass Percent	Organic Percent	Synthetic Percent	Other Percent	Particulate Percent	Sample Color	Homogeneity	Analyst ID	Comments
1071935	FAL-ASB-01	NAD	--	--	--	--	--	--	TR	--	--	100	Multi	Homogeneous	SW	
1071936	FAL-ASB-02	50	50	--	--	--	--	--	20	--	--	30	Multi	Homogeneous	SW	
1071937	FAL-ASB-03	NAD	--	--	--	--	--	--	TR	--	--	100	Brown	Homogeneous	SW	

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

- 1 TEM RECOMMENDATION - Please note, due to resolution limitations with optical microscopy and/or interference from matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos. It is recommended that the additional analytical technique of TEM be used to check for asbestos fibers below the resolution limits of optical microscopy.
- 2 MATRIX REDUCTION RECOMMENDATION - Please note, due to interference from the matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos which is obscured from view. It is recommended that the additional preparation technique of gravimetric reduction be performed on this sample to minimize the obscuring effects of matrix components, followed by reanalysis by PLM and/or TEM.

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

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

Uncertainty: For samples containing asbestos in range of 1-10% the CV is 0.43, 11-35% CV=0.55, >35 CV=0.23

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

Technical Director

Non-Responsive

Analyst(s)

Non-Responsive

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 NY ELAP, NVLAP, NIST, 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. • Lutham, MD 20706
 (301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This
Number For Inquires)

508591

pg 1 of 2

Mailing/Billing Information:

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

Submital Information:

1. Job Name: FALL RIVER READINESS CARTR
 2. Job Location: FALL RIVER, MA
 3. Job #: [REDACTED]
 4. Contact Person: [REDACTED]
 5. Submitted by: [REDACTED]

Reporting Information (Results will be provided)

AFTER HOURS (must be pre-scheduled)		NORMAL BUSINESS HOURS		REPORT TO:
<input type="checkbox"/> Immediate	Date Due: _____	<input type="checkbox"/> Immediate	<input type="checkbox"/> 3 Day	<input checked="" type="checkbox"/> Include COC/Field Data Sheet with Report
<input checked="" type="checkbox"/> 24 Hours	Time Due: _____	<input type="checkbox"/> Next Day	<input checked="" type="checkbox"/> 2 Day + <u>8/26/10</u>	<input checked="" type="checkbox"/> Email: <u>AMA@us.army.mil</u>
Comments: _____		<input type="checkbox"/> 2 Day	<input type="checkbox"/> Results Required By Noon (Every Attempt Will Be Made to Accomodate)	<input type="checkbox"/> Fax: <u>[REDACTED]</u>
				<input type="checkbox"/> Verbal: <u>[REDACTED]</u>

Asbestos Analysis

PCM Air - Please Indicate Filter Type:
☐ NIOSH 7400 (QTY)
☐ Fiberglass (QTY)
TEM Air - Please Indicate Filter Type:
☐ AHERA (QTY)
☐ NIOSH 7402 (QTY)
☐ Other (specify _____) (QTY)

PLM Bulk
☒ EPA 600 - Visual Estimate 3 (QTY)
☐ EPA Point Count (QTY)
☐ NY State Friable 198.1 (QTY)
☐ Grav. Reduction ELAP 198.6 (QTY)
☐ Other (specify _____) (QTY)

MISC

☐ Vermiculite
☐ Asbestos Soil PLM (Qual) PLM (Quan) PLM/TEM (Qual) PLM/TEM (Quan)

TEM Bulk

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

TEM Dust

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

TEM Water

☐ Qual. (pres/abs) (QTY)
☐ ELAP 198.2/EPA 100.2 (QTY)
☐ EPA 100.1 (QTY)

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

Metals Analysis

☐ Pb Paint Chip (QTY)
☒ Pb Dust Wipe (wipe type GHOST) 19 (QTY)
☐ Pb Air (QTY)
☐ Pb Soil/Solid (QTY)
☐ Pb TCLP (QTY)
☐ Drinking Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY)
☐ Waste Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY)
☐ Pb Furnace (Media _____) (QTY)

Fungal Analysis

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

CLIENT ID NUMBER	SAMPLE INFORMATION		VOLUME (LITERS)	WIPE AREA	ANALYSIS										CLIENT CONTACT		
	SAMPLE LOCATION/IDENTIFICATION	DATE			TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	WATER AND OTHER	SPORE TRAP	TAPE	SWAB	(LABORATORY STAFF ONLY)
FAL-PB-01		8/17/10	10X10CM					X				X					Date/Time: _____ Contact: _____ By: _____
FAL-PB-02																	
FAL-PB-03																	
FAL-PB-04																	
FAL-PB-05																	Date/Time: _____ Contact: _____ By: _____
FAL-PB-06																	
FAL-PB-07																	
FAL-PB-08																	
FAL-PB-09																	Date/Time: _____ Contact: _____ By: _____
FAL-PB-10																	
FAL-PB-11																	
FAL-PB-12																	

LABORATORY
STAFF ONLY:

Posted to NGB FOIA Reading Room
 May, 2018

1. Date/Time RCVD: 8/19/10 @ 1020 Via: Red
 2. Date/Time Analyzed: 8/25/10 By (Print): [REDACTED]
 3. Date/Time Reported To: [REDACTED]
 4. Comments: _____

Non-Responsive

**AMA Analytical Services, Inc.**

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

CHAIN OF CUSTODY

(Please Refer To This
Number For Inquiries)

508591

pg 2 of 2

Mailing/Billing Information:

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

Submittal Information:

- Job Name: SAME
- Job Location: SAME
- Job #:
- Contact Person: Non-Responsive
- Submitted by: Non-Responsive

Reporting Information (Results will be provided)

AFTER HOURS (must be pre-scheduled)		NORMAL BUSINESS HOURS		REPORT TO:	
<input type="checkbox"/> Immediate	Date Due: _____	<input type="checkbox"/> Immediate	<input type="checkbox"/> 3 Day	<input type="checkbox"/> Include COC/Field Data Sheets with Report	<input type="checkbox"/> Fax: <u>Non-Responsive</u>
<input type="checkbox"/> 24 Hours	Time Due: _____	<input type="checkbox"/> Next Day	<input type="checkbox"/> 5 Day +	<input type="checkbox"/> Email: <u>Non-Responsive</u>	<input type="checkbox"/> Fax: <u>@us.army.mil</u>
Comments: _____		<input type="checkbox"/> 2 Day	Date Due: _____	<input type="checkbox"/> Results Required By Noon (Every Attempt Will Be Made to Accomodate)	<input type="checkbox"/> Verbal: <u>@us.army.mil</u>

Asbestos Analysis

- PCM Air** - Please Indicate Filter Type:
- ☐ NIOSH 7400 _____ (QTY)
 - ☐ Fiberglass _____ (QTY)
- TEM Air** - Please Indicate Filter Type:
- ☐ AHERA _____ (QTY)
 - ☐ NIOSH 7402 _____ (QTY)
 - ☐ Other (specify) _____ (QTY)

PLM Bulk

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

MISC

- ☐ Vermiculite
- ☐ Asbestos Soil PLM _____ (Qual) PLM _____ (Quan) PLM/TEM _____ (Qual) PLM/TEM _____ (Quan)

TEM Bulk

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

TEM Dust

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

TEM Water

- ☐ Qual. (pres/abs) _____ (QTY)
- ☐ ELAP 198.2/EPA 100.2 _____ (QTY)
- ☐ EPA 100.1 _____ (QTY)

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

Metals Analysis

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

Fungal Analysis

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

CLIENT ID NUMBER	SAMPLE INFORMATION		VOLUME (LITERS)	WIPE AREA	ANALYSIS										CLIENT CONTACT			
	SAMPLE LOCATION/IDENTIFICATION	DATE			TEM	PCM	PLM	LEAD	WOLD	AIR	BULK	DUST	MATRIX	SWAB	(LABORATORY STAFF ONLY)			
FAL-PB-13		8/17/10		10x10cm				X							Date/Time:	Contact:	By:	
FAL-PB-14																		
FAL-PB-15																		
FAL-PB-16																		
FAL-PB-17															Date/Time:	Contact:	By:	
FAL-PB-18																		
FAL-PB-19																		
FAL-ASB-01							X				X				Date/Time:	Contact:	By:	
FAL-ASB-02							X				X							
FAL-ASB-03							X				X							

LABORATORY**STAFF ONLY:**

Posted to NGB FOIA Reading Room
 May, 2018

- Date/Time RCVD: 8/17/10 @ Via:
- Date/Time Analyzed: Non-Responsive By (Print): Non-Responsive
- Date/Time Reported To: Non-Responsive AVAILA
- Comments:

Non-Responsive



CERTIFICATE OF ANALYSIS



LAB #100470

NY ELAP

10920

Client: National Guard Bureau
Address: 301-JH Old Bay Lane, Attn: NGB-AVN-SI,
State Military Reservation
Havre de Grace, Maryland 21078

Job Name: Fall River Readiness Center
Job Location: Fall River, MA
Job Number: Not Provided
P.O. Number: W912K6-09-0003

Chain Of Custody: 508591

Date Submitted: 8/19/2010

Person Submitting:

Non-Responsive

Date Analyzed:

8/25/2010

Report Date:

8/26/2010

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 (ft ²)	Reporting Limit	Total ug	Final Result	Comments
1071916	FAL-PB-01	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1071917	FAL-PB-02	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1071918	FAL-PB-03	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1071919	FAL-PB-04	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1071920	FAL-PB-05	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1071921	FAL-PB-06	Flame	Wipe	****	0.108	110 ug/ft ²	2600	25000 ug/ft ²	
1071922	FAL-PB-07	Flame	Wipe	****	0.108	110 ug/ft ²	90	840 ug/ft ²	
1071923	FAL-PB-08	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1071924	FAL-PB-09	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1071925	FAL-PB-10	Flame	Wipe	****	0.108	110 ug/ft ²	53	490 ug/ft ²	
1071926	FAL-PB-11	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1071927	FAL-PB-12	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1071928	FAL-PB-13	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1071929	FAL-PB-14	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1071930	FAL-PB-15	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1071931	FAL-PB-16	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1071932	FAL-PB-17	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1071933	FAL-PB-18	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1071934	FAL-PB-19	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	

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 NY ELAP, AIHA, NVLAP, NIST, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

An AIHA (#100470), NVLAP (101143-0), and NY ELAP (#10920) Accredited Laboratory



CERTIFICATE OF ANALYSIS



Client:	National Guard Bureau	Job Name:	Fall River Readiness Center	Chain Of Custody:	508591	NY ELAP 10920 LAB #100470	
Address:	301-JH Old Bay Lane, Attn: NGB-AVN-SI, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	Fall River, MA	Date Submitted:	8/19/2010		
		Job Number:	Not Provided	Person Submitting:	Non-Responsive		
		P.O. Number:	W912K6-09-0003	Date Analyzed:	8/25/2010		
Attention:	Non-Responsive					Report Date:	8/26/2010

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 (ft ²)	Reporting Limit	Total ug	Final Result	Comments
<p>Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7420; Water: SM-3111B Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7421; Water: SM-3113B N/A = Not Applicable mg/Kg = parts per million (ppm) 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.</p>									
Analyst: Non-Responsive							Technical Manager: Non-Responsive		

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations, and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AIHA, NVLAP, NIST, 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 This
Number For Inquires)**508591**

Pg 1 of 2

Mailing/Billing Information:

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

Submittal Information:

1. Job Name: FALL RIVER READINESS CAREN
 2. Job Location: FALL RIVER, MD
 3. Job #: _____ P.O. #: W912K6-09-A-0003
 4. Contact Person: _____
 5. Submitted by: _____

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

AFTER HOURS (must be pre-scheduled)		NORMAL BUSINESS HOURS		REPORT TO:
<input type="checkbox"/> Immediate	Date Due: _____	<input type="checkbox"/> Immediate	<input type="checkbox"/> 3 Day	<input checked="" type="checkbox"/> Include Non-Responsive <input type="checkbox"/> Email: <u>AKIA@VIRGO.COM</u> <input type="checkbox"/> Fax: <u>us.army.mil</u> <input type="checkbox"/> Verbal: <u>us.army.mil</u>
<input type="checkbox"/> 24 Hours	Time Due: _____	<input type="checkbox"/> Next Day	<input checked="" type="checkbox"/> 5 Day +	
Comments: _____		<input type="checkbox"/> 2 Day	Date Due: <u>8/26/10</u>	
		<input type="checkbox"/> Results Required By Noon (Every Attempt Will Be Made to Accommodate)		

Asbestos Analysis

PCMAir - Please Indicate Filter Type:

- ☐ NIOSH 7400 (QTY) _____
☐ Fiberglass (QTY) _____

TEM Air - Please Indicate Filter Type:

- ☐ AHERA (QTY) _____
☐ NIOSH 7402 (QTY) _____
☐ Other (specify) _____ (QTY) _____

PLM Bulk

- ☒ EPA 600 - Visual Estimate 3 (QTY) _____
☐ EPA Point Count (QTY) _____
☐ NY State Friable 198.1 (QTY) _____
☐ Grav. Reduction ELAP 198.6 (QTY) _____
☐ Other (specify) _____ (QTY) _____

MISC

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

TEM Bulk

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

TEM Dust

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

TEM Water

- ☐ Qual. (pres/abs) (QTY) _____
☐ ELAP 198.2/EPA 100.2 (QTY) _____
☐ EPA 100.1 (QTY) _____

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

Metals Analysis

- ☐ Pb Paint Chip (QTY) _____
☒ Pb Dust Wipe (wipe type ghost) 19 (QTY) _____
☐ Pb Air (QTY) _____
☐ Pb Soil/Solid (QTY) _____
☐ Pb TCLP (QTY) _____
☐ Drinking Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY) _____
☐ Waste Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY) _____
☐ Pb Furnace (Media) _____ (QTY) _____

Fungal Analysis

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

SAMPLE INFORMATION**ANALYSIS****MATRIX****CLIENT CONTACT**

CLIENT ID NUMBER	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPE AREA	TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	WATER AND OTHER	SPRINT TRAP	TAPE	SWAB	LABORATORY STAFF ONLY
FAL-PB-01		8/17/10		10X10CM				X				X					Date/Time: _____ Contact: _____ By: _____
FAL-PB-02																	
FAL-PB-03																	
FAL-PB-04																	
FAL-PB-05																	Date/Time: _____ Contact: _____ By: _____
FAL-PB-06																	
FAL-PB-07																	
FAL-PB-08																	
FAL-PB-09																	Date/Time: _____ Contact: _____ By: _____
FAL-PB-10																	
FAL-PB-11																	
FAL-PB-12																	

LABORATORY**STAFF ONLY:**

(Custody)

1. Date/Time RCVD: 8/19/10 @ 1000 Via: Fedex By: _____

2. Date/Time Analyzed: _____ / _____ / _____ @ _____ By (Print): _____

3. Results Reported To: _____

4. Comments: _____

BEST AVAILABLE COPY

Non-Responsive

**AMA Analytical Services, Inc.**

Focused on Results www.amaulab.com

AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)

4475 Forbes Blvd. • Lanham, MD 20706

(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY(Please Refer To This
Number For Inquires)

508591

pg 2 of 2

Mailing/Billing Information:

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

Submittal Information:

1. Job Name: SAME
 2. Job Location: SAME
 3. Job #: SAME
 4. Contact Person: Non-Responsive
 5. Submitted By: Non-Responsive

Reporting Information (Results will be provided)

AFTER HOURS (must be pre-scheduled) <input type="checkbox"/> Immediate Date Due: _____ <input type="checkbox"/> 24 Hours Time Due: _____ Comments: _____		NORMAL BUSINESS HOURS <input type="checkbox"/> Immediate <input type="checkbox"/> 3 Day <input type="checkbox"/> Results Required By Noon <input type="checkbox"/> Next Day <input type="checkbox"/> 5 Day + (Every Attempt Will Be Made to Accommodate) <input type="checkbox"/> 2 Day Date Due: _____		REPORT TO: <input checked="" type="checkbox"/> Include COC/Field Data Sheets with Report <input type="checkbox"/> Email: <u>Non-Responsive@us.army.mil</u> <input type="checkbox"/> Fax: <u>Non-Responsive@us.army.mil</u> <input type="checkbox"/> Verbal: _____
--	--	---	--	--

Asbestos Analysis

PCM Air - Please Indicate Filter Type:

- ☐ NIOSH 7400 (QTY)
☐ Fiberglass (QTY)

TEM Air - Please Indicate Filter Type:

- ☐ AHERA (QTY)
☐ NIOSH 7402 (QTY)
☐ Other (specify _____) (QTY)

PLM Bulk

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

MISC

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

TEM Bulk

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

TEM Dust

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

TEM Water

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

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

Metals Analysis

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

Fungal Analysis

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

SAMPLE INFORMATION**ANALYSIS****MATRIX****CLIENT CONTACT**

CLIENT ID NUMBER	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPE AREA	TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	WATER AND OTHER	SPORE TRAP	TAPE	SWAB	LABORATORY STAFF ONLY
FAL-PB-13		8/17/10		10x10cm				X									Date/Time: _____ Contact: _____ By: _____
FAL-PB-14																	
FAL-PB-15																	
FAL-PB-16																	
FAL-PB-17																	Date/Time: _____ Contact: _____ By: _____
FAL-PB-18																	
FAL-PB-19																	
FAL-ASB-01							X										
FAL-ASB-02							X										Date/Time: _____ Contact: _____ By: _____
FAL-ASB-03							X										

LABORATORY**STAFF ONLY:**

1. Date/Time RCVD: _____ / _____ / _____ @ _____ Via: _____ By (Print): _____

2. Date/Time Analyzed: _____ / _____ / _____ @ _____ By (Print): _____ Sign: _____

3. Results Reported To: _____ Date: _____ / _____ / _____

4. Comments: _____

BEST AVAILABLE COPY

Date: _____ / _____ / _____

EOI/Requester Record # J15-0085 (MA)

Released by National Guard Bureau

Page 1197 of 3473

Non-Responsive

Appendix C

Photo Documentation

Falls River RC



Drill Hall



Kitchen



Damaged TSI

Posted to NGB FOIA Reading Room
May, 2018



Front Entry

Falls River RC



Storage Area, Former Firing Range



Bullet Trap



Damaged Floor Tile

Posted to NGB FOIA Reading Room
May, 2018



Boiler Room

Appendix D

IAQ and Lighting Survey Log Sheets

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

State	MA	City	Fall River	IAQ								Light		
Date	8/17/2010	Inspector	Non-Responsive	Instrument		TSI Q-Trak Plus Model 8554						Instrument		CAL-LIGHT 400
Facility Description	Readiness Ctr			Serial Number		8554-02041015						Serial Number		K070277
Weather Conditions				Last Calibration		Mar-10						Last Calibration		30-Jul-10
Location	Function	No. Occupants	Time	Temp. (°F)	Exceeded	RH (%)	Exceeded	CO ₂ (ppm)	Exceeded	CO (ppm)	Exceeded	Illuminance (fc)	Insufficient	Illuminance Reference Value (fc)
1	Office			77.2	X	88.5	X	347		0.7		40.6	X	50
2	Office			77.5	X	76.0	X	332		0.4		53.4		50
3	Entry			77.7	X	80.1	X	388		0.3		58.3		10
4	Women's Room			77.2	X	87.5	X	361		0.1		16.8		5
5	Supply Room			77.2	X	85.9	X	326		0.1		28.7		10
6	Boiler Room			77.5	X	87.9	X	346		0.1		40.0		30
7	Storage			77.2	X	82.3	X	326		0.2		59.7		30
8	Gym			77.0	X	86.6	X	337		0.1		59.7		30
9	Men's Room			77.0	X	86.9	X	339		0.0		6.4		5
10	Storage			76.8	X	87.8	X	320		0.1		10.3		10
11	Storage			77.2	X	83.8	X	327		0.0		16.5		10
12	Office/ Storage			77.5	X	82.5	X	395		0.0		63.3		50
13	Storage			77.5	X	80.3	X	315		0.0		57.9		30
14	Storage			77.5	X	79.5	X	360		0.0		34.3		30
15	Storage			77.2	X	84.1	X	334		0.0		13.0		10
16	Storage			77.2	X	80.3	X	322		0.1		11.3		10
17	Copy Room			77.4	X	85.4	X	336		0.0		67.8		50
18	Office			78.3	X	80.1	X	334		0.0		29.3	X	50
Notes:				Relative Humidity			Winter Temp.		Summer Temp.					
				30%			68.5°F-76.0°F		74.0°F-80.0°F					
				40%			68.5°F-75.5°F		73.5°F-79.5°F					
				50%			68.5°F-74.5°F		73.0°F-79.0°F					
				60%			68.0°F-74.0°F		72.5°F-78.0°F					

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

State	MA	City	Fall River	IAQ								Light		
Date	8/17/2010	Inspector	Non-Responsive	Instrument		TSI Q-Trak Plus Model 8554						Instrument		CAL-LIGHT 400
Facility Description	Readiness Ctr			Serial Number		8554-02041015						Serial Number		K070277
Weather Conditions				Last Calibration		Mar-10						Last Calibration		30-Jul-10
Location	Function	No. Occupants	Time	Temp. (°F)	Exceeded	RH (%)	Exceeded	CO ₂ (ppm)	Exceeded	CO (ppm)	Exceeded	Illuminance (fc)	Insufficient	Illuminance Reference Value (fc)
19	Office			78.8	X	69.5	X	358		0.5		31.6	X	50
20	Office			79.0	X	80.0	X	369		0.1		64.4		50
21	Office			79.0	X	77.3	X	326		0.0		97.0		50
22	Office			79.0	X	71.0	X	317		0.0		38.9	X	50
23	Latrine			79.5	X	75.5	X	335		0.0		76.8		5
24	Office			75.2		62.4		342		0.1		57.7		50
25	Office			74.7	X	80.9	X	433		0.2		71.4		50
26	Office			78.6	X	77.7	X	436		0.0		69.1		50
27	Mess Hall			78.8	X	80.4	X	387		0.2		37.1		10
28	Kitchen			78.8	X	79.5	X	352		0.0		41.1	X	50
29	Office			78.8	X	78.5	X	370		0.1		60.3		50
30	Rehersal Room			78.1	X	69.0	X	319		0.2		57.3		50
31	Band Storage			71.2	X	80.7	X	320		0.1		22.9		30
32	Rehersal Hall			77.2	X	80.1	X	303		0.0		52.3		50
33	Storage			77.0	X	68.5	X	327		0.1		28.7		10
34	Drill Hall			77.0	X	80.4	X	313		0.1		25.6		10-30
Notes:				Relative Humidity		Winter Temp.		Summer Temp.						
				30%		68.5°F-76.0°F		74.0°F-80.0°F						
				40%		68.5°F-75.5°F		73.5°F-79.5°F						
				50%		68.5°F-74.5°F		73.0°F-79.0°F						
				60%		68.0°F-74.0°F		72.5°F-78.0°F						



Prepared For:

National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
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
MASSACHUSETTS NATIONAL GUARD READINESS CENTER
1089 DWELLY STREET
FALL RIVER, MA 02724**

June 17, 2013
PN: 39743799

Non-Responsive

Director, Industrial Hygiene Services

Non-Responsive

Project Manager

TABLE OF CONTENTS

Section	Page
1.0 SUMMARY	1
2.0 SUPPLY / TRAINING AREA.....	3
2.1 Operation Description.....	3
2.2 Chemical and Physical Agents Sampled	3
2.2.1 Carbon Dioxide.....	3
2.2.2 Carbon Monoxide	4
2.2.3 Relative Humidity	4
2.2.4 Temperature.....	4
2.2.5 Lighting.....	4
2.2.6 Lead	5
2.2.7 Asbestos.....	7
2.3 Ventilation System Evaluation	8
2.4 Noise Measurements.....	8
2.5 Personal Protective Equipment	8
3.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS.....	9
3.1 Confined Spaces	9
3.2 Hearing Conservation.....	9
3.3 Respiratory Protection	9
3.4 Hazard Communication	9
3.5 Personal Protective Equipment	9
3.6 Asbestos Operations and Maintenance Program	10
3.7 Safety	10
4.0 REFERENCES.....	11

APPENDICES

APPENDIX A	SHOP DRAWING
APPENDIX B	PERSONNEL LIST
APPENDIX C	ANALYTICAL RESULTS
APPENDIX D	PHOTOGRAPHIC LOG
APPENDIX E	RECOMMENDATIONS FOR SURFACE LEAD DUST IN ARMORIES

FINDINGS AND RECOMMENDATIONS
MASSACHUSETTS NATIONAL GUARD READINESS CENTER
1089 DWELLY ST., FALL RIVER, MA

Findings	Recommendations	Risk Assessment Code (RAC)
Lighting		
On the day of the survey, the illuminance was inadequate in several locations tested.	Increase lighting in the work areas. While work is in progress, these areas must be lighted by at least the minimum lighting intensities (ANSI / IESNA RP-1-04).	RAC 4
Ergonomics		
Computer workstations in the Administrative Areas were observed with un-adjustable chairs, arm rests and keyboards. Several wheeled chairs with four casters were noted.	Ergonomic issues with regard to 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
Former Indoor Firing Range		
The former Indoor Firing Range was reported to have been abated however elevated lead levels were detected in dust wipe samples.	Personnel trained in accordance with the OSHA Lead Standard should clean the areas where elevated lead dust levels were identified (OSHA 29 CFR 1910.1025(h)(1)).	RAC 3
Lead		
Six of the 10 lead wipe samples indicated elevated lead levels.	Personnel trained in accordance with the OSHA Lead Standard should clean the areas where elevated lead dust levels were identified (OSHA 29 CFR 1910.1025(h)(1)).	RAC 3
Emergency Exits		
Emergency exit signs were not visible from all areas of the facility or illuminated.	Emergency exits should be properly illuminated (29 CFR 1910.37 (q)(6)).	RAC 3
Ladder Storage		
Ladders were observed not properly secured and stored in the Assembly Hall.	Ladders not in use must be properly stored in a vertical position fastened to walls. (29 CFR 1910.25 (c)(2)(i)).	RAC 4

Findings	Recommendations	Risk Assessment Code (RAC)
Asbestos		
Asbestos-containing pipe insulation and presumed asbestos-containing floor tile and mastic were observed throughout the facility; an Asbestos Operation and Maintenance Program was not available on-Site.	Repair damaged areas of asbestos-containing materials and develop a site-specific asbestos operations and maintenance program for management of asbestos-containing materials in place as required by OSHA 29 CFR 1910.1001(j)(2).	RAC 3
PPE		
Hazard assessments have not been conducted to determine whether personal protective equipment is required.	Conduct a hazard assessment of site operations to determine what types of PPE are required for each type of work (29 CFR 1910.132(d)(1)).	RAC 4
Water Intrusion		
Water staining was observed on the ceiling of the first floor vault and in the stairwell in the area of the roof hatch.	The source of the water intrusion should be identified and repaired. The water-stained materials should be repaired or replaced (ACGIH – Guidelines for the Assessment of Bio-aerosols in the Indoor Environment).	RAC 4
Fire Extinguishers		
No evidence was found that all fire extinguishers were being inspected on a monthly basis. One fire extinguisher in the Assembly hall was blocked.	All fire extinguishers must be inspected on a monthly basis to determine that they are full and readily accessible. (OSHA 29 CFR 1910.157(e)(2))	RAC 3

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 in Fall River, Massachusetts.

URS representative, Ms. [Non-Responsive], conducted the Industrial Hygiene Survey on April 8, 2013. The scope of work included an overall assessment of the facility as it relates to industrial hygiene and included a walkthrough of the facility, collection of photographs, and when required, measurements for illumination (light), area and personal air sampling, and noise mapping.

The Fall River Readiness Center is a two-story brick building, consisting of offices, classrooms, a supply area, gender separate bathrooms, locker storage rooms, storage rooms, a kitchen, a classroom/mess hall, an Assembly Hall and a former Indoor Firing Range. A layout of the Readiness Center is provided in Appendix A.

GENERAL: Ladders were observed not properly secured and stored in the Assembly Hall. A folding table was not properly stored overhead in the Assembly Hall. Emergency exit signs were not posted and illuminated throughout the facility. Emergency escape plans were not posted throughout the facility. Several fire extinguishers without inspection tags were identified in the first floor storage rooms. One fire extinguisher in the Assembly Hall was blocked. Ceiling tiles in the second floor classroom were water-damaged and falling.

LIGHTING: Lighting in the Readiness Center was found to be inadequate in seven of the areas measured. Areas noted within the report as having inadequate lighting require upgrading by either increasing the general lighting or through the use of task lighting. While work is in progress work areas must be lighted by at least the minimum light intensities.

LEAD: The former Indoor Firing Range was taken out of service and abated approximately three years ago; however elevated lead levels were detected in dust wipe samples at various locations within the Readiness Center.

Seven of ten wipe samples collected in the Readiness Center were found to contain lead in a concentration above the recommended limit set by the NGB, Region North IH Office.

On the day of the survey, one paint chip sample was collected from peeling paint and found to contain a level of lead below the HUD criteria for determination of paint as lead-based.

ASBESTOS: Asbestos-containing pipe insulation was identified during this survey. Presumed asbestos-containing floor tiles were noted to be damaged and pulling up at entrances in the Assembly Hall. No Asbestos Operations and Maintenance Program was found on site. Until suspect materials have been sampled and determined not to contain asbestos, they must be presumed to be asbestos-containing and managed accordingly.

ERGONOMICS: Many of the work stations had ergonomic issues which require attention. Computer workstations were assessed during the walkthrough for ergonomic issues. The computer workstations in the facility did not meet the current Occupational Safety and Health Administration (OSHA) ergonomic recommendations. The chair armrests, keyboards, and monitors were not adjustable. All workstations in the facility should be adjusted and monitored. The ergonomic issues with regard to the workstations and chairs need to be corrected by fitting the workplace to the worker. Wheeled chairs with four casters were identified throughout the admin areas.

NOISE: Noise mapping levels in the Readiness Center determined that noise levels were below the OSHA permissible exposure limit (PEL) and Department of Defense Instruction (DoDI) Hearing Conservation Standard (6055.12 3 December 2010) on the day of URS' site visit.

2.0 SUPPLY / TRAINING AREA

2.1 Operation Description

This Readiness Center is primarily used for weekend training drills and conducting administrative functions. The building includes offices, classrooms, a supply area, gender separate bathrooms, locker storage rooms, storage rooms, a kitchen, a classroom/mess hall, an Assembly Hall and a former Indoor Firing Range.

The Readiness Center was found to be neat and organized at the time of URS' site visit.

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. Interior carbon dioxide concentrations were found to be between 499 and 623 parts per million (ppm). Carbon dioxide levels were measured using a direct-reading TSI Q-Trak (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 human respiration. 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 but is typically 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.

To minimize air quality complaints, the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) has proposed that the carbon dioxide concentration within an occupied workspace be maintained below 700 ppm above ambient outside levels. For example, on the day of the survey, the outside carbon dioxide level was measured at 444 ppm. Therefore ASHRAE (Standard 62.1-2010) would recommend that interior carbon dioxide concentrations be maintained at or below 1144 ppm. Using the ASHRAE guideline, the readings at the subject site were found to be below the suggested indoor to outdoor differential concentration.

2.2.2 Carbon Monoxide

The carbon monoxide concentration in the Readiness Center was measured between 0.0 ppm and 0.3 ppm on the day of the survey. ASHRAE recommends that average carbon monoxide concentrations not exceed 9 ppm. Typical average concentrations found in commercial buildings range from 0 to 6 ppm. The measured levels were below the ASHRAE guideline for indoor environments. Carbon monoxide was measured using a TSI Q-Trak Plus (Model 8554).

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.

2.2.3 Relative Humidity

The average relative humidity within the Readiness Center measured with the Q-Trak Plus was 35.6%, which was within the guideline of less than 65% recommended by ASHRAE.

2.2.4 Temperature

Temperature should be maintained within the thermal comfort envelope suggested in ASHRAE Standard 55-2010. This standard on thermal environments specifies conditions in which 80% or more of building occupants should find the thermal environment acceptable. ASHRAE 55-2010 suggests temperatures of 68 to 75 degrees Fahrenheit (°F), during winter months, for people in typical seasonal clothing during light sedentary activity. For summer, the temperature should be in the range of 73 to 79 °F.

The average temperature inside the Readiness Center was, 67 °F, which was below the guideline of 68 to 75 °F recommended by ASHRAE for thermal comfort. No complaints regarding temperature were received by URS during this survey.

2.2.5 Lighting

Lighting in the Readiness Center was measured using a cal-Light 400 Light Meter. Table 2-1 below shows lighting measurements in foot candles (FC) and the

recommended lighting requirements (Illuminating Engineering Society of North America (IESNA) RP-7-01).

Table 2-1
Lighting Measurements and Recommended Lighting Requirements

Location	Function	Measured Illuminance in Foot Candles (FC)	Recommended Minimum Illuminance in Foot Candles (FC)
Storage/ Supply Office, desk- Non-Responsive	Admin	10.1	50
Band Storage Room, off Drill Hall	Storage	116.3	30
Instrument Storage, Office, desk- Non-Responsive	Admin	14.6	50
2 nd Floor, Fmr. Recruiter's Office, desk	Admin	32.1	50
2 nd Floor, Mess Hall, table	Break Room	71.4	10
2 nd Floor, Mess Hall, table	Break Room	133.0	10
2 nd Floor, Classroom, table	Admin	63.9	50
2 nd Floor, Classroom, table	Admin	99.9	50
2 nd Floor, TNG NCO Office, desk	Admin	50.1	50
2 nd Floor, Library/ Server Room, table	Admin	15.1	50
2 nd Floor, Break Room	Break Room	76.3	10
2 nd Floor, 1 st Sgt. Office, desk	Admin	78.9	50
2 nd Floor, Office, Desk- Non-Responsive	Admin	41.9	50
2 nd Floor, Office, keyboard desk	Admin	86.7	50
2 nd Floor, Office, desk- Non-Responsive	Admin	63.0	50
2 nd Floor, Office, desk- Non-Responsive	Admin	76.5	50
1 st Floor, Office, desk- Non-Responsive	Admin	52.3	50

On the day of the survey, the illuminance in the Readiness Center was determined to be inadequate in five of the locations tested throughout the facility.

2.2.6 Lead

Wipe testing for lead dust was conducted in the Readiness Center using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA Analytical Services, Inc. (AMA) is contained in Appendix C. Table 2-2 below shows the results of the lead wipe testing.

Table 2-2
Levels of Lead Dust Found in the Readiness Center

Sample Location	URS Sample Number	Area Wiped in Square Feet (ft²)	Result in Micrograms/Square Foot (µg/ft²)	Maximum Surface Contamination in Micrograms/Square Foot Level (µg/ft²)
1 st Floor, Band Office off Lobby, floor under window	Fall River RC Wipe-01	0.108	170	200
1 st Floor, Men's Latrines, floor behind door	Fall River RC Wipe-02	0.108	240	200
2 nd Floor, Mess Hall, floor behind door towards kitchen	Fall River RC Wipe-03	0.108	<110	200
2 nd Floor, Break Room, TV Stand, top shelf	Fall River RC Wipe-04	0.108	<110	200
2 nd Floor, Latrines, floor behind door	Fall River RC Wipe-05	0.108	<110	200
1 st Floor, PT Room, floor at door to former Indoor Firing Range	Fall River RC Wipe-06	0.108	220	200
1 st Floor, PT Room, floor behind weights by entrance	Fall River RC Wipe-07	0.108	590	200
1 st Floor, Drill Shed, floor along PT Room, corner to Band Storage	Fall River RC Wipe-08	0.108	210	200
Drill Shed, floor along storage/ vaults, under storage container	Fall River RC Wipe-09	0.108	240	200
1 st Floor, Storage, floor by counter and desk, by entrance	Fall River RC Wipe-10	0.108	520	200

Six of the ten surface dust level measurements were found to contain lead at a level above the NGB recommended level, based on the OSHA clarification letter which states "as free as practicable" of lead contamination as specified under OSHA 29 CFR 1926.62.

One paint chip sample was collected from an area of peeling paint in the PT Room and was analyzed for lead content. The analytical report from AMA is contained in Appendix C.

According to the U.S. Department of Housing and Urban Development (HUD), paint is considered to be lead-based if the quantity of lead is greater than 0.5% by weight. OSHA has not established a minimum percentage of lead to be defined as lead-based paint, therefore paint with lead in any amount above the analytical detection limit is considered to be lead-based under these regulations. The results of URS' lead paint testing are contained in Table 2-3.

Table 2-3
Lead Content in Painted Surfaces

Paint Location	Lead Concentration (Percent Weight)	HUD Lead-Based Quantity (Percent Weight)
Gray paint, floor, PT Room	0.18	0.5

On the day of the survey, the paint chip sample was not found to have a lead content above the HUD criteria for determination of paint as lead-based.

2.2.7 Asbestos

URS collected a total of three samples from damaged suspect friable asbestos-containing material (ACM) in the Readiness Center 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 with dispersion staining (EPA-600/M4-82-020). Table 2-4 below shows the results of the asbestos sampling.

Table 2-4
Asbestos Bulk Sample Results – Basement

Sample Location	Sample Description	URS Sample Number	Result Total Asbestos
1 st Floor, Vault	Pipe Insulation	Fall River RC PLM-01A	50% Chrysotile 10% Amosite
1 st Floor, Vault	Pipe Insulation	Fall River RC PLM-01B	50% Chrysotile 5% Amosite

Sample Location	Sample Description	URS Sample Number	Result Total Asbestos
1 st Floor, Office (Hyde) off lobby	Pipe Insulation	Fall River RC PLM-01C	40% Chrysotile

The EPA states that any material with an asbestos content greater than 1% must be treated as ACM (EPA, Title 40 CFR Part 763.87 (c)(2)). The analytical report from AMA is contained in Appendix C.

Presumed asbestos-containing floor tiles and associated mastic were also identified during this survey. Until suspect materials have been sampled and determined not to contain asbestos, they must be presumed to be asbestos-containing and managed accordingly.

2.3 Ventilation System Evaluation

The facility, not designed for vehicle maintenance, contains a ventilation system that is limited to localized personal ventilation (i.e. room fans, window air conditioning units) within the majority of rooms, and main negative draw fans in the Assembly Hall.

2.4 Noise Measurements

Noise mapping was conducted throughout the Readiness Center. Area noise mapping results indicated that, on the day of the survey, noise levels throughout the Readiness Center ranged from 56.2 decibels to 61.2 decibels. All noise mapping results were below the DoDI Hearing Conservation Standard (6055.12 3 December 2010) of 85 decibels, A scale (dBA)/8-hour day.

2.5 Personal Protective Equipment

Personal protective equipment was orderly and readily available to employees in the Readiness Center. Personal protective equipment included safety glasses, ear plugs and nitrile gloves.

3.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS

3.1 Confined Spaces

A written confined spaces program is not applicable to this facility.

3.2 Hearing Conservation

A written hearing conservation program was identified on site. A review of normal site activities determined that no operations were identified that would warrant hearing protection. Based on area noise mapping results and a review of normal site operations, a hearing conservation program is not required for this site.

3.3 Respiratory Protection

A site-specific written program regarding Respiratory Protection was not identified on site. No operations were observed by URS that would require the use of respiratory protection. If workers are allowed access to the former firing range, a hazard assessment should be conducted to determine whether respiratory protection and other forms of PPE should be required in this area.

3.4 Hazard Communication

A site-specific hazard communication program was identified on site.

Material safety data sheets, a site map, and list of full time personnel were readily available on the day of the survey.

3.5 Personal Protective Equipment

A written personal protective equipment program was identified on site. A hazard assessment should be conducted to determine whether personal protective equipment is required for activities typically undertaken at the Readiness Center.

3.6 Asbestos Operations and Maintenance Program

A written asbestos operations and maintenance program was not identified on site. Since both confirmed and presumed ACM were identified during URS' site visit, a site-specific operations and maintenance program is required.

3.7 Safety

The former Indoor Firing Range was taken out of service and abated approximately three years ago; however wipe samples detected elevated lead levels in multiple locations within the Readiness Center. Ladders were observed not properly secured and stored in the Assembly Hall. A folding table was not properly stored overhead in the Assembly Hall. Presumed asbestos-containing floor tiles were noted to be damaged and pulling up at entrances in the Assembly Hall. Wheeled chairs with four casters were identified throughout the admin areas. Emergency exit signs were not posted and illuminated throughout the facility. Emergency escape plans were not posted throughout the facility. Several fire extinguishers without inspection tags were identified on the first floor storage rooms. One fire extinguisher in the Assembly Hall was blocked.

4.0 REFERENCES

American Conference of Governmental Industrial Hygienists

Industrial Ventilation: A Manual of Recommended Practice, 27th Edition, 2010

Guidelines for the Assessment of Bio-aerosols in the Indoor Environment, 1989

American National Standards Institute

American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-04: American National Standard Practice for Office Lighting

ANSI/IESNA RP-7-01: Recommended Practice for Lighting Industrial Facilities

American Society of Heating, Refrigerating and Air-Conditioning Engineers

ANSI/ASHRAE Standard 62.1-2010: Ventilation for Acceptable Indoor Air Quality

ANSI/ASHRAE Standard 55-2010: Thermal Environmental Conditions for Human Occupancy.

Department of the Army

DA PAM 40-21, Ergonomics Program, 15 August 2003

Unified Facilities Criteria, Heating, Ventilating and Air Conditioning, 3-520-05, 14 April 2008

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

AR 385-10, The Army Safety Program, 23 August 2007; RAR Issue Date: 4 October 2011

National Guard Pamphlet 420-15

Department of Defense

DoDI 6055.12, Hearing Conservation, 3 December 2010

Creating the Ideal Computer Workstation: A Step-by-Step Guide, June 2000

National Institute for Occupational Safety and Health

Current Intelligence Bulletin 50: Carcinogenic Effects of Exposure to Diesel Exhaust, August 1988

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. Department of Housing and Urban Development

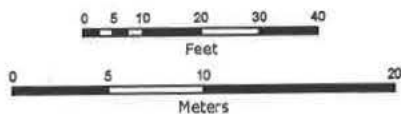
Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (1995, 1997, 2012)

U. S. Occupational Safety and Health Administration

Standard for General Industry: 29 CFR 1910

OSHA Clarification Letter – Clarification of “as free as practicable” of lead contamination under 29 CFR 1926.62, 13 January 2003.

APPENDIX A
SHOP DRAWING

1350
Morgan et al. • 1997 • 19

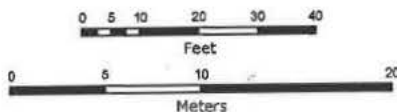
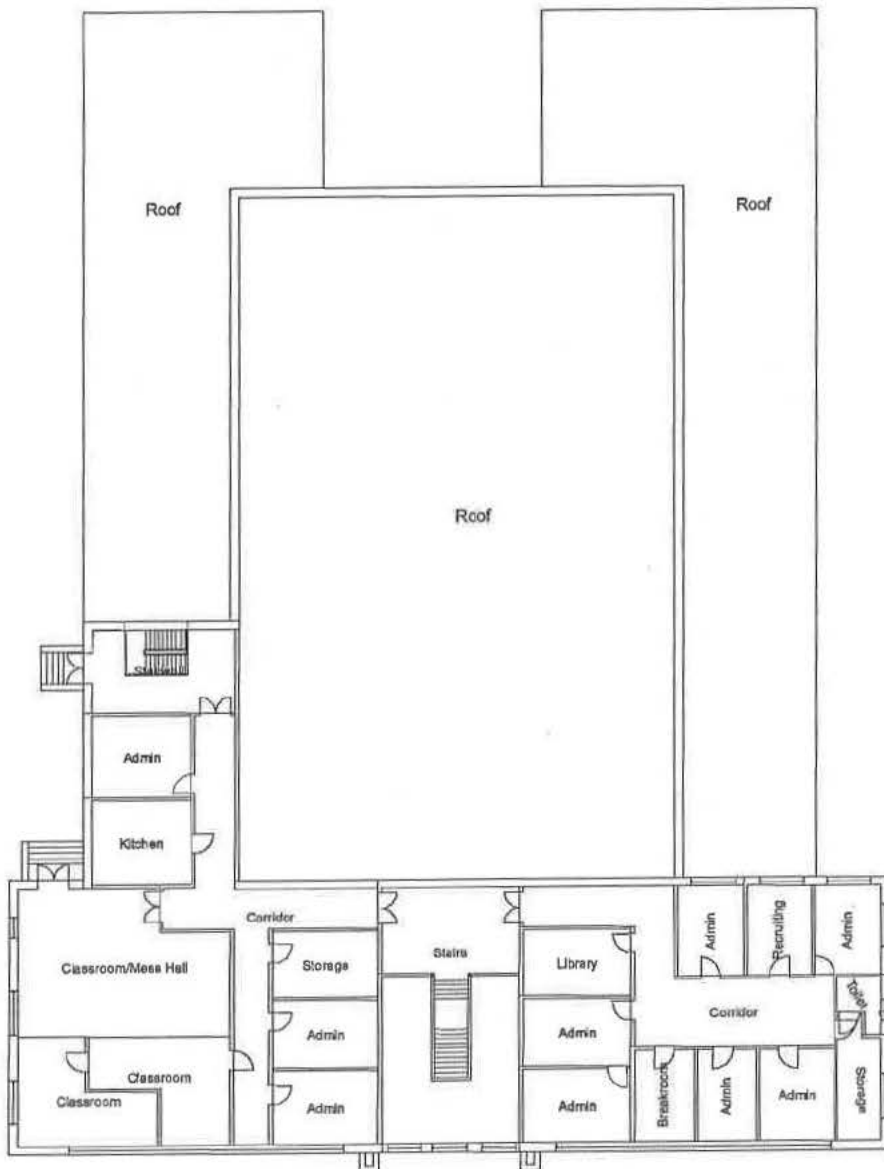
The information on this map is for planning purposes only. This information is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analysis.



Fall River 25A95 Second Floor

BEST AVAILABLE COPY

MASSACHUSETTS ARMY NATIONAL GUARD
JOINT FORCE HEADQUARTERS
CONSTRUCTION AND FACILITIES MAINTENANCE OFFICE



1:250
Massachusetts ROAD 83

The information on this map is for planning purposes only.
This information is not adequate for legal boundary definition,
regulatory interpretation, or personnel analysis.

APPENDIX B
PERSONNEL LIST



REPLY TO
ATTENTION OF

BEST AVAILABLE COPY
DEPARTMENT OF THE ARMY
MASSACHUSETTS ARMY NATIONAL GUARD
DETACHMENT 1
ALPHA BATTERY, 1ST BATTALION, 101ST FIELD ARTILLERY
1089 DWELLY STREET
FALL RIVER, MA 02724-3119
508-679-5454/508-672-2466

NGMA-FAB-AB

08 April 2013

MEMORANDUM FOR URS 5 Industrial Way, Salem NH 03079

SUBJECT: Memorandum for Record

1. The following Full-Time Massachusetts National Guard Soldiers work at the Fall River Armory:

Non-Responsive

4. Point-of-Contact is above letterhead, attention: SSG **Non-Responsive** Unit Training NCO.

Non-Responsive

Non-Responsive

SSG, MAARNG
Unit Training NCO

215th
Army Band

APPENDIX C

ANALYTICAL RESULTS



CERTIFICATE OF ANALYSIS



Client:	National Guard Bureau	Job Name:	MA ARNG	Chain Of Custody:	515613
Address:	301-IH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	1089 Dwelly Street, Fall River, MA	Date Submitted:	4/17/2013
Attention:	Non-Responsive	Job Number:	Fall River RC	Person Submitting:	Non-Responsive
		P.O. Number:	W912K6-09-A-0003	Date Analyzed:	4/23/2013
				Report Date:	4/23/2013

Summary of Atomic Absorption Analysis for Lead

Page 1 of 2

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Total ug	Final Result	Comments
13054160	FallRiverRC Wipe 01	Flame	Wipe	****	0.108	110 ug/ft²	18	170 ug/ft²	
13054161	FallRiverRC Wipe 02	Flame	Wipe	****	0.108	110 ug/ft²	26	240 ug/ft²	
13054162	FallRiverRC Wipe 03	Flame	Wipe	****	0.108	110 ug/ft²	<12	<110 ug/ft²	
13054163	FallRiverRC Wipe 04	Flame	Wipe	****	0.108	110 ug/ft²	<12	<110 ug/ft²	
13054164	FallRiverRC Wipe 05	Flame	Wipe	****	0.108	110 ug/ft²	<12	<110 ug/ft²	
13054165	FallRiverRC Wipe 06	Flame	Wipe	****	0.108	110 ug/ft²	23	220 ug/ft²	
13054166	FallRiverRC Wipe 07	Flame	Wipe	****	0.108	110 ug/ft²	64	590 ug/ft²	
13054167	FallRiverRC Wipe 08	Flame	Wipe	****	0.108	110 ug/ft²	22	210 ug/ft²	
13054168	FallRiverRC Wipe 09	Flame	Wipe	****	0.108	110 ug/ft²	26	240 ug/ft²	
13054169	FallRiverRC Wipe 10	Flame	Wipe	****	0.108	110 ug/ft²	56	520 ug/ft²	
13054170	FallRiverRC Wipe FB	Flame	Wipe Blank	****	N/A	12 ug		<12 ug	
13054171	FallRiverRC LBP 01	Flame	Paint Chip	****	N/A	0.0082 %Pb		0.18 %Pb	

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.



CERTIFICATE OF ANALYSIS



Client: National Guard Bureau
Address: 301-TH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation
 Havre de Grace, Maryland 21078
Attention: **Non-Responsive**

Job Name: MA ARNG
Job Location: 1089 Dwelly Street, Fall River, MA
Job Number: Fall River RC
P.O. Number: W912K6-09-A-0003

Chain Of Custody: 515613
Date Submitted: 4/17/2013
Person Submitting: **Non-Responsive**
Date Analyzed: 4/23/2013 **Report Date:** 4/23/2013

Summary of Atomic Absorption Analysis for Lead

Page 2 of 2

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Total ug	Final Result	Comments
Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm) %Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb) Note: All samples were received in good condition unless otherwise noted. Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result. Air and Wipe results are not corrected for any blank results Final results for air and wipe samples are based on client supplied information nor verified by this laboratory. All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.							See QC Summary for analytical results of quality control samples associated with these samples.		
Anal						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 This
Number For Inquiries)

515613

Page 1 of 2

Mailing/Billing Information:

- Client Name: National Guard Bureau
- Address 1: 301-1H Old Bay Lane
- Address 2: Attn: NGB-AVN-SI, State Military Reservation
- Address 3: Havre de Grace, Maryland 21078
- Phone #: (410) 942-0273 Fax #: (410) 942-0264

Submittal Information:

- Job Name: MA LABNG
- Job Location: 1089 Dively St, Fall River, MA
- Job #: Fall River BC
- Contact Person: [Redacted]
- Submitted By: [Redacted]

Reporting Information (Results will be provided by: [Redacted])

AFTER HOURS (must be pre-scheduled) <input type="checkbox"/> Immediate Date Due: _____ <input type="checkbox"/> 24 Hours Time Due: _____ Comments: _____		NORMAL BUSINESS HOURS <input type="checkbox"/> Immediate <input type="checkbox"/> Next Day <input type="checkbox"/> 2 Day <input checked="" type="checkbox"/> 3 Day <input checked="" type="checkbox"/> 5 Day + <u>4/14/13</u> Date Due: _____		<input type="checkbox"/> Results Required By Noon (Every Attempt Will Be Made to Accommodate) <input type="checkbox"/> Incl. with Report <input type="checkbox"/> Fax: <u>us.com</u> <input type="checkbox"/> Ver: <u>@us.army.mil</u>	
--	--	---	--	---	--

Asbestos Analysis**ECMA Air** - Please Indicate Filter Type:

- ☐ NIOSH 7400 (QTY)
☐ Fiberglass (QTY)

TEM Air - Please Indicate Filter Type:

- ☐ AHERA (QTY)
☐ NIOSH 7402 (QTY)
☐ Other (specify) _____ (QTY)

PLM Bulk

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

MISC

- ☐ Vermiculite
☐ Asbestos Soil PLM (Qual PLM (Qun) PLM/TEM (Qual PLM/TEM (Qun)

TEM Bulk

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

TEM Dust

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

TEM Water

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

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

Media Analysis

- ☒ Pb Point Chip (QTY)
☒ Pb Dust Wipe (wipe type ghost) (QTY)
☐ Pb Air (QTY)
☐ Pb Soil/Solid (QTY)
☐ Pb TCLP (QTY)
☐ Drinking Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY)
☐ Waste Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY)
☐ Pb Furnace (Media _____) (QTY)

Spore Analysis

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

CLIENT ID NUMBER	SAMPLE INFORMATION		VOLUME (LITERS)	WITH AREA	ANALYSIS										CLIENT CONTACT		
	SAMPLE LOCATION/ IDENTIFICATION	DATE			TEM	PCM	PLM	LEAD	MCLD	AIR	BULK	DUST	WATER AND OTHER	SPORE TRAP	TAPE	SWAB	(LABORATORY STAFF ONLY)
FALL RIVER BC LAB-01	MAINT	4/18/13		100cm ²				X				X					Date/Time: _____ Contact: _____ By: _____
FALL RIVER BC LAB-02								X				X					
FALL RIVER BC LAB-03								X				X					
FALL RIVER BC LAB-04								X				X					
FALL RIVER BC LAB-05								X				X					Date/Time: _____ Contact: _____ By: _____
FALL RIVER BC LAB-06	MAINT							X				X					
FALL RIVER BC LAB-07								X				X					
FALL RIVER BC LAB-08								X				X					
FALL RIVER BC LAB-09								X				X					Date/Time: _____ Contact: _____ By: _____
FALL RIVER BC LAB-10								X				X					
FALL RIVER BC LAB-11	Field blank							X				X					
FALL RIVER BC LAB-12	TSI paper wrap							X				X					

LABORATORY1. Date/Time RCVD: 4/11/13 @ us.com By (Print): [Redacted]

2. Date/Time Analyzed: _____ @ _____ By (Print): _____

3. Results Reported To: _____

4. Comments: 194009618482

BEST AVAILABLE COPY

Non-Responsive



Focused on Results www.umslab.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

515613
pg 2 of 2

Mailing/Billing Information:

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

Submittal Information:

1. Job Name: DIA ABNG
2. Job Location: 1089 Dwyer St., Fall River, MA
3. Job #: FALL RIVER PC
4. Contact Person: Non-Responsive
5. Submitted By: Non-Responsive

Reporting Information (Results will be provided)

AFTER HOURS (must be pre-scheduled) <input type="checkbox"/> Immediate Date Due: _____ <input type="checkbox"/> 24 Hours Time Due: _____ Comments: _____		NORMAL BUSINESS HOURS <input type="checkbox"/> Immediate <input type="checkbox"/> Next Day <input type="checkbox"/> 2 Day <input checked="" type="checkbox"/> 3 Day <input checked="" type="checkbox"/> 5 Day + Date Due: _____		<input type="checkbox"/> Results Required By Noon (Every Attempt Will Be Made to Accommodate) <input type="checkbox"/> Include _____ <input type="checkbox"/> Fax: _____ <input type="checkbox"/> Verb: _____		Non-Responsive with Report @ us.army.mil @ us.army.mil	
--	--	--	--	---	--	--	--

Asbestos Analysis

ECM Air - Please Indicate Filter Type:

☒ NIOSH 7400 _____ (QTY)
☐ Fiberglass _____ (QTY)

MAir - Please Indicate Filter Type:

JEM Air - Please Indicate Filter Type:

Q AHERA _____ (QTY)

☐ NIOSH 7402 _____ (QTY)
☐ Other (specify _____) _____ (QTY)

PLM Bulk

☒ EPA 600 - Visual Estimate 3 (QTY)
☒ EPA Point Count _____ (QTY)
☐ NY State Friable 198.1 _____ (QTY)
☐ Grav. Reduction ELAP 198.6 _____ (QTY)
☐ Other (specify) _____ (QTY)

MISC

☐ Vermiculite
☐ Asbestos Soil FLM (Qual) FLM (Qual) FLM/TEM (Qual) FLM/TEM (Qual)

TEM Bulk

☐ ELAP 198.4/Chatfield _____ (QTY)
☐ NY State PLM/TEM _____ (QTY)
☐ Residual Ash _____ (QTY)

TEM Dust

☐ Qual. (pres/obs) Vacuum/Dust _____ (QTY)
☐ Qunn. (s/area) Vacuum D3755-95 _____ (QTY)
☐ Qunn. (s/area) Dust D6480-99 _____ (QTY)

TIEM Water

☐ Qual. (pres/abs) _____ (QTY)
☐ ELAP 198.2/EPA 100.2 _____ (QTY)
☐ EPA 100.1 _____ (QTY)

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

THE NEW YORK PUBLIC LIBRARY

☒ Pb Paint Chip _____ (QTY) _____
☒ Pb Dust Wipe (wipe type gh) _____ (QTY) _____
☐ Pb Air _____ (QTY) _____
☐ Pb Soil/Solid _____ (QTY) _____
☐ Pb TCLP _____ (QTY) _____
☐ Drinking Water ☐ Pb _____ (QTY) ☐ Cu _____ (QTY) ☐ As _____ (QTY)
☐ Waste Water ☐ Pb _____ (QTY) ☐ Cu _____ (QTY) ☐ As _____ (QTY)
☐ Pb Furnace (Media _____) _____ (QTY) _____

1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 26

Collection Apparatus for Spore Traps/Air Samples: _____
Collection Media _____

<input type="checkbox"/> Spore Trap _____ (QTY)	<input type="checkbox"/> Surface Vacuum Dust _____ (QTY)
<input type="checkbox"/> Surface Swab _____ (QTY)	<input type="checkbox"/> Culturable ID Germ (Media _____) (QTY)
<input type="checkbox"/> Surface Tape _____ (QTY)	<input type="checkbox"/> Culturable ID Species (Media _____) (QTY)
<input type="checkbox"/> Other (Specify _____) (QTY)	

[illegible]

LABORATORY

1. Date/Time RCVD: _____ / _____ / _____ @ _____ Via: _____ By (Print): _____ Sign: _____
2. Date/Time Analyzed: _____ / _____ / _____ @ _____ By (Print): _____ Sign: _____
3. Results Reported To: _____ BEST AVAILABLE COPY Date: _____ / _____ / _____ Time: _____
4. Comments: _____

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (MA)
Released by National Guard Bureau
Initials 29 of 3473



CERTIFICATE OF ANALYSIS

Client:	National Guard Bureau	Job Name:	MA ARNG	Chain Of Custody:	515613
Address:	301-IH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	1089 Dwelly Street, Fall River, MA	Date Analyzed:	4/24/2013
		Job Number:	Fall River RC	Person Submitting:	Non-Responsive
		P.O. Number:	W912K6-09-A-0003		

Attention: Non-Responsive

Page 1 of 2

Summary of Polarized Light Microscopy

AMA Sample Number	Client Sample #	Total Asbestos	Chrysotile Percent	Amosite Percent	Crocidolite Percent	Other Asbestos Percent	Mineral Wool Percent	Fiberglass Percent	Organic Percent	Synthetic Percent	Other Percent	Particulate Percent	Sample Type	Sample Color	Homogeneity	Analyst ID	Comments
13054172	FallRiverRC PLM 01A	60	50	10	--	--	--	--	--	--	--	40	Pipe wrap	Off-White	Homogeneous	PC	
13054173	FallRiverRC PLM 01B	55	50	5	--	--	--	--	5	--	--	40	Pipe wrap	Off-White	Homogeneous	PC	
13054174	FallRiverRC PLM 01C	40	40	--	--	--	--	--	25	--	--	35	Pipe wrap	Off-White	Homogeneous	PC	

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.



CERTIFICATE OF ANALYSIS

Client:	National Guard Bureau	Job Name:	MA ARNG	Chain Of Custody:	515613
Address:	301-IH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	1089 Dwelly Street, Fall River, MA	Date Analyzed:	4/24/2013
		Job Number:	Fall River RC	Person Submitting:	Non-Responsive
		P.O. Number:	W912K6-09-A-0003		

Attention: Non-Responsive

Page 2 of 2

Summary of Polarized Light Microscopy

AMA Sample Number	Client Sample #	Total Asbestos	Chrysotile Percent	Amosite Percent	Crocidolite Percent	Other Asbestos Percent	Mineral Wool Percent	Fiberglass Percent	Organic Percent	Synthetic Percent	Other Percent	Particulate Percent	Sample Type	Sample Color	Homogeneity	Analyst ID	Comments
-------------------	-----------------	----------------	--------------------	-----------------	---------------------	------------------------	----------------------	--------------------	-----------------	-------------------	---------------	---------------------	-------------	--------------	-------------	------------	----------

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

- 1 TEM RECOMMENDATION - Please note, due to resolution limitations with optical microscopy and/or interference from matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos. It is recommended that the additional analytical technique of TEM be used to check for asbestos fibers below the resolution limits of optical microscopy.
- 2 MATRIX REDUCTION RECOMMENDATION - Please note, due to interference from the matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos which is obscured from view. It is recommended that the additional preparation technique of gravimetric reduction be performed on this sample to minimize the obscuring effects of matrix components, followed by reanalysis by PLM and/or TEM.

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

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

Uncertainty: For samples containing asbestos in range of 1-10% the CV is 0.43, 11-35% CV=0.55, >35 CV=0.23

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

Technical Director

Non-Responsive

Analyst

Non-Responsive

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations, and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples. 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.

**AMA Analytical Services, Inc.**

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

CHAIN OF CUSTODY

(Please Refer To This
Number For Inquiries)

515613**Mailing/Billing Information:**

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

Submittal Information:

- Job Name: MDA LABNG
- Job Location: 1089 Dwyer St, Fall River, MA
- Job #: Fall
- Contact Person: Non-Responsive
- Submitted By: Non-Responsive

Reporting Information (Results will be provided as soon as technically feasible): phone: Non-Responsive

AFTER HOURS (must be pre-scheduled)		NORMAL BUSINESS HOURS		REPORT TO:	
<input type="checkbox"/> Immediate	Date Due: _____	<input type="checkbox"/> Immediate	<input type="checkbox"/> 3 Day	<input type="checkbox"/> Include With Report	<input type="checkbox"/> Fax: _____
<input type="checkbox"/> 24 Hours	Time Due: _____	<input type="checkbox"/> Next Day	<input checked="" type="checkbox"/> 5 Day + Date Due: <u>4/14/13</u>	<input type="checkbox"/> Results Required By Noon (Every Attempt Will Be Made to Accommodate)	<input type="checkbox"/> Verbal _____
Comments: _____				<u>Non-Responsive</u> <u>urs.com</u> <u>us.army.mil</u> <u>us.army.mil</u>	

Asbestos Analysis**PCM Air** - Please Indicate Filter Type:

- ☐ NIOSH 7400 _____ (QTY)
☐ Fiberglass _____ (QTY)

TEM Air - Please Indicate Filter Type:

- ☐ AHERA _____ (QTY)
☐ NIOSH 7402 _____ (QTY)
☐ Other (specify _____) _____ (QTY)

PLM Bulk

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

MISC

- ☐ Vermiculite
☐ Asbestos Soil PLM _____ (Qual) PLM _____ (Quan) PLM/TEM _____ (Qual) PLM/TEM _____ (Quan)

TEM Bulk

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

TEM Dust

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

TEM Water

- ☐ Qual. (pres/abs) _____ (QTY)
☐ ELAP 198.2/EPA 100.2 _____ (QTY)
☐ EPA 100.1 _____ (QTY)

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

Material Analysis

- ☒ Pb Paint Chip _____ (QTY)
☒ Pb Dust Wipe (wipe type ghost, 11) _____ (QTY)
☐ Pb Air _____ (QTY)
☐ Pb Soil/Solid _____ (QTY)
☐ Pb TCLP _____ (QTY)
☐ Drinking Water ☐ Pb _____ (QTY) ☐ Cu _____ (QTY) ☐ As _____ (QTY)
☐ Waste Water ☐ Pb _____ (QTY) ☐ Cu _____ (QTY) ☐ As _____ (QTY)
☐ Pb Furnace (Media _____) _____ (QTY)

Collection Apparatus for Spore Traps/Air Samples: _____

Collection Media _____

- ☐ Spore-Trap _____ (QTY) ☐ Surface Vacuum Dust _____ (QTY)
☐ Surface Swab _____ (QTY) ☐ Culturable ID Genus (Media _____) _____ (QTY)
☐ Surface Tape _____ (QTY) ☐ Culturable ID Species (Media _____) _____ (QTY)
☐ Other (Specify _____) _____ (QTY)

CLIENT ID		SAMPLE INFORMATION		VOLUME		WIPER		ANALYSIS		METHOD		CLIENT CONTACT	
NUMBER	IDENTIFICATION	DATE	(LITERS)	AREA	TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DATE/TIME	CONTACT
FALL RIVER PC WIRE-01	ALUMINUM	4/11/13		100cm ²				X					
FALL RIVER PC WIRE-02								X					
FALL RIVER PC WIRE-03								X					
FALL RIVER PC WIRE-04								X					
FALL RIVER PC WIRE-05								X					
FALL RIVER PC WIRE-06	MAINTENANCE							X					
FALL RIVER PC WIRE-07								X					
FALL RIVER PC WIRE-08								X					
FALL RIVER PC WIRE-09								X					
FALL RIVER PC WIRE-10								X					
FALL RIVER PC WIRE-11	FIELD BLANK							X					
FALL RIVER PC WIRE-12	TSI PRE-WRAP							X					

LABORATORY**STAFF ONLY:**

- Date/Time RCVD: 4/11/13 @ 4:15 Via PR
- Date/Time Analyzed: 4/12/13 @ 13 By PR
- Comments: 1940609518482

BEST AVAILA

Non-Responsive

**AMA Analytical Services, Inc.**

Focused on Results www.amlab.com

AIIA (#100470) NY LAP (#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)

pg 2 of 2

Mailing/Billing Information:

1. Client Name: National Guard Bureau
2. Address 1: 301-1H Old Bay Lane
3. Address 2: Attn: NGB-AVN-SI, State Military Reservation
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0264

Submittal Information:

1. Job Name: MAI LABNG
2. Job Location: 1089 DWIGHT ST, FAIR RIVER, MA
3. Job #: FAIR RIVER PC
4. Contact Person: [Redacted]
5. Submitted By: [Redacted]

Reporting Information (Results will be provided)

AFTER HOURS (must be pre-scheduled)		NORMAL BUSINESS HOURS		REMARKS
<input type="checkbox"/> Immediate	Date Due: _____	<input type="checkbox"/> Immediate	Date Due: _____	<input type="checkbox"/> Include with Report <input type="checkbox"/> Non-Responsive <input type="checkbox"/> Fax: _____ <input type="checkbox"/> Verbal: _____
<input type="checkbox"/> 24 Hours	Time Due: _____	<input type="checkbox"/> 3 Day	Date Due: _____	
Comments: _____		<input type="checkbox"/> Next Day	Date Due: _____	
		<input type="checkbox"/> Results Required By Noon (Every Attempt Will Be Made to Accommodate)		

Asbestos Analysis

PCMAir - Please Indicate Filter Type:

- ☐ NIOSH 7400 (QTY) _____
- ☐ Fiberglass (QTY) _____

TEMAir - Please Indicate Filter Type:

- ☐ AHERA (QTY) _____
- ☐ NIOSH 7402 (QTY) _____
- ☐ Other (specify) _____ (QTY) _____

PLM Bulk

- ☒ EPA 600 - Visual Estimate 3 (QTY) _____
- ☐ EPA Point Count (QTY) _____
- ☐ NY State Friable 198.1 (QTY) _____
- ☐ Grav. Reduction ELAP 198.6 (QTY) _____
- ☐ Other (specify) _____ (QTY) _____

MISC

- ☐ Vermiculite
- ☐ Asbestos Soil PLM (Qual) PLM (QTY) PLM/TEM (Qual) PLM/TEM (QTY)

TEM Bulk

- ☐ ELAP 198.4/Chaffield (QTY) _____
- ☐ NY State PLM/TEM (QTY) _____
- ☐ Residual Ash (QTY) _____

TEM Dust

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

TEM Water

- ☐ Qual. (pres/abs) (QTY) _____
- ☐ ELAP 198.2/EPA 100.2 (QTY) _____
- ☐ EPA 100.1 (QTY) _____

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

Paint Analysis

- ☒ Pb Paint Chip (QTY) _____
- ☒ Pb Dust Wipe (wipe type 01051) (QTY) _____
- ☐ Pb Air (QTY) _____
- ☐ Pb Sol/Solid (QTY) _____
- ☐ Pb TCLP (QTY) _____
- ☐ Drinking Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY)
- ☐ Waste Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY)
- ☐ Pb Furnace (Media _____) (QTY) _____

Fungal Analysis

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

SAMPLE INFORMATION

CLIENT ID NUMBER	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPR AREA	TEM	PCM	PLM	Lead	MOLD	AIR	BULK	DUST	WATER AND OTHER	Spore Trap	TAPE	SWAB	CLIENT CONTACT (LABORATORY STAFF ONLY)
FAIR RIVER PC PLM-01B	TSI 1000 WIPR	4/8/13					X				X						Date/Time: _____ Contact: _____ By: _____
FAIR RIVER PC PLM-01C	gray paint						X				X						Date/Time: _____ Contact: _____ By: _____
FAIR RIVER PC PLM-01D																	Date/Time: _____ Contact: _____ By: _____
																	Date/Time: _____ Contact: _____ By: _____
																	Date/Time: _____ Contact: _____ By: _____
																	Date/Time: _____ Contact: _____ By: _____
																	Date/Time: _____ Contact: _____ By: _____
																	Date/Time: _____ Contact: _____ By: _____
																	Date/Time: _____ Contact: _____ By: _____
																	Date/Time: _____ Contact: _____ By: _____

LABORATORY STAFF ONLY:

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

APPENDIX D
PHOTOGRAPHIC LOG



PHOTOGRAPHIC LOG



Client Name: MA ARNG- Fall River RC		Site Location: 1089 Dwelly St., Fall River, MA	Project No. 39743799
Photo No. 1	Date: 4/8/13		
Description: Damaged ceiling tiles in second floor classroom.			

Photo No. 2	Date: 4/8/13	
Description: Ladder not properly secured and stored in Assembly Hall.		



PHOTOGRAPHIC LOG



Client Name: MA ARNG- Fall River RC		Site Location: 1089 Dwelly St., Fall River, MA	Project No. 39743799
Photo No. 3	Date: 4/8/13		
Description: Evidence of water intrusion in 1 st floor vault.			

Photo No. 4	Date: 4/8/13	
Description: Damaged presumed asbestos-containing floor tiles at Assembly Hall entrance.		

APPENDIX E

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 ($\mu\text{g}/\text{ft}^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.
 - a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors ($40 \mu\text{g}/\text{ft}^2$) and windowsills ($250 \mu\text{g}/\text{ft}^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.
 - b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.
 - c. OSHA used to cite a level of $200 \mu\text{g}/\text{ft}^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.
 - d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that $200 \mu\text{g}/\text{ft}^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.
 - e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no

correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:
 - a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under ($40 \mu\text{g}/\text{ft}^2$ on floors and $250 \mu\text{g}/\text{ft}^2$ 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 milligrams per cubic meter (mg/m^3) averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

Prepared For:

National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
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
AGAWAM ARMORY
140 MAYNARD STREET
FEEDING HILLS, MASSACHUSETTS 01030**

Non-Responsive

Office Manager

Non-Responsive

Project Manager

October 2005
PN: 39741508

URS Corporation
5 Industrial Way
Salem, NH 03079-2830
Tel: 603.893.0616
Fax: 603.893.6240

TABLE OF CONTENTS

Section	Page
1.0 SUMMARY	1
2.0 ADMINISTRATIVE AREA	2
2.1 OPERATION DESCRIPTION	2
2.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED	2
2.2.1 Relative Humidity	2
2.2.2 Carbon Dioxide	2
2.2.3 Carbon Monoxide	3
2.2.4 Lighting	3
2.2.5 Lead	3
2.2.6 Asbestos	4
2.3 VENTILATION SYSTEM EVALUATION	5
2.4 NOISE MEASUREMENTS	5
2.5 PERSONAL PROTECTIVE EQUIPMENT	5
2.6 INTERPRETATION OF RESULTS	5
3.0 FORMER FIRING RANGE	6
3.1 OPERATION DESCRIPTION	6
3.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED	6
3.2.1 Lighting	6
3.2.2 Lead	6
3.3 VENTILATION SYSTEM EVALUATION	7
3.4 NOISE MEASUREMENTS	7
3.5 PERSONAL PROTECTIVE EQUIPMENT	8
3.6 INTERPRETATION OF RESULTS	8
4.0 DRILL HALL	9
4.1 OPERATION DESCRIPTION	9
4.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED	9
4.2.1 Lighting	9
4.2.1 Lead	9
4.3 VENTILATION SYSTEM EVALUATION	10
4.4 NOISE MEASUREMENTS	10
4.5 PERSONAL PROTECTIVE EQUIPMENT	10
4.6 INTERPRETATION OF RESULTS	10
5.0 BOILER ROOM	11
5.1 OPERATION DESCRIPTION	11
5.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED	11
5.2.1 Asbestos	11
5.3 VENTILATION SYSTEM EVALUATION	11
5.4 NOISE MEASUREMENTS	12
5.5 PERSONAL PROTECTIVE EQUIPMENT	12
5.6 INTERPRETATION OF RESULTS	12
6.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS	13
6.1 CONFINED SPACES	13
6.2 HEARING CONSERVATION	13
6.3 RESPIRATORY PROTECTION	13

6.4	HAZARD COMMUNICATION	13
6.5	PERSONAL PROTECTIVE EQUIPMENT.....	13
7.0	REFERENCES	14

APPENDICES

Appendix A	SHOP DRAWING
Appendix B	PERSONNEL LIST
Appendix C	HAZARDOUS MATERIALS LIST
Appendix D	ANALYTICAL RESULTS
Appendix E	TRAINING CERTIFICATES
Appendix F	PHOTOGRAPHS
Appendix G	RECOMMENDATIONS FOR SURFACE LEAD DUST IN ARMORIES

FINDINGS AND RECOMENDATIONS

Findings	Recommendation	Risk Assessment Code
Lighting		
On the day of the survey, the illuminance in the Commander's Office and Storage (Former Firing Range).	Increase lighting through task lighting (ANSI / IESNA RP-1-04)	RAC 4
Lead		
Lead was detected in wipe samples in amounts greater than 200 µg/ft ²	Personnel trained in accordance with the OSHA Lead Standard should clean the former indoor firing range where lead was detected in quantities of greater than 200 micrograms per square foot (OSHA 29 CFR 1910.1025(h)(1))	RAC 4
Asbestos		
Damaged asbestos containing pipe and breeching insulation is present	Repair or remove asbestos-containing floor tile and tank 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 maintenance plan to manage asbestos-containing materials (OSHA 29 CFR 1910.1001(j))	RAC 3
Hazard Communication		
No site specific hazard communication plan available.	Develop a site specific hazard communication plan to manage hazardous materials and to educate employees (OSHA 29 CFR 1910.1200(e))	RAC 4
Electrical Safety		
Exposed electrical outlet was observed in the Former Firing range	Cover live electrical outlets with approved outlet cover (OSHA 29 CFR 1910.305(b)(2))	RAC 2
Mold		
Water damage was observed on the ceiling in the men's room. Mold growth could become an issue if left unattended.	Determine and repair source of water. Replace water damaged building materials and implement a moisture management program to provide direction for future water incursions (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 Agawam Armory located at 140 Maynard Street in Feeding Hills, Massachusetts. 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 February 10, 2004, Mr. [Non-Responsive] an industrial hygienist with URS, conducted a site visit to the Agawam Armory in Feeding Hills, Massachusetts 01030. 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 Commonwealth of Massachusetts National Guard 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

The Administrative areas include offices, classrooms, the kitchen and hallways. Housekeeping was orderly. The floor was covered with presumed asbestos-containing floor tiles that were in good condition.

Water damage on the ceiling of the Men's Room (Photo # 0013) may indicate the potential for mold growth.

Damaged asbestos-containing pipe insulation was observed outside of Boiler Room "A".

2.2 Chemical and Physical Agents Sampled

2.2.1 Relative Humidity

Relative humidity levels were measured using a TSI Q-Track (Model 8551) direct-reading instrument. Relative humidity on the day of the survey averaged 19.9 %. This average reading was below the recommended range of 30.0% to 60.0% set by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ANSI / ASHRAE Standard 55-2004).

2.2.2 Carbon Dioxide

On the day of the survey, carbon dioxide measurements were made at various locations throughout the Armory. Carbon dioxide concentrations averaged 532 parts per million (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 700 ppm above background level. Since the average interior reading was recorded at 532 ppm an outside reading was not collected.

2.2.3 Carbon Monoxide

Carbon monoxide was also measured in the Readiness Center. Carbon monoxide levels remained at 0.1 ppm throughout the survey period. The measured level was below the ASHRAE guideline for indoor environments (62.1-2004). 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 (62.1-2004) 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 2-1
Lighting Measurements and Recommended Lighting Requirements

Location	Function	Measured Illuminance (lux / foot candles)	Recommended Minimum Illuminance (lux / foot candles)
Classroom 1	Administrative Duties	916 / 85.1	500 / 50
Commander's Office	Administrative Duties	394 / 36.6	500 / 50

On the day of the survey the illuminance in the Commander's Office was inadequate.

2.2.5 Lead

Wipe testing for lead dust was conducted in the administrative area using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA Analytical Services, Inc. (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 (ft ²)	Result (µg/ft ²)	Maximum Recommended Surface Contamination Level (µg/ft ²)
Commander's Office	0210-15	1.000	<12	200
Classroom 2	0210-16	1.000	12	200
Blank	0210-09	N/A	<12	200

One paint chip was collected in the Men's Room 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 2-4 below shows the results of the lead paint testing.

Table 2-4
Level of Lead in Paint Found in the Men's Room

Sample Location	URS Sample Number	Reporting Limit (% by Weight)	Final Result (% by Weight)
Men's Room Ceiling	0210-20	0.01	0.01

The analytical report from AMA is contained in Appendix D.

2.2.6 Asbestos

One bulk sample was collected from damaged suspect asbestos-containing pipe insulation located in the hall in front of Boiler Room "A" (Photo # 0010) 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 2-5 below presents the results of the sample analysis.

Table 2-5
Sample Results of Suspect ACM

Sample Location	Material Sampled	URS Sample Number	Total Asbestos (%)
Hal in Front of Boiler Room "A"	Pipe insulation	0210-18A	15 (chrysotile)
Hal in Front of Boiler Room "A"	Pipe insulation	0210-18B	15 (chrysotile)
Hal in Front of Boiler Room "A"	Pipe insulation	0210-18C	15 (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. Non-Responsive 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

LIGHTING: On the day of the survey, the illuminance in the Commander's Office was inadequate. URS recommends increasing lighting through use of task lights.

ASBESTOS: Damaged asbestos-containing pipe insulation was observed in the hallway in front of Boiler Room "A". This material should be either repaired or removed by a Commonwealth of Massachusetts licensed Asbestos Abatement Contractor.

MOLD: The water stains on the ceilings could lead to mold problems if not addressed.

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. An electrical outlet was observed in the Former Firing Range without a cover.

3.2 Chemical and Physical Agents Sampled

3.2.1 Lighting

Lighting in the Former Firing Range was measured using a Sper Scientific Ltd. Light Meter (Model 840020C). Table 3-1 below shows lighting measurements and the recommended lighting requirement (ANSI / IESNA RP -1-04 American National Standard Practice for Office Lighting)

Table 3-1
Lighting Measurements and Recommended Lighting Requirements

Location	Function	Measured Illuminance (lux / foot candles)	Recommended Minimum Illuminance (lux / foot candles)
Former Firing Range Center	Storage	17 / 1.6	100 / 10

The lighting in the storage area (Former Firing Range) was inadequate.

3.2.2 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 3-2 below shows the results of the lead sampling.

Table 3-2
Levels of Lead Dust Found in the Former Firing Range

Sample Location	URS Sample Number	Area Wiped (ft ²)	Result (µg/ft ²)	Maximum Recommended Surface Contamination Level (µg/ft ²)
Former Firing Range – Impact Area (floor)	0210-04	1.00	280	200
Former Firing Range – Center (Floor)	0210-05	1.00	220	200
Former Firing Range – Impact Area (locker)	0210-12	1.00	210	200
Former Firing Range – Center (locker)	0210-13	1.00	47	200
Former Firing Range – East (locker)	0210-14	1.00	210	200
Blank	0210-09	N/A	<12	200

One paint chip was collected in the Former Firing Range 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 3-3 below shows the results of the lead paint testing.

Table 3-3
Level of Lead in Paint Found in the Former Firing Range

Sample Location	URS Sample Number	Reporting Limit (% by Weight)	Final Result (% by Weight)
Former Firing Range	0210-21	0.01	0.02

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

LIGHTING: On the day of the survey lighting in the storage area was inadequate and should be increased.

LEAD: Four of the five surface wipe samples collected in the former firing range were found to contain lead dust levels above the maximum limit set by the National Guard Bureau (See Appendix F). URS recommends that this area be cleaned by properly trained technicians. The NGB has prepared a memorandum titled "Recommendations for Surface Lead Dust in Armories" which is provided in Appendix G.

ELECTRICAL: An electrical outlet was observed in the Former Firing Range without a cover.

4.0 DRILL HALL

4.1 Operation Description

The drill hall is used for assembling personnel and storing equipment. The walls are constructed of cinder-block with a concrete floor.

4.2 Chemical and Physical Agents Sampled

4.2.1 Lighting

Lighting in the drill hall was measured using a Sper Scientific Ltd. Light Meter (Model 840020C). Table 4-1 below shows lighting measurements and the recommended lighting requirement (ANSI / IESNA RP -1-04 American National Standard Practice for Office Lighting)

Table 4-1
Lighting Measurements and Recommended Lighting Requirements

Location	Function	Measured Illuminance (lux / foot candles)	Recommended Minimum Illuminance (lux / foot candles)
Drill Floor – Center	Assembly	394 / 36.6	100 / 10

4.2.1 Lead

Wipe testing for lead dust was conducted in the drill hall 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 Number	Area Wiped (ft ²)	Result (µg/ft ²)	Maximum Recommended Surface Contamination Level (µg/ft ²)
Drill Floor - Northwest	0210-04	1.00	38	200
Drill Floor - Center	0210-05	1.00	50	200
Drill Floor - Southeast	0210-06	1.00	<12	200
Drill Floor - North	0210-10	1.00	74	200
Drill Floor - Southwest	0210-11	1.00	45	200
Blank	0210-09	N/A	<12	200

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

LIGHTING: On the day of the survey lighting was adequate in the Drill Hall.

5.0 BOILER ROOM

5.1 Operation Description

The boiler room is a mechanical space constructed of cinder block walls with a concrete floor, containing a furnace and associated piping.

5.2 Chemical and Physical Agents Sampled

5.2.1 Asbestos

Bulk samples were collected from damaged suspect asbestos-containing breeching insulation (Photo # 0011) 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

Sample Location	Material Sampled	URS Sample Number	Total Asbestos (%)
Boiler Room "A"	Breeching Insulation	0210-19A	60 (chrysotile)
Boiler Room "A"	Breeching Insulation	0210-19B	60 (chrysotile)
Boiler Room "A"	Breeching Insulation	0210-19C	60 (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. Non-Responsive asbestos inspector training certificate is provided in Appendix E.

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

ASBESTOS: Samples of the breaching insulation where found to contain asbestos in a concentration greater than one percent. The breaching insulation had some damaged sections. It is recommended that the insulation be removed or repaired by a licensed Commonwealth of Massachusetts Asbestos Abatement Contractor.

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

No safety program was found regarding hearing conservation. No training records were found on site. A hearing conservation program is not required for this site.

6.3 Respiratory Protection

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

6.4 Hazard Communication

No program was found regarding hazard communication. No training records were found on site. A site-specific hazard communication program is required for this site and should include communication of hazards to employees, management of material safety data sheets, chemical labeling and spill protection.

6.5 Personal Protective Equipment

No safety program was found regarding personal protective equipment. 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 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)

U. S. Occupational Safety and Health Administration

Standard for General Industry: 29 CFR 1910

October 20, 2005

PN: 39741508 : J:_Army National Guard\39741508 - Agiswani, Min\Reports\W\NS5 Agiswani Auxiliary - Final.doc

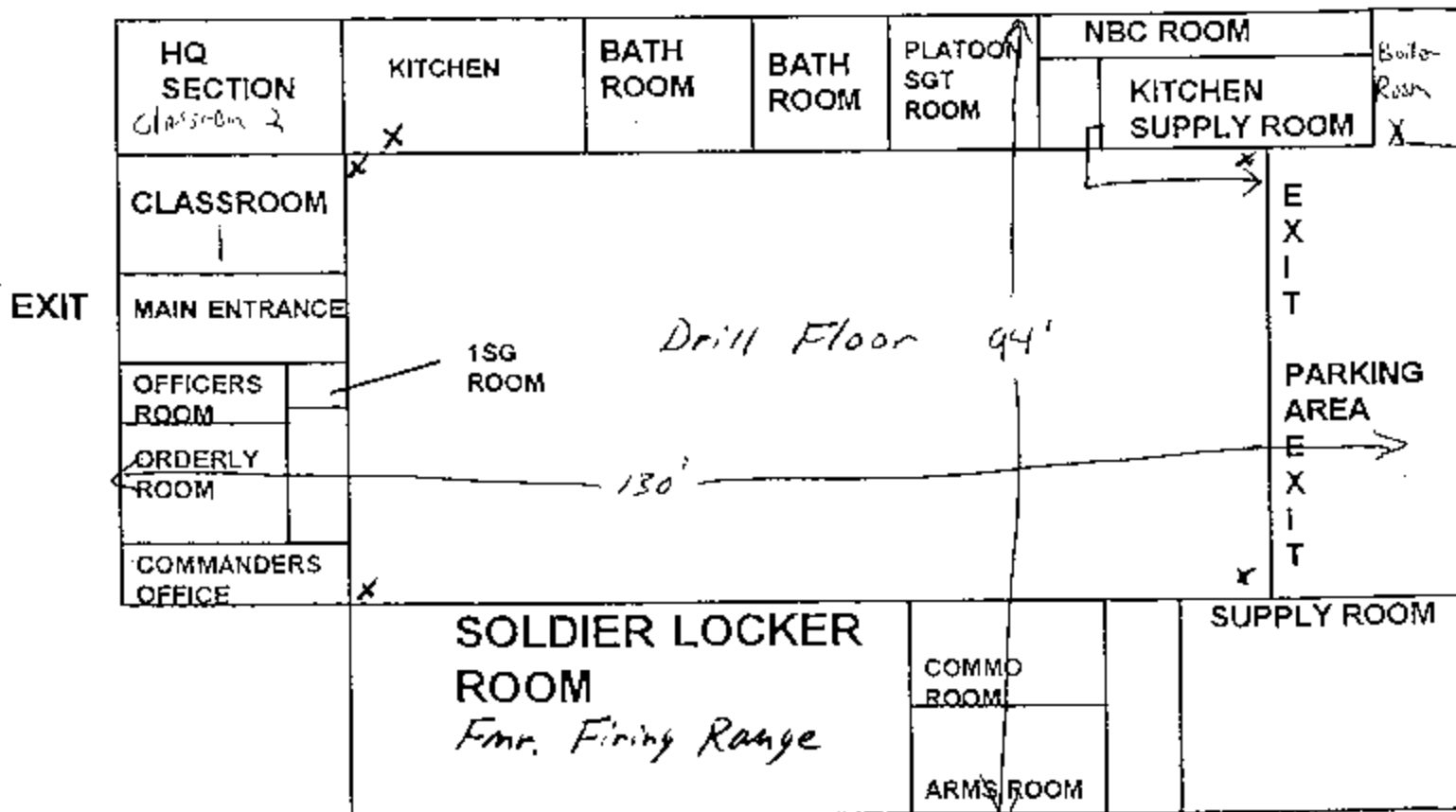
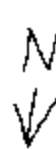
URS

14

APPENDIX A
SHOP DRAWING

Agawam Armory

LAY OUT OF ARMORY



X - Location of Fire Extinguishers

APPENDIX B
PERSONNEL LIST

BEST AVAILABLE COPY

NOT AVAILABLE

APPENDIX C
HAZARDOUS MATERIALS LIST

NO CHEMICAL INVENTORY AVAILABLE

APPENDIX D
ANALYTICAL RESULTS



CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client: National Guard Bureau
Address: 301-JH Old Bay Lane, Attn: NGB-AVN-SI,
State Military Reservation
Havre de Grace, Maryland 21078

Job Name: Armory
Job Location: Agawam, MA
Job Number: Not Provided
P.O. Number: BPA #W912K6-04-A0002

Chain Of Custody: 128471
Date Analyzed: 6/8/2004
Person Submitting: [REDACTED]
Report Date: 08-Jun-04

Attention: [REDACTED]

Page 1 of 1

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Final Result	Comments
0448996	0210-04	Flame	Wipe	***	1.000	12.00 ug/ft²	280 ug/ft²	
0448997	0210-05	Flame	Wipe	***	1.000	12.00 ug/ft²	220 ug/ft²	
0448998	0210-06	Flame	Wipe	***	1.000	12.00 ug/ft²	38 ug/ft²	
0448999	0210-07	Flame	Wipe	***	1.000	12.00 ug/ft²	50 ug/ft²	
0449000	0210-08	Flame	Wipe	***	1.000	12.00 ug/ft²	< 12 ug/ft²	
0449001	0210-09	Flame	Wipe Blank	***	N/A	12.00 ug	< 12 ug	
0449002	0210-20	Flame	Paint Chip	***	N/A	0.01 %Pb	< 0.01 %Pb	
0449003	0210-21	Flame	Paint Chip	***	N/A	0.01 %Pb	0.02 %Pb	

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

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

N/A = Not Applicable mg/Kg = parts per million (ppm) by weight mg/L = parts per million (ppm)

%Pb = percent lead by weight ug = micrograms ug/L = parts per billion (ppb)

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

Analyst: [REDACTED]

Technical Manager: [REDACTED]

Non-Responsive

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AIHRA air samples. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

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

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

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

May 28 04 11:14a

AMA Analytical Services

(301) 459 - 2643

p. 1

Client: National Guard Bureau
Address: 301-1H Old Bay Lane, Attn: NGB-AVN-SI,
State Military Reservation
Havre de Grace, Maryland 21078

Job Name: Armory
Job Location: Agawam, MA
Job Number: Not Provided
P.O. Number: BPA #W912K6-04-A0002

Chain Of Custody: 128471
Date Analyzed: 05/28/2004
Person Submitting: [REDACTED]

Attention: [REDACTED]

Page 1 of 1

Summary of Polarized Light Microscopy

AMA Sample Number	Client Sample #	Total Asbestos	Chrysotile Percent	Amosite Percent	Crocidolite Percent	Other Asbestos Percent	Mineral Wool Percent	Fiberglass Percent	Organic Percent	Synthetic Percent	Other Percent	Particulate Percent	Sample Color	Analyst ID	Comments
0449004	0210-18 A	15	15	--	--	--	20	--	--	--	--	65	Gray	CK	
0449005	0210-18 B	15	15	--	--	--	20	--	--	--	--	65	Gray	CK	
0449006	0210-18 C	15	15	--	--	--	25	--	TR	--	--	60	Gray	CK	
0449007	0210-19 A	60	60	--	--	--	--	--	--	--	--	40	Gray	CK	
0449008	0210-19 B	60	60	--	--	--	--	--	--	--	--	40	Gray	CK	
0449009	0210-19 C	60	60	--	--	--	--	--	--	--	--	40	Gray	CK	

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

- 1 TEM RECOMMENDATION - Please note, due to resolution limitations with optical microscopy and/or interference from matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos. It is recommended that the additional analytical technique of TEM be used to check for asbestos fibers below the resolution limits of optical microscopy.
- 2 MATRIX REDUCTION RECOMMENDATION - Please note, due to interference from the matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos which is obscured from view. It is recommended that the additional preparation technique of gravimetric reduction be performed on this sample to minimize the obscuring effects of matrix components, followed by reanalysis by PLM and/or TEM.

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

NAD = "No Asbestos Detected"

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



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

An AIHA (#6863), NVLAP (#101143), & New York ELAP (#10920) Accredited Laboratory
4475 Forbes Blvd. • Lanham, MD 20706 • (301) 329-2639 • Toll Free (800) 346-0961 • Fax (301) 329-2643

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

BEST AVAILABLE COPY

FOIA Requested Record #41-15-0085 (MA)
Released by National Guard Bureau
Page 1266 of 3473



CERTIFICATE OF ANALYSIS

Client: National Guard Bureau
Address: 301-1H Old Bay Lane, Attn: NGB-AVN-SI,
State Military Reservation
Ilavre de Grace, Maryland 21078

Job Name: Agawam Armory
Job Location: 140 Maynard Street; Agawam, MA
Job Number: Not Provided
P.O. Number: Not Provided

Chain Of Custody: 138340
Date Submitted: 5/26/2005
Person Submitting: [REDACTED]
Date Analyzed: 5/31/2005

Report Date: 31-May-05

Attention: [REDACTED]

Summary of Atomic Absorption Analysis for Lead

Page 1 of 1

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Final Result	Comments
0542001	0210-10	Flame	Wipe	****	1.000	12.00 ug/ft²	74 ug/ft²	
0542002	0210-11	Flame	Wipe	****	1.000	12.00 ug/ft²	45 ug/ft²	
0542003	0210-12	Flame	Wipe	****	1.000	12.00 ug/ft²	210 ug/ft²	
0542004	0210-13	Flame	Wipe	****	1.000	12.00 ug/ft²	47 ug/ft²	
0542005	0210-14	Flame	Wipe	****	1.000	12.00 ug/ft²	210 ug/ft²	
0542006	0210-15	Flame	Wipe	****	1.000	12.00 ug/ft²	< 12 ug/ft²	
0542007	0210-16	Flame	Wipe	****	1.000	12.00 ug/ft²	12 ug/ft²	
0542008	0210-17	Flame	Wipe Blank	****	N/A	12.00 ug	< 12 ug	

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

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

N/A = Not Applicable mg/Kg = parts per million (ppm) by weight mg/L = parts per million (ppm)

%Pb = percent lead by weight ug = micrograms ug/L = parts per billion (ppb)

Note: All 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

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

Analyst: [REDACTED]

Technical Manager: [REDACTED]

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AIHA air samples. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

Posted to NGB FOIA Reading Room
May, 2018

An AIHA (#3863), 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

APPENDIX E
TRAINING CERTIFICATES

Non-Responsive



Certificate of Training

Awarded to



*For successful completion of an 8 Hour, 1 Day
Asbestos Inspector & Management Planner
Annual Refresher Training
MARCH 25, 2003*

*This training was approved and given in accordance with
Regulations for Connecticut State Agencies
RCSA 20-440-1-9 and RCSA 20-441 and meets the
requirements of the EPA Revised MAP under TSCA Title II of 4/4/94*

Presented by

**Mystic Air Quality Consultants, Inc.
1204 North Road, Groton, CT 06340 (800) 247-7746**

Certificate Number: IMPR10543

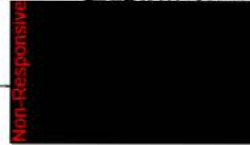
Exam Grade: 100%

Expiration Date: 03/25/2004

Exam Date: 03/25/2003



H, CSP, RS



Training Director

APPENDIX F
PHOTOGRAPHS



Photo 0001: Former Firing Range - Wipe sample 0210-04 (floor); wipe sample 0210-12 (locker)



Photo 0002: Former Firing Range - Wipe sample 0210-05 (floor); wipe sample 0210-13 (locker)



Photo 0003: Former Firing Range - Wipe sample 0210-14

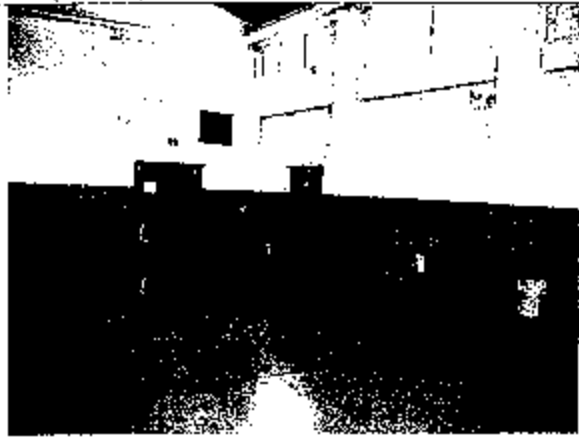


Photo 0004: Drill Floor - Wipe sample 0210-06



Photo 0005: Drill Floor - Wipe samples 0210-07 and 0210-08

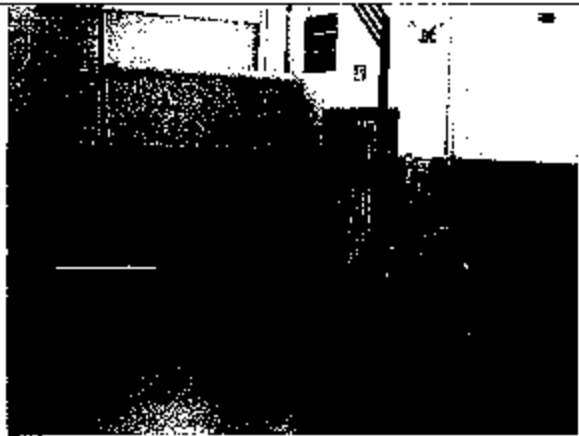


Photo 0006: Drill Floor - Wipe sample 0210-11



Photo 0007: Drill Floor- Wipe sample 0210-10



Photo 0008: Commander's Office – Wipe sample 0210-15



Photo 0009: Classroom 2 Wipe sample 0210-16

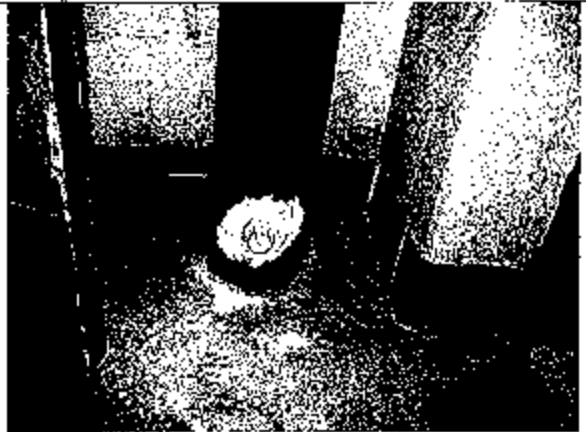


Photo 0010: Hall Outside Boiler Room "A"
Damaged asbestos-containing pipe insulation



Photo 0011: Boiler Room "A" – Damaged asbestos-containing breeching insulation



Photo 0012: Boiler Room "A"

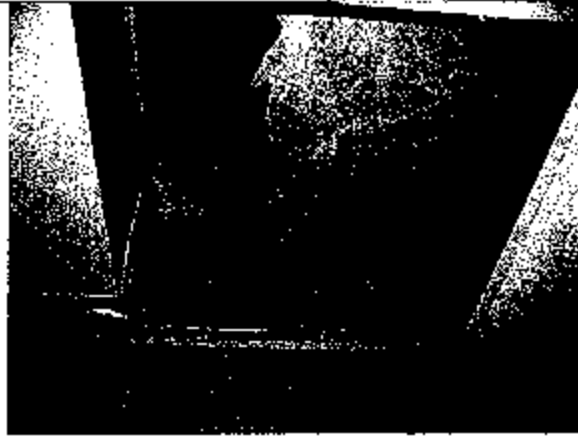


Photo 0013: Men's Room - Water damaged ceiling (Paint chip 0210-20)

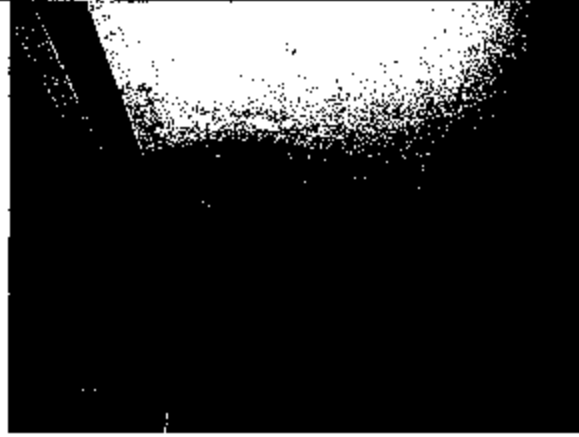


Photo 0014: Former Firing Range - Peeling ceiling paint (Paint chip 0210-21)

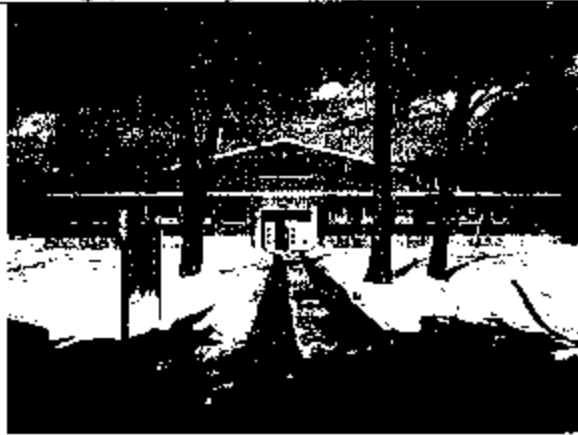


Photo 0015: Exterior View



Photo 0019: Exterior Flammable Materials Cabinet

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 ($\mu\text{g}/\text{ft}^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

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

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

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

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

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

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

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under ($40 \mu\text{g}/\text{ft}^2$ on floors and $250 \mu\text{g}/\text{ft}^2$ 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 $0.05 \text{ mg}/\text{m}^3$ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.



Prepared For:

National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
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
MASSACHUSETTS NATIONAL GUARD
AGAWAM READINESS CENTER
140 MAYNARD STREET
FEEDING HILLS, MA 01030**

July 9, 2013
PN: 39743799

Non-Responsive

Director, Industrial Hygiene Services

Non-Responsive

Project Manager

TABLE OF CONTENTS

Section	Page
1.0 SUMMARY	1
2.0 SUPPLY / TRAINING AREA.....	3
2.1 Operation Description.....	3
2.2 Chemical and Physical Agents Sampled	3
2.2.1 Carbon Dioxide.....	3
2.2.2 Carbon Monoxide	4
2.2.3 Relative Humidity	4
2.2.4 Temperature.....	4
2.2.5 Lighting.....	4
2.2.6 Lead	5
2.2.7 Asbestos.....	7
2.3 Ventilation System Evaluation	7
2.4 Noise Measurements.....	7
2.5 Personal Protective Equipment	7
3.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS.....	8
3.1 Confined Spaces	8
3.2 Hearing Conservation.....	8
3.3 Respiratory Protection	8
3.4 Hazard Communication	8
3.5 Personal Protective Equipment	8
3.6 Asbestos Operations and Maintenance Program	8
3.7 Safety	9
4.0 REFERENCES.....	10

APPENDICES

APPENDIX A	SHOP DRAWING
APPENDIX B	PERSONNEL LIST
APPENDIX C	ANALYTICAL RESULTS
APPENDIX D	PHOTOGRAPHIC LOG
APPENDIX E	RECOMMENDATIONS FOR SURFACE LEAD DUST IN ARMORIES

FINDINGS AND RECOMMENDATIONS
MASSACHUSETTS NATIONAL GUARD READINESS CENTER
AGAWAM, 140 MAYNARD ST., FEEDING HILLS, MA

Findings	Recommendations	Risk Assessment Code (RAC)
Lighting		
On the day of the survey, the illuminance was inadequate in several locations tested.	Increase lighting in the work areas. While work is in progress, these areas must be lighted by at least the minimum lighting intensities (ANSI / IESNA RP-1-04).	RAC 4
Ergonomics		
Computer workstations in the Administrative Areas were observed with un-adjustable chairs, arm rests and keyboards.	Ergonomic issues with regard to 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
Lead		
One of the 10 lead wipe samples indicated elevated lead levels.	Personnel trained in accordance with the OSHA Lead Standard should clean the areas where elevated lead dust levels were identified (OSHA 29 CFR 1910.1025(h)(1)).	RAC 3
Emergency Action Plans		
Emergency escape routes were not posted throughout the facility.	Facilities must have emergency action plans including emergency escape procedures and route assignments (29 CFR 1910.38 (a)(2)(i)).	RAC 3
Asbestos		
Presumed asbestos-containing floor tiles and associated mastic were observed throughout the facility; an Asbestos Operation and Maintenance Program was not available on-Site.	Develop a site-specific asbestos operations and maintenance program for management of asbestos-containing materials in place as required by OSHA 29 CFR 1910.1001(j)(2).	RAC 4
PPE		
Hazard assessments have not been conducted to determine whether personal protective equipment is required.	Conduct a hazard assessment of site operations to determine what types of PPE are required for each type of work (29 CFR 1910.132(d)(1)).	RAC 4

Findings	Recommendations	Risk Assessment Code (RAC)
Relative Humidity		
The average relative humidity level in the Readiness Center was above the recommended range.	Relative humidity levels should be maintained within the comfort range recommended by ASHRAE (55-2010).	RAC 4
Chemical Storage		
Chemicals/ flammable materials were observed improperly stored and labeled.	Each container of hazardous chemicals in the work place must be labeled with the identity of the chemical and appropriate hazard warnings (29 CFR 1910.1200).	RAC 3

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 in Agawam/Feeding Hills, Massachusetts.

URS representative, Ms. **Non-Responsive**, conducted the Industrial Hygiene Survey on May 24, 2013. The scope of work included an overall assessment of the facility as it relates to industrial hygiene and included a walkthrough of the facility, collection of photographs, and when required, measurements for illumination (light), area and personal air sampling, and noise monitoring.

The Agawam Readiness Center is a one-story brick building, consisting of offices, classrooms, a supply area, gender separate bathrooms, storage rooms, a kitchen, an Assembly Hall and a former Indoor Firing Range. A layout of the Readiness Center is provided in Appendix A.

GENERAL: Chemicals/ flammable materials in the Supply Room and administration areas were observed not properly stored in a flammables cabinet. Illuminated emergency exit signs and escape plans were not posted throughout the facility.

LIGHTING: Lighting in the Readiness Center was found to be inadequate in several of the areas measured. Areas noted within the report as having inadequate lighting require upgrading by either increasing the general lighting or through the use of task lighting. While work is in progress work areas must be lighted by at least the minimum light intensities.

LEAD: One of ten wipe samples collected in the Readiness Center was found to contain lead in a concentration above the recommended limit set by the NGB, Region North IH Office. None of paint chip samples collected in the Readiness Center were found to contain lead in a concentration above the recommended limit set by the NGB, Region North IH Office.

ASBESTOS: Presumed asbestos-containing floor tiles and associated mastic were identified during this survey, however no Asbestos Operations and Maintenance Program was found on site. Until suspect materials have been sampled and determined not to contain asbestos, they must be presumed to be asbestos-containing and managed accordingly.

ERGONOMICS: Many of the work stations had ergonomic issues which require attention. Computer workstations were assessed during the walkthrough for ergonomic issues. The computer workstations in the facility did not meet the current Occupational Safety and Health Administration (OSHA) ergonomic recommendations. The chair armrests, keyboards, and desks were not adjustable. All workstations in the facility should be adjusted and monitored. The ergonomic issues with regard to the workstations and chairs need to be corrected by fitting the workplace to the worker.

NOISE: Area noise monitoring levels in the Readiness Center determined that noise levels were below the OSHA permissible exposure limit (PEL) and Department of Defense Instruction (DoDI) Hearing Conservation Standard (6055.12 3 December 2010) on the day of URS' site visit.

2.0 SUPPLY / TRAINING AREA

2.1 Operation Description

This Readiness Center is primarily used for weekend training drills and conducting administrative functions. The building includes offices, classrooms, a supply area, gender separate bathrooms, storage rooms, a kitchen, an Assembly Hall and a former Indoor Firing Range which is currently used for storage.

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. Interior carbon dioxide concentrations were found to be between 429 and 554 parts per million (ppm). Carbon dioxide levels were measured using a direct-reading TSI Q-Trak (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 human respiration. 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 but is typically 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.

To minimize air quality complaints, the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) has proposed that the carbon dioxide concentration within an occupied workspace be maintained below 700 ppm above ambient outside levels. For example, on the day of the survey, the outside carbon dioxide level was measured at 408 ppm. Therefore ASHRAE (Standard 62.1-2010) would recommend that interior carbon dioxide concentrations be maintained at or below 1,108 ppm. Using the ASHRAE guideline, the readings at the subject site were found to be below the suggested indoor to outdoor differential concentration.

2.2.2 Carbon Monoxide

The carbon monoxide concentration in the Readiness Center was measured to range from 0.1 ppm to 0.6 ppm on the day of the survey. ASHRAE recommends that average carbon monoxide concentrations not exceed 9 ppm. Typical average concentrations found in commercial buildings range from 0 to 6 ppm. The measured levels were below the ASHRAE guideline for indoor environments. Carbon monoxide was measured using a TSI Q-Trak Plus (Model 8554).

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.

2.2.3 Relative Humidity

The average relative humidity within the Readiness Center measured with the Q-Trak Plus was 70.7%, which was above the guideline of less than 65% recommended by ASHRAE.

2.2.4 Temperature

Temperature should be maintained within the thermal comfort envelope suggested in ASHRAE Standard 55-2010. This standard on thermal environments specifies conditions in which 80% or more of building occupants should find the thermal environment acceptable. ASHRAE 55-2010 suggests temperatures of 68 to 75 degrees Fahrenheit (°F), during winter months, for people in typical seasonal clothing during light sedentary activity. For summer, the temperature should be in the range of 73 to 79 °F.

The average temperature inside the Readiness Center was, 74.5 °F, which was within the guideline of 68 to 75 °F recommended by ASHRAE for thermal comfort.

2.2.5 Lighting

Lighting in the Readiness Center was measured using a cal-Light 400 Light Meter. Table 2-1 below shows lighting measurements in foot candles (FC) and the recommended lighting requirements (Illuminating Engineering Society of North America (IESNA) RP-7-01).

Table 2-1
Lighting Measurements and Recommended Lighting Requirements

Location	Function	Measured Illuminance in Foot Candles (FC)	Recommended Minimum Illuminance in Foot Candles (FC)
Classroom, table, adjacent to projection screen	Admin	21.7	50
Kitchen, counter, adjacent to sink and microwave	Break Room	20.0	50
Alpha Company office, desk- 1 st Sergeant	Admin	26.3	50
Office, desk	Admin	17.2	50
Office, conference table	Admin	18.8	50
Office, desk, next to clock and printer	Admin	12.6	50
Office, desk, next to printer and windows	Admin	17.1	50
Office, desk, next to windows	Admin	26.1	50
Office, desk- Non-Responsive	Admin	17.3	50
Office, desk- Non-Responsive	Admin	36.4	50
Office, south desk- vacant	Admin	46.7	50
Training Room, desk, adjacent to cabinet	Admin	29.1	50
Training Room, desk- Non-Responsive	Admin	35.0	50
Corridor, adjacent to PT Room	Hall	10.3	5
Corridor, adjacent to Training Room	Hall	12.5	5
Supply Room, desk- Non-Responsive	Admin	39.3	50
Assembly Hall, loading area	Hall	20.2	5
Locker Room, middle isle	Storage	55.2	30
Corridor, admin west	Hall	15.2	5
Corridor, admin east	Hall	92.5	5

On the day of the survey, the illuminance in the Readiness Center was determined to be inadequate in thirteen of the office/administrative locations.

2.2.6 Lead

Wipe testing for lead dust was conducted in the Readiness Center using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA Analytical Services, Inc. (AMA) is contained in Appendix C. Table 2-2 below shows the results of the lead wipe testing.

Table 2-2
Levels of Lead Dust Found in the Readiness Center

Sample Location	URS Sample Number	Area Wiped in Square Feet (ft ²)	Result in Micrograms/Square Foot (µg/ft ²)	Maximum Surface Contamination Level in Micrograms/Square Foot (µg/ft ²)
Office, Non-Responsive cabinet adjacent to door and desk	Agawam RC W-01	0.108	<110	200
Office, window sill adjacent to conference table	Agawam RC W-02	0.108	<110	200
Office, window sill adjacent to desk	Agawam RC W-03	0.108	<110	200
Women's Latrine, window sill adjacent to toilet	Agawam RC W-04	0.108	<110	200
Training Room, middle, top of cabinet adjacent to door and desk	Agawam RC W-05	0.108	<110	200
Classroom, east end, corner, floor	Agawam RC W-06	0.108	<110	200
Men's Locker Room, north corner, window sill behind locker	Agawam RC W-07	0.108	2,700	200
Supply Room, top of cabinet adjacent to loading area	Agawam RC W-08	0.108	<110	200
Assembly Hall, top of cabinet adjacent to storage door	Agawam RC W-09	0.108	<110	200
PT Room, top of cabinet adjacent to doorway	Agawam RC W-10	0.108	<110	200

One of the ten surface dust level measurements were found to contain lead at a level above the NGB recommended level, based on the OSHA clarification letter which states "as free as practicable" of lead contamination as specified under OSHA 29 CFR 1926.62.

No areas of peeling paint were identified for sample collection during this survey.

2.2.7 Asbestos

No damaged, friable suspect material was identified during this survey for sample collection.

Presumed asbestos-containing floor tiles and associated mastic were identified during this survey. Until suspect materials have been sampled and determined not to contain asbestos, they must be presumed to be asbestos-containing and managed accordingly.

2.3 Ventilation System Evaluation

The facility, not designed for vehicle maintenance, contains a ventilation system that is limited to localized personal ventilation (i.e. room fans, window air conditioning units) within the majority of rooms, and main negative draw fans in the Assembly Hall.

2.4 Noise Measurements

Area noise dosimetry was conducted within the administrative office area. Area exposures were measured using a data-logging Spark 703+ Noise Dosimeter. Area noise dosimetry results indicated that, on the day of the survey, workers were not exposed to noise levels above the DoDI Hearing Conservation Standard (6055.12 3 December 2010) of 85 decibels, A scale (dBA)/8-hour day. Table 2-4 indicates the individual monitored, the tasks performed and noise exposures.

**Table 2-4
Noise Dosimetry Data**

Location	Task	Sample Duration in Minutes	Monitoring Result TWA (dBA)*	Hearing Protection
Office- Non-Responsive	Administrative	364	64.0	N/A

* The calculated 8-hour, time-weighted average (TWA) noise exposure in dBA. The OSHA PEL for noise exposure is 90 dBA. DoDI has established an employee exposure level of 85 dBA for requirement of a hearing conservation program.

2.5 Personal Protective Equipment

Personal protective equipment was orderly and readily available to employees in the Readiness Center. Personal protective equipment included safety glasses, ear plugs and nitrile gloves. No personal protective equipment was observed in use on the day of URS' site visit.

3.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS

3.1 Confined Spaces

A written confined spaces program is not applicable to this facility. A confined space program was identified at the facility.

3.2 Hearing Conservation

A written hearing conservation program was not identified on site. A review of normal site activities determined that no operations were identified that would warrant hearing protection. Based on area noise dosimetry results and a review of normal site operations, a hearing conservation program is not required for this site.

3.3 Respiratory Protection

A site-specific written program regarding Respiratory Protection was not identified on site. No operations were observed by URS that would require the use of respiratory protection.

3.4 Hazard Communication

A site-specific hazard communication program was identified on site.

Material safety data sheets, a site map, and list of full time personnel were readily available on the day of the survey.

3.5 Personal Protective Equipment

A written personal protective equipment program was identified on site. A hazard assessment should be conducted to determine whether personal protective equipment is required for activities typically undertaken at the Readiness Center.

3.6 Asbestos Operations and Maintenance Program

A written asbestos operations and maintenance program was not identified on site.

3.7 Safety

Chemicals/flammable materials in the Supply Room and administrative areas were observed not properly stored in a flammables cabinet. Illuminated emergency exit signs and escape plans were not posted throughout the facility.

4.0 REFERENCES

American Conference of Governmental Industrial Hygienists

Industrial Ventilation: A Manual of Recommended Practice, 27th Edition, 2010

Guidelines for the Assessment of Bio-aerosols in the Indoor Environment, 1989

American National Standards Institute

American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-04: American National Standard Practice for Office Lighting

ANSI/IESNA RP-7-01: Recommended Practice for Lighting Industrial Facilities

American Society of Heating, Refrigerating and Air-Conditioning Engineers

ANSI/ASHRAE Standard 62.1-2010: Ventilation for Acceptable Indoor Air Quality

ANSI/ASHRAE Standard 55-2010: Thermal Environmental Conditions for Human Occupancy.

Department of the Army

DA PAM 40-21, Ergonomics Program, 15 August 2003

Unified Facilities Criteria, Heating, Ventilating and Air Conditioning, 3-520-05, 14 April 2008

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

AR 385-10, The Army Safety Program, 23 August 2007; RAR Issue Date: 4 October 2011

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

Department of Defense

DoDI 6055.12, Hearing Conservation, 3 December 2010

Creating the Ideal Computer Workstation: A Step-by-Step Guide, June 2000

National Institute for Occupational Safety and Health

Current Intelligence Bulletin 50: Carcinogenic Effects of Exposure to Diesel Exhaust, August 1988

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. Department of Housing and Urban Development

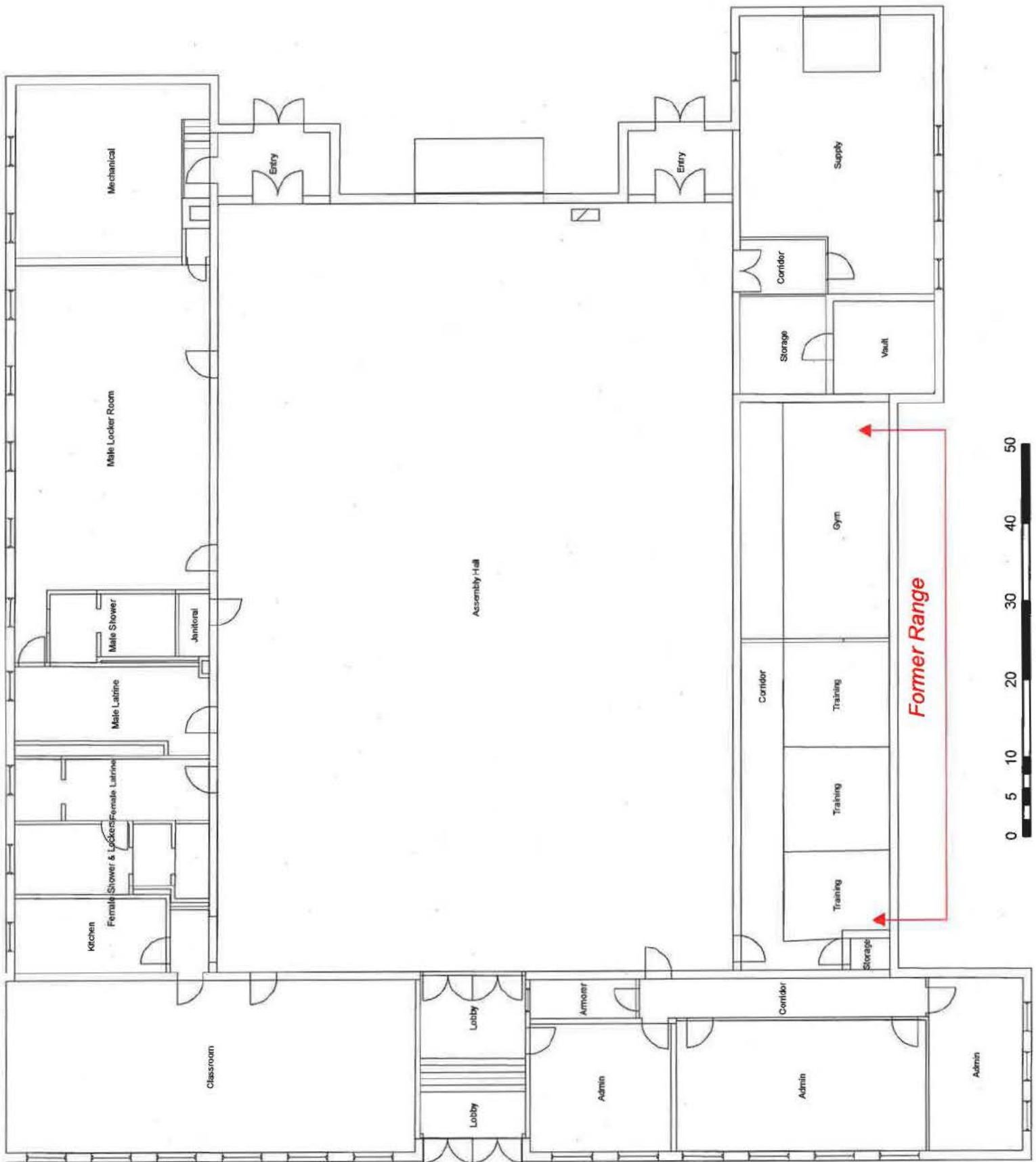
Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (1995, 1997, 2012)

U. S. Occupational Safety and Health Administration

Standard for General Industry: 29 CFR 1910

OSHA Clarification Letter – Clarification of “as free as practicable” of lead contamination under 29 CFR 1926.62, 13 January 2003.

APPENDIX A
SHOP DRAWING



APPENDIX B
PERSONNEL LIST

A Co 1-181 IN
140 Maynard St
Feeding Hills, MA

Full time staff

Non-Responsive

Phone #

Non-Responsive

List of full time staff

APPENDIX C

ANALYTICAL RESULTS



CERTIFICATE OF ANALYSIS



Client:	National Guard Bureau	Job Name:	MA ARNG	Chain Of Custody:	515977
Address:	301-IH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	Agawam RC	Date Submitted:	5/28/2013
		Job Number:	39743799.00001	Person Submitting:	Non-Responsive
		P.O. Number:	W912K6-09-A-0003	Date Analyzed:	6/3/2013
Attention:	Non-Responsive			Report Date:	6/3/2013

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 (ft ²)	Reporting Limit	Total ug	Final Result	Comments
13065715	RC Agawam W-01	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13065716	RC Agawam W-02	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13065717	RC Agawam W-03	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13065718	RC Agawam W-04	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13065719	RC Agawam W-05	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13065720	RC Agawam W-06	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13065721	RC Agawam W-07	Flame	Wipe	****	0.108	110 ug/ft ²	290	2700 ug/ft ²	
13065722	RC Agawam W-08	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13065723	RC Agawam W-09	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13065724	RC Agawam W-10	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13065725	RC Agawam TB-W	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.



CERTIFICATE OF ANALYSIS



Client:	National Guard Bureau	Job Name:	MA ARNG	Chain Of Custody:	515977
Address:	301-IH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	Agawam RC	Date Submitted:	5/28/2013
		Job Number:	39743799.00001	Person Submitting:	Non-Responsive
		P.O. Number:	W912K6-09-A-0003	Date Analyzed:	6/3/2013
Attention:	Non-Responsive			Report Date:	6/3/2013

Summary of Atomic Absorption Analysis for Lead

Page 2 of 2

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Total ug	Final Result	Comments
Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B 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.							See QC Summary for analytical results of quality control samples associated with these samples.		
Air and Wipe results are not corrected for any blank results Final results for air and wipe samples are based on client supplied information nor verified by this laboratory. All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.							Analyst: Non-Responsive Technical Manager: Non-Responsive		

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 This
Number For Inquiries)

515977

Mailing/Billing Information:

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

Submittal Information:

1. Job Name: MA 1ABNG
2. Job Location: Aquarium PC
3. Job #: 3974379
4. Contact Person: [Redacted]
5. Submitted By: [Redacted]

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

AFTER HOURS (must be pre-scheduled)		NORMAL BUSINESS HOURS		Other Information	
<input type="checkbox"/> Immediate	Date Due: _____	<input type="checkbox"/> Immediate	<input type="checkbox"/> 3 Day	<input type="checkbox"/> Results Required By Noon	<input type="checkbox"/> Include _____ with Report
<input type="checkbox"/> 24 Hours	Time Due: _____	<input type="checkbox"/> Next Day	<input type="checkbox"/> 5 Day + <u>6/13</u>	(Every Attempt Will Be Made to Accommodate)	<input type="checkbox"/> Fax: _____
Comments: _____		<input type="checkbox"/> 2 Day	Date Due: _____		<input type="checkbox"/> Verbal: _____

Asbestos Analysis**PCM Air** - Please Indicate Filter Type:☐ NIOSH 7400 _____ (QTY)☐ Fiberglass _____ (QTY)**TEM Air** - Please Indicate Filter Type:☐ AHERA _____ (QTY)☐ NIOSH 7402 _____ (QTY)☐ Other (specify) _____ (QTY)**PLM Bulk**☐ EPA 600 - Visual Estimate _____ (QTY)☐ EPA Point Count _____ (QTY)☐ NY State Friable 198.1 _____ (QTY)☐ Grav. Reduction ELAP 198.6 _____ (QTY)☐ Other (specify) _____ (QTY)**MISC**☐ Vermiculite☐ Asbestos Soil PLM (Qual) PLM (Quan) PLM/TEM (Qual) PLM/TEM (Quan)**TEM Bulk**☐ ELAP 198.4/Chatfield _____ (QTY)☐ NY State PLM/TEM _____ (QTY)☐ Residual Ash _____ (QTY)**TEM Dust**☐ Qual. (pres/abs) Vacuum/Dust _____ (QTY)☐ Quan. (s/area) Vacuum D5755-95 _____ (QTY)☐ Quan. (s/area) Dust D6180-99 _____ (QTY)**TEM Water**☐ Qual. (pres/abs) _____ (QTY)☐ ELAP 198.2/EPA 100.2 _____ (QTY)☐ EPA 100.1 _____ (QTY)☒ All samples received in good condition unless otherwise noted.☐ TEM Water samples _____ °C**Other Analysis**☐ Pb Paint Chip _____ (QTY)☒ Pb Dust Wipe (wipe type: Gloss) _____ (QTY)☐ Pb Air _____ (QTY)☐ Pb Soil/Solid _____ (QTY)☐ Pb TCLP _____ (QTY)☐ Drinking Water ☐ Pb _____ (QTY) ☐ Cu _____ (QTY) ☐ As _____ (QTY)☐ Waste Water ☐ Pb _____ (QTY) ☐ Cu _____ (QTY) ☐ As _____ (QTY)☐ Pb Furnace (Media _____) _____ (QTY)**Microbial Analysis**

Collection Apparatus for Spore Traps/Air Samples: _____

Collection Media _____

☐ Spore-Trap _____ (QTY) ☐ Surface Vacuum Dust _____ (QTY)☐ Surface Swab _____ (QTY) ☐ Culturable ID Genus (Media _____) _____ (QTY)☐ Surface Tape _____ (QTY) ☐ Culturable ID Species (Media _____) _____ (QTY)☐ Other (Specify _____) _____ (QTY)**SAMPLE INFORMATION****ANALYSIS****CLIENT CONTACT**

(LABORATORY STAFF ONLY)

CLIENT ID NUMBER	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPE AREA	TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	WATER	OTHER	SPORE TRAP	TAPE	SWAB	LABORATORY STAFF ONLY
RC Aquarium PC	W-01	5/24/13		100 cm ²								X						Date/Time: _____ Contact: _____ By: _____
RC Aquarium	W-02											X						
RC Aquarium	W-03											X						
RC Aquarium	W-04											X						
RC Aquarium	W-05											X						Date/Time: _____ Contact: _____ By: _____
RC Aquarium	W-06											X						
RC Aquarium	W-07											X						
RC Aquarium	W-08											X						
RC Aquarium	W-09											X						Date/Time: _____ Contact: _____ By: _____
RC Aquarium	W-10											X						
RC Aquarium	TB-W											X						

LABORATORY STAFF ONLY:1. Date/Time RCVD: 5/28/13 @ 9:00 Via FedEx By (Print): _____

2. Date/Time Analyzed: _____ @ _____ By (Print): _____

3. Results Reported To: _____

4. Comments: 7910 6955 0001

BEST AVAILABLE COPY

Date: _____ / _____ / _____

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

Released by National Guard Bureau

Page 1300 of 3473

APPENDIX D
PHOTOGRAPHIC LOG



PHOTOGRAPHIC LOG



Client Name: MA ARNG- Agawam RC		Site Location: 140 Maynard St., Feeding Hills, MA	Project No. 39743799
Photo No. 1	Date: 5/24/13		
Description: Former Indoor Firing Range, currently being used for storage, with improperly stored flammables and gas cylinders.			

Photo No. 2	Date: 5/24/13	
Description: Renovated corridor in former Indoor Firing Range, area was missing illuminated emergency exit signs.		



PHOTOGRAPHIC LOG

Client Name: MA ARNG- Agawam RC		Site Location: 140 Maynard St., Feeding Hills, MA	Project No. 39743799
Photo No. 3	Date: 5/24/13		
Description: Improperly labeled and stored containers in storage areas.			

Photo No. 4	Date: 5/24/13	
Description: Typical office setting with presumed asbestos-containing floor tiles and mastic throughout the administrative areas.		

APPENDIX E

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 ($\mu\text{g}/\text{ft}^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.
 - a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors ($40 \mu\text{g}/\text{ft}^2$) and windowsills ($250 \mu\text{g}/\text{ft}^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.
 - b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.
 - c. OSHA used to cite a level of $200 \mu\text{g}/\text{ft}^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.
 - d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that $200 \mu\text{g}/\text{ft}^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.
 - e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no

correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:
 - a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under ($40 \mu\text{g}/\text{ft}^2$ on floors and $250 \mu\text{g}/\text{ft}^2$ 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 milligrams per cubic meter (mg/m^3) averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

Prepared For:

National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
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
FRAMINGHAM READINESS CENTER
522 CONCORD STREET
FRAMINGHAM, MASSACHUSETTS**

April 2006
PN: 39741508

Non-Responsive

Office Manager

Non-Responsive

Project Manager

TABLE OF CONTENTS

Section	Page
1.0 SUMMARY	1
2.0 ADMINISTRATIVE AREA.....	2
2.1 OPERATION DESCRIPTION.....	2
2.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED.....	2
2.2.1 Relative Humidity.....	2
2.2.2 Carbon Dioxide.....	2
2.2.3 Carbon Monoxide.....	3
2.2.4 Lighting.....	3
2.2.5 Lead.....	4
2.2.6 Asbestos.....	5
2.3 VENTILATION SYSTEM EVALUATION	5
2.4 NOISE MEASUREMENTS.....	5
2.5 PERSONAL PROTECTIVE EQUIPMENT.....	6
2.6 INTERPRETATION OF RESULTS.....	6
3.0 FORMER FIRING RANGE	7
3.1 OPERATION DESCRIPTION.....	7
3.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED.....	7
3.2.1 Lead.....	7
3.3 VENTILATION SYSTEM EVALUATION	8
3.4 NOISE MEASUREMENTS.....	8
3.5 PERSONAL PROTECTIVE EQUIPMENT.....	8
3.6 INTERPRETATION OF RESULTS.....	8
4.0 DRILL HALL.....	9
4.1 OPERATION DESCRIPTION.....	9
4.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED.....	9
4.2.1 Lead.....	9
4.3 VENTILATION SYSTEM EVALUATION	10
4.4 NOISE MEASUREMENTS.....	10
4.5 PERSONAL PROTECTIVE EQUIPMENT.....	10
4.6 INTERPRETATION OF RESULTS.....	10
5.0 BOILER ROOM / BASEMENT AREA.....	11
5.1 OPERATION DESCRIPTION.....	11
5.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED.....	11
5.2.1 Lead.....	11
5.2.2 Asbestos.....	11
5.3 VENTILATION SYSTEM EVALUATION	11
5.4 NOISE MEASUREMENTS.....	11
5.5 PERSONAL PROTECTIVE EQUIPMENT.....	11
5.6 INTERPRETATION OF RESULTS.....	11
6.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS	12
6.1 CONFINED SPACES.....	12
6.2 HEARING CONSERVATION	12

TABLE OF CONTENTS (Cont)

Section	Page
6.3 RESPIRATORY PROTECTION	12
6.4 HAZARD COMMUNICATION	12
6.5 PERSONAL PROTECTIVE EQUIPMENT	12
7.0 REFERENCES	13

APPENDICES

Appendix A	Readiness Center Drawing
Appendix B	Personnel List
Appendix C	Hazardous Materials List
Appendix D	Analytical Results
Appendix E	Training Certificates
Appendix F	Photographs
Appendix G	Recommendations for Surface Lead Dust in Armories
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)

FINDINGS AND RECOMMENDATIONS

Findings	Recommendation	Risk Assessment Code
Ergonomic		
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
Lighting		
On the day of the survey, the illuminance in the administrative area was inadequate in most of the 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 RP-1-04)	RAC 4
Lead		
Lead was detected in wipe samples collected from the former firing range in amounts greater than 200 µg/ft ²	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))	RAC 4
Asbestos		
Splits in the pipe insulation were found throughout the facility.	Repair the exposed asbestos pipe insulation. Work should be completed by personnel trained in accordance with federal regulations (OSHA 29 CFR 1910.1001(k)(1))	RAC 3
A site-specific asbestos operations and maintenance plan was available.	Implement the site specific asbestos operations and maintenance plan to manage asbestos-containing materials (OSHA 29 CFR 1910.1001(j))	RAC 3
Hazard Communication		
No site specific hazard communication plan was available.	Develop a site specific hazard communication plan to manage hazardous materials (OSHA 29 CFR 1910.1200(e))	RAC 4
Housekeeping		
Electrical panels were obstructed by equipment in room #18. Electrical panels must be kept clear of obstruction	Remove all obstructions in front of electrical panels in the drill hall for a minimum of 3 feet (OSHA 29 CFR 1910.303(g)(1)(i)).	RAC 4
Mold		
Water damage was observed throughout. Mold growth could become an issue if left unattended. Employees did complain of respiratory issues	Determine and repair source of water, Replace water damaged building materials and implement a moisture management program to provide direction for future water incursions (Best management practice)	RAC 3

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 at 522 Concord Street in Framingham, Massachusetts 01702. 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 February 24, 2004, Mr. **Non-Responsive** an industrial hygienist with URS, conducted a site visit to the Readiness Center in Framingham, Massachusetts. 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. Mr. **Non-Responsive** of the State of Massachusetts was Mr. **Non-Responsive** site contact for this survey.

A 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 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 and armrests were in a fixed position and keyboards could not be adjusted in office #7 (Photo # 3959), office #12 (Photo # 3964) and office #18 (Photo # 3969). If more than one person is using that station, then proper adjustments need to be made to accommodate each person.

Water marks and damage on the ceilings of room # 5 (Photo # 3958); office #12 (Photo # 3966); office #18 (Photo # 3968); office #20 (Photo # 3971) and office #21 (Photo # 3972). The major concern was in office #21 where some of the occupants voiced their concerns about the water staining. The occupants stated that they have experienced respiratory problems and eye irritations. They claim that when they leave the site these problems lessen or subside until they return to the site.

An obstructed electrical box was found in office #18 (Photo # 3970).

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 11.2 – 15.3% with an average of 12.5%. These readings were below the recommended maximum of 65% set by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (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 387 to

454 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.

ASHRAE (62.1-2004) recommends that levels of carbon dioxide be maintained below 700 ppm above the outside level. Given an outside level of 425 ppm on the day of the survey, the ASHRAE limit would be 1125 ppm.

2.2.3 Carbon Monoxide

Carbon monoxide was also measured in the Readiness Center. Carbon monoxide concentrations ranged from 0 to 2 ppm throughout the survey period for all floor levels. 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 2-1
Lighting Measurements and Recommended Lighting Requirements

Location	Function	Measured Illuminance (foot candles)	Recommended Illuminance (foot candles)
Office # 5	Administrative Duties	26	50
Office # 6	Administrative Duties	44	50
Office # 7	Administrative Duties	25	50
Office # 12	Administrative Duties	26	50
Office # 13	Administrative Duties	33	50
Office # 14	Administrative Duties	53	50
Office # 15	Administrative Duties	34	50
Office # 17	Administrative Duties	43	50
Office # 18 – Lobby Side	Administrative Duties	28	50
Office # 18 – Copier Side	Administrative Duties	39	50
Office # 18 – Little Office	Administrative Duties	52	50
Office # 20	Administrative Duties	30	50
Office # 21 – Desk Near Door	Administrative Duties	34	50
Office # 21 – Desk Near Windows	Administrative Duties	55	50
Office # 23	Administrative Duties	40	50
Office # 24	Administrative Duties	25	50
Office # 25	Administrative Duties	46	50
Office # 33	Administrative Duties	18	50
Hallway # 16	Accessway	39	3

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

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 2-2 below shows the results of the lead sampling.

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

Sample Location	URS Sample Number	Area Wiped (ft ²)	Result (µg/ft ²)	Maximum Surface Contamination Level (µg/ft ²)
Admin #11 – Top of Cabinet	0224-LW21	0.111	11	200
Admin #13 – Top of File Cabinet	0224-LW22	0.111	17	200
Admin #18 – Top of File Cabinet	0224-LW23	0.111	10	200
Admin #25 – Top of File Cabinet	0224-LW24	0.111	490	200
Admin # 34B – Floor	0224-LW25	0.111	21	200
Admin #30 – Top of Powerade Machine	0224-LW26	0.111	61	200
Admin #6 – Top of File Cabinet	0224-LW27	0.111	24	200
Blank	0224-LWBlank2	N/A	0.78 µg	N/A

2.2.6 Asbestos

ATC Associates of Woburn, Massachusetts conducted an asbestos survey at this facility in May of 2000. Broken asbestos containing 9"x9" floor tile was found in room #13 (Photos # 3961-62), room #14 (Photo # 3960), room #12 (Photo # 3965), room #18 (Photo # 3967), room #21 (Photo # 3972) and room #30 (Photos 3974-75). Splits were found in the asbestos-containing pipe insulation in room #6 (Photo # 3955), room #7 (Photo # 3957) and room #21 (Photo # 3973). A calendar was tacked to the pipe insulation in room #6 (Photo # 3956) which was causing the insulation to be exposed. The window chalking and glazing in room #1 was in poor condition (Photo # 3963).

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

GENERAL: In general, the administrative area was neat and orderly.

LIGHTING: On the day of the survey, the illuminance in the administrative area was inadequate in most of the offices. URS recommends increasing lighting in the administrative areas. While work is in progress the administrative area must be lighted by at least the minimum light intensities.

LEAD: Lead was detected in the dust wipe sample collected from Admin #25 in an amount that exceeded the NGB Region North Industrial Hygiene Office recommended maximum of 200 micrograms per square foot (See Appendix G). Personnel trained in accordance with OSHA's lead standard (29 CFR 1910.1025 and 1926.62) should clean this area.

ASBESTOS: The identified damaged asbestos-containing materials should be removed or repaired by a properly trained, licensed technician. The work should be performed in a timely manner to avoid further damage to these materials.

MOLD: The water stains on the ceilings could lead to mold growth if not addressed. Further evaluation should be undertaken in room #21 where the complaints were made concerning respiratory issues.

ELECTRICAL: An obstructed electrical box was observed in office #18. Electrical control boxes should be clear of obstruction.

3.0 FORMER FIRING RANGE

3.1 Operation Description

The firing range has been dismantled and is now used as a fitness room.

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 Analytical Services, Inc. (AMA) is contained in Appendix D. Table 3-1 below contains the results of the lead sampling.

**Table 3-1
Levels of Lead Dust Found in the Former Firing Range**

Sample Location	URS Sample Number	Area Wiped (ft ²)	Result (µg/ft ²)	Maximum Surface Contamination Level (µg/ft ²)
Firing Range-Floor – Rear	0224-LW16	0.111	2,200	200
Firing Range-Floor – Center	0224-LW17	0.111	620	200
Firing Range-Floor – Front	0224-LW18	0.111	310	200
Firing Range-Top of Light Guard	0224-LW19	0.111	60	200
Firing Range-Top of a Table	0224-LW20	0.111	160	200
Blank	0224-LWBlank2	N/A	0.78 µg	N/A

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 Location	URS Sample Number	Air Volume (L)	Result (µg/m ³)	OSHA's PEL(µg/m ³)
Former Firing Range	0224-LA05	724	<4.1	50.0
Blank	0224-LA06	N/A	<3.0 µg	N/A

April 12, 2006

PN: 39741509 : J1_Army National Guard\39741508 - Framingham, MA\Reports\MASS Framingham Armory - Reviewed Final.doc

URS

7

On the day of the survey, the airborne lead dust level 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 $50.0 \mu\text{g}/\text{m}^3$ 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

LEAD: Three of the five surface wipe samples collected within the former firing range were found to contain lead dust levels which exceed the maximum limit set by the National Guard Bureau Region North Industrial Hygiene Office (See Appendix G). URS recommends that an appropriately licensed lead contractor clean the former firing range. Appendix H contains guidelines for the cleanup and rehabilitation of indoor firing ranges.

April 12, 2006

PN: 39741509 : J1, Army National Guard/39741509 Framingham, MA/Reports/MASS Framingham Army - Reviewed Final.doc

URS

8

4.0 DRILL HALL

4.1 Operation Description

The drill hall is a 7,000 square foot area used for assembling personnel and storing equipment. 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 hall 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 Number	Area Wiped (ft ²)	Result (µg/ft ²)	Maximum Surface Contamination Level (µg/ft ²)
Drill Hall – Top of a Flammable Storage Cabinet #1	0224-LW11	0.111	46	200
Drill Hall – Top of a Flammable Storage Cabinet #2	0224-LW12	0.111	63	200
Drill Hall – Floor – Rear	0224-LW13	0.111	49	200
Drill Hall – Floor – Center	0224-LW14	0.111	34	200
Drill Hall – Floor – Front	0224-LW15	0.111	29	200
Blank	0224-LWBlank2	N/A	0.78 µg	N/A

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

Table 4-2
Level of Lead Found in the Air

Sample Location	URS Sample Number	Air Volume (L)	Result ($\mu\text{g}/\text{m}^3$)	OSHA's PEL ($\mu\text{g}/\text{m}^3$)
Drill Hall	0224-LA04	764	<3.9	50.0
Blank	0224-LA06	N/A	<3.0 μg	N/A

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 $50.0 \mu\text{g}/\text{m}^3$ 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

LEAD: The five surface wipe samples and one air sample collected for lead dust in this area were found to be within the allowable limits and require no further testing at this time. The NGB Region North Industrial Hygiene Office has prepared a memorandum titled "Recommendations for Surface Lead Dust in Armories" which is provided in Appendix G.

5.0 BOILER ROOM / BASEMENT AREA

5.1 Operation Description

The boiler room is a mechanical space constructed of cinder block walls with a concrete floor, containing a furnace and associated piping.

5.2 Chemical and Physical Agents Sampled

5.2.1 Lead

No issues regarding lead in the boiler room were observed during the site visit.

5.2.2 Asbestos

The asbestos-containing boiler and pipe insulation has been properly repaired throughout the boiler room (Photo # 3954) and requires no attention at this time.

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

No issues were observed in the boiler room during the site visit.

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

The hearing conservation program was found in the safety book, under tab M, chapter 3. No training records were found on site. A hearing conservation program is not required for this site.

6.3 Respiratory Protection

The respiratory protection program was found in the safety book, under tab M, chapter 3. No training records were found on site. A respiratory protection program is not required for this site.

6.4 Hazard Communication

The hazard communication program was found in the safety book, under tab L. An Operations and Maintenance Written Plan (O & M) was provided to URS before the inspection regarding asbestos at the site. The main issues concerning this program were that the asbestos has not been labeled as containing asbestos and no training records were available.

6.5 Personal Protective Equipment

The personal protective equipment program was found in the safety book, under tab N, chapter 10. 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/IESNA 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 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

April 12, 2006

PN: 39741509 : Jt_Army National Guard 39741508 - Framingham MA\Reports\MASS Framingham Armory - Reviewed Final.doc

URS

13

APPENDIX A
READINESS CENTER DRAWING

EXIT

EXIT

EXIT

DRILL
SHED
FLOOR

1. BARE CONCRETE
FLOORS

EXIT

EXIT

EXIT

BFT = BLACK FT (9x9)
GFT = GREEN FT (9x9)

APPENDIX B
PERSONNEL LIST

101 QM FTS

Framingham Armory

XO
S1 NC
S3 NC
Asst S
S4 NC
HHD
1060th
1164th
1164th
1164th
HHD
HHD
QtrMst
QtrMst

Non-Responsive

APPENDIX C
HAZARDOUS MATERIALS LIST

NO CHEMICAL INVENTORY AVAILABLE

APPENDIX D
ANALYTICAL RESULTS

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Mar 26 04 03:45P

AMA Analytical Services

(301) 459 - 2643

P.3

Client: National Guard Bureau
Address: 301-1H Old Bay Lane, Attn: NGB-AVN-ST,
State Military Reservation
Havre de Grace, Maryland 21078

Job Name: Armory
Job Location: 522 Concord St., Framingham, MA
Job Number: Not Provided
P.O. Number: Not Provided

Chain Of Custody: 123985
Date Analyzed: 3/26/2004
Person Submitting: [REDACTED]
Report Date: 26-Mar-04

Attention: [REDACTED]

Page 1 of 2

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (l.)	Area Wiped (ft²)	Reporting Limit	Final Result	Comments
0432263	0224-LW11	Furnace	Wipe	****	0.111	6.75 ug/ft²	46 ug/ft²	
0432264	0224-LW12	Furnace	Wipe	****	0.111	6.75 ug/ft²	63 ug/ft²	
0432265	0224-LW13	Furnace	Wipe	****	0.111	6.75 ug/ft²	49 ug/ft²	
0432266	0224-LW14	Furnace	Wipe	****	0.111	5.40 ug/ft²	34 ug/ft²	
0432267	0224-LW15	Furnace	Wipe	****	0.111	5.40 ug/ft²	29 ug/ft²	
0432268	0224-LW16	Flame	Wipe	****	0.111	108.01 ug/ft²	2200 ug/ft²	
0432269	0224-LW17	Flame	Wipe	****	0.111	108.01 ug/ft²	620 ug/ft²	
0432270	0224-LW18	Flame	Wipe	****	0.111	108.01 ug/ft²	310 ug/ft²	
0432271	0224-LW19	Furnace	Wipe	****	0.111	13.50 ug/ft²	60 ug/ft²	
0432272	0224-LW20	Furnace	Wipe	****	0.111	33.75 ug/ft²	160 ug/ft²	
0432273	0224-LW-BLANK2	Furnace	Wipe	****	N/A	0.30 ug	0.78 ug	
0432274	0224-LA 04	Flame	Air	764	N/A	3.93 ug/m³	< 3.9 ug/m³	
0432275	0224-LA 05	Flame	Air	724	N/A	4.14 ug/m³	< 4.1 ug/m³	
0432276	0224-LA 06	Flame	Air Blank	0	N/A	3.00 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. 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, NIST, or any agency of the Federal Government.

All rights reserved. AMA Analytical Services, Inc.

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

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

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (MA)
Released by National Guard Bureau
Page 1331 of 3473

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Mar 26 04 03:45P

AMA Analytical Services

(301) 459 - 2643

P. 4

Client: National Guard Bureau
Address: 301-IH Old Bay Lane, Attn: NGB-AVN-SL,
State Military Reservation
Havre de Grace, Maryland 21078

Job Name: Armory
Job Location: 522 Concord St., Framingham, MA
Job Number: Not Provided
P.O. Number: Not Provided

Chain Of Custody: 123985
Date Analyzed: 3/26/2004
Person Submitting: [REDACTED]
Report Date: 26-Mar-04

Attention: [REDACTED]

Page 2 of 2

Summary of Atomic Absorption Analysis for Lead

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

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7420; Water: SM-3111B
Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7421; Water: SM-3113B
N/A = Not Applicable mg/Kg = parts per million (ppm) by weight mg/L = parts per million (ppm)
%Pb = percent lead by weight ug = micrograms ug/L = parts per billion (ppb)
Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Analyst: [REDACTED]

Technical Manager: [REDACTED]

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

An AIHA (#8863), NVLAP (#101143), & New York ELAP (#10920) Accredited Laboratory
4475 Forbes Blvd. • Lanham, MD 20706 • (301) 459-2630 • Toll Free (800) 346-0961 • Fax (301) 459-2643

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (MA)
Released by National Guard Bureau
Page 1332 of 3473



CERTIFICATE OF ANALYSIS

Client: National Guard Bureau
Address: 301-1H Old Bay Lane, Attn: NGB-AVN-SI,
State Military Reservation
Havre de Grace, Maryland 21078

Job Name: Armory
Job Location: Framingham, MA
Job Number: Not Provided
P.O. Number: Not Provided

Chain Of Custody: 138227
Date Submitted: 5/20/2005
Person Submitting:
Date Analyzed: 5/26/2005 Report Date: 26-May-05

Attention: [REDACTED]

Summary of Atomic Absorption Analysis for Lead

Page 1 of 1

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft ²)	Reporting Limit	Final Result	Comments
0540463	0224-LW21	Furnace	Wipe	****	0.111	2.70 ug/ft ²	11 ug/ft ²	
0540464	0224-LW22	Furnace	Wipe	****	0.111	2.70 ug/ft ²	17 ug/ft ²	
0540465	0224-LW23	Furnace	Wipe	****	0.111	2.70 ug/ft ²	10 ug/ft ²	
0540466	0224-LW24	Furnace	Wipe	****	0.111	67.51 ug/ft ²	490 ug/ft ²	
0540467	0224-LW25	Furnace	Wipe	****	0.111	2.70 ug/ft ²	21 ug/ft ²	
0540468	0224-LW26	Furnace	Wipe	****	0.111	13.50 ug/ft ²	61 ug/ft ²	
0540469	0224-LW27	Furnace	Wipe	****	0.111	2.70 ug/ft ²	24 ug/ft ²	

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

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

N/A = Not Applicable mg/Kg = parts per million (ppm) by weight mg/L = parts per million (ppm)

%Pb = percent lead by weight ug = micrograms ug/L = parts per billion (ppb)

Note: All 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

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

Analyst: [REDACTED]

Technical Manager: [REDACTED]

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

All rights reserved. AMA Analytical Services, Inc.

APPENDIX E
TRAINING CERTIFICATES

BEST AVAILABLE COPY

NOT APPLICABLE

APPENDIX F
PHOTOGRAPHS



Photo 3954: Boiler Room - Asbestos-containing pipe insulation



Photo 3955: Room #6 - Damaged asbestos-containing pipe insulation



Photo 3956: Room #6 - Calendar tacked to asbestos-containing pipe insulation

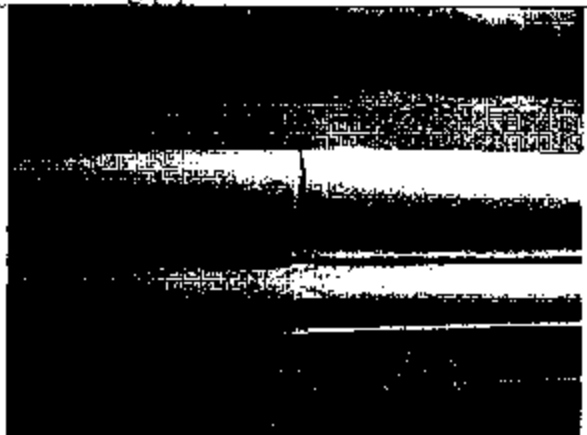


Photo 3957: Room #7 - Damaged asbestos-containing pipe insulation

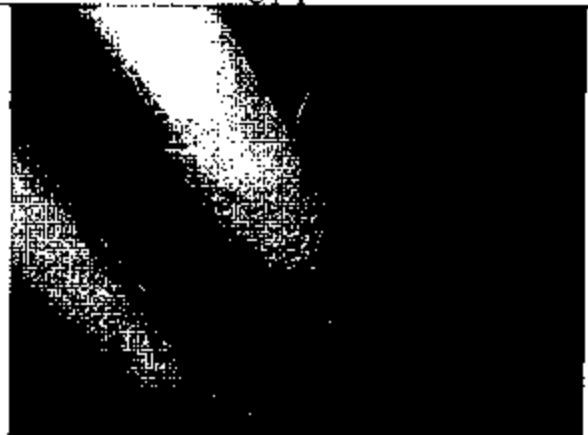


Photo 3958: Room #5 - Water stains from leaking expansion joint



Photo 3959: Room #7 - Computer work station

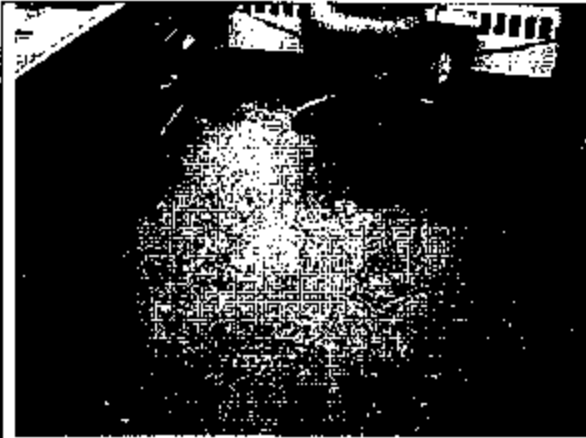


Photo 3960: Room #14 - Worn asbestos-containing floor tiles

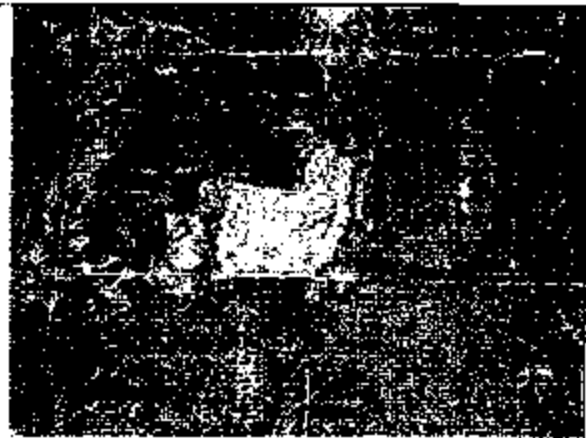


Photo 3961: Room #13 - Damaged asbestos-containing floor tile

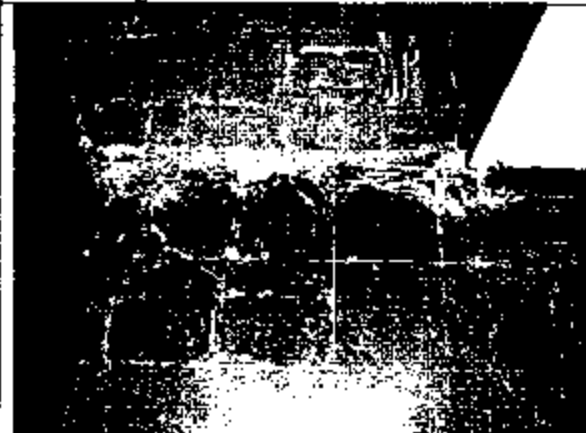


Photo 3962: Room #13 - Damaged asbestos-containing floor tile

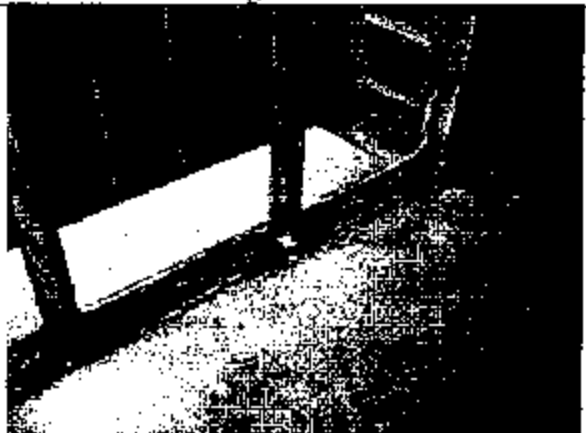


Photo 3963: Supply #1 - Damaged window caulking and glazing



Photo 3964: Office #12 - Computer work station



Photo 3965: Office #12 - Damaged asbestos-containing floor tile

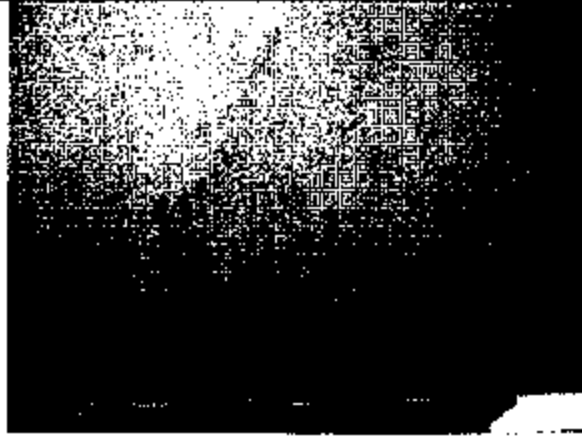


Photo 3966: Office #12 - Water stains on ceiling

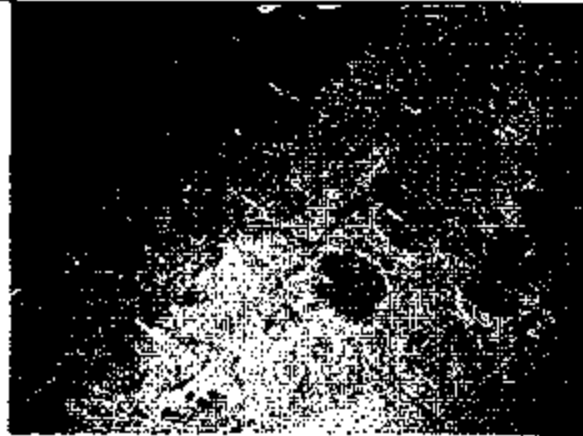


Photo 3967: Office #18 - Worn asbestos-containing floor tile

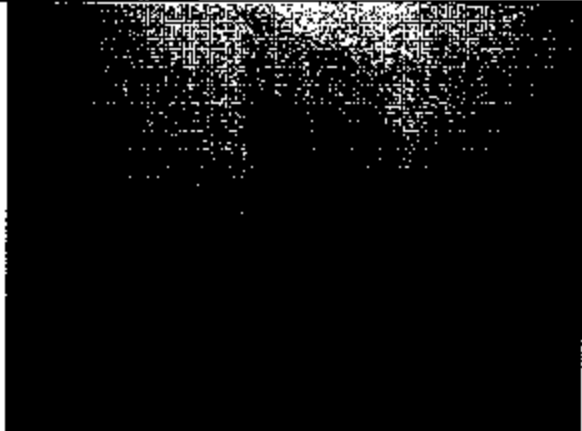


Photo 3968: Office #18 - Water stains on ceiling



Photo 3969: Office #18 - Computer Work station



Photo 3970: Office #18 - Blocked electrical panels

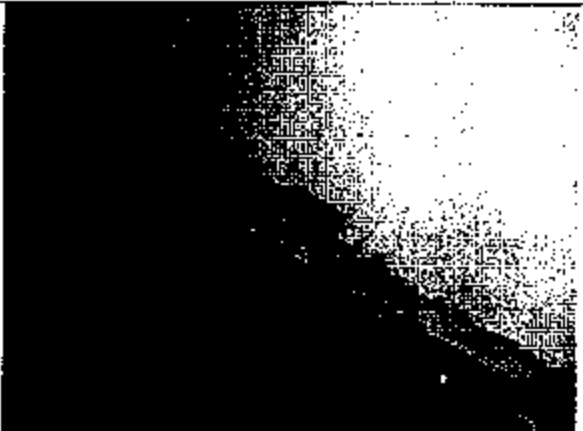


Photo 3971: Office 21 - Water stains on walls



Photo 3972: Office 21 – Water stains on ceiling that extends down walls to floor

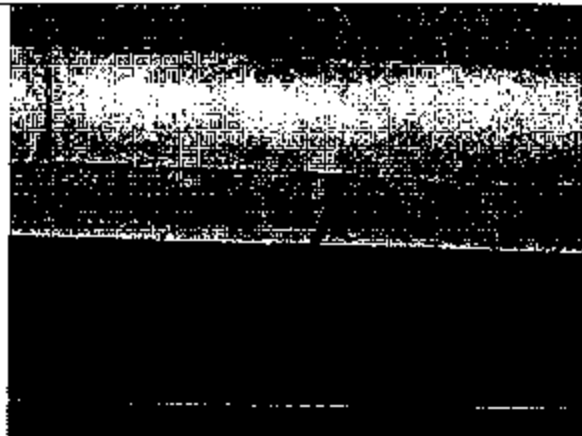


Photo 3973: Office 21- Damaged asbestos-containing pipe insulation



Photo 3974: Room #30 – Damaged asbestos-containing floor tile



Photo 3975: Room #30 – Water stains on ceiling

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 ($\mu\text{g}/\text{ft}^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

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

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

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

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

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

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

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under ($40 \mu\text{g}/\text{ft}^2$ on floors and $250 \mu\text{g}/\text{ft}^2$ 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 $0.05 \text{ mg}/\text{m}^3$ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

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-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

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
Goal	5
Background	6
Wipe Sample Media	7
Wipe Sampling Protocol	8
Range Cleaning Instructions	9
Cleaning Stored Contaminated Equipment	10
Contaminated Sand and Lead Waste	11
Medical Surveillance	12
Worker Education	13
Personal Protection Equipment	14
Housekeeping	15
Maintenance	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	

Purpose

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. 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 1910, 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).

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

3. 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, 5th 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 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 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. 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.

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

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 deionized 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 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.

~~(c) Eleven (11) centimeter (cm) diameter Whatman 1240 paper~~

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

(2) Unacceptable Media consists of but is not limited to—

- (a) Cotton balls
- (b) Baby wipes or wet 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.

8. 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 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 maintained. 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 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, Spic and Span™ has been found to be an effective cleaning solution by other Army organizations. Mix new solutions of cleaning solution frequently. Wet wiping will require dual containers of water; one container for wetting the applicator (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 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 deck enamel or urethane; concrete floors should be sealed with deck enamel and linoleum 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 plate(s) should be cleaned. Next, clean the ceiling, 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 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.

l. 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 lead dust must be decontaminated before it is removed from the range.

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

b. Equipment located near the bullet trap and firing line should be cleaned first and then removed. The cleaning method depends on the size of the equipment and the material it is comprised of, i.e. metal, wood, concrete, porous, non-porous, smooth or rough finish etc. However, either HEPA vacuum or the wet wipe method will be used. Refer to paragraph 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 (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 all individuals who are subject to exposure to lead at or above the action level or for whom the possibility of skin or eye irritations 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, 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, fitting, 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.
- f. Smoking and smoking materials will not be permitted in contaminated areas

NGS-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

- 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 clothing 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, 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. 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 belts to ensure that they are not frayed or slipping.

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**

- 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 trap for pitting or other damage and for sharp edges on venetian blind type bullet traps.
- e. Bullet Trap. The bullet 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 bullet 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 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.

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.
- c. 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 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 decontaminated or removed.
- h. 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.

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 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™, 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, moisten the filter with distilled or deionized 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 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 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 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 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 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 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 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 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 cassette 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.

<u>Order From</u>	<u>Catalog Number</u>
a. Millipore Corp. Ashby Road Bedford, MA 01730 617-275-9200 800-225-1380	MAWP-037-A0
b. Gelman Sciences 600 South Wagner Rd Ann Arbor, MI 48106 313-665-0651 800-521-1520	64678 (GN-4)
c. Supelco, Inc. Supelco Park Bellefonte, PA 16823 800-247-6628 800-359-3041	2-3368M

E-3 37 mm MCE Filter with pad, no cassette included, for lead surface wipe samples

<u>Order From</u>	<u>Catalog Number</u>
a. Supelco Inc Supelco Park Bellefonte, PA 16823	2-3381IM

NGB-AVS-SG

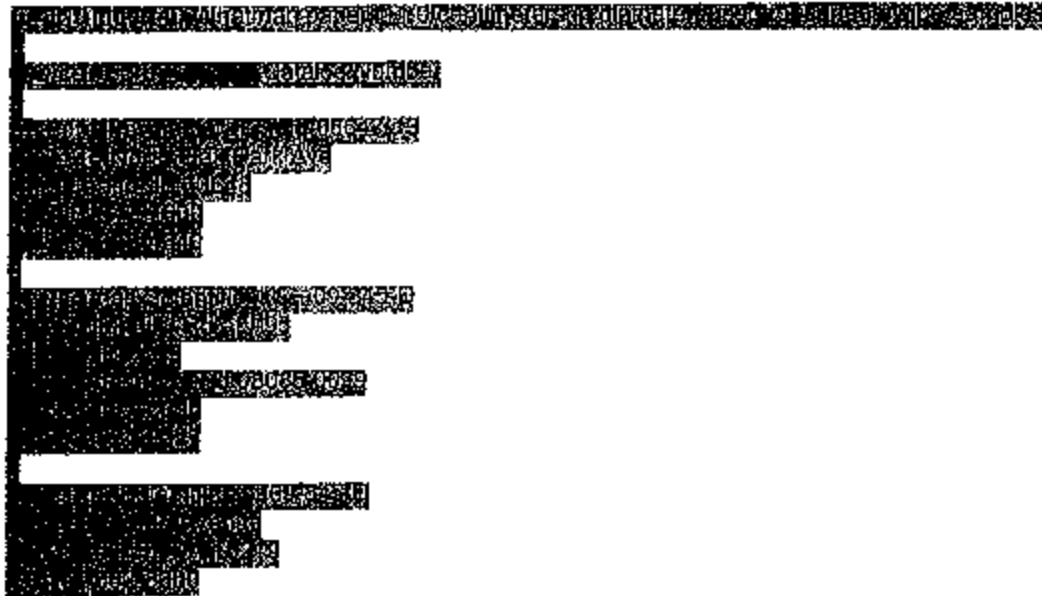
SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program -- POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

APPENDIX E (Continued)

800-247-6628
800-359-3041

b. Millipore Corp. AAWP-037-00
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.

<u>Order From</u>	<u>Catalog Number</u>
a. Pierce Chemical Co P.O. Box 117 Rockford, IL 61105 815-968-0747 800-874-3723	13219 (screw cap)
b. Altech Associates, Inc. Applied Science Labs 2051 Waukegan Rd Deerfield, IL 60015 312-948-8600	95321 (screw cap)

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 E (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 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. 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:

$$\frac{75 \text{ ug}}{100 \text{ cm}^2} \times \frac{929 \text{ cm}^2}{1 \text{ sq ft}}$$

$$\frac{75 \times 929}{100} = \frac{69675}{100} = 696.75 \text{ ug/sq ft}$$

ug – Microgram

Cm2 – Centimeters squared

Sq ft – Square foot

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 G
SURFACE WIPE SAMPLING SHEET

Industrial Hygiene Surface Wipe Sample Sheet				
Return Address		Point of Contact (<i>name & phone #</i>)		
		Samples Collected By _____		
Sampled Facility	City	State	Location (<i>bldg./area</i>)	
Description of Operation	Date Collected	Date Shipped		
Analysis Desired				
Sampling Data				
Lab Use Only	Sample #	Results	Remarks	
Comments to Lab:				

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 H
AIR SAMPLING SHEET

Industrial Hygiene Air Sample Sheet							
Return Address				Point of Contact (name/phone #)			
				Samples Collected By			
Sampled Facility		City		State		Location (bldg/area)	
Description of Operation		____ Persons Exposed		____ Hrs/Day		Method of Collection	
Analysis Desired							
Sampling Data							
Sample No.							
Pump No.							B
Time On							L
Time Off							A
Total Time (min)							N
Flow Rate (LPM)							K
Volume (liters)							
GA/BZ							
Employee Name/ID							
Laboratory No.							
Calibration Information							
Pump No.	Calibration (LPM)		Rotameter Setting	Date			
	Pre-Use	Post-Use					
Name of Calibrator		Calibration Date		Pump Manufacturer			
Comments to Lab:							

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 I
ABBREVIATIONS AND TERMS

Section I
Abbreviations

ARNG

Army National Guard

BUN

Blood urea nitrogen

BZ

Breathing zone

CBC

Complete blood count

CFR

Code of Federal Regulations

cm

Centimeter

DHEW

Department of Health, Education and Welfare

EPA

Environmental Protection Agency

GA

General area

OMPF

Official Military Personnel File

OPF

Official Personnel File

OSHA

Occupational Safety and Health Administration

TCLP

Toxic Characteristic Leaching Procedures

ug/sq ft

Micrograms per square foot

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 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.

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



Industrial Hygiene Survey
for MAARNG – Framingham Readiness Center
522 Concord Street
Framingham, Massachusetts 01701

AECOM Environment
October 2010
Document No.: 60159721/Framingham Readiness Center

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

Industrial Hygiene Survey
for MAARNG – Framingham Readiness Center
522 Concord Street
Framingham, Massachusetts 01701

Non-Responsive

A black rectangular redaction box covering the name of the Industrial Hygienist.

Industrial Hygienist

Non-Responsive

A black rectangular redaction box covering the name of the Project Manager.

Project Manager

Non-Responsive

A black rectangular redaction box covering the name of the Section Manager.

Section Manager – EHS Management

AECOM Environment
October 2010
Document No.: 60159721/Framingham Readiness Center

Contents

1.0 Facility Description and Operations	1-1
2.0 Sampling in Readiness Centers	2-1
2.1.1 Wipe Sampling.....	2-1
2.1.2 Air Sampling.....	2-1
3.0 Physical Condition of Facility and Personnel Concerns	3-1
3.1.1 Lead Based Paint	3-1
3.1.2 Suspect Asbestos Containing Materials	3-1
3.1.3 Water Damage/Mold.....	3-1
3.1.4 Housekeeping	3-1
3.1.5 Indoor Air Quality/ Ergonomics	3-1
4.0 Ventilation and HVAC System.....	4-1
4.1.1 Ventilation Systems and Potential for Contamination of Clean Air Sources	4-1
4.1.2 HVAC Maintenance	4-1
5.0 Lighting	5-1
6.0 Evaluation of Attached Garage	6-1
7.0 Conclusions and Limitations	7-1

List of Appendices

Appendix A Framingham Readiness Center Facility Layout

Appendix B Framingham Readiness Center Photographs

Appendix C Analytical Results

Appendix D References

List of Tables

Table 2-1: Lead Wipe Sample Results 2-1

Table 2-2: Lead Air Sample Results 2-1

Table 3-1: Indoor Air Quality Monitoring Results..... 3-2

Table 5-1: Light Survey 5-1

Executive Summary

On August 18, 2010, AECOM Environment conducted an Industrial Hygiene (IH) survey of the Framingham Readiness Center facility located at the armory at 522 Concord Street in Framingham, Massachusetts. Steve Raymond, Program Coordinator I, was the point of contact for the facility and accompanied AECOM during the survey to provide access and information concerning the Framingham 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 Framingham Readiness Center is currently staffed by approximately 24 personnel. The facility is configured as an administrative area and a Drill/Assembly Hall.

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

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

The Framingham Readiness Center is housed in a one story masonry slab-on grade building, consisting of approximately 50% administrative space and 50% drill hall.

Lighting levels measured throughout the facility were generally adequate as per ANSI/IESNA RP-1-2004, Office Lighting, ANSI/IESNA RP-7-2001, Industrial Lighting, and the IESNA Lighting Handbook, 9th Edition, 11 April 2005, with the exception of the weight room and a few offices

Wipe samples collected throughout the facility indicated lead levels below the ARNG action level with the exception of the duct sample in the former firing range.

There was no suspect mold growth or water damaged observed during the survey of the facility.

The HVAC system in the building consists of a boiler room that feeds radiant heaters throughout the building. There is no HVAC system that provides fresh air from the building exterior in administrative areas. The Drill Hall is equipped with two overhead air handling units. The two units in the Drill Hall were inaccessible at the time of the survey. According to **Non-Responsive** the units are serviced every six months.

1.0 Facility Description and Operations

The Framingham Readiness Center is an administrative facility within a masonry structure, slab on grade. The building consists of two main sections. The center section consists of the drill hall and is surrounded with administrative offices and supply storage. The drill hall is finished with painted cinder block walls, an exposed roof deck painted to match the walls, and concrete floors.

The primary activity at the Framingham Readiness Center is routine administrative duties and occasional use by units for support and training of soldiers. The Framingham Readiness Center is currently staffed by approximately 24 personnel. No vehicle maintenance activities are undertaken at the facility.

2.0 Sampling in Readiness Centers

2.1.1 Wipe Sampling

Wipe sampling for lead was conducted in the drill hall, former firing range and 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.

According to site personnel there is no record of the indoor firing range at the facility being abated for lead. 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
FRC-1	Firing Range Floor	<110 ug/ft ²
FRC-2	Firing Range Duct	27000 ug/ft ²
FRC-3	Stairway to Firing Range	120 ug/ft ²
FRC-4	Firing Range Bench	<110 ug/ft ²
FRC-5	Bullet Trap	<110 ug/ft ²
FRC-6	Cafeteria Table	<110 ug/ft ²
FRC-7	Drill Shed Floor	<110 ug/ft ²
FRC-8	Drill Shed Cabinet	120 ug/ft ²
FRC-9	Kitchen Stove	<110 ug/ft ²
FRC-10	Armorer's Desk	<110 ug/ft ²
FRC-11	S 2/3 Training Operations Desk	<110 ug/ft ²
FRC-12	Recruiter's Desk	<110 ug/ft ²

The wipe sample collected on top of a duct in the former firing range indicated detectable levels of lead. Levels detected were above the ARNG action level of 200 ug/ft². Laboratory analytical results are presented in Appendix C.

2.1.2 Air Sampling

Ambient 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
HRC-10	Drill Shed	<17 ug/m ³
HRC-11	Former Firing Range	<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. The paint on the walls appeared to be generally in good condition. Concrete flooring was generally tiled or unpainted. AECOM did not observe damaged or peeling paint during this evaluation.

3.1.2 Suspect Asbestos Containing Materials

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

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

3.1.3 Water Damage/Mold

AECOM did not observe any evidence of water intrusion in the facility during this survey.

3.1.4 Housekeeping

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

3.1.5 Indoor Air Quality/ Ergonomics

The Administration Section contains general office space. The Administration Section is generally utilized by all of the Framingham Readiness Center staff members. No Indoor Air Quality concerns were noted by the Framingham 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	1.2	461	81.8	54.6
Cafeteria	1.7	452	74.9	52.9
<p>Table 1-3 Guidelines:</p> <p>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.</p> <p>Carbon Dioxide: Office Space -Approximately 700 ppm above background (Derived from ASHRAE Standard 62.1-2007). Not Applicable to warehouse and vehicle maintenance bays.</p> <p>Relative Humidity: Mechanically air-conditioned space – Maximum 65% (Derived from ASHRAE Standard 62.1-2007 – 5.10.1).</p> <p>Temperature: Winter (clothing insulation = 1.0 clo) Relative humidity 30-60% - Temp - 68 – 75°F</p> <p>Summer Temp - 73 – 79°F. (Derived from ASHRAE Standard 55-2004)</p>				

Framingham 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 not observed in the facility.

The Framingham Readiness Center is heated by a radiant heating system fed by a boiler located in the boiler room that is adjacent to the drill hall. Supply and return air is not provided by mechanical means.

Two air handling units are located in the overhead space of the drill hall, but the units were inaccessible and site personnel could not provide information on the use or status of the system. The fans were not observed in operation during the survey.

4.1.2 HVAC Maintenance

According to **Non-Responsive**, Units are serviced once every six months.

5.0 Lighting

Lighting levels in all areas were measured utilizing a Cal-Light 400 light meter that displays lighting levels in foot-candles. Lighting levels were adequate in most areas measured except for a few office areas and the weight room.

Table 5-1: Light Survey

Location	Results – (Foot candles)	Met Standard (Y/N)	Standard*
Cafeteria	43.5	Y	10
Kitchen	30.6	Y	10
BN CDR	59.0	Y	50
CSM	40.9	N	50
AO	26.7	N	50
S1	63.0	Y	50
S1 MSG	93.1	Y	50
WO	73.4	Y	50
JAG	70.0	Y	50
S 2/3	59.0	Y	50
S 2/3 LTC	62.0	Y	50
Armorer	75.5	Y	50
Recruiter	37.2	N	50
Training and Operations	64.0	Y	50
Training and Operations SGM	45.5	N	50
S4 Supply	40.7	Y	30
Classroom	56.0	Y	50
1060 th TC	41.6	N	50
1060 th CDR	18.1	N	50
1060 th 1SG	16.5	N	50
Boiler Room	34.5	Y	30
151 Orderly	60.2	Y	50
HHC Supply	35.3	Y	30
Drill Shed	42.5	Y	10
1060 th Supply	35.1	Y	30
Weight Room	19.2	N	30
Office Lighting (ANSI/IESNA RP-1-04) and Industrial Lighting Facilities (ANSI RP-7-01)			

6.0 Evaluation of Attached Garage

There is no garage associated with the Framingham Readiness Center.

7.0 Conclusions and Limitations

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

Housekeeping is performed regularly at the Framingham Readiness Center, and AECOM did not observe any damaged, suspect asbestos containing materials or peeling paint during the evaluation.

Evidence of water intrusion was not observed anywhere within the facility.

Lighting levels in most areas of the facility were in compliance with ANSI/IESNA guideline levels.

Air samples collected and analyzed did not indicate quantifiable levels of airborne lead.

Wipe samples collected in various locations throughout the building did not indicate levels of lead on surfaces in excess of the ARNG action level except for the duct in the former firing range.

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.

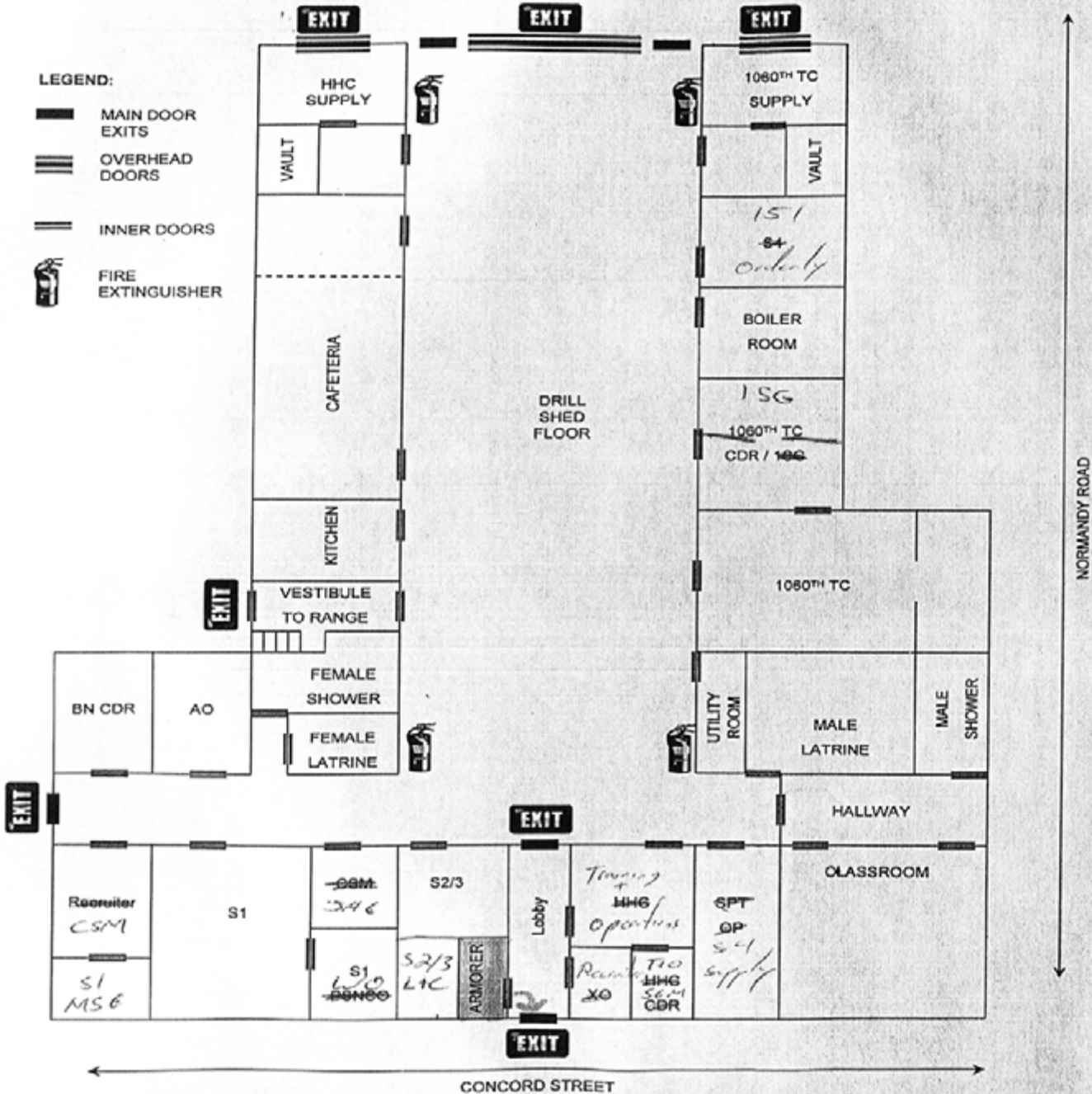
Appendix A

Framingham Readiness Center Facility Layout

FIRE EVACUATION FRAMINGHAM ARMORY

LEGEND:

-  MAIN DOOR EXITS
-  OVERHEAD DOORS
-  INNER DOORS
-  FIRE EXTINGUISHER



Appendix B

Hillsborough Readiness Center Photographs

Photograph 1



Building Exterior - Front

Photograph 2



Building Exterior - Rear

Photograph 3



Building Exterior - Side

Photograph 4



Drill Shed

Photograph 5



Air Handling Unit in Drill Shed

Photograph 6



Drill Shed Ventilation

Photograph 7



Typical 9 x 9 Floor Tile

Photograph 8



Typical 12 x 12 Floor Tile

Photograph 9



Boiler Room

Photograph 10



Kitchen Area

Photograph 11



Flammable Storage Cabinets

Photograph 12



Former Firing Range

Photograph 13



Bullet Trap

Photograph 14



Lead Swipe Duct Sample

Photograph 15



Inoperable Duct in Former Firing Range

Photograph 16



Fiberglass Pipe Insulation

Appendix C

Analytical Results

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



LAB #100470

NY ELAP

10920

Client: National Guard Bureau
Address: 301-III Old Bay Lane, Attn: NGB-AVN-SI,
State Military Reservation
Havre de Grace, Maryland 21078

Job Name: Framingham RC
Job Location: 522 Concord Street, Framingham, MA
Job Number: Not Provided
P.O. Number: W912K6-09-A-0003

Chain Of Custody: 508632
Date Submitted: 8/24/2010
Person Submitting: [REDACTED]
Date Analyzed: 8/31/2010

Report Date: 9/1/2010

Attention: [REDACTED]

Summary of Atomic Absorption Analysis for Lead

Page 1 of 2

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Total ug	Final Result	Comments
1073254	FRC-01A	Flame	Air	175	N/A	17 ug/m³	<3	<17 ug/m³	
1073255	FRC-02A	Flame	Air	175	N/A	17 ug/m³	<3	<17 ug/m³	
1073256	FRC-01	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
1073257	FRC-02	Flame	Wipe	****	0.111	110 ug/ft²	3600	27000 ug/ft²	
1073258	FRC-03	Flame	Wipe	****	0.111	110 ug/ft²	14	120 ug/ft²	
1073259	FRC-04	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
1073260	FRC-05	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
1073261	FRC-06	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
1073262	FRC-07	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
1073263	FRC-08	Flame	Wipe	****	0.111	110 ug/ft²	13	120 ug/ft²	
1073264	FRC-09	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
1073265	FRC-10	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
1073266	FRC-11	Flame	Wipe	****	0.111	110 ug/ft²	<12	<110 ug/ft²	
1073267	FRC-12	Flame	Wipe	****	0.111	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. NYLAP 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 NY ELAP, AIHA, NVLAP, NIST, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

An AIHA (#100470), NVLAP (101143-0), and NY ELAP (#10920) Accredited Laboratory

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

BEST AVAILABLE COPY

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (MA)
Released by National Guard Bureau
Page 1386 of 3473

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS



LAB #100470

NY ELAP

10920

Client: National Guard Bureau Job Name: Framingham RC Chain Of Custody: 508632
 Address: 301-IH Old Bay Lane, Attn: NGB-AVN-SI, Job Location: 522 Concord Street, Framingham, MA Date Submitted: 8/24/2010
 Havre de Grace, Maryland 21078 Job Number: Not Provided Person Submitting: [Redacted]
 P.O. Number: W912K6-09-A-0003 Date Analyzed: 8/31/2010 Report Date: 9/1/2010
 Attention: [Redacted]

Summary of Atomic Absorption Analysis for Lead

Page 2 of 2

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

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

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

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

Air and Wipe results are not corrected for any blank results

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

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

See QC Summary for analytical results of quality control samples associated with these samples.
 NY ELAP accreditation applies only to paint chip, wipe, and soil samples.

Analyst: [Redacted]

Technical Manager: [Redacted]

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations, and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AIHA, NVLAP, NIST, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

An AIHA (#100470), NVLAP (101143-0), and NY ELAP (#10920) Accredited Laboratory

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

BEST AVAILABLE COPY

BEST AVAILABLE COPY


AMA Analytical Services, Inc.

Focused on Results www.amaulab.com

AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)

4475 Forbes Blvd. • Lanham, MD 20706

(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

 (Please Refer To This
Number For Inquiries)

508632

8102

Mailing/Billing Information:

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

 1. Job Name: Franchon RC
 2. Job Location: 522 Concord St Franchon MA
 3. Job #: PO. #. W812KS-09A-0003
 4. Contact Person: [Redacted]
 5. Submitted by: [Redacted]
Reporting Information (Results will be provided to you in accordance with your request):

AFTER HOURS (must be pre-scheduled) <input type="checkbox"/> Immediate Date Due: _____ <input type="checkbox"/> 24 Hours Time Due: _____ Comments: _____		NORMAL BUSINESS HOURS <input type="checkbox"/> Immediate <input type="checkbox"/> 1 Day <input type="checkbox"/> Next Day <input checked="" type="checkbox"/> 5 Day + <input type="checkbox"/> 2 Day Date Due: <u>8/31/10</u> <input type="checkbox"/> Results Required By Noon (Every Attempt Will Be Made to Accommodate)		REPORT TO: <input checked="" type="checkbox"/> With Report <input type="checkbox"/> Email <u>AFrom.Cam</u> <input type="checkbox"/> Fax: <u>pus.army.mil</u> <input type="checkbox"/> Web: <u>pus.army.mil</u>
--	--	---	--	---

Asbestos Analysis
PCM Air - Please Indicate Filter Type:
☐ NIOSH 7400 (QTY)
☐ Fiberglass (QTY)
TEM Air - Please Indicate Filter Type:
☐ AHERA (QTY)
☐ NIOSH 7402 (QTY)
☐ Other (specify) _____ (QTY)

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

MISC
☐ Vermiculite
☐ Asbestos Soil PLM (Qual) PLM (Qual) PLM/TEM (Qual) PLM/TEM (Qual)

TEM Bulk
☐ ELAP 198.4/Chertfield (QTY)
☐ NY State PLM/TEM (QTY)
☐ Residual Ash (QTY)

TEM Dust
☐ Qual. (pas/abs) Vacuum/Dust (QTY)
☐ Quan. (store) Vacuum D5155-95 (QTY)
☐ Quan. (store) Dust D6480-99 (QTY)

TEM Water
☐ Qual. (pas/abs) (QTY)
☐ ELAP 198.2/EPA 100.2 (QTY)
☐ EPA 100.1 (QTY)

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

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

Fungal Analysis

 Collection Apparatus for Spore Trap/Air Sample: _____
 Collection Media
☐ Spore-Trap (QTY) ☐ Surface Vacuum Dust (QTY)
☐ Surface Swab (QTY) ☐ Cultureable ID Genus (Media) (QTY)
☐ Surface Tape (QTY) ☐ Cultureable ID Species (Media) (QTY)
☐ Other (Specify) _____ (QTY)

CLIENT ID NUMBER	SAMPLE INFORMATION				ANALYSIS										MATRIX					CLIENT CONTACT		
	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME LITERS	WIPE AREA	TEAR	PCY	PLA	LEAD	MOLD	AIR	BULK	DUST	SWAB AND TOILET STUFF	SWAB TRAY	TAPE	SWAB	(LABORATORY STAFF ONLY)					
FRC-01	Range Floor	8/19/10		16in2				X							X		Date/Time:	Contact:	By:			
FRC-02	Range Rest							X							X							
FRC-03	Shower to Range							X							X							
FRC-04	Range Bench							X							X							
FRC-05	Range Top							X							X		Date/Time:	Contact:	By:			
FRC-06	Coleman Table							X							X							
FRC-07	R. 11 St. of Plo.-							X							X							
FRC-08	R. 11 St. of Plo. Ch							X							X							
FRC-09	Kitchen Stage							X							X		Date/Time:	Contact:	By:			
FRC-10	Armorer Rest							X							X							
FRC-11	523 Traps 99							X							X							
FRC-12	Recreation Deck							X							X							

**LABORATORY
STAFF ONLY:
(CUSTODY)**

 1. Date/Time RCVD: 8/24/10 @ 0200 Via: Hand Del. By: [Redacted]
 2. Date/Time Analyzed: 8/24/10 @ 0200 By: [Redacted]
 3. Results Reported To: _____ Via: _____ Date: _____/_____/____ Time: _____ Initials: _____
 4. Comments: _____

BEST AVAILABLE COPY

 FOIA Requested Record #J-15-0085 (MM)
 Released by National Guard Bureau
 Page 1368 of 3473

BEST AVAILABLE COPY

Appendix D

References

References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current Ed. <http://www.osha.gov/comp-links.html>
2. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998. http://www.dtic.mil/whs/directives/corres/pdf/i60551_081998/i60551p.pdf
3. Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 February 1990. http://www.usapa.army.mil/pdffiles/r11_34.pdf
4. AR 40-5, Medical Service, Preventive Medicine, 25 May 2007. http://www.usapa.army.mil/pdffiles/r40_5.pdf
5. AR 385-10, The Army Safety Program, 23 August 2007. http://www.usapa.army.mil/pdffiles/r385_10.pdf
6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Services, Hearing Conservation Program, 10 December 1998. http://www.usapa.army.mil/pdffiles/p40_501.pdf
7. AR 40-11, Preventive Medicine, 22 July 2005. http://www.army.mil/usapa/epubs/pdf/p40_11.pdf
8. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000. http://www.usapa.army.mil/pdffiles/p40_503.pdf
9. UFC 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003. http://www.wbdg.org/ccb/DOD/UFC/ufc_3_410_01fa.pdf
10. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current Ed.
11. Industrial Ventilation – A Manual of Recommended Practice for Design, ACGIH, current Ed.
12. American National Standards Institute (ANSI) Z358.1-2004, Emergency Eyewash and Shower Equipment.
13. American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 62.1-2007, Ventilation for Acceptable Indoor Air Quality.
14. RP-1-2004, Office Lighting, ANSI/IESNA.
15. RP-7-2001, Industrial Lighting, ANSI/IESNA, change 20 July 2004.
16. Unified Facilities Criteria, (UFC) 3-410-01FA, Heating, Ventilating, and Air Conditioning, 15 May 2003, including change 3, Aug. 03.



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
MASSACHUSETTS NATIONAL GUARD READINESS CENTER
522 CONCORD STREET
FRAMINGHAM, MA 01701**

June 17, 2013
PN: 39743799

Non-Responsive

Director, Industrial Hygiene Services

Non-Responsive

Project Manager

TABLE OF CONTENTS

Section	Page
1.0 SUMMARY	1
2.0 SUPPLY / TRAINING AREA.....	3
2.1 Operation Description.....	3
2.2 Chemical and Physical Agents Sampled	3
2.2.1 Carbon Dioxide.....	3
2.2.2 Carbon Monoxide	4
2.2.3 Relative Humidity	4
2.2.4 Temperature.....	4
2.2.5 Lighting.....	5
2.2.6 Lead	6
2.2.7 Asbestos.....	7
2.3 Ventilation System Evaluation	8
2.4 Noise Measurements.....	8
2.5 Personal Protective Equipment	8
3.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS.....	9
3.1 Confined Spaces	9
3.2 Hearing Conservation.....	9
3.3 Respiratory Protection	9
3.4 Hazard Communication	9
3.5 Personal Protective Equipment	9
3.6 Asbestos Operations and Maintenance Program	9
3.7 Safety	10
4.0 REFERENCES.....	11

APPENDICES

APPENDIX A	SHOP DRAWING
APPENDIX B	PERSONNEL LIST
APPENDIX C	ANALYTICAL RESULTS
APPENDIX D	PHOTOGRAPHIC LOG
APPENDIX E	RECOMMENDATIONS FOR SURFACE LEAD DUST IN ARMORIES

FINDINGS AND RECOMMENDATIONS
MASSACHUSETTS NATIONAL GUARD READINESS CENTER
522 CONCORD ST., FRAMINGHAM, MA

Findings	Recommendations	Risk Assessment Code (RAC)
Lighting		
On the day of the survey, the illuminance was inadequate in several locations tested. One light fixture was not operational.	Increase lighting in the work areas. While work is in progress, these areas must be lighted by at least the minimum lighting intensities (ANSI / IESNA RP-1-04).	RAC 4
Ergonomics		
Computer workstations in the Administrative Areas were observed with un-adjustable chairs, arm rests and keyboards	Ergonomic issues with regard to 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
Former Indoor Firing Range		
The former Indoor Firing Range has been posted as unsafe due to lead contamination; however the area is still accessed.	Materials removed from the firing range should be cleaned by trained individuals. (29 CFR 1910.1025 (h)(1)).	RAC 3
Lead		
Four of the 10 lead wipe samples indicated elevated lead levels.	Personnel trained in accordance with the OSHA Lead Standard should clean the areas where elevated lead dust levels were identified (OSHA 29 CFR 1910.1025(h)(1)).	RAC 3
Emergency Exits		
Emergency exit signs were not visible from all areas of the facility or illuminated.	Emergency exits should be properly illuminated (29 CFR 1910.37 (q)(6)).	RAC 3
Asbestos		
Presumed asbestos-containing floor tiles and associated mastic were observed throughout the facility; an Asbestos Operation and Maintenance Program was not available on-Site.	Employees were not informed of the hazards of the presumed ACM in the building and procedures were not put in place for managing such materials. (29 CFR 1910.1001 (j)).	RAC 4

Findings	Recommendations	Risk Assessment Code (RAC)
Fire Protection		
One fire extinguisher didn't have an inspection tag and wasn't properly secured to the wall. Emergency escape plans were not posted throughout the facility.	Portable fire extinguishers shall be provided, mounted and located so that they are readily available. (29 FR 1910.157 (c)(1) and 29 CFR 1910.38 (c)(2)).	RAC 3
PPE		
Hazard assessments have not been conducted to determine whether personal protective equipment is required.	The workplace shall be assessed to determine if hazards are present to determine the need for PPE. (29 CFR 1910.132 (d)(1)).	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 in Framingham, Massachusetts.

URS representative, Ms. [Non-Responsive], conducted the Industrial Hygiene Survey on March 27, 2013. The scope of work included an overall assessment of the facility as it relates to industrial hygiene and included a walkthrough of the facility, collection of photographs, and when required, measurements for illumination (light), area and personal air sampling, and noise mapping.

The Framingham Readiness Center is a one-story brick building, consisting of offices, classrooms, a supply area, gender separate bathrooms, storage rooms, a kitchen, break room, an Assembly Hall and a former Indoor Firing Range. A layout of the Readiness Center is provided in Appendix A.

GENERAL: The basement former Indoor Firing Range is posted as unsafe due to lead contamination; however the area is still accessed. One fire extinguisher didn't have an inspection tag and wasn't properly secured to the wall. Emergency escape plans were not posted throughout the facility. Emergency exit signs were not observed properly illuminated with directional arrows throughout the Center.

LIGHTING: Lighting in the Readiness Center was found to be inadequate in several of the areas measured. Areas noted within the report as having inadequate lighting require upgrading by either increasing the general lighting or through the use of task lighting. While work is in progress work areas must be lighted by at least the minimum light intensities.

LEAD: Four of ten wipe samples collected in the Readiness Center were found to contain lead in a concentration above the recommended limit set by the NGB, Region North IH Office.

ASBESTOS: On the day of the survey none of the bulk samples were determined to be asbestos-containing. Presumed asbestos-containing floor tiles and associated mastic were identified during this survey, however no Asbestos Operations and Maintenance Program was found on site. Until suspect materials have been sampled and determined not to contain asbestos, they must be presumed to be asbestos-containing and managed accordingly.

ERGONOMICS: Many of the work stations had ergonomic issues which require attention. Computer workstations were assessed during the walkthrough for ergonomic issues. The computer workstations in the facility did not meet the current Occupational Safety and Health Administration (OSHA) ergonomic recommendations. The chair armrests, keyboards, and monitors were not adjustable. All workstations in the facility should be adjusted and monitored. The ergonomic issues with regard to the workstations and chairs need to be corrected by fitting the workplace to the worker.

NOISE: Noise mapping in the Readiness Center determined that noise levels were below the OSHA permissible exposure limit (PEL) and the Department of Defense Instruction (DoDI) Hearing Conservation Standard (6055.12 3 December 2010) on the day of URS' site visit.

2.0 SUPPLY / TRAINING AREA

2.1 Operation Description

This Readiness Center is primarily used for weekend training drills and conducting administrative functions. The building includes offices, classrooms, a supply area, gender separate bathrooms, storage rooms, a kitchen, break room, an Assembly Hall and a former Indoor Firing Range.

The Readiness Center was found to be clean and organized at the time of URS' site visit.

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. Interior carbon dioxide concentrations were found to be between 516 and 613 parts per million (ppm). Carbon dioxide levels were measured using a direct-reading TSI Q-Trak (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 human respiration. 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 but is typically 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.

To minimize air quality complaints, the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) has proposed that the carbon dioxide concentration within an occupied workspace be maintained below 700 ppm above ambient outside levels. For example, on the day of the survey, the outside carbon dioxide level was measured at 444 ppm. Therefore ASHRAE (Standard 62.1-2010) would recommend that interior carbon dioxide concentrations be maintained at or below

1144 ppm. Using the ASHRAE guideline, the readings at the subject site were found to be below the suggested indoor to outdoor differential concentration.

2.2.2 Carbon Monoxide

The carbon monoxide concentration in the Readiness Center was measured at 0.0 ppm on the day of the survey. ASHRAE recommends that average carbon monoxide concentrations not exceed 9 ppm. Typical average concentrations found in commercial buildings range from 0 to 6 ppm. The measured levels were below the ASHRAE guideline for indoor environments. Carbon monoxide was measured using a TSI Q-Trak Plus (Model 8554).

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.

2.2.3 Relative Humidity

The average relative humidity within the Readiness Center measured with the Q-Trak Plus was 22.7%, which was within the guideline of less than 65% recommended by ASHRAE.

2.2.4 Temperature

Temperature should be maintained within the thermal comfort envelope suggested in ASHRAE Standard 55-2010. This standard on thermal environments specifies conditions in which 80% or more of building occupants should find the thermal environment acceptable. ASHRAE 55-2010 suggests temperatures of 68 to 75 degrees Fahrenheit (°F), during winter months, for people in typical seasonal clothing during light sedentary activity. For summer, the temperature should be in the range of 73 to 79 °F.

The average temperature inside the Readiness Center was, 68.8 °F, which was within the guideline of 68 to 75 °F recommended by ASHRAE for thermal comfort.

2.2.5 Lighting

Lighting in the Readiness Center was measured using a cal-Light 400 Light Meter. Table 2-1 below shows lighting measurements in foot candles (FC) and the recommended lighting requirements (Illuminating Engineering Society of North America (IESNA) RP-7-01).

Table 2-1
Lighting Measurements and Recommended Lighting Requirements

Location	Function	Measured Illuminance in Foot Candles (FC)	Recommended Minimum Illuminance in Foot Candles (FC)
Classroom/ Conference Room, table	Admin	48.9	50
Supply Office, desk- Non-Responsive	Admin	55.1	50
Supply Office, storage tables	Admin	29.2	50
Drill Office, computer work station, table	Admin	31.2	50
Drill Office, work station 7, desk	Admin	26.8	50
Hallway to basement	Hall	19.4	5
Office, desk- Non-Responsive	Admin	97.5	50
Office, desk- Non-Responsive	Admin	40.4	50
Office, desk- Non-Responsive	Admin	65.1	50
Office, desk- Non-Responsive	Admin	71.2	50
Office, desk- Office 04B	Admin	46.0	50
Office, desk	Admin	53.0	50
S3 Office, conference table	Admin	61.5	50
S4 Office, desk- Non-Responsive	Admin	50.5	50
S4 Office, desk- Non-Responsive	Admin	41.4	50
Library/ Classroom, computer tables, front	Admin	75.3	50
Library/ Classroom, computer tables, rear	Admin	47.3	50
Library/ Classroom, desk- Non-Responsive	Admin	52.5	50
Library/ Classroom, desk- Non-Responsive	Admin	42.3	50
Library/ Classroom, desk- Non-Responsive	Admin	10.1	50
Corridor, to Men's Latrines	Hall	61.3	5
1060 th TC OPS Office, front conference table	Admin	52.9	50
1060 th TC OPS Office, desk- Non-Responsive	Admin	54.2	50
1060 th TC OPS Office, desk- Non-Responsive	Admin	64.7	50
1060 th TC OPS Office, desk- Non-Responsive	Admin	20.3	50

Location	Function	Measured Illuminance in Foot Candles (FC)	Recommended Minimum Illuminance in Foot Candles (FC)
Detachment NCO Office, desk- Non-Response	Admin	47.6*	50
Supply Room, desk	Admin	30.3	50
Supply Room, desk	Admin	37.3	50

*Note- light fixture above desk not operational

On the day of the survey, the illuminance in the Readiness Center was determined to be inadequate in several of the office/administrative locations. One light fixture was not operational at the time of the survey.

2.2.6 Lead

Wipe testing for lead dust was conducted in the Readiness Center using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA Analytical Services, Inc. (AMA) is contained in Appendix C. Table 2-2 below shows the results of the lead wipe testing.

Table 2-2
Levels of Lead Dust Found in the Readiness Center

Sample Location	URS Sample Number	Area Wiped in Square Feet (ft ²)	Result in Micrograms/Square Foot (µg/ft ²)	Maximum Surface Contamination Level in Micrograms/Square Foot (µg/ft ²)
S1 Personnel Office, center, window sill	Framingham RC Wipe-01	0.108	<110	200
1060 th TC OPS Office, office floor- Westberg, behind door	Framingham RC Wipe-02	0.108	710	200
Library/ Classroom, floor, front of classroom, under screen	Framingham RC Wipe-03	0.108	<110	200
Conference/ Classroom, counter to kitchen	Framingham RC Wipe-04	0.108	<110	200

Sample Location	URS Sample Number	Area Wiped in Square Feet (ft ²)	Result in Micrograms/Square Foot (µg/ft ²)	Maximum Surface Contamination Level in Micrograms/Square Foot (µg/ft ²)
Latrine- Men's shower, corner to 1060 th NCO Office	Framingham RC Wipe-05	0.108	<110	200
Storage Room, floor at rolling door	Framingham RC Wipe-06	0.108	140	200
Supply Room, shelves by rolling door	Framingham RC Wipe-07	0.108	380	200
Drill Hall, floor, at door to Supply Room	Framingham RC Wipe-09A	0.108	<110	200
Former Indoor Firing Range, floor at door	Framingham RC Wipe-09B	0.108	500	200
Former Indoor Firing Range, floor, stairwell landing	Framingham RC Wipe-10	0.108	450	200

Four of the ten surface dust level measurements were found to contain lead at a level above the NGB recommended level, based on the OSHA clarification letter which states "as free as practicable" of lead contamination as specified under OSHA 29 CFR 1926.62.

No areas of peeling paint were observed on the day of this survey for sample collection.

2.2.7 Asbestos

URS collected a total of three samples from damaged suspect friable asbestos-containing material (ACM) 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 with dispersion staining (EPA-600/M4-82-020). Table 2-3 below shows the results of the asbestos sampling.

**Table 2-4
Asbestos Bulk Sample Results**

Sample Location	Sample Description	URS Sample Number	Result Total Asbestos
Drill Office, above computer work stations	Ceiling Plaster	Framingham RC PLM-01A- 01C	Non-detect

The EPA states that any material with an asbestos content greater than 1% must be treated as ACM (EPA, Title 40 CFR Part 763.87 (c)(2)). The analytical report from AMA is contained in Appendix C.

Presumed asbestos-containing floor tiles and associated mastic were identified during this survey. Until suspect materials have been sampled and determined not to contain asbestos, they must be presumed to be asbestos-containing and managed accordingly.

2.3 Ventilation System Evaluation

The facility, not designed for vehicle maintenance, contains a ventilation system that is limited to localized personal ventilation (i.e. room fans, window air conditioning units) within the majority of rooms, and main negative draw fans in the Assembly Hall.

2.4 Noise Measurements

Noise mapping was conducted throughout the Readiness Center. On the day of the survey, noise levels throughout the facility ranged from 56.1 decibels to 61.4 decibels. All noise mapping results were below the DoDI Hearing Conservation Standard (6055.12 3 December 2010) of 85 decibels, A scale (dBA)/8-hour day.

2.5 Personal Protective Equipment

Personal protective equipment was orderly and readily available to employees in the Readiness Center. Personal protective equipment included safety glasses, ear plugs and nitrile gloves.

3.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS

3.1 Confined Spaces

A written confined spaces program is not applicable to this facility.

3.2 Hearing Conservation

A written hearing conservation program was not identified on site. A review of normal site activities determined that no operations were identified that would warrant hearing protection. Based on area noise mapping results and a review of normal site operations, a hearing conservation program is not required for this site.

3.3 Respiratory Protection

A site-specific written program regarding Respiratory Protection was identified on site, however current fit tests, list of employees who have been issued respirators or who have been medically cleared for respirator use was not available during this survey. No operations were observed by URS that would require the use of respiratory protection.

3.4 Hazard Communication

A site-specific hazard communication program was identified on site.

Material safety data sheets, a site map, and list of full time personnel were readily available on the day of the survey.

3.5 Personal Protective Equipment

A written personal protective equipment program was identified on site. A hazard assessment should be conducted to determine whether personal protective equipment is required for activities typically undertaken at the Readiness Center.

3.6 Asbestos Operations and Maintenance Program

A written asbestos operations and maintenance program was not identified on site.

3.7 Safety

The basement former Indoor Firing Range was posted as unsafe due to lead contamination. According to interviews with site personnel, the former Indoor Firing Range is still used for storage and is accessed approximately once per month. Not all emergency exit signs were properly illuminated with directional arrows throughout the facility. Emergency escape plans were not observed posted throughout the facility. One fire extinguisher was observed without an inspection tag and not mounted to the wall.

4.0 REFERENCES

American Conference of Governmental Industrial Hygienists

Industrial Ventilation: A Manual of Recommended Practice, 27th Edition, 2010

Guidelines for the Assessment of Bio-aerosols in the Indoor Environment, 1989

American National Standards Institute

American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-04: American National Standard Practice for Office Lighting

ANSI/IESNA RP-7-01: Recommended Practice for Lighting Industrial Facilities

American Society of Heating, Refrigerating and Air-Conditioning Engineers

ANSI/ASHRAE Standard 62.1-2010: Ventilation for Acceptable Indoor Air Quality

ANSI/ASHRAE Standard 55-2010: Thermal Environmental Conditions for Human Occupancy.

Department of the Army

DA PAM 40-21, Ergonomics Program, 15 August 2003

Unified Facilities Criteria, Heating, Ventilating and Air Conditioning, 3-520-05, 14 April 2008

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

AR 385-10, The Army Safety Program, 23 August 2007; RAR Issue Date: 4 October 2011

National Guard Pamphlet 420-15

Department of Defense

DoDI 6055.12, Hearing Conservation, 3 December 2010

Creating the Ideal Computer Workstation: A Step-by-Step Guide, June 2000

National Institute for Occupational Safety and Health

Current Intelligence Bulletin 50: Carcinogenic Effects of Exposure to Diesel Exhaust, August 1988

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. Department of Housing and Urban Development

Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (1995, 1997, 2012)

U. S. Occupational Safety and Health Administration

Standard for General Industry: 29 CFR 1910

OSHA Clarification Letter – Clarification of “as free as practicable” of lead contamination under 29 CFR 1926.62, 13 January 2003.

APPENDIX A
SHOP DRAWING



MASSACHUSETTS ARMY NATIONAL GUARD
JOINT FORCE HEADQUARTERS
CONSTRUCTION AND FACILITIES MAINTENANCE OFFICE

FRAMINGHAM - 25B10

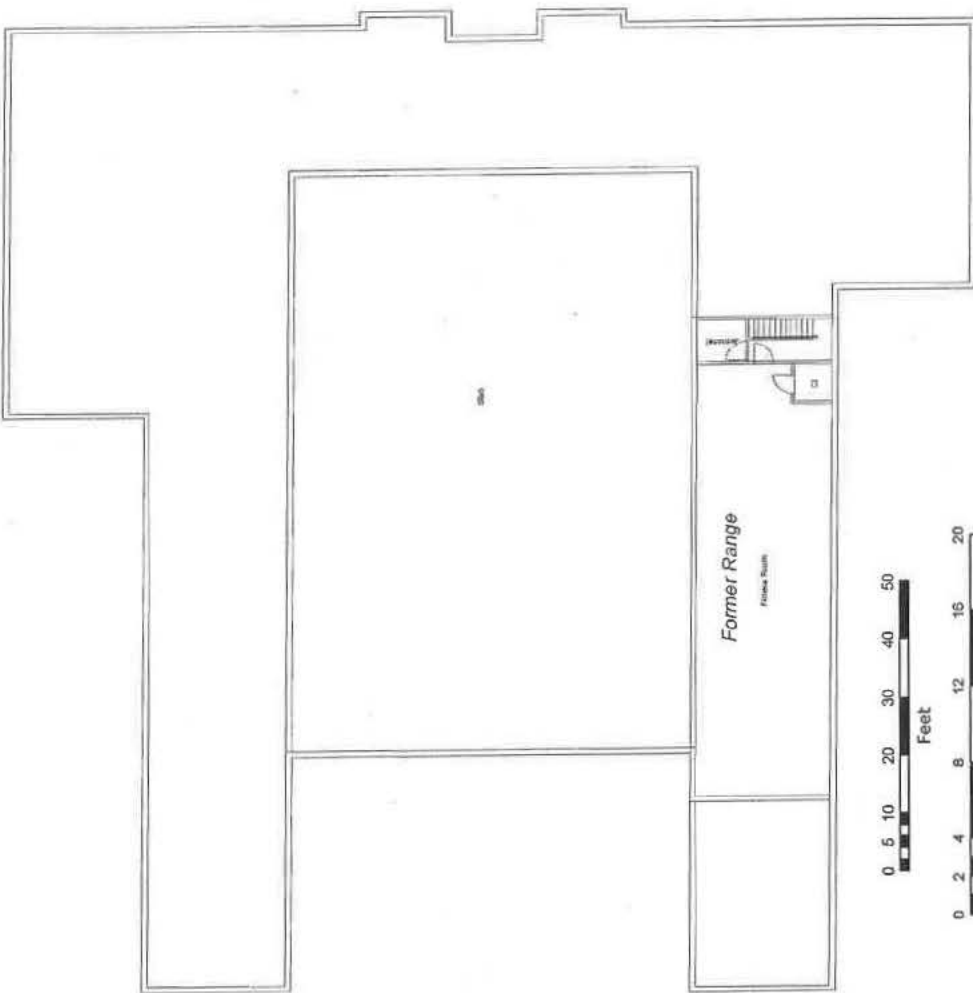
Basement Floor Plan



BEST AVAILABLE COPY



21 July 2010



0 5 10 20 30 40 50
Feet

0 2 4 8 12 15 20
Meters

Scale: 1:2500 (AS IS)

The information on this map is for planning purposes only.
This information is not adequate for legal boundary definition,
regulatory interpretation, or parcel-level analysis.





MASSACHUSETTS ARMY NATIONAL GUARD
JOINT FORCE HEADQUARTERS
CONSTRUCTION AND FACILITIES MAINTENANCE OFFICE

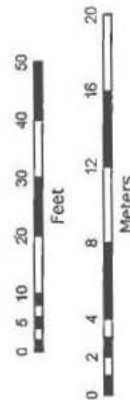
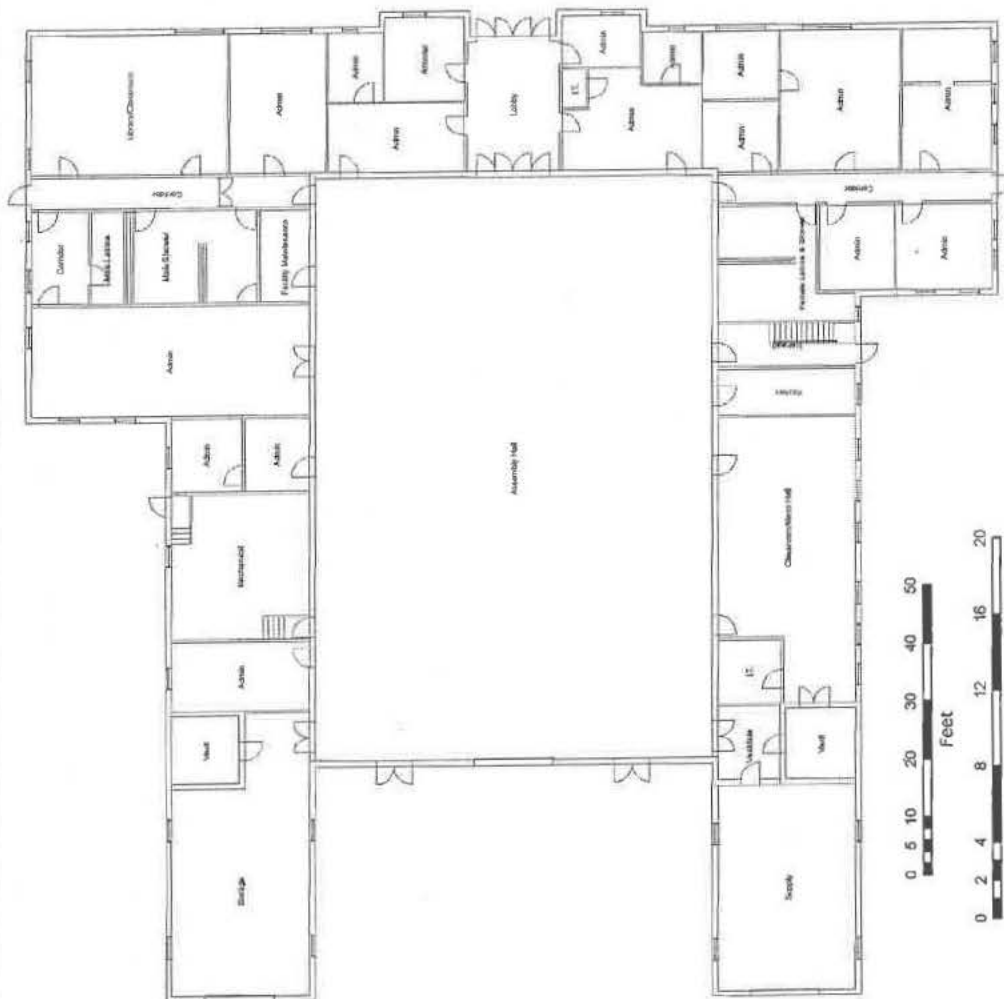
FRAMINGHAM - 25B10

First Floor Plan



Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY



Scale: 1:2500 (AS IS)

The information on this map is for planning purposes only.
This information is not adequate for legal boundary definition,
regulatory interpretation, or parcel-level analysis.



BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (MA)
Released by National Guard Bureau
Page 1410 of 3473

APPENDIX B
PERSONNEL LIST

151 RSG PHONE EXTENTIONS

LTC	Non-Responsive	7273
CW2		6849
MSG		7272
SSG		7291
SSG		7294
CPT		7263
SGM		7277
SFC		7279
SSG		7262
CPT		7827
MSG		7275
SFC		7258
SSG		7283
1SG		7834
SSG		7833
SSG		7832

APPENDIX C

ANALYTICAL RESULTS



CERTIFICATE OF ANALYSIS



Client:	National Guard Bureau	Job Name:	MA ARNG	Chain Of Custody:	515480
Address:	301-IH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	522 Concord Street, Framingham, MA	Date Submitted:	4/1/2013
		Job Number:	Framingham RC	Person Submitting:	Non-Responsive
		P.O. Number:	W912K6-09-A-0003	Date Analyzed:	4/5/2013
Attention:	Non-Responsive			Report Date:	4/5/2013

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 (ft ²)	Reporting Limit	Total ug	Final Result	Comments
13049850	Framingham RC-Wipe-01	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13049851	Framingham RC-Wipe-02	Flame	Wipe	****	0.108	110 ug/ft ²	76	710 ug/ft ²	
13049852	Framingham RC-Wipe-03	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13049853	Framingham RC-Wipe-04	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13049854	Framingham RC-Wipe-05	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13049855	Framingham RC-Wipe-06	Flame	Wipe	****	0.108	110 ug/ft ²	15	140 ug/ft ²	
13049856	Framingham RC-Wipe-07	Flame	Wipe	****	0.108	110 ug/ft ²	41	380 ug/ft ²	
13049857	Framingham RC-Wipe-08	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13049858	Framingham RC-Wipe-09	Flame	Wipe	****	0.108	110 ug/ft ²	53	500 ug/ft ²	
13049859	Framingham RC-Wipe-10	Flame	Wipe	****	0.108	110 ug/ft ²	48	450 ug/ft ²	
13049860	Framingham RC-Wipe-FB	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.



CERTIFICATE OF ANALYSIS



Client:	National Guard Bureau	Job Name:	MA ARNG	Chain Of Custody:	515480
Address:	301-IH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	522 Concord Street, Framingham, MA	Date Submitted:	4/1/2013
		Job Number:	Framingham RC	Person Submitting:	Non-Responsive
		P.O. Number:	W912K6-09-A-0003	Date Analyzed:	4/5/2013
Attention:	Non-Responsive				
				Report Date:	4/5/2013

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 (ft ²)	Reporting Limit	Total ug	Final Result	Comments
<p>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.</p>							See QC Summary for analytical results of quality control samples associated with these samples.		
<p>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.</p>							<div>Analyst: Non-Responsive</div> <div>Technical Manager: Non-Responsive</div>		

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

CHAIN OF CUSTODY

(Please Refer To This
 Number For Inquires)

515480**Mailing/Billing Information:**

- Client Name: National Guard Bureau
- Address 1: 301-1H Old Bay Lane
- Address 2: Attn: NGB-AVN-SI, State Military Reservation
- Address 3: Havre de Grace, Maryland 21078
- Phone #: (410) 942-0273 Fax #: (410) 942-0264

Submittal Information:

- Job Name: MA ARNG
- Job Location: 552 CONCORD STREET, FRAMINGHAM, MA
- Job #: FRAMINGHAM BC PO #: WD12K609 A 0002
- Contact Person: [Redacted]
- Submitted: [Redacted]

Reporting Information (Results will be provided within 5 business days unless otherwise noted.)

AFTER HOURS (must be pre-scheduled)		NORMAL BUSINESS HOURS		REPORT FOR	
<input type="checkbox"/> Immediate	Date Due: _____	<input type="checkbox"/> Immediate	<input type="checkbox"/> 3 Day	<input type="checkbox"/> Inc. with Report	<input type="checkbox"/> Non-Responsive
<input type="checkbox"/> 24 Hours	Time Due: _____	<input type="checkbox"/> Next Day	<input checked="" type="checkbox"/> 5 Day + Date Due: <u>4/8/13</u>	<input type="checkbox"/> Results Required By Noon (Every Attempt Will Be Made to Accommodate)	<input type="checkbox"/> Non-Responsive
Comments: _____				<input type="checkbox"/> Fax	<input type="checkbox"/> Non-Responsive
				<input type="checkbox"/> Ver	<input type="checkbox"/> Non-Responsive

Asbestos Analysis

PCM Air - Please Indicate Filter Type:

- ☐ NIOSH 7400 (QTY) _____
- ☐ Fiberglass (QTY) _____

TEM Air - Please Indicate Filter Type:

- ☐ AHERA (QTY) _____
- ☐ NIOSH 7402 (QTY) _____
- ☐ Other (specify) _____ (QTY) _____

PLM Bulk

- ☒ EPA 600 - Visual Estimate 2 (QTY) _____
- ☐ EPA Point Count (QTY) _____
- ☐ NY State Friable 198.1 (QTY) _____
- ☐ Grav. Reduction ELAP 198.6 (QTY) _____
- ☐ Other (specify) _____ (QTY) _____

MISC

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

TEM Bulk

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

TEM Dust

- ☐ Qual. (pres/abs) Vacuum/Dust (QTY) _____
- ☐ Quant. (s/area) Vacuum DS755-95 (QTY) _____
- ☐ Quant. (s/area) Dust D6480-99 (QTY) _____

TEM Water

- ☐ Qual. (pres/abs) (QTY) _____
- ☐ ELAP 198.2/EPA 100.2 (QTY) _____
- ☐ EPA 100.1 (QTY) _____

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

Paint Analysis

- ☐ Pb Paint Chip (QTY) _____
- ☒ Pb Dust Wipe (wipe type 4063 F, 11 (QTY) _____)
- ☐ Pb Air (QTY) _____
- ☐ Pb Soil/Solid (QTY) _____
- ☐ Pb TCLP (QTY) _____
- ☐ Drinking Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY) _____
- ☐ Waste Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY) _____
- ☐ Pb Furnace (Media _____) (QTY) _____

Spore Analysis

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

SAMPLE INFORMATION

CLIENT ID NUMBER	SAMPLE LOCATION IDENTIFICATION	DATE	VOLUME (LITERS)	WIPER AREA	TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	WATER AND COOL	SPORE TRAP	TAPE	SWAB	CLIENT CONTACT (LABORATORY STAFF ONLY)
FRAMINGHAM BC Wipe 01	10/11/11	3/3/13		100													Date/Time: _____ Contact: _____ By: _____
FRAMINGHAM BC Wipe 02																	
FRAMINGHAM BC Wipe 03																	
FRAMINGHAM BC Wipe 04																	
FRAMINGHAM BC Wipe 05																	
FRAMINGHAM BC Wipe 06																	
FRAMINGHAM BC Wipe 07																	
FRAMINGHAM BC Wipe 08																	
FRAMINGHAM BC Wipe 09																	
FRAMINGHAM BC Wipe 10																	
FRAMINGHAM BC Wipe 11																	
FRAMINGHAM BC Wipe 12																	
FRAMINGHAM BC Wipe 13																	
FRAMINGHAM BC Wipe 14																	
FRAMINGHAM BC Wipe 15																	
FRAMINGHAM BC Wipe 16																	
FRAMINGHAM BC Wipe 17																	
FRAMINGHAM BC Wipe 18																	
FRAMINGHAM BC Wipe 19																	
FRAMINGHAM BC Wipe 20																	
FRAMINGHAM BC Wipe 21																	
FRAMINGHAM BC Wipe 22																	
FRAMINGHAM BC Wipe 23																	
FRAMINGHAM BC Wipe 24																	
FRAMINGHAM BC Wipe 25																	
FRAMINGHAM BC Wipe 26																	
FRAMINGHAM BC Wipe 27																	
FRAMINGHAM BC Wipe 28																	
FRAMINGHAM BC Wipe 29																	
FRAMINGHAM BC Wipe 30																	
FRAMINGHAM BC Wipe 31																	
FRAMINGHAM BC Wipe 32																	
FRAMINGHAM BC Wipe 33																	
FRAMINGHAM BC Wipe 34																	
FRAMINGHAM BC Wipe 35																	
FRAMINGHAM BC Wipe 36																	
FRAMINGHAM BC Wipe 37																	
FRAMINGHAM BC Wipe 38																	
FRAMINGHAM BC Wipe 39																	
FRAMINGHAM BC Wipe 40																	
FRAMINGHAM BC Wipe 41																	
FRAMINGHAM BC Wipe 42																	
FRAMINGHAM BC Wipe 43																	
FRAMINGHAM BC Wipe 44																	
FRAMINGHAM BC Wipe 45																	
FRAMINGHAM BC Wipe 46																	
FRAMINGHAM BC Wipe 47																	
FRAMINGHAM BC Wipe 48																	
FRAMINGHAM BC Wipe 49																	
FRAMINGHAM BC Wipe 50																	
FRAMINGHAM BC Wipe 51																	
FRAMINGHAM BC Wipe 52																	
FRAMINGHAM BC Wipe 53																	
FRAMINGHAM BC Wipe 54																	
FRAMINGHAM BC Wipe 55																	
FRAMINGHAM BC Wipe 56																	
FRAMINGHAM BC Wipe 57																	
FRAMINGHAM BC Wipe 58																	
FRAMINGHAM BC Wipe 59																	
FRAMINGHAM BC Wipe 60																	
FRAMINGHAM BC Wipe 61																	
FRAMINGHAM BC Wipe 62																	
FRAMINGHAM BC Wipe 63																	
FRAMINGHAM BC Wipe 64																	
FRAMINGHAM BC Wipe 65																	
FRAMINGHAM BC Wipe 66																	
FRAMINGHAM BC Wipe 67																	
FRAMINGHAM BC Wipe 68																	
FRAMINGHAM BC Wipe 69																	
FRAMINGHAM BC Wipe 70																	
FRAMINGHAM BC Wipe 71																	
FRAMINGHAM BC Wipe 72																	
FRAMINGHAM BC Wipe 73																	
FRAMINGHAM BC Wipe 74																	
FRAMINGHAM BC Wipe 75																	
FRAMINGHAM BC Wipe 76																	
FRAMINGHAM BC Wipe 77																	
FRAMINGHAM BC Wipe 78																	
FRAMINGHAM BC Wipe 79																	
FRAMINGHAM BC Wipe 80																	
FRAMINGHAM BC Wipe 81																	
FRAMINGHAM BC Wipe 82																	
FRAMINGHAM BC Wipe 83																	
FRAMINGHAM BC Wipe 84																	
FRAMINGHAM BC Wipe 85																	
FRAMINGHAM BC Wipe 86																	
FRAMINGHAM BC Wipe 87																	
FRAMINGHAM BC Wipe 88																	
FRAMINGHAM BC Wipe 89																	
FRAMINGHAM BC Wipe 90																	
FRAMINGHAM BC Wipe 91																	
FRAMINGHAM BC Wipe 92																	
FRAMINGHAM BC Wipe 93																	
FRAMINGHAM BC Wipe 94																	
FRAMINGHAM BC Wipe 95																	
FRAMINGHAM BC Wipe 96																	
FRAMINGHAM BC Wipe 97																	
FRAMINGHAM BC Wipe 98																	
FRAMINGHAM BC Wipe 99																	
FRAMINGHAM BC Wipe 100																	

LABORATORY STAFF ONLY:

- Date/Time RCVD: 4/1/13 Via: FEDEV By (Print): _____
- Date/Time Analyzed: _____ @ _____ By (Print): _____
- Results Reported To: _____
- Comments: 2940



CERTIFICATE OF ANALYSIS

Client:	National Guard Bureau	Job Name:	MA ARNG	Chain Of Custody:	515480
Address:	301-JH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	522 Concord Street, Framingham, MA	Date Analyzed:	4/5/2013
		Job Number:	Framingham RC	Person Submitting:	Non-Responsive
		P.O. Number:	W912K6-09-A-0003		

Attention: Non-Responsive

Page 1 of 2

Summary of Polarized Light Microscopy

AMA Sample Number	Client Sample #	Total Asbestos	Chrysotile Percent	Amosite Percent	Crocidolite Percent	Other Asbestos Percent	Mineral Wool Percent	Fiberglass Percent	Organic Percent	Synthetic Percent	Other Percent	Particulate Percent	Sample Type	Sample Color	Homogeneity	Analyst ID	Comments
13049861	Framingham RC-PLM-01A	NAD	--	--	--	--	--	TR	--	--	--	100	CP	Gray	Homogeneous	SW	
13049862	Framingham RC-PLM-01B	NAD	--	--	--	--	--	TR	--	--	--	100	CP	Gray	Homogeneous	SW	
13049863	Framingham RC-PLM-01C	NAD	--	--	--	--	--	TR	--	--	--	100	CP	Gray	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.



CERTIFICATE OF ANALYSIS

Client:	National Guard Bureau	Job Name:	MA ARNG	Chain Of Custody:	515480
Address:	301-IH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	522 Concord Street, Framingham, MA	Date Analyzed:	4/5/2013
		Job Number:	Framingham RC	Person Submitting:	Non-Responsive
		P.O. Number:	W912K6-09-A-0003		

Attention: Non-Responsive

Page 2 of 2

Summary of Polarized Light Microscopy

AMA Sample Number	Client Sample #	Total Asbestos	Chrysotile Percent	Amosite Percent	Crocidolite Percent	Other Asbestos Percent	Mineral Wool Percent	Fiberglass Percent	Organic Percent	Synthetic Percent	Other Percent	Particulate Percent	Sample Type	Sample Color	Homogeneity	Analyst ID	Comments
-------------------	-----------------	----------------	--------------------	-----------------	---------------------	------------------------	----------------------	--------------------	-----------------	-------------------	---------------	---------------------	-------------	--------------	-------------	------------	----------

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

Uncertainty: For samples containing asbestos in range of 1-10% the CV is 0.43, 11-35% CV=0.55, >35 CV=0.23

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

Technical Director

Non-Responsive

Analyst(s)

Non-Responsive

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.



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

CHAIN OF CUSTODY

(Please Refer To This
Number For Inquiries)

515480

Mailing/Billing Information:

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

Submittal Information:

- Job Name: MA ARNG
- Job Location: 532 Concord Street, Framingham, MA
- Job #: Framingham RE
- Contact Person: Non-Responsive
- Submitted By: Non-Responsive

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

AFTER HOURS (must be pre-scheduled) <input type="checkbox"/> Immediate Date Due: _____ <input type="checkbox"/> 24 Hours Time Due: _____ Comments: _____		NORMAL BUSINESS HOURS <input type="checkbox"/> Immediate <input type="checkbox"/> 3 Day <input type="checkbox"/> Next Day <input checked="" type="checkbox"/> 5 Day + <input type="checkbox"/> 2 Day Date Due: <u>4/8/13</u>		<input type="checkbox"/> Results Required By Noon (Every Attempt Will Be Made to Accommodate)	
--	--	--	--	--	--

Asbestos Analysis

- PCM Air** - Please Indicate Filter Type:
☐ NIOSH 7400 (QTY) _____
☐ Fiberglass (QTY) _____
- TEM Air** - Please Indicate Filter Type:
☐ AHERA (QTY) _____
☐ NIOSH 7402 (QTY) _____
☐ Other (specify) _____ (QTY) _____
- PLM Bulk**
☒ EPA 600 - Visual Estimate 2 (QTY) _____
☐ EPA Point Count (QTY) _____
☐ NY State Friable 198.1 (QTY) _____
☐ Grav. Reduction ELAP 198.6 (QTY) _____
☐ Other (specify) _____ (QTY) _____

MISC

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

TEM Bulk

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

TEM Dust

- ☐ Qual. (pres/abs) Vacuum/Dust (QTY) _____
☐ Quant. (s/area) Vacuum D5755-95 (QTY) _____
☐ Quant. (s/area) Dust D6486-99 (QTY) _____

TEM Water

- ☐ Qual. (pres/abs) (QTY) _____
☐ ELAP 198.2/EPA 100.2 (QTY) _____
☐ EPA 100.1 (QTY) _____

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

Media Analysis

- ☐ Pb Paint Chip (QTY) _____
☒ Pb Dust Wipe (wipe type Hand) 11 (QTY) _____
☐ Pb Air (QTY) _____
☐ Pb Soil/Solid (QTY) _____
☐ Pb TCLP (QTY) _____
☐ Drinking Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY) _____
☐ Waste Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY) _____
☐ Pb Furnace (Media) (QTY) _____

Spore Analysis

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

SAMPLE INFORMATION

CLIENT ID NUMBER	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPER AREA	TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	WATER	SPORE TRAP	TAPE	SWAB	CLIENT CONTACT (LABORATORY STAFF ONLY)
Framingham PC Wipe 01	MAINT	3/27/13	100	100													Date/Time: _____ Contact: _____ By: _____
Framingham PC Wipe 02																	
Framingham PC Wipe 03																	
Framingham PC Wipe 04																	
Framingham PC Wipe 05																	
Framingham PC Wipe 06	MAINT																Date/Time: _____ Contact: _____ By: _____
Framingham PC Wipe 07																	
Framingham PC Wipe 08																	
Framingham PC Wipe 09																	
Framingham PC Wipe 10																	
Framingham PC Wipe 11	FIELD																Date/Time: _____ Contact: _____ By: _____
Framingham PC Wipe 12	ceiling plaster																

LABORATORY
STAFF ONLY:

- Date/Time RCVD: 4/1/13 BY: FS
- Date/Time Analyzed: 4/8/13 @ _____ By: Non-Responsive
- Results Reported To: Non-Responsive
- Comments: 2940 0954 8411


Non-Responsive

APPENDIX D
PHOTOGRAPHIC LOG



PHOTOGRAPHIC LOG

Client Name: MA ARNG- Framingham RC		Site Location: 522 Concord St., Framingham, MA	Project No. 39743799
Photo No. 1	Date: 3/27/13		
Description: Door to former Indoor Firing Range, posted as lead-contaminated.			

Photo No. 2	Date: 3/27/13	
Description: Entry ways with no emergency escape plans and no visible emergency exit signs.		



PHOTOGRAPHIC LOG



Client Name: MA ARNG- Framingham RC		Site Location: 522 Concord St., Framingham, MA	Project No. 39743799
Photo No. 3	Date: 3/27/13		
Description: Fire extinguisher with no inspection tag and not mounted to the wall.			

Photo No. 4	Date: 3/27/13	
Description: Typical office setting and ergonomics.		

APPENDIX E

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 ($\mu\text{g}/\text{ft}^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.
 - a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors ($40 \mu\text{g}/\text{ft}^2$) and windowsills ($250 \mu\text{g}/\text{ft}^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.
 - b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.
 - c. OSHA used to cite a level of $200 \mu\text{g}/\text{ft}^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.
 - d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that $200 \mu\text{g}/\text{ft}^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.
 - e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no

correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:
 - a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under ($40 \mu\text{g}/\text{ft}^2$ on floors and $250 \mu\text{g}/\text{ft}^2$ 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 milligrams per cubic meter (mg/m^3) averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

Prepared For:

National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
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
GARDNER ARMORY
323 WEST BROADWAY
GARDNER, MASSACHUSETTS**

April 2006
PN: 39741508

Non-Responsive

Office Manager

Non-Responsive

Project Manager

TABLE OF CONTENTS

Section	Page
1.0 SUMMARY	1
2.0 ADMINISTRATIVE AREA	2
2.1 OPERATION DESCRIPTION	2
2.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED	2
2.2.1 Relative Humidity	2
2.2.2 Carbon Dioxide	2
2.2.3 Carbon Monoxide	3
2.2.4 Lighting	3
2.2.5 Lead	4
2.3 VENTILATION SYSTEM EVALUATION	4
2.4 NOISE MEASUREMENTS	4
2.5 PERSONAL PROTECTIVE EQUIPMENT	4
2.6 INTERPRETATION OF RESULTS	4
3.0 FORMER FIRING RANGE	6
3.1 OPERATION DESCRIPTION	6
3.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED	6
3.2.1 Lead	6
3.3 VENTILATION SYSTEM EVALUATION	7
3.4 NOISE MEASUREMENTS	7
3.5 PERSONAL PROTECTIVE EQUIPMENT	7
3.6 INTERPRETATION OF RESULTS	7
4.0 DRILL HALL	8
4.1 OPERATION DESCRIPTION	8
4.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED	8
4.2.1 Lighting	8
4.2.2 Lead	8
4.2.3 Asbestos	9
4.3 VENTILATION SYSTEM EVALUATION	10
4.4 NOISE MEASUREMENTS	10
4.5 PERSONAL PROTECTIVE EQUIPMENT	10
4.6 INTERPRETATION OF RESULTS	10
5.0 BOILER ROOM	12
5.1 OPERATION DESCRIPTION	12
5.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED	12
5.2.1 Asbestos	12
5.3 VENTILATION SYSTEM EVALUATION	12
5.4 NOISE MEASUREMENTS	13
5.5 PERSONAL PROTECTIVE EQUIPMENT	13
5.6 INTERPRETATION OF RESULTS	13
6.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS	14
6.1 CONFINED SPACES	14
6.2 HEARING CONSERVATION	14

TABLE OF CONENTS (Cont)

6.3	RESPIRATORY PROTECTION	14
6.4	HAZARD COMMUNICATION	14
6.5	PERSONAL PROTECTIVE EQUIPMENT	14
7.0	REFERENCES	15

APPENDICES

Appendix A	ARMORY DRAWING
Appendix B	PERSONNEL LIST
Appendix C	HAZARDOUS MATERIALS LIST
Appendix D	ANALYTICAL RESULTS
Appendix E	TRAINING CERTIFICATES
Appendix F	PHOTOGRAPHS
Appendix G	RECOMMENDATIONS FOR SURFACE LEAD DUST IN ARMORIES
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)

FINDINGS AND RECOMMENDATIONS

Findings	Recommendation	Risk Assessment Code
Lighting		
On the day of the survey, the illuminance in office #1 was inadequate.	Increase lighting through task lighting in office #1. 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
Lead		
Lead was detected in wipe samples collected from the firing range in amounts greater than 200 µg/ft ²	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(h)(1))	RAC 4
Peeling paint was observed in the administrative area but was inaccessible to sampling and must be presumed to be lead-based.	Personnel trained in accordance with the OSHA Lead Standard should stabilize peeling lead paint (OSHA 29 CFR 1910.1025 (h)(1))	RAC 4
Asbestos		
Damaged asbestos containing pipe insulation is located in the northwest corner of the drill hall.	Repair or remove 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
Damaged asbestos containing boiler insulation is located in the boiler room.	Repair or remove asbestos-containing boiler 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 maintenance plan to manage asbestos-containing materials (OSHA 29 CFR 1910.1001(j))	RAC 3
Hazard Communication		
No site specific hazard communication plan available.	Develop a site specific hazard communication plan to manage hazardous materials (OSHA 29 CFR 1910.1200(e))	RAC 4

FINDINGS AND RECOMMENDATIONS (Continued)

Findings	Recommendation	Risk Assessment Code
Mold		
Water damage was observed in the weight room and the drill hall. Mold growth could become an issue if left unattended.	Determine and repair source of water, Replace water damaged building materials and implement a moisture management program to provide direction for future water incursions (Best management practice)	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 Armory located at 323 West Broadway in Gardner, Massachusetts 01440. 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 February 12, 2005, Mr. **Non-Responsive** an industrial hygienist with URS, conducted a site visit to the Armory in Gardner, Massachusetts. 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. Mr. **Non-Responsive** of the Commonwealth of Massachusetts National Guard 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

The administrative area includes offices, storage areas, a kitchen, classroom and latrines. Asbestos-containing materials in the form of floor tile and pipe insulation were in good condition. URS' point of contact expressed no concerns regarding indoor air quality, ergonomics or lighting with regard to this building area.

Significant water damage was observed on the ceiling in the weight room (Photo # 0031) which may indicate the potential for mold growth.

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 averaged 24.0%. This average reading was below the recommended maximum of 65% 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 averaged of 455 parts per million (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. For instance, given a background level of 350 ppm on the day of the survey, the ASHRAE limit would be 1050 ppm.

2.2.3 Carbon Monoxide

Carbon monoxide levels were also measured in the Readiness Center. Carbon monoxide concentrations remained at 0.0 parts per million (ppm) throughout the survey period. This measured level was 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 2-1
Lighting Measurements and Recommended Lighting Requirements

Location	Function	Measured Illuminance (foot candles)	Recommended Illuminance (foot candles)
Classroom	Administrative Duties	58	50
Office #1	Administrative Duties	38	50

On the day of the survey the illuminance in office #1 was inadequate.

2.2.5 Lead

Peeling paint was observed on the water-damaged plaster in the weight room. This paint was inaccessible and could not be sampled. Given the building construction date (1956) this paint must be presumed to be lead-based.

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

GENERAL: In general, the administrative area was neat and orderly. The fire exits and extinguishers were marked and easily accessible.

LIGHTING: On the day of the survey, the illuminance in office #1 was inadequate. URS recommends increasing lighting in several of the administrative areas. While work is in progress the administrative area must be lighted by at least the minimum light intensities.

LEAD: Peeling paint in the weight room must be presumed lead-based given a pre-1978 construction date for the building. Once the source of the water incursion is corrected, this paint should be stabilized by a technician trained in accordance with OSHA's lead standard (29 CFR1910.1025). Alternately, the paint could be sampled and analyzed for lead content. If the paint is determined not to be lead-based then a general maintenance worker can stabilize the peeling paint.

MOLD: The water stains on the ceilings could lead to mold problems if not addressed. URS recommends that the source of the water be identified, repaired and that water damaged building materials be replaced.

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 (Photos # 0023, 0024, and 0025).

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 Former Firing Range

Sample Location	URS Sample Number	Area Wiped (ft ²)	Result (µg/ft ²)	Maximum Surface Contamination Level (µg/ft ²)
Former Firing Range-Bullet Trap	0212B-04	1.000	500	200
Former Firing Range-North- Shelf	0212B-04	1.000	110	200
Blank	0212B-09	N/A	<12	200

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
Level of Lead Found in the Air

Sample Location	URS Sample Number	Air Volume (L)	Result (µg/m ³)	OSHA's PEL (µg/m ³)
Former Firing Range	0212B-01	293	<10	50.0
Blank	0130-LA03	0	<3.0	50.0

On the day of the survey, the airborne lead dust level 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 $50.0 \mu\text{g}/\text{m}^3$ 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

LEAD: The dust wipe sample collected from the bullet trap of the former firing range contained lead greater than the maximum limit of 200 micrograms per square foot set by the National Guard Bureau Region North Industrial Hygiene Office (See Appendix G). URS recommends that the former firing range be cleaned by a technician trained in accordance with OSHA's lead standard (29 CFR 1910.1025). The NGB Region North Industrial Hygiene Office has prepared a memorandum titled "Recommendations for Surface Lead Dust in Armories" which is provided in Appendix G. Appendix H contains guidelines for the cleanup and rehabilitation of indoor firing ranges.

4.0 DRILL HALL

4.1 Operation Description

The drill hall is used for assembling personnel and storing equipment. The walls are constructed of cinder-block with a wood parquet floor. Warping due to water incursion was observed on the wood floor (Photo # 0032). Visible mold was not observed in the water damaged area.

4.2 Chemical and Physical Agents Sampled

4.2.1 Lighting

Lighting in the drill hall was measured using a Sper Scientific Ltd. Light Meter (Model 840020C). Table 4-1 below shows lighting measurements and the recommended lighting requirement (ANSI / IESNA RP -1-04 American National Standard Practice for Office Lighting)

Table 4-1
Lighting Measurements and Recommended Lighting Requirements

Location	Function	Measured Illuminance (foot candles)	Recommended Illuminance (foot candles)
Drill Hall – Center	Assembly, Storage	47	30

On the day of the survey the illuminance in the drill hall was adequate.

4.2.2 Lead

Wipe testing for lead dust was conducted in the drill hall using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA is contained in Appendix D. Table 4-2 below shows the results of the lead sampling.

Table 4-2
Levels of Lead Dust Found in the Drill Hall

Sample Location	URS Sample Number	Area Wiped (ft ²)	Result (µg/ft ²)	Maximum Safe Surface Contamination Level (µg/ft ²)
Drill Hall – North Center – Floor	0212B-06	1.000	110	200
Drill Hall – Center - Floor	0212B-07	1.000	13	200
Drill Hall – South -Floor	0212B-08	1.000	14	200
Blank	0212B-09	N/A	<12	200

One air sample for lead dust was collected in the drill hall. Table 4-3 below shows the result of this air sample.

Table 4-3
Level of Lead Found in the Air

Sample Location	URS Sample Number	Air Volume (L)	Result (µg/m ³)	OSHA's PEL(µg/m ³)
Drill Hall	0212B-02	290	<10	50.0
Blank	0212B-03	0	<3.0	50.0

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 µg/m³ averaged over an 8-hour day.

4.2.3 Asbestos

Bulk samples were collected from damaged suspect asbestos-containing pipe insulation in the northwest corner of the drill hall 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 Sample Number	Total Asbestos (%)
Drill Hall Northwest Corner	Pipe insulation	0212B-20A	30
Drill Hall Northwest Corner	Pipe insulation	0212B-20B	5
Drill Hall Northwest Corner	Pipe insulation	0212B-20C	20

NAD = "No Asbestos Detected"

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.

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

LIGHTING: On the day of the survey the illuminance in the drill hall was adequate.

LEAD: Analysis of dust wipe samples collected in the drill hall indicated that lead levels are below the allowable limit of 200 micrograms per square foot set by the National Guard Bureau Region North Industrial Hygiene Office (See Appendix G).

ASBESTOS: Approximately ten linear feet of damaged asbestos-containing pipe insulation is located in the northwest corner of the drill hall. URS recommends that the material is either removed or repaired by a Commonwealth of Massachusetts licensed Asbestos Abatement Contractor.

5.0 BOILER ROOM

5.1 Operation Description

The boiler room is a mechanical space constructed of cinder block walls with a concrete floor, containing a boiler and associated piping.

5.2 Chemical and Physical Agents Sampled

5.2.1 Asbestos

Bulk samples were collected from damaged suspect asbestos-containing boiler insulation (Photo 0030) 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 5-2 below presents the results of the sample analysis.

**Table 5-2
Sample Results of Suspect ACM**

Sample Location	Material Sampled	URS Sample Number	Total Asbestos (%)
Boiler Room	Boiler Insulation	0212B-19A	10
Boiler Room	Boiler Insulation	0212B-19B	20
Boiler Room	Boiler Insulation	0212B-19C	25

NAD = "No Asbestos Detected"

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.

Non-Responsive asbestos inspector training certificate is provided in Appendix E.

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

ASBESTOS: Samples of the boiler insulation where found to contain asbestos in a concentration greater than one percent. Approximately thirty square feet of boiler insulation has become significantly damaged (Photo # 0030). It is recommended that the insulation be removed or repaired by a Commonwealth of Massachusetts licensed Asbestos Abatement Contractor.

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

No safety program was found regarding hearing conservation. No training records were found on site. A hearing conservation program is not required for this site.

6.3 Respiratory Protection

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

6.4 Hazard Communication

No program was found regarding hazard communication. No training records were found on site. A site-specific hazard communication program is required for this site and should include communication of hazards to employees, management of material safety data sheets, chemical labeling and spill protection.

6.5 Personal Protective Equipment

No safety program was found regarding personal protective equipment. 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 62.1-2004: 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

April 10, 2006

PN: 39741508 : J1_Army National Guard\39741508 - Gardner, M\Reports\Mass Gardner Army - Final.doc

URS

15

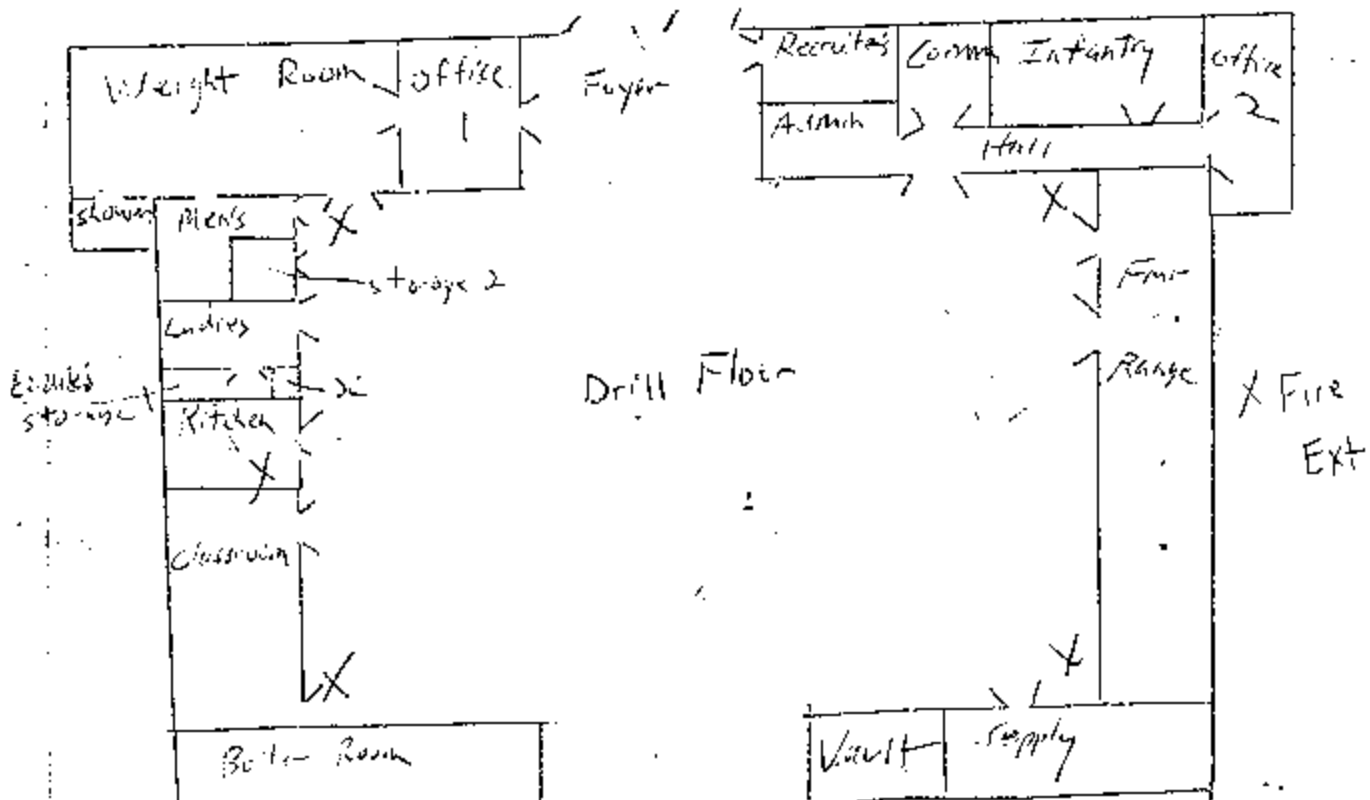
APPENDIX A
ARMORY DRAWING

EVACUATION PLAN

Company B(2)
 1st Battalion 181st Infantry
 Massachusetts Army National Guard
 323 West Broadway, Gardner, MA 01440-3105

1. The Armory Evacuation Plan is designed to facilitate the evacuation of troops from the Armory, West Broadway, Gardner, Massachusetts, in the event of an enemy attack, fire, or other disorder.
2. This plan will be posted in all rooms of the Armory. Unit commanders will, at least once a year, hold an "Evacuation Drill" to insure that all members are familiar with the proper exits and designated assembly areas.
3. This plan will be reviewed by the Safety Officer at least once during each quarter, or more often if needed, to insure its being kept up to date.
4. After each evacuation of the Armory, Unit Commanders will immediately have a roll call to insure that all troops have been evacuated. The building will not be re-entered until all safety factors have been taken into consideration. Fire fighting must be under control of authorized personnel of the unit or by unit officers. Periodic checks will be made to insure that all company personnel are familiar with the locations of the fire extinguishers. The local FIRE DEPARTMENT PHONE NUMBER IS: 911

ARMORY FRONT WEST BROADWAY/RT 2A



APPENDIX B
PERSONNEL LIST

BEST AVAILABLE COPY

NOT PROVIDED

APPENDIX C
HAZARDOUS MATERIALS LIST

QUALITY

Storage Location:

[illegible]

Page of

- [7] Process Code §98a Chapter 77

APPENDIX D
ANALYTICAL RESULTS

CERTIFICATE OF ANALYSIS

Client: National Guard Bureau
Address: 301-JH Old Bay Lane, Attn: NGB-AVN-SI,
State Military Reservation
Havre de Grace, Maryland 21078
Job Name: Amory
Job Location: Gardner, MA
Job Number: Not Provided
P.O. Number: Not Provided
Chain Of Custody: 128493
Date Analyzed: 06/16/2004
Person Submitting: [Redacted]
Report Date: 16-Jun-04

Page 1 of 1

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Final Result	Comments
0451565	021B-04	Flame	Wipe	***	1,000	12.00 ug/ft²	500 ug/ft²	
0451566	021B-05	Flame	Wipe	***	1,000	12.00 ug/ft²	110 ug/ft²	
0451567	021B-06	Flame	Wipe	***	1,000	12.00 ug/ft²	110 ug/ft²	
0451568	021B-07	Flame	Wipe	***	1,000	12.00 ug/ft²	13 ug/ft²	
0451569	021B-08	Flame	Wipe	***	1,000	12.00 ug/ft²	14 ug/ft²	
0451570	021B-09	Flame	Wipe Blank	***	N/A	12.00 ug	< 12 ug	
0451571	021B-01	Flame	Air	293	N/A	10.24 ug/m²	< 10 ug/m²	
0451572	021B-02	Flame	Air	290	N/A	10.34 ug/m²	< 10 ug/m²	
0451573	021B-03	Flame	Air Blank	0	N/A	3.00 ug/m²	< 3 ug	

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

N/A = Not Applicable mg/Kg = parts per million (ppm) by weight ug/L = parts per billion (ppb)

%Pb = percent lead by weight ug = micrograms
Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Technical Manager: [Redacted]

Analyst: [Redacted]

Non-Responsive

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, the 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 AMA. Sample types, locations and collection protocols are based upon the information provided by the person 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, NIST, or any agency of the Federal Government.

All rights reserved. AMA Analytical Services, Inc.

An AIHA (#8863), NVLAP (#101143), & New York ELAP (#10920) Accredited Laboratory
4475 Forbes Blvd. • Lanham, MD 20706 • (301) 459-2648 • Toll Free (800) 346-4061 • Fax (301) 460-7643



AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client: National Guard Bureau
Address: 301-TH Old Bay Lane, Attn: NGB-AVN-SI,
State Military Reservation
Havre de Grace, Maryland 21078

Job Name: Amory
Job Location: Gardner, MA
Job Number: Not Provided
P.O. Number: Not Provided

Chain Of Custody: 128493
Date Analyzed: 06/16/2004
Person Submitting: [REDACTED]

Attention: [REDACTED]

Page 1 of 1

Summary of Polarized Light Microscopy

AMA Sample Number	Client Sample #	Total Asbestos	Chrysotile Percent	Amosite Percent	Crocidolite Percent	Other Asbestos Percent	Mineral Wool Percent	Fiberglass Percent	Organic Percent	Synthetic Percent	Other Percent	Particulate Percent	Sample Color	Analyst ID	Comments
0451574	0212B-19 A	10	10	--	--	--	TR	--	--	--	--	90	Gray	CK	
0451575	0212B-19 B	20	20	--	--	--	--	--	--	--	--	80	Gray	CK	
0451576	0212B-19 C	25	25	--	--	--	--	--	--	--	--	75	Gray	CK	
0451577	0212B-20 A	30	30	--	--	--	--	--	30	--	--	40	Off-White	CK	
0451578	0212B-20 B	5	--	3	2	--	--	--	--	--	--	95	Off-White	CK	
0451579	0212B-20 C	20	2	18	--	--	--	--	--	--	--	80	Off-White	CK	

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

- 1 TEM RECOMMENDATION - Please note, due to resolution limitations with optical microscopy and/or interference from matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos. It is recommended that the additional analytical technique of TEM be used to check for asbestos fibers below the resolution limits of optical microscopy.
- 2 MATRIX REDUCTION RECOMMENDATION - Please note, due to interference from the matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos which is obscured from view. It is recommended that the additional preparation technique of gravimetric reduction be performed on this sample to minimize the obscuring effects of matrix components, followed by reanalysis by PLM and/or TEM.

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

NAD = "No Asbestos Detected"

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

[REDACTED]

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, NIST, or any agency of the Federal Government.

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

Posted to NGB FOIA Reading Room, 3375 Forbes Blvd., Lanham, MD 20706 • (301) 459-2640 • Toll Free (800) 346-0961 • Fax (301) 459-2643
May, 2018

BEST AVAILABLE COPY

BEST AVAILABLE COPY

FOIA Requested Record #A-15-0085 (MA)

P.1

(301) 459 - 2643

AMA Analytical Services

Released by National Guard Bureau
Jun 04 09:03:03

APPENDIX E
TRAINING CERTIFICATES

Non-Responsive



Certificate of Training

**For successful completion of an 8 Hour, 1 Day
Asbestos Inspector & Management Planner
Annual Refresher Training**

MARCH 25, 2003

**This training was approved and given in accordance with
Regulations for Connecticut State Agencies
RCSA 20-440-1-9 and RCSA 20-441 and meets the
requirements of the EPA Revised MAP under TSCA Title II of 4/4/94**

Presented by

**Mystic Air Quality Consultants, Inc.
1204 North Road, Groton, CT 06340 (800) 247-7746**

Certificate Number: IMPR10543

Exam Grade: 100%

Expiration Date: 03/25/2004

Exam Date: 03/25/2003

I/H, CSP, RS

Training Director

APPENDIX F
PHOTOGRAPHS

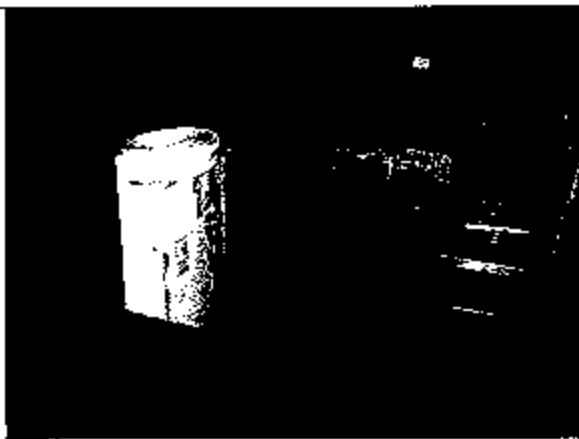


Photo 0022: Firing Range North End



Photo 0023: Firing Range



Photo 0024: Firing Range

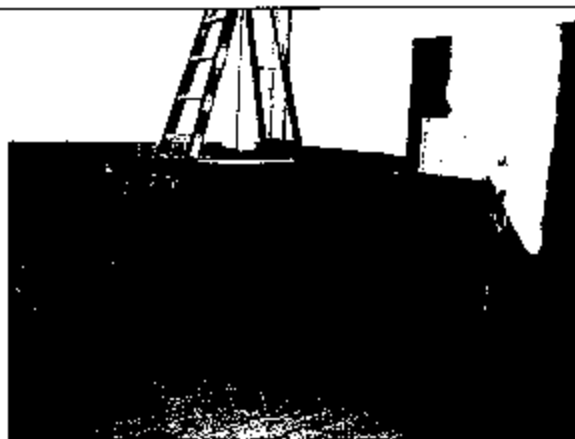


Photo 0025: Drill Floor - Northwest



Photo 0026: Drill Floor - Southwest



Photo 0027: Classroom



Photo 0028: Office - Southeast



Photo 0029: Infantry Center

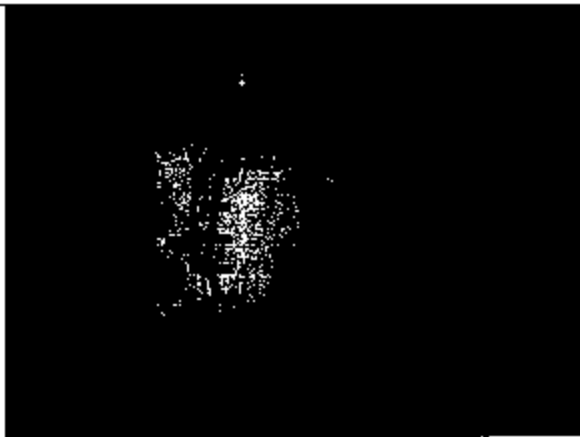


Photo 0030: Boiler Room - Damaged asbestos-containing boiler jacket

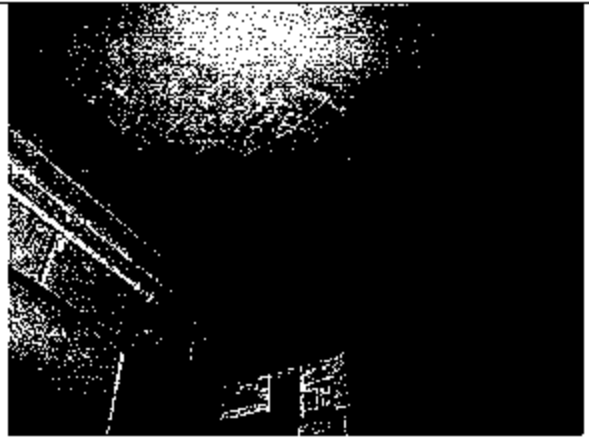


Photo 0031: Weight Room - Water damaged ceiling



Photo 0032: Drill Floor - Water damage



Photo 0033: Exterior View

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 ($\mu\text{g}/\text{ft}^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

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

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

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

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

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

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

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under ($40 \mu\text{g}/\text{ft}^2$ on floors and $250 \mu\text{g}/\text{ft}^2$ 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 $0.05 \text{ mg}/\text{m}^3$ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

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-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

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
Goal	5
Background	6
Wipe Sample Media	7
Wipe Sampling Protocol	8
Range Cleaning Instructions	9
Cleaning Stored Contaminated Equipment	10
Contaminated Sand and Lead Waste	11
Medical Surveillance	12
Worker Education	13
Personal Protection Equipment	14
Housekeeping	15
Maintenance	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	

Purpose

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. 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 1910, Occupational Safety and Health Standards
- f. OSHA Technical Manual, Edition VII
- g. NIOSH NIOSH 76-130 (Lead Exposure and Design Considerations for Indoor Firing Ranges)

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

3. 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, 5th 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 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 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. 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.

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

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 deionized 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 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.

~~Approved for release by NSA on 07-10-2014 pursuant to E.O. 13526~~

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

(2) Unacceptable Media consists of but is not limited to—

- (a) Cotton balls
- (b) Baby wipes or wet 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.

8. 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 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 maintained. 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 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, Spic and Span™ has been found to be an effective cleaning solution by other Army organizations. Mix new solutions of cleaning solution frequently. Wet wiping will require dual containers of water; one container for wetting the applicator (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 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 deck enamel or urethane; concrete floors should be sealed with deck enamel and linoleum 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 plate(s) should be cleaned. Next, clean the ceiling, 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 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.

l. 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 lead dust must be decontaminated before it is removed from the range.

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

b. Equipment located near the bullet trap and firing line should be cleaned first and then removed. The cleaning method depends on the size of the equipment and the material it is comprised of, i.e. metal, wood, concrete, porous, non-porous, smooth or rough finish etc. However, either HEPA vacuum or the wet wipe method will be used. Refer to paragraph 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 (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 all individuals who are subject to exposure to lead at or above the action level or for whom the possibility of skin or eye irritations 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, 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, fitting, 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.
- f. Smoking and smoking materials will not be permitted in contaminated areas.

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

- 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 clothing 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, 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. 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 belts to ensure that they are not frayed or slipping.

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**

- 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 trap for pitting or other damage and for sharp edges on venetian blind type bullet traps.
- e. **Bullet Trap.** The bullet 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 bullet 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 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.

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.
- c. 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 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 decontaminated or removed.
- h. 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.

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 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™, 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, moisten the filter with distilled or deionized 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 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 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 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 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 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 clearing 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 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 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 cassette 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.

<u>Order From</u>	<u>Catalog Number</u>
-------------------	-----------------------

- | | |
|--|--------------|
| a. Millipore Corp.
Ashby Road
Bedford, MA 01730
617-275-9200
800-225-1380 | MAWP-037-A0 |
| b. Gelman Sciences
600 South Wagner Rd
Ann Arbor, MI 48106
313-665-0851
800-521-1520 | 64678 (GN-4) |
| c. Supelco, Inc.
Supelco Park
Bellefonte, PA 16823
800-247-6628
800-359-3041 | 2-3368M |

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

<u>Order From</u>	<u>Catalog Number</u>
-------------------	-----------------------

- | | |
|---|---------|
| a. Supelco Inc.
Supelco Park
Bellefonte, PA 16823 | 2-3381M |
|---|---------|

NGB-AVS-SG

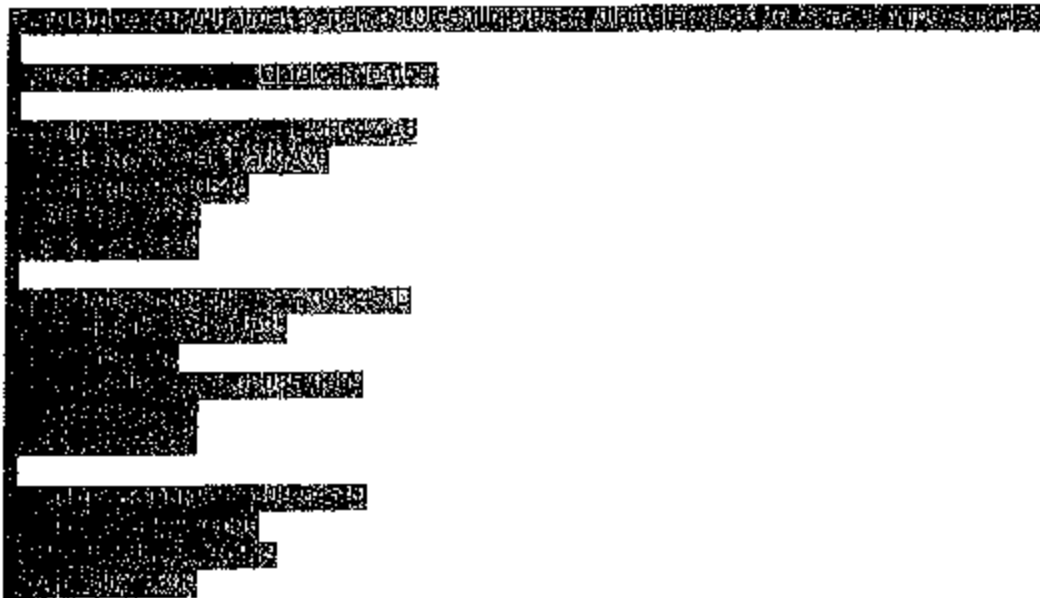
SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program – POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

APPENDIX E (Continued)

800-247-6828
800-359-3041

b. Millipore Corp. AAWP-037-00
Ashby 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.

<u>Order From</u>	<u>Catalog Number</u>
-------------------	-----------------------

a. Pierce Chemical Co. P.O. Box 117 Rockford, IL 61105 815-968-0747 800-874-3723	13219 (screw cap)
--	-------------------

b. Alltech Associates, Inc. Applied Science Labs 2051 Waukegan Rd Deerfield, IL 60015 312-948 8600	95321 (screw cap)
--	-------------------

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 E (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 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. 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:

$$\frac{75 \text{ ug}}{100 \text{ cm}^2} \times \frac{929 \text{ cm}^2}{1 \text{ sq ft}} = \frac{75 \times 929}{100} = \frac{69675}{100} = 696.75 \text{ ug/sq ft}$$

ug – Microgram

Cm2 – Centimeters squared

Sq ft – Square foot

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 G
SURFACE WIPE SAMPLING SHEET

Industrial Hygiene Surface Wipe Sample Sheet					
Return Address			Point of Contact (<i>name & phone #</i>)		
			Samples Collected By		
Sampled Facility		City		State	Location (<i>bldg/area</i>)
Description of Operation			Date Collected	Date Shipped	
Analysis Desired					
Sampling Data					
Lab Use Only	Sample #	Results		Remarks	
Comments to Lab:					

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 H
AIR SAMPLING SHEET

Industrial Hygiene Air Sample Sheet							
Return Address				Point of Contact (name/phone #)			
				Samples Collected By			
Sampled Facility		City		State		Location (bldg/area)	
Description of Operation		Persons Exposed		Hrs/Day		Method of Collection	
Analysis Desired							
Sampling Data							
Sample No.							
Pump No.							B
Time On							L
Time Off							A
Total Time (min)							N
Flow Rate (LPM)							K
Volume (liters)							
GA/BZ							
Employee Name/ID							
Laboratory No.							
Calibration Information							
Pump No.	Calibration (LPM)		Rotameter Setting	Date			
	Pre-Use	Post-Use					
Name of Calibrator		Calibration Date		Pump Manufacturer			
Comments to Lab							

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 I
ABBREVIATIONS AND TERMS**

**Section I
Abbreviations**

ARNG

Army National Guard

BUN

Blood urea nitrogen

BZ

Breathing zone

CBC

Complete blood count

CFR

Code of Federal Regulations

cm

Centimeter

DHEW

Department of Health, Education and Welfare

EPA

Environmental Protection Agency

GA

General area

OMPF

Official Military Personnel File

OPF

Official Personnel File

OSHA

Occupational Safety and Health Administration

TCLP

Toxic Characteristic Leaching Procedures

ug/sq ft

Micrograms per square foot

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 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.

Industrial Hygiene Survey

Massachusetts Army National Guard (MA ARNG)

Prepared For: NGB ARNG– Region North IH Office

Survey Location:

Gardner Readiness Center

323 West Broadway
Gardner, MA 01440-3105

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

Survey Date: July 26, 2010
Report Date: September 16, 2010

AEI Project #: J10-513 3a MA Gardner RC

Non-Responsive

Industrial Hygienist



BEST AVAILABLE COPY
Industrial Hygiene Survey Report
Massachusetts Army National Guard (MA ARNG)
Gardner Readiness Center

Table of Contents

Executive Summary	ii
1 Introduction	1
2 Evaluation Methods	1
3 Operations	1
4 Noise Hazards	1
5 Hazard Controls	2
Ventilation Systems	2
6 Physical Condition of the Facility and Personnel Concerns	2
Paint Chip and Dust Wipe Samples for Lead Contamination	2
Visual Inspection for Damaged Asbestos-Containing Materials	4
Visual Inspection for Water Damage and Mold Growth	4
Visual Inspection for Housekeeping Concerns	4
Lighting	4
Indoor Air Quality (IAQ)	5
Temperature and Relative Humidity	5
Carbon Dioxide (CO ₂) and Carbon Monoxide (CO)	5
7 Conclusions	6
8 Limitations	6

List of Tables and Appendices

Table 1 - Results of Lead in Air Sampling for the MA ARNG Gardener Readiness Center on July 26, 2010.

Table 2 – Results of Dust Wipe Sampling for the MA ARNG Gardener Readiness Center on July 26, 2010.

Table 3 – Results of Paint Chip Sampling for the MA ARNG Gardener Readiness Center on July 26, 2010.

Table 4 – Results of Asbestos Sampling for the MA ARNG RC Gardener Readiness Center on July 26, 2010.

Table 5 - Acceptable Ranges of Temperature and Relative Humidity in Summer and Winter

Appendix A – Building Layout

Appendix B – Certificates of Analysis for Air, Dust Wipe and Bulk Samples

Appendix C – Photo Documentation

Appendix D – IAQ and Lighting Survey Log Sheets

BEST AVAILABLE COPY
Industrial Hygiene Survey Report
Massachusetts Army National Guard (MA ARNG)
Gardner Readiness Center

Executive Summary

Aria Environmental, Inc. (AEI) was contracted to perform an industrial hygiene evaluation for the Readiness Center located at 323 West Broadway, Gardner, MA, 01440-3105. **Non-Responsive** performed the evaluation on July 26, 2010. The point of contact for the facility was Staff Sergeant **Non-Responsive**. The purpose of the evaluation was to identify and measure the existence and extent of potentially hazardous operations or conditions at Army National Guard (ARNG) facilities. The survey included: (1) evaluations of operations including operation description, ventilation system evaluations, noise dosimetry if appropriate, lighting surveys, hazard control evaluations and any additional information pertinent to the operations; (2) an evaluation of the physical condition of the facility and personnel concerns including visual inspections for peeling potentially lead-based paint, damaged suspect asbestos-containing materials, water damage or mold problems; indoor air quality concerns; and housekeeping practices; and (3) photographs of the exterior and interior of the readiness center. The results of the evaluation indicated the following:

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

Lead in Air Samples: Results of collected air samples were below regulatory limits for lead (50 $\mu\text{g}/\text{m}^3$).

Paint Chip and Wipe Samples for Lead Contamination: Five of six wipe samples collected from the former firing range were above the National Guard criteria for lead contamination (200 $\mu\text{g}/\text{ft}^2$). Samples ranged from 1.7 to 195 times the National Guard criteria. Lead was identified in the remaining ductwork, exhaust fan, on top of the light fixture, on stored footlockers and on the floor of the range. All collected paint chip samples were below the percentage that defines lead-based paint.

Visual Inspection for Damaged Asbestos-Containing Materials: Minor damage on the boiler breeching and a damaged TSI pipe fitting leading from the boiler were observed in the Mechanical Room. Bulk samples collected of the materials indicated one of the samples contained asbestos at greater than one percent (1%). The TSI pipe fitting leading from the boiler contained 80% Chrysotile asbestos.

Visual Inspection for Water Damage and Mold Growth: There was some evidence of light water damage in the corner of the Supply Room. The area was not wet at the time of the survey and no mold growth was observed at the facility.

Visual Inspection for Housekeeping Concerns: A visual inspection was performed to assess the state of housekeeping in the facility. The housekeeping was good. All areas were clean and tidy.

Lighting: The evaluation indicated that there are some illumination deficiencies in several areas of the facility. Additionally, office and one storage room (Rooms 9 and 10 on the attached drawing) had lights that were not functioning on the day of the survey. The illumination measurements indoors ranged from a low of 0.8 foot candles (fc) to a high of 80 fc.

Indoor Air Quality: Temperatures and relative humidity measurements were all acceptable on the day of monitoring. However, indoor conditions are directly related to outdoor conditions due to the lack of air conditioning in most of the facility. Indoor levels of CO_2 ranged from 346 to 1072

BEST AVAILABLE COPY
Industrial Hygiene Survey Report
Massachusetts Army National Guard (MA ARNG)
Gardner Readiness Center

parts per million (ppm) and outdoor CO₂ levels were approximately 350 ppm during the monitored period. CO₂ measurements were below the guideline in all areas, except the front office of the building. Elevated CO₂ levels in the front office were most likely the result of overcrowding in the room at the time of the survey. Due to an ongoing meeting, there were eight (8) individuals in the room at the time of the survey. Indoor levels of CO ranged from 0 to 0.7 ppm; therefore, concentrations are below occupational exposure limits, ASHRAE and the NAAQS-recommended CO concentrations.

BEST AVAILABLE COPY
Industrial Hygiene Survey Report
Massachusetts Army National Guard (MA ARNG)
Gardner Readiness Center

1 Introduction

Aria Environmental, Inc. (AEI) was contracted to perform an industrial hygiene evaluation for the Massachusetts Army National Guard (MA ARNG) Readiness Center located at 323 West Broadway, Gardner, MA, 01440-3105. [REDACTED] performed the evaluation on July 26, 2010. The point of contact for the facility was Staff Sergeant [REDACTED]. The purpose of the evaluation was to identify and measure the existence and extent of potentially hazardous operations or conditions at Army National Guard (ARNG) facilities.

The Gardner Readiness Center is staffed with 2 fulltime National Guard administrative personnel. The operations conducted at the facility include supply and administrative duties. A diagram of the building layout is provided in Appendix A. All sampling sheets and laboratory certificates of analysis are provided in Appendix B. Selected photographs taken during the evaluation are provided in Appendix C. Indoor air quality and lighting survey measurement log sheets are provided in Appendix D. Lists of all references used during the evaluation are included in the main body of the report.

2 Evaluation Methods

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

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

3 Operations

Operations conducted at the Gardner facility consists exclusively of supply and administrative duties. No maintenance of vehicles, painting of equipment or other physical tasks are performed at the facility. Ground maintenance and upkeep of the building are the responsibility of the state employed Armorer and not part of the duties of National Guard personnel.

4 Noise Hazards

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

5 Hazard Controls

Ventilation Systems

Heat is supplied to the facility through a boiler located in the boiler room and overhead heaters in the drill hall. The boiler certificate for the Gardner was expired and is not up to date. Any air conditioning provided to the building is through window air conditioning units. No local ventilation systems were present at the facility.

6 Physical Condition of the Facility and Personnel Concerns

An evaluation of the physical condition of the facility and personnel concerns was performed including visual inspections for peeling potentially lead-based paint, damaged suspect asbestos-containing materials, water damage or mold problems; indoor air quality concerns; and housekeeping practices. Lighting and indoor air quality measurements were taken in all areas of the facility as well.

Lead in Air Samples

To determine if any airborne contamination of lead existed in the facility, personal air sampling for lead was conducted in on two National Guard members and analyzed by AMA for atomic absorption spectrophotometry (AAS) following the analytical method ASTM D3335-85A. Results are given in Table 1 and certificates of analysis are included in Appendix B.

**Table 1 – Results of Lead in Air Sampling for the MA ARNG
Gardner Readiness Center on July 26, 2010.**

Air Sample #	Sample Location	Result ($\mu\text{g}/\text{m}^3$)*
GAR-01	Staff Sergeant Non-Responsive	<10
GAR-02	Sergeant Major Non-Responsive	<10

*The OSHA PEL for Lead in Air is 50 $\mu\text{g}/\text{m}^3$.

Paint Chip and Dust Wipe Samples for Lead Contamination

To determine if any cross contamination of lead from any source into areas of the facility existed, wipe samples were collected using ghost wipes and 10cm x 10cm templates. Wipe samples for surface dust were collected in 17 locations. The Environmental Protection Agency (EPA) and the Commonwealth of Massachusetts limits for lead in dust are 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) on floors, 250 $\mu\text{g}/\text{ft}^2$ on window sills, and 400 $\mu\text{g}/\text{ft}^2$ in window troughs. These limits apply to pre-1978 Army facilities only if children under 6 years of age occupy them for 60 or more hours per year. The NGB Region North Industrial Hygiene Office concurs with the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) recommended maximum level for adult exposures of 200 $\mu\text{g}/\text{ft}^2$ on floors and frequently contacted surfaces, which is more stringent for window sills than the EPA/State standards. Dust wipe samples were submitted to Aerosol Monitoring and Analysis Analytical Services, Inc. (AMA) for atomic absorption spectrophotometry (AAS) following the analytical method ASTM D3335-85A. Five of six samples collected from the former firing range, now used but not converted to storage, were above the National Guard criteria for lead contamination (200 $\mu\text{g}/\text{ft}^2$). Samples ranged from 1.7 to 195 times the National Guard criteria. Lead was identified in the remaining ductwork, exhaust fan, on top of the light fixture, on stored footlockers and on the floor of the range. Results are given in Table 2 and certificates of analysis are included in Appendix B.

BEST AVAILABLE COPY
Industrial Hygiene Survey Report
Massachusetts Army National Guard (MA ARNG)
Gardner Readiness Center

**Table 2– Results of Dust Wipe Sampling for MA ARNG
Gardner Readiness Center on July 26, 2010.**

Wipe Sample #	Sample Location	Result (µg/ft²)*
GAR-PB-01	Kitchen, On Serving Table	<110
GAR-PB-02	Office 13, From Vent	<110
GAR-PB-03	Assembly Hall, Walking Mat Against Wall by Room 19	<110
GAR-PB-04	Assembly Hall, Middle of Floor	<110
GAR-PB-05	Assembly Hall, On Top of Vending Machine	<110
GAR-PB-06	Room 3, Former Indoor Firing Range, Inside Duct	39,000
GAR-PB-07	Room 3, Former Indoor Firing Range, Bullet Trap	190
GAR-PB-08	Room 3, Former Indoor Firing Range, From Exhaust Fan in Ceiling	6,200
GAR-PB-09	Room 3, Former Indoor Firing Range, Light Fixture	640
GAR-PB-10	Room 3, Former Indoor Firing Range, From Top of Stored Footlockers	770
GAR-PB-11	Room 3, Former Indoor Firing Range, Middle of Floor	340
GAR-PB-12	Assembly Hall Floor Immediately Outside Former Range (Room 3)	<110
GAR-PB-13	Room 11, Top of Locker	<110
GAR-PB-14	Entry Foyer, From Vent	<110
GAR-PB-15	Room 14, Window Sill	200
GAR-PB-16	Room 19, Mess Hall Table Top	<110
GAR-PB-17	Room 21, Middle of Floor	<110

*The US Army CHPPM recommends a maximum level for adult exposures of 200 µg/ft² lead on floors

A visual inspection was performed to determine if there were any areas of peeling paint at the facility that could pose a lead exposure hazard. Peeling paint was observed over the door in the Men's Room; therefore, one paint chip was collected. The paint chip sample was collected following operational protocols set forth in HUD's *Guidelines for the Evaluation and Control of Lead-Based Paint Hazard in Housing (1995)*. The paint chip sample was submitted to Aerosol Monitoring and Analysis Analytical Services, Inc. (AMA) of Lanham, MD for analysis. The analyses were performed using Flame Atomic Absorption Spectrophotometry (AAS) following the analytical method SW 846 7420. AMA is accredited for the analysis of paint chip samples through the AIHA Proficiency Testing Program (#100470). In the Commonwealth of Massachusetts, paint is considered to be lead-based if it contains more than 0.5 % lead by weight. All paint chip samples were below regulatory limits of 0.5% lead by weight. Results are given in Table 3 and certificates of analysis are included in Appendix B.

BEST AVAILABLE COPY
Industrial Hygiene Survey Report
Massachusetts Army National Guard (MA ARNG)
Gardner Readiness Center

**Table 3 – Results of Paint Chip Sampling for MA ARNG
Gardner Readiness Center on July 26, 2010.**

Paint Chip Sample #	Sample Location	Result (% by wt)*
GAR-LBP-01	Flaking Paint in Men's Room	0.034

*Paint is considered lead-based if it is > 0.5% by weight.

Visual Inspection for Damaged Asbestos-Containing Materials

A visual inspection was performed to determine if there were any suspect asbestos-containing material and its condition. Minor damage on the boiler breeching and a damaged TSI pipe fitting leading from the boiler were observed in the Mechanical Room. Bulk samples of both materials were collected. Samples were submitted to AMA Analytical Services, Inc. of Lanham, MD 20706 (NIST-NVLAP Accreditation No. 101143-0) for analysis by Polarized Light Microscopy (PLM) using EPA method 600/R-93/116. The EPA defines an asbestos-containing material as one percent (1%) or more asbestos by visual estimation. One of the samples contained asbestos at greater than one percent (1%). The TSI pipe fitting leading from the boiler contained 80% Chrysotile asbestos. Results are given in Table 4 and certificates of analysis are included in Appendix B.

**Table 4 – Results of Asbestos Sampling for the MA ARNG RC
Gardner, MA on July 26, 2010.**

Bulk Sample #	Sample Location	Result (%)
GAR-ASB-01	Boiler Breeching	ND
GAR-ASB-02	Damaged Elbow in Mechanical Room	80% Chrysotile

Visual Inspection for Water Damage and Mold Growth

A visual inspection was performed to determine if there was any water damage or visible mold growth at the facility. There was some evidence of light water damage in the corner of the Supply Room. The area was not wet at the time of the survey and no visible mold growth was observed at the facility.

Visual Inspection for Housekeeping Concerns

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

Lighting

Illumination levels were measured using a Cal-Light 400L, calibrated on July 30, 2009, and compared to minimum lighting requirements for various facilities and functions based on the following references: American National Standards Institute/Illumination Engineering Society of North America (ANSI/IESNA) Standard RP-1-04 (Office Lighting) and ANSI/IESNA Standard RP-7-01 (Lighting Industrial Facilities).

A lighting survey was performed in all areas within the RC. The evaluation indicated that there are some illumination deficiencies in several areas of the facility (Rooms 5, 8, 14, and 20 on the attached drawing). Additionally, office and one storage room (Rooms 9 and 10 on the attached drawing) had lights that were not functioning on the day of the survey. The illumination measurements indoors ranged from a low of 0.8 foot candles (fc) to a high of 80 fc.

BEST AVAILABLE COPY
Industrial Hygiene Survey Report
Massachusetts Army National Guard (MA ARNG)
Gardner Readiness Center

The complete results of the evaluation are presented in Appendix D, including whether the results met minimum requirements for illumination. Additional illumination can be achieved by replacing burned-out lamps, cleaning fixtures, relocating detailed work to more illuminated areas, using supplemental task lighting, and opening doors or windows to provide more natural lighting.

Indoor Air Quality (IAQ)

Indoor air quality measurements (i.e., temperature, relative humidity, carbon dioxide and carbon monoxide) were taken using a TSI Q-Trak Plus Model 7565X, factory calibrated in September 2009. Temperature, relative humidity and carbon dioxide (CO₂) measurements were compared to the recommended levels established by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE). Carbon monoxide (CO) concentrations were compared to the ACGIH Threshold Limit Value (TLV) for CO and the Environmental Protection Agency's (EPA's) National Ambient Air Quality Standard (NAAQS) for CO.

Industry guidelines or standards for seasonal temperature and humidity ranges for thermal comfort are established by ASHRAE standard 55-2004. These ranges are presented in Table 5. The U.S. EPA also recommends maintaining relative humidity below 60% and ideally between 30 and 50% to prevent mold growth. Complete results are provided in Appendix G with the lighting survey measurements.

**Table 5 - Acceptable Ranges of Temperature and
Relative Humidity in Summer and Winter^a**

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

^aadapted from ASHRAE Standard 55-2004

Temperature and Relative Humidity

Indoor temperature and relative humidity (Rh) measurements in the facility ranged from 75.6 to 77.9° F and 43.6 to 62.4% Rh. Outdoor temperature and humidity measurements were 76.1° F and 48.5% on the day of monitoring. Temperatures and relative humidity measurements were all acceptable on the day of monitoring. However, indoor conditions are directly related to outdoor conditions due to the lack of air conditioning in most of the facility.

Carbon Dioxide (CO₂) and Carbon Monoxide (CO)

Carbon dioxide and carbon monoxide measurements are used to assess ventilation system performance. The exhaled breath of building occupants is the main indoor source of carbon dioxide; therefore, the build up of CO₂ indicates inadequate ventilation. The concentration of concern for carbon dioxide is set by ASHRAE standard 62.1 – 2007 as 700 ppm above outdoor concentrations. Indoor levels of CO₂ ranged from 346 to 1072 parts per million (ppm) and outdoor CO₂ levels were approximately 350 ppm during the monitored period. CO₂ measurements were below the guideline in all areas, except the front office of the building. Elevated CO₂ levels in the front office were most likely the result of overcrowding in the room at the time of the survey. Due to an ongoing meeting, there were eight (8) individuals in the room at the time of the survey.

BEST AVAILABLE COPY
Industrial Hygiene Survey Report
Massachusetts Army National Guard (MA ARNG)
Gardner Readiness Center

Carbon monoxide is a byproduct of incomplete combustion. Indoor concentrations indicate contamination caused by improperly vented or malfunctioning boilers, furnaces or stoves or from vehicle exhaust entering the building from garages, loading docks, nearby roads or parking lots. The concentration of interest set by ASHRAE standard 62.1-2007 and the National Ambient Air Quality Standards (NAAQS) for carbon monoxide is an 8 hour average of 9 ppm. The ACGIH TLV for CO is 25 ppm. Indoor levels of CO ranged from 0 to 0.7 ppm; therefore, concentrations are below occupational exposure limits, ASHRAE and the NAAQS-recommended CO concentrations.

7 Conclusions

The results of the evaluation indicated no concerns with the following at the facility: contamination of clean air sources, peeling lead-based paints, noise hazards, indoor air quality, visible mold and housekeeping. The results of the evaluation indicated industrial hygiene concerns in the following areas: cross contamination from the former firing range, the presence of damaged suspect asbestos-containing materials, and lighting. Overall, Chicopee Readiness Center has few industrial hygiene issues, and programs are in place to protect, inform and train employees.

8 Limitations

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

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

9 References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current edition.
2. Title 24, Code of Federal Regulations (CFR), Part 35, Subpart B, Sections 35.110, Definitions of Lead-Based Paint, Housing and Urban Development, U.S. Department of Housing.
3. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998.

**Industrial Hygiene Survey Report
Massachusetts Army National Guard (MA ARNG)
Gardner Readiness Center**

4. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, May 25, 2007.
5. Army Regulation (AR) 385-10, The Army Safety Program, August 23, 2007.
6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Service, Hearing Conservation Program, December 15, 1998.
7. Department of the Army Pamphlet (DA PAM) 40-503, Medical Service, Industrial Hygiene Program, October 30, 2000.
8. Technical Manual (TM) 5-810-1, Mechanical Design, Heating, Ventilation, and Air Conditioning, June 1991.
9. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current edition.
10. RP-1-2004 (Office Lighting) and RP-7-2001 (Industrial Lighting), Illuminating Engineering Society of North America (IESNA)/ANSI.
11. The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), Standard 62.1-2007, "Ventilation for Acceptable Indoor Air Quality" and Standard 55-2004, "Thermal Environmental Conditions for Human Occupancy".
12. NIOSH website: <http://www.cdc.gov/niosh/>
13. OSHA website: <http://www.osha.gov/>.
14. Army CHPPM website: <http://chppm-www.apgea.army.mil/>.
15. EPA website: <http://www.epa.gov>.

Appendix A Building Layout

BEST AVAILABLE COPY

COMPANY B

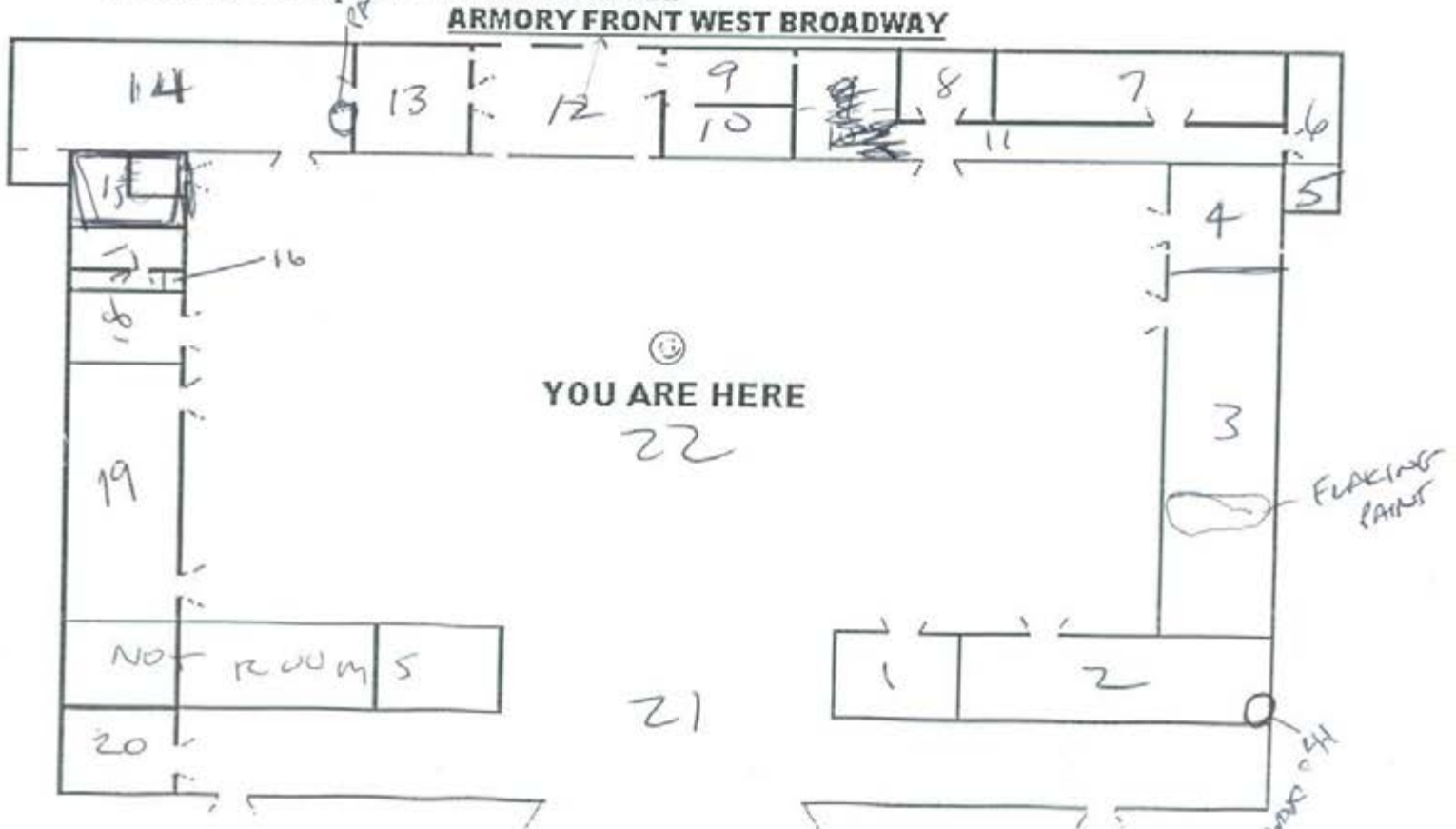
1ST BATTALION 181ST INFANTRY

MASSACHUSETTS ARMY NATIONAL GUARD

323 WEST BROADWAY, GARDNER, MA.01440-3105

1. The Armory Evacuation Plan is designed to facilitate the evacuation of troops from the Armory, West Broadway Gardner, Massachusetts, in the event of an enemy attack, fire, or other disorder.
2. This plan will be posted in all rooms of the Armory. Unit commanders will, at least once a year, hold an "Evacuation Drill" to insure that all members are familiar with the proper exits and designated assembly areas.
3. This plan will be reviewed by the State Officer at least once during each quarter, or more often as if needed, to insure its being kept up to date.
4. After each evacuation of the Armory, Unit Commanders will immediately have a roll call to insure that all troops have been evacuated. The building will not be re-entered until all safety factors have been taken into consideration. Fire fighting must be under control of authorized personnel of the unit or by unit officers. Periodic checks will be made to insure that all company personnel are familiar with the locations of the fire extinguishers.

The local fire department number is: 911



Appendix B

Certificates of Analysis for Air, Dust Wipe and Bulk Samples



CERTIFICATE OF ANALYSIS

Client:	National Guard Bureau	Job Name:	Gardner Armory	Chain Of Custody:	508469
Address:	301-IH Old Bay Lane, Attn: NGB-AVN-SI, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	Gardner, MA	Date Analyzed:	8/6/2010
		Job Number:	Not Provided	Person Submitting:	
		P.O. Number:	W912K6-09-A-0003		

Attention:

Non-Responsive

Page 1 of 1

Summary of Polarized Light Microscopy

AMA Sample Number	Client Sample #	Total Asbestos	Chrysotile Percent	Amosite Percent	Crocidolite Percent	Other Asbestos Percent	Mineral Wool Percent	Fiberglass Percent	Organic Percent	Synthetic Percent	Other Percent	Particulate Percent	Sample Color	Homogeneity	Analyst ID	Comments
1066553	GAR-ASB-01	NAD	--	--	--	--	35	--	5	--	--	60	Multi	Layered	SW	
1066554	GAR-ASB-02	80	20	60	--	--	--	--	--	--	--	20	Multi	Layered	SW	

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

- 1 TEM RECOMMENDATION - Please note, due to resolution limitations with optical microscopy and/or interference from matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos. It is recommended that the additional analytical technique of TEM be used to check for asbestos fibers below the resolution limits of optical microscopy.
- 2 MATRIX REDUCTION RECOMMENDATION - Please note, due to interference from the matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos which is obscured from view. It is recommended that the additional preparation technique of gravimetric reduction be performed on this sample to minimize the obscuring effects of matrix components, followed by reanalysis by PLM and/or TEM.

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

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

Uncertainty: For samples containing asbestos in range of 1-10% the CV is 0.43, 11-35% CV=0.55, >35 CV=0.23

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

Technical Director

Non-Responsive

Non-Responsive

Analyst(s)

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 NY ELAP, NVLAP, NIST, 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 This
Number For Inquiries)

508469

PVD

Mailing/Billing Information:

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

Submittal Information:

- Job Name: GARDNER ARMY
- Job Location: GARDNER MA
- Job #:
- Contact Person: Non-Responsive
- Submitted by: Non-Responsive

Reporting Information (Results will be provided)

AFTER HOURS (must be pre-scheduled) <input type="checkbox"/> Immediate Date Due: _____ <input type="checkbox"/> 24 Hours Time Due: _____ Comments: _____		NORMAL BUSINESS HOURS <input type="checkbox"/> Immediate <input type="checkbox"/> Next Day <input type="checkbox"/> 2 Day <input type="checkbox"/> 3 Day <input checked="" type="checkbox"/> 5 Day + Date Due: <u>8/9/10</u>		REPORT TO: <input checked="" type="checkbox"/> Include COC/Field Data Sheets with Report <input checked="" type="checkbox"/> Email: <u>Non-Responsive@us.army.mil</u> <input type="checkbox"/> Fax: _____ <input type="checkbox"/> Ver: _____	
--	--	---	--	--	--

Asbestos Analysis

PCM Air - Please Indicate Filter Type:

- ☐
- NIOSH 7400 (QTY)
-
- ☐
- Fiberglass (QTY)

TEM Air - Please Indicate Filter Type:

- ☐
- AHERA (QTY)
-
- ☐
- NIOSH 7402 (QTY)
-
- ☐
- Other (specify _____) (QTY)

PLM Bulk

- ☒
- EPA 600 - Visual Estimate
- 2
- (QTY)
-
- ☐
- EPA Point Count (QTY)
-
- ☐
- NY State Friable 198.1 (QTY)
-
- ☐
- Grav. Reduction ELAP 198.6 (QTY)
-
- ☐
- Other (specify _____) (QTY)

MISC

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

TEM Bulk

- ☐
- ELAP 198.4/Charfield (QTY)
-
- ☐
- NY State PLM/TEM (QTY)
-
- ☐
- Residual Ash (QTY)

TEM Dust

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

TEM Water

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

☒ All samples received in good condition unless otherwise noted.
☐ TEM Water samples _____ °C

Metals Analysis

- ☒
- Pb Paint Chip
- 1
- (QTY)
-
- ☒
- Pb Dust Wipe (wipe type
- CHOSE
-)
- 17
- (QTY)
-
- ☒
- Pb Air
- 2
- (QTY)
-
- ☐
- Pb Soil/Solid (QTY)
-
- ☐
- Pb TCLP (QTY)
-
- ☐
- Drinking Water
- ☐
- Pb (QTY)
- ☐
- Cu (QTY)
- ☐
- As (QTY)
-
- ☐
- Waste Water
- ☐
- Pb (QTY)
- ☐
- Cu (QTY)
- ☐
- As (QTY)
-
- ☐
- Pb Furnace (Media _____) (QTY)

Fungal Analysis

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

CLIENT ID NUMBER	SAMPLE INFORMATION		VOLUME (LITERS)	WIPE AREA	ANALYSIS										MATRIX				CLIENT CONTACT		
	SAMPLE LOCATION/ IDENTIFICATION	DATE			TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	WITH AND CONTROL	SPORE TRAP	TAPE	SWAB	(LABORATORY STAFF ONLY)				
GAR-PB-01	GARDNER	7/24/10		10 NIOSH														Date/Time:	Contact:	By:	
GAR-PB-02	↓																				
GAR-PB-03																					
GAR-PB-04																					
GAR-PB-05																			Date/Time:	Contact:	By:
GAR-PB-06																					
GAR-PB-07																					
GAR-PB-08																					
GAR-PB-09																			Date/Time:	Contact:	By:
GAR-PB-10																					
GAR-PB-11																					
GAR-PB-12																					

Non Responsive

LABORATORY
STAFF ONLY:

 Posted to NGB FOIA Reading Room
May, 2018

- Date/Time RCVD: 8/2/10 Via: FOIA
- Date/Time Analyzed: 8/9/10 By (Print): _____
- Results Reported To: Non-Responsive
- Comments: _____

BEST AVAILABLE COPY

Non-Responsive

**AMA Analytical Services, Inc.**

Focused on Results www.amalab.com

AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)

4475 Forbes Blvd. • Lanham, MD 20706

(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY(Please Refer To This
Number For Inquiries)

5086169
PAB

Mailing/Billing Information:

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

Submittal Information:

1. Job Name: GARDNER ARMY
 2. Job Location: GARDNER MA
 3. Job #: _____
 4. Contact Person: _____
 5. Submitted by: _____

Reporting Information (Results will be provided)

AFTER HOURS (must be pre-scheduled)		NORMAL BUSINESS HOURS		REPORT TO:	
<input type="checkbox"/> Immediate	Date Due: _____	<input type="checkbox"/> Immediate	<input type="checkbox"/> 3 Day	<input checked="" type="checkbox"/> Include COC/Field Data Sheets with Report	
<input type="checkbox"/> 24 Hours	Time Due: _____	<input type="checkbox"/> Next Day	<input type="checkbox"/> 5 Day +	<input checked="" type="checkbox"/> Email <u>Non-Responsive</u>	<u>us.army.mil</u>
Comments: _____		<input type="checkbox"/> 2 Day	Date Due: _____	<input type="checkbox"/> Fax: _____	<u>us.army.mil</u>
		<input type="checkbox"/> Results Required By Noon (Every Attempt Will Be Made to Accommodate)		<input type="checkbox"/> Verbal: _____	

Asbestos Analysis**PCM Air** - Please Indicate Filter Type:

- ☐ NIOSH 7400 _____ (QTY)
☐ Fiberglass _____ (QTY)

TEM Air - Please Indicate Filter Type:

- ☐ AHERA _____ (QTY)
☐ NIOSH 7402 _____ (QTY)
☐ Other (specify _____) _____ (QTY)

PLM Bulk

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

MISC

- ☐ Vermiculite
☐ Asbestos Soil PLM _____ (Qual) PLM _____ (Qan) PLM/TEM _____ (Qual) PLM/TEM _____ (Qan)

TEM Bulk

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

TEM Dust

- ☐ Qual. (pres/abs) Vacuum/Dust _____ (QTY)
☐ Quan. (s/area) Vacuum D5755-95 _____ (QTY)
☐ Quan. (s/area) Dust D6180-99 _____ (QTY)

TEM Water

- ☐ Qual. (pres/abs) _____ (QTY)
☐ ELAP 198.2/EPA 100.2 _____ (QTY)
☐ EPA 100.1 _____ (QTY)

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

Metals Analysis

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

Fungal Analysis

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

CLIENT ID NUMBER	SAMPLE INFORMATION		VOLUME (LITERS)	WIPE AREA	ANALYSIS										CLIENT CONTACT				
	SAMPLE LOCATION/ IDENTIFICATION	DATE			TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	MATN AND OTHER	SPORE TRAP	TAPE	SWAB	(LABORATORY STAFF ONLY)		
GAR-DB-13	GARDNER	7/24/02		10x50cm				X					X				Date/Time:	Contact:	By:
GAR-PB-14																			
GAR-PB-15																			
GAR-PB-16																			
GAR-PB-17																	Date/Time:	Contact:	By:
GAR-LBP-01																			
GAR-ASB-01							X							X					
GAR-ASB-02							X							X					
GAR-01								X		X							Date/Time:	Contact:	By:
GAR-02								X		X									

Non-Responsive

LABORATORY**STAFF ONLY:**

Posted to NGB FOIA Reading Room
May, 2018

1. Date/Time RCVD: _____
 2. Date/Time Analyzed: _____
 3. Results Reported To: _____
 4. Comments: _____

Non-Responsive



CERTIFICATE OF ANALYSIS



LAB #100470

NY ELAP

10920

Client: National Guard Bureau
Address: 301-111 Old Bay Lane, Attn: NGB-AVN-SI,
State Military Reservation
Havre de Grace, Maryland 21078

Job Name: Gardner Armory
Job Location: Gardner, MA
Job Number: Not Provided
P.O. Number: W912K6-09-A-0003

Chain Of Custody: 508469
Date Submitted: 8/2/2010
Person Submitting: [REDACTED]
Date Analyzed: 8/6/2010

Report Date: 8/18/2010

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 (ft ²)	Reporting Limit	Total ug	Final Result	Comments
1066535	GAR-Pb-01	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1066536	GAR-Pb-02	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1066537	GAR-Pb-03	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1066538	GAR-Pb-04	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1066539	GAR-Pb-05	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1066540	GAR-Pb-06	Flame	Wipe	****	0.108	110 ug/ft ²	4200	39000 ug/ft ²	
1066541	GAR-Pb-07	Flame	Wipe	****	0.108	110 ug/ft ²	20	190 ug/ft ²	
1066542	GAR-Pb-08	Flame	Wipe	****	0.108	110 ug/ft ²	670	6200 ug/ft ²	
1066543	GAR-Pb-09	Flame	Wipe	****	0.108	110 ug/ft ²	69	640 ug/ft ²	
1066544	GAR-Pb-10	Flame	Wipe	****	0.108	110 ug/ft ²	83	770 ug/ft ²	
1066545	GAR-Pb-11	Flame	Wipe	****	0.108	110 ug/ft ²	37	340 ug/ft ²	
1066546	GAR-Pb-12	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1066547	GAR-Pb-13	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1066548	GAR-Pb-14	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1066549	GAR-Pb-15	Flame	Wipe	****	0.108	110 ug/ft ²	22	200 ug/ft ²	
1066550	GAR-Pb-16	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1066551	GAR-Pb-17	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1066552	GAR-LBP-01	Flame	Paint Chip	****	N/A	0.0086 %Pb		0.034 %Pb	
1066555	GAR-01	Flame	Air	295	N/A	10 ug/m ³	<3	<10 ug/m ³	

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



CERTIFICATE OF ANALYSIS



LAB #100470

NY ELAP

10920

Client: National Guard Bureau
Address: 301-JH Old Bay Lane, Attn: NGB-AVN-SI,
State Military Reservation
Havre de Grace, Maryland 21078

Job Name: Gardner Armory
Job Location: Gardner, MA
Job Number: Not Provided
P.O. Number: W912K6-09-A-0003

Chain Of Custody: 508469
Date Submitted: 8/2/2010
Person Submitting: [Redacted]
Date Analyzed: 8/6/2010

Report Date: 8/18/2010

Attention: **Non-Responsive**

Summary of Atomic Absorption Analysis for Lead

Page 2 of 2

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Total ug	Final Result	Comments
1066556	GAR-02	Flame	Air	296	N/A	10 ug/m³	<3	<10 ug/m³	

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

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

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

Air and Wipe results are not corrected for any blank results

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

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

See QC Summary for analytical results of quality control samples associated with these samples.
NY ELAP accreditation applies only to paint chip, wipe, and soil samples.

Analyst: **Non-Responsive**

Technical Manager

Non-Responsive

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations, and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AIHA, NVLAP, NIST, 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 This
Number For Inquiries)**508469****Mailing/Billing Information:**

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

Submittal Information:

1. Job Name: GARDNER ARMORY
2. Job Location: GARDNER MA
3. Job #: W012K6 09 A 0093
4. Contact Person: Non-Responsive
5. Submitted By: Non-Responsive

Reporting Information (Results will be provided)

AFTER HOURS (must be pre-scheduled)		NORMAL BUSINESS HOURS		REPORT TO:
<input type="checkbox"/> Immediate Date Due: _____	<input type="checkbox"/> 24 Hours Time Due: _____	<input type="checkbox"/> Immediate	<input type="checkbox"/> 3 Day	<input checked="" type="checkbox"/> Include COC/Field Data Sheets with Report
Comments: _____		<input type="checkbox"/> Next Day	<input checked="" type="checkbox"/> 5 Day + <u>8/9/10</u>	<input checked="" type="checkbox"/> Email <u>Non-Responsive</u>
		<input type="checkbox"/> 2 Day	Date Due: <u>8/9/10</u>	<input type="checkbox"/> Fax <u>us.army.mil</u>
		Results Required By Noon (Every Attempt Will Be Made to Accommodate)		<input type="checkbox"/> Ver <u>us.army.mil</u>

Asbestos Analysis

- PCM Air** - Please Indicate Filter Type:
- ☐ NIOSH 7400 (QTY)
 - ☐ Fiberglass (QTY)
- TEM Air** - Please Indicate Filter Type:
- ☐ AHERA (QTY)
 - ☐ NIOSH 7402 (QTY)
 - ☐ Other (specify) _____ (QTY)

PLM Bulk

- ☒ EPA 600 - Visual Estimate 2 (QTY)
- ☐ EPA Point Count (QTY)
- ☐ NY State Friable 198.1 (QTY)
- ☐ Grav. Reduction ELAP 198.6 (QTY)
- ☐ Other (specify) _____ (QTY)

MISC

- ☐ Vermiculite
- ☐ Asbestos Soil PLM (Qual) PLM (Quan) FLM/TEM (Qual) FLM/TEM (Quan)

TEM Bulk

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

TEM Dust

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

TEM Water

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

- ☒ All samples received in good condition unless otherwise noted.
- ☐ TEM Water samples _____ °C

Metals Analysis

- ☒ Pb Paint Chip 1 (QTY)
- ☒ Pb Dust Wipe (wipe type CHOSE) 17 (QTY)
- ☒ Pb Air 2 (QTY)
- ☐ Pb Soil/Solid (QTY)
- ☐ Pb TCLP (QTY)
- ☐ Drinking Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY)
- ☐ Waste Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY)
- ☐ Pb Furnace (Media) (QTY)

Fungal Analysis

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

CLIENT ID NUMBER	SAMPLE INFORMATION		VOLUME (LITERS)	WIPE AREA	ANALYSIS					MATRIX					CLIENT CONTACT	
	SAMPLE LOCATION/ IDENTIFICATION	DATE			TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	SWAB	TAPE	(LABORATORY STAFF ONLY)	
GAR-PB-01	GARDNER	7/24/10	10000												Date/Time: <u>8/18/10</u> Contact: <u>J. Reil</u> By: <u>GR</u>	
GAR-PB-02															Air Volume: <u>294.5L</u> for GAR-02	
GAR-PB-03															<u>296.3L</u> for GAR-02	
GAR-PB-04															with alternate email: <u>Non-Responsive</u>	
GAR-PB-05															Date/Time: _____ Contact: _____	
GAR-PB-06																
GAR-PB-07																
GAR-PB-08																
GAR-PB-09															Date/Time: _____ Contact: _____ By: _____	
GAR-PB-10																
GAR-PB-11																
GAR-PB-12																

LABORATORY
STAFF ONLY:
(CUSTODY)

1. Date/Time RCVD: 8/2/10 @ 1000 Via: email By: GR
2. Date/Time Analyzed: _____ @ _____ By (Print): _____
3. Results Reported To: emails above Via: email

BEST AVAILABLE COPY

**AMA Analytical Services, Inc.**

Focused on Results www.ama-lab.com

AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)

4475 Forbes Blvd. • Lanham, MD 20706

(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY(Please Refer To This
Number For Inquiries)

506469
P/B

Mailing/Billing Information:

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

Submittal Information:

1. Job Name: GARDON ARMOY
 2. Job Location: GARDON MA
 3. Job #: _____
 4. Contact Person: _____
 5. Submitted by: **Non-Responsive** 42-0273

Reporting Information (Results will be provided a

AFTER HOURS (must be pre-scheduled)		NORMAL BUSINESS HOURS		REPORT TO:
<input type="checkbox"/> Immediate	Date Due: _____	<input type="checkbox"/> 3 Day	<input type="checkbox"/> Results Required By Noon	<input checked="" type="checkbox"/> Include COC/Field Data Sheets with Report
<input type="checkbox"/> 24 Hours	Time Due: _____	<input type="checkbox"/> Next Day	<input type="checkbox"/> 5 Day +	<input type="checkbox"/> Email: Non-Responsive
Comments: _____		<input type="checkbox"/> 2 Day	Date Due: _____	<input type="checkbox"/> Fax: <u>us.army.mil</u>
			Made to Accomodate)	<input type="checkbox"/> Verbal: <u>us.army.mil</u>

Asbestos Analysis

PCM Air - Please Indicate Filter Type:

☐ NIOSH 7400 (QTY)☐ Fiberglass (QTY)

TEM Air - Please Indicate Filter Type:

☐ AHERA (QTY)☐ NIOSH 7402 (QTY)☐ Other (specify) _____ (QTY)**PLM Bulk**☐ EPA 600 - Visual Estimate (QTY)☐ EPA Point Count (QTY)☐ NY State Friable 198.1 (QTY)☐ Grav. Reduction ELAP 198.6 (QTY)☐ Other (specify) _____ (QTY)**MISC**☐ Vermiculite☐ Asbestos Soil PLM (Qual) PLM (Quant) PLM/TEM (Qual) PLM/TEM (Quant)**TEM Bulk**☐ ELAP 198.4/Chatfield (QTY)☐ NY State PLM/TEM (QTY)☐ Residual Ash (QTY)**TEM Dust**☐ Qual. (pres/abs) Vacuum/Dust (QTY)☐ Quan. (s/area) Vacuum D5755-95 (QTY)☐ Quan. (s/area) Dust D6480-99 (QTY)**TEM Water**☐ Qual. (pres/abs) (QTY)☐ ELAP 198.2/EPA 100.2 (QTY)☐ EPA 100.1 (QTY)
☐ All samples received in good condition unless otherwise noted.
 (TEM Water samples _____ °C)
Metals Analysis☐ Pb Paint Chip (QTY)☐ Pb Dust Wipe (wipe type _____) (QTY)☐ Pb Air (QTY)☐ Pb Soil/Solid (QTY)☐ Pb TCLP (QTY)☐ Drinking Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY)☐ Waste Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY)☐ Pb Furnace (Media _____) (QTY)**Fungal Analysis**

Collection Apparatus for Spore Traps/Air Samples: _____

Collection Media _____

☐ Spore-Trap (QTY) ☐ Surface Vacuum Dust (QTY)☐ Surface Swab (QTY) ☐ Cultureable ID Genus (Media _____) (QTY)☐ Surface Tape (QTY) ☐ Cultureable ID Species (Media _____) (QTY)☐ Other (Specify _____) (QTY)

CLIENT ID NUMBER	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPE AREA	ITEM	ANALYSIS										MATRIX					CLIENT CONTACT		
						PCM	PLM	LEAD	WOLD	AIR	BULK	DUST	WATER	SPRINT	TAPE	SWAB	WATER	SPRINT	TAPE	SWAB	(LABORATORY STAFF ONLY)		
GAR-DB-13	GARDON MA	7/24/00		10x60cm				X				X									Date/Time:	Contact:	By:
GAR-PB-14																							
GAR-PB-15																							
GAR-PB-16																							
GAR-PB-17																					Date/Time:	Contact:	By:
GAR-LBP-01																							
GAR-ASB-01						X	X				X												
GAR-ASB-02						X	X				X												
GAR-01								X		X											Date/Time:	Contact:	By:
GAR-02								X		X													

LABORATORY
STAFF ONLY:

1. Date/Time RCVD: _____ / _____ / _____ @ _____ Via: _____ By (Print): _____

2. Date/Time Analyzed: _____ / _____ / _____ @ _____ By (Print): _____ Sign: _____

3. Results Reported To: _____ Date: _____ / _____ / _____

4. Comments: _____

BEST AVAILABLE COPY

Non-Responsive

Appendix C

Photo Documentation

Gardner RC



Front Entry



Storage Area, Former Firing Range



Flaking Paint on Ceiling



Workout Area

Gardner RC



Damaged Ceiling



Kitchen



Mess Hall

Posted to NGB FOIA Reading Room
May, 2018



Vault

Gardner RC



Flammable Cabinet



Boiler Room



Damaged Boiler Breeching



Damaged TSI

Gardner RC



Drill Hall

Appendix D

IAQ and Lighting Survey Log Sheets

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

State	MA	City	Gardner	IAQ								Light		
Date	7/26/2010	Inspector	Non-Responsive	Instrument		Q-TRAK 7565-X						Instrument		CAL-LIGHT 400
Facility Description	Readiness Ctr			Serial Number		7565X0839017						Serial Number		K070277
Weather Conditions				Last Calibration		Sep-08						Last Calibration		30-Jul-09
Location	Function	No. Occupants	Time	Temp. (°F)	Exceeded	RH (%)	Exceeded	CO ₂ (ppm)	Exceeded	CO (ppm)	Exceeded	Illuminance (fc)	Insufficient	Illuminance Reference Values (fc)
1	Vault	0	12:03 PM	77.2		50.6		406		0.4		62.4		10
2	Office/Supply	1	12:04 PM	76.5		56.2		366		0.2		58.7		50
3	Storage	0	12:08 PM	76.5		62.4	X	370		0.5		12.2		5-30
4	Storage	0	12:12 PM	76.0		58.3		550		0.0		34.2		5-30
5	Ammo Vault	0	12:13 PM	76.0		58.3		512		0.1		9.6	X	10
6	Office	0	12:14 PM	75.9		52.1		416		0.3		65.0		50
7	Office	0	12:15 PM	75.9		55.1		392		0.1		60.8		50
8	Office	1	12:26 PM	76.1		53.0		430		0.7		49.2	X	50
9	Office	0	12:17 PM	75.7		52.9		390		0.6		25.1*	X	50
10	Storage	0	12:18 PM	75.6		53.6		410		0.0		0.8*	X	5-30
11	Hall	0	12:25 PM	76.0		51.4		414		0.5		7.2		5
12	Entry Foyer	0	12:29 PM	76.2		49.6		617		0.1		13.3		10
13	Front Office	8	12:31 PM	76.5		48.9		1072	X	0.4		80.0		50
14	Weight Room/ Locker	0	12:34 PM	76.0		48.6		420		0.5		18.6	X	30
15	Men's Room	0	12:40 PM	75.8		54.3		490		0.3		18.6		5
16	Janitor Closet	0	12:40 PM	75.6		54.1		358		0.1		13.1		5
17	Ladie's Room	0	12:41 PM	77.2		52.8		501		0.2		18.6		5
18	Kitchen	0	12:42 PM	77.4		46.0		368		0.2		53.1		50
Notes:				Relative Humidity		Winter Temp.		Summer Temp.		*Natural Light Only, House Lights Do Not Work				
				30%		68.5°F-76.0°F		74.0°F-80.0°F						
				40%		68.5°F-75.5°F		73.5°F-79.5°F						
				50%		68.5°F-74.5°F		73.0°F-79.0°F						
				60%		68.0°F-74.0°F		72.5°F-78.0°F						

State	MA	City	Gardner	IAQ								Light			
Date	7/26/2010	Inspector	Non-Responsive	Instrument		Q-TRAK 7565-X						Instrument		CAL-LIGHT 400	
Facility Description	Readiness Ctr			Serial Number		7565X0839017						Serial Number		K070277	
Weather Conditions				Last Calibration		Sep-08						Last Calibration		30-Jul-09	
Location	Function	No. Occupants	Time	Temp. (°F)	Exceeded	RH (%)	Exceeded	CO ₂ (ppm)	Exceeded	CO (ppm)	Exceeded	Illuminance (fc)	Insufficient	Illuminance Reference Values (fc)	
19	Mess Hall	0	12:45 PM	77.9		46.0		388		0.3		72.5		10	
20	Mechanical Room	0	12:47 PM	76.2		49.2		335		0.2		8.1	X	30	
21	Assembly Entry	0	12:49 PM	75.8		43.6		346		0.2		31.7		10	
22	Assembly Hall	0	12:51 PM	76.1		45.5		356		0.3		48.5		30-50	
Notes:				Relative Humidity		Winter Temp.		Summer Temp.							
				30%		68.5°F-76.0°F		74.0°F-80.0°F							
				40%		68.5°F-75.5°F		73.5°F-79.5°F							
				50%		68.5°F-74.5°F		73.0°F-79.0°F							
				60%		68.0°F-74.0°F		72.5°F-78.0°F							



Prepared For:

National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
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
MASSACHUSETTS NATIONAL GUARD READINESS CENTER
323 WEST BROADWAY
GARDNER, MA 01440**

July 11, 2013
PN: 39743799

Non-Responsive

Director, Industrial Hygiene Services

Non-Responsive

Project Manager

TABLE OF CONTENTS

Section	Page
1.0 SUMMARY	1
2.0 SUPPLY / TRAINING AREA.....	3
2.1 Operation Description.....	3
2.2 Chemical and Physical Agents Sampled	3
2.2.1 Carbon Dioxide.....	3
2.2.2 Carbon Monoxide	4
2.2.3 Relative Humidity	4
2.2.4 Temperature.....	4
2.2.5 Lighting.....	5
2.2.6 Lead	6
2.2.7 Asbestos.....	7
2.3 Ventilation System Evaluation	7
2.4 Noise Measurements.....	8
2.5 Personal Protective Equipment	8
3.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS.....	9
3.1 Confined Spaces	9
3.2 Hearing Conservation.....	9
3.3 Respiratory Protection	9
3.4 Hazard Communication	9
3.5 Personal Protective Equipment	9
3.6 Asbestos Operations and Maintenance Program	9
3.7 Safety	10
4.0 REFERENCES.....	11

APPENDICES

APPENDIX A	SHOP DRAWING
APPENDIX B	PERSONNEL LIST
APPENDIX C	ANALYTICAL RESULTS
APPENDIX D	PHOTOGRAPHIC LOG
APPENDIX E	RECOMMENDATIONS FOR SURFACE LEAD DUST IN ARMORIES

FINDINGS AND RECOMMENDATIONS
MASSACHUSETTS NATIONAL GUARD READINESS CENTER
323 WEST BROADWAY, GARDNER, MA

Findings	Recommendations	Risk Assessment Code (RAC)
Lighting		
On the day of the survey, the illuminance was inadequate in several locations tested.	Increase lighting in the work areas. While work is in progress, these areas must be lighted by at least the minimum lighting intensities (ANSI / IESNA RP-1-04).	RAC 4
Ergonomics		
Computer workstations in the Administrative Areas were observed with un-adjustable chairs, arm rests and keyboards	Ergonomic issues with regard to 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
Water Intrusion		
Evidence of water intrusion was noted in the area of a roof drain in the Supply Room.	The source of the water intrusion should be identified and repaired. The water-stained materials should be repaired or replaced (ACGIH – Guidelines for the Assessment of Bio-aerosols in the Indoor Environment).	RAC 3
Former Indoor Firing Range		
The former Indoor Firing Range has been posted as unsafe due to lead contamination; however, a closed door to the area does not adequately restrict access.	Personnel trained in accordance with the OSHA Lead Standard should clean the areas where elevated lead dust levels were identified (OSHA 29 CFR 1910.1025(h)(1)).	RAC 3
Since the former indoor firing range is contaminated with lead and several wipe samples in other building areas were found to contain elevated lead levels, an assessment should be made as to whether respiratory protection and other PPE should be worn when entering the former Indoor Firing Range.	A respirator shall be provided for each employee when such equipment is necessary to protect the health of the employee. (29 CFR 1910.134 (a)(2)).	RAC 3

Findings	Recommendations	Risk Assessment Code (RAC)
Lead		
Three of the 10 lead wipe samples indicated elevated lead levels.	Personnel trained in accordance with the OSHA Lead Standard should clean the areas where elevated lead dust levels were identified (OSHA 29 CFR 1910.1025(h)(1)).	RAC 3
Emergency Exits		
Emergency exit signs and escape plans were not visible from all areas of the facility or illuminated.	Emergency exits should be properly illuminated (29 CFR 1910.37 (q)(6)).	RAC 3
Asbestos		
Presumed asbestos-containing floor tiles and associated mastic were observed throughout the facility; an Asbestos Operations and Maintenance Program was not available on-Site.	An asbestos operations and maintenance program should be developed to include labeling and training with regard to both confirmed and presumed ACM. (29 CFR 1910.1001 (j))	RAC 4
Personal Protective Equipment		
Hazard assessments have not been conducted to determine whether personal protective equipment is required.	The workplace shall be assessed to determine if hazards are present to determine the need for PPE. (29 CFR 1910.132 (d)(1)).	RAC 4
Temperature		
The average temperature in the Readiness Center on the day of URS' site visit was slightly below the recommended range.	Temperature should be maintained within the range stated in the ASHRAE standard. (55-2010)	

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 in Gardner, Massachusetts.

URS representative, Ms. **Non-Responsive**, conducted the Industrial Hygiene Survey on May 30, 2013. The scope of work included an overall assessment of the facility as it relates to industrial hygiene and included a walkthrough of the facility, collection of photographs, and when required, measurements for illumination (light), area and personal air sampling, and noise monitoring.

The Gardner Readiness Center is a single-story brick building, consisting of offices, a classroom/mess hall, a supply area, gender separate bathrooms, storage rooms, a kitchen, an Assembly Hall and a former Indoor Firing Range. A layout of the Readiness Center is provided in Appendix A.

GENERAL: Evidence of water intrusion was observed in the area of the roof drain in the Supply Room. The former Indoor Firing Range is posted as unsafe due to lead contamination, however the door does not lock to restrict access.

LIGHTING: Lighting in the Readiness Center was found to be inadequate in seven of the areas measured. Areas noted within the report as having inadequate lighting require upgrading by either increasing the general lighting or through the use of task lighting. While work is in progress, work areas must be lighted by at least the minimum light intensities.

LEAD: Three of ten wipe samples collected in the Readiness Center were found to contain lead in a concentration above the recommended limit set by the NGB, Region North IH Office.

Since the former indoor firing range is accessible to staff, a hazard assessment should be conducted to determine good hygiene practices to be followed when entering the former firing range.

ASBESTOS: Presumed asbestos-containing floor tiles and associated mastic were identified during this survey, however no Asbestos Operations and Maintenance Program was found on site. Until suspect materials have been sampled and determined not to contain asbestos, they must be presumed to be asbestos-containing and managed accordingly.

ERGONOMICS: Many of the work stations had ergonomic issues which require attention. Computer workstations were assessed during the walkthrough for ergonomic issues. The computer workstations in the facility did not meet the current Occupational Safety and Health Administration (OSHA) ergonomic recommendations. The chairs armrests, keyboards, and monitors were not adjustable. All workstations in the facility should be adjusted and monitored. The ergonomic issues with regard to the workstations and chairs need to be corrected by fitting the workplace to the worker.

NOISE: Personal noise monitoring in the Readiness Center determined that noise levels were below the OSHA permissible exposure limit (PEL) and Department of Defense Instruction (DoDI) Hearing Conservation Standard (6055.12 3 December 2010) on the day of URS' site visit.

2.0 SUPPLY / TRAINING AREA

2.1 Operation Description

This Readiness Center is primarily used for weekend training drills and conducting administrative functions. The building includes offices, a classroom/mess hall, a supply area, gender separate bathrooms, storage rooms, a kitchen, an Assembly Hall and a former Indoor Firing Range. The indoor firing range is currently used for storage and, although the door is kept closed, access is not prohibited. The former Indoor Firing Range has not been decontaminated.

The Readiness Center was found to be neat and organized at the time of URS' site visit.

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. Interior carbon dioxide concentrations were found to be between 448 and 579 parts per million (ppm). Carbon dioxide levels were measured using a direct-reading TSI Q-Trak (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 human respiration. 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 but is typically 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.

To minimize air quality complaints, the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) has proposed that the carbon dioxide concentration within an occupied workspace be maintained below 700 ppm above ambient outside levels. For example, on the day of the survey, the outside carbon dioxide level was measured at 447 ppm. Therefore ASHRAE (Standard 62.1-2010) would recommend that interior carbon dioxide concentrations be maintained at or below

1,147 ppm. Using the ASHRAE guideline, the readings at the subject site were found to be below the suggested indoor to outdoor differential concentration.

2.2.2 Carbon Monoxide

The carbon monoxide concentration in the Readiness Center was measured between 0.0 ppm and 0.6 ppm on the day of the survey. ASHRAE recommends that average carbon monoxide concentrations not exceed 9 ppm. Typical average concentrations found in commercial buildings range from 0 to 6 ppm. The measured levels were below the ASHRAE guideline for indoor environments. Carbon monoxide was measured using a TSI Q-Trak Plus (Model 8554).

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.

2.2.3 Relative Humidity

The average relative humidity within the Readiness Center measured with the Q-Trak Plus was 65.5%, which was slightly above the guideline of less than 65% recommended by ASHRAE.

2.2.4 Temperature

Temperature should be maintained within the thermal comfort envelope suggested in ASHRAE Standard 55-2010. This standard on thermal environments specifies conditions in which 80% or more of building occupants should find the thermal environment acceptable. ASHRAE 55-2010 suggests temperatures of 68 to 75 degrees Fahrenheit (°F), during winter months, for people in typical seasonal clothing during light sedentary activity. For summer, the temperature should be in the range of 73 to 79 °F.

The average temperature inside the Readiness Center was, 67.6 °F, which was slightly below the guideline of 68 to 75 °F recommended by ASHRAE for thermal comfort. URS received several complaints regarding cool indoor air temperature during this survey.

2.2.5 Lighting

Lighting in the Readiness Center was measured using a cal-Light 400 Light Meter. Table 2-1 below shows lighting measurements in foot candles (FC) and the recommended lighting requirements (Illuminating Engineering Society of North America (IESNA) RP-7-01).

Table 2-1
Lighting Measurements and Recommended Lighting Requirements

Location	Function	Measured Illuminance in Foot Candles (FC)	Recommended Minimum Illuminance in Foot Candles (FC)
Classroom, table adjacent to chalk board	Admin	115.7	50
Recruiter's Office, desk- Non-Responsive	Admin	10.1	50
Recruiter's Office, desk- Non-Responsive	Admin	30.3	50
Office, desk- Non-Responsive	Admin	63.9	50
Office, training computer workstation	Admin	38.8	50
Office, desk- vacant	Admin	50.3	50
CMR Office, desk	Admin	69.2	50
1 st Platoon's Office, desk	Admin	61.5	50
1 st Platoon's Office, desk- Non-Responsive	Admin	58.0	50
1 st Platoon's Office, maintenance desk	Admin	55.2	50
Bravo Company Office, desk- 1 st Sergeant	Admin	81.4	50
Office, desk, adjacent to board	Admin	75.6	50
Office, desk, adjacent to board, east window	Admin	77.0	50
Corridor west	Hall	9.8	5
Corridor east	Hall	8.9	5
NBC Office, desk	Admin	32.1	50
Assembly Hall	Hall	65.8	5
Assembly Hall	Hall	57.2	5
Supply Room, desk- Non-Responsive	Admin	37.3	50
Supply Room, desk adjacent to window	Admin	17.1	50
Supply Room, north side	Storage	6.1	30
Kitchen, adjacent to stove and sink	Break Room	54.9	50

Location	Function	Measured Illuminance in Foot Candles (FC)	Recommended Minimum Illuminance in Foot Candles (FC)
Classroom, desk adjacent to kitchen window	Admin	78.4	50

On the day of the survey, the illuminance in the Readiness Center was determined to be inadequate in seven of the office/administrative locations.

2.2.6 Lead

Wipe testing for lead dust was conducted in the Readiness Center using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA Analytical Services, Inc. (AMA) is contained in Appendix C. Table 2-2 below shows the results of the lead wipe testing.

Table 2-2
Levels of Lead Dust Found in the Readiness Center

Sample Location	URS Sample Number	Area Wiped in Square Feet (ft ²)	Result in Micrograms/Square foot (µg/ft ²)	Maximum Surface Contamination Level in Micrograms/Square Foot (µg/ft ²)
Office- [REDACTED], under computer training desk, top of computer	Gardner RC W-01	0.108	<110	200
1 st Platoon's Office, under corner desk adjacent to window	Gardner RC W-02	0.108	<110	200
Recruiting Office, adjacent to bookshelf and copier	Gardner RC W-03	0.108	<110	200
West Corner Office, top of locker adjacent to north window	Gardner RC W-04	0.108	<110	200
Women's latrine	Gardner RC W-05	0.108	<110	200
Supply Room, floor, adjacent to shelving unit	Gardner RC W-06	0.108	22,000	200

Sample Location	URS Sample Number	Area Wiped in Square Feet (ft ²)	Result in Micrograms/Square foot (µg/ft ²)	Maximum Surface Contamination Level in Micrograms/Square Foot (µg/ft ²)
Former Indoor Firing Range, doorway, floor	Gardner RC W-07	0.108	160	200
PT Room, southern corner, floor adjacent to work area	Gardner RC W-08	0.108	860	200
Classroom, north corner, top of locker adjacent to chalk board	Gardner RC W-09	0.108	620	200
Assembly Hall, adjacent to loading area and electrical box	Gardner RC W-10	0.108	140	200

Three of the ten surface dust level measurements were found to contain lead at a level above the NGB recommended level, based on the OSHA clarification letter which states “as free as practicable” of lead contamination as specified under OSHA 29 CFR 1926.62. Wipe samples could not be collected in the former Indoor Firing Range since access was restricted.

No areas of peeling paint were identified for sample collection during this survey.

2.2.7 Asbestos

Presumed asbestos-containing floor tiles and associated mastic were identified during this survey. Until suspect materials have been sampled and determined not to contain asbestos, they must be presumed to be asbestos-containing and managed accordingly.

2.3 Ventilation System Evaluation

The facility, not designed for vehicle maintenance, contains a ventilation system that is limited to localized personal ventilation (i.e. room fans, window air conditioning units) within the majority of rooms, and main negative draw fans in the Assembly Hall.

2.4 Noise Measurements

Personal noise dosimetry was conducted within the administrative office area. Noise exposures were measured using a data-logging Spark 703+ Noise Dosimeter. Personal noise dosimetry results indicated that, on the day of the survey, workers were not exposed to noise levels above the DoDI Hearing Conservation Standard (6055.12 3 December 2010) of 85 decibels, A scale (dBA)/8-hour day. Table 2-5 indicates the individual monitored, the tasks performed and noise exposures.

**Table 2-5
Noise Dosimetry Data**

Location	Task	Sample Duration in Minutes	Monitoring Result TWA (dBA)*	Hearing Protection
Non-Responsive	Administrative	375	65.6	N/A

* The calculated 8-hour, time-weighted average (TWA) noise exposure in dBA. The OSHA PEL for noise exposure is 90 dBA. DoDI has established an employee exposure level of 85 dBA for requirement of a hearing conservation program.

2.5 Personal Protective Equipment

Personal protective equipment was orderly and readily available to employees in the Readiness Center. Personal protective equipment included safety glasses, ear plugs and nitrile gloves. On the day of URS' site visit, no personal protective equipment was observed in use.

3.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS

3.1 Confined Spaces

A written confined spaces program is not applicable to this facility.

3.2 Hearing Conservation

A written hearing conservation program was identified on site. A review of normal site activities determined that no operations were identified that would warrant hearing protection. Based on area noise dosimetry results and a review of normal site operations, a hearing conservation program is not required for this site.

3.3 Respiratory Protection

A site-specific written program regarding Respiratory Protection was not identified on site. No operations were observed by URS that would require the use of respiratory protection. If workers are allowed access to the former indoor firing range, good hygiene practices should be followed.

3.4 Hazard Communication

A site-specific hazard communication program was identified on site. A hazard communication program is required for this site.

Material safety data sheets, a site map, and list of full time personnel were readily available on the day of the survey.

3.5 Personal Protective Equipment

A written personal protective equipment program was not identified on site. A hazard assessment should be conducted to determine whether personal protective equipment is required for activities typically undertaken at the Readiness Center.

3.6 Asbestos Operations and Maintenance Program

A written asbestos operations and maintenance program was not identified on site.

3.7 Safety

The door to the former Indoor Firing Range does not lock to secure access to the contaminated area. Not all emergency exit signs were properly illuminated throughout the facility.

4.0 REFERENCES

American Conference of Governmental Industrial Hygienists

Industrial Ventilation: A Manual of Recommended Practice, 27th Edition, 2010

Guidelines for the Assessment of Bio-aerosols in the Indoor Environment, 1989

American National Standards Institute

American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-04: American National Standard Practice for Office Lighting

ANSI/IESNA RP-7-01: Recommended Practice for Lighting Industrial Facilities

American Society of Heating, Refrigerating and Air-Conditioning Engineers

ANSI/ASHRAE Standard 62.1-2010: Ventilation for Acceptable Indoor Air Quality

ANSI/ASHRAE Standard 55-2010: Thermal Environmental Conditions for Human Occupancy.

Department of the Army

DA PAM 40-21, Ergonomics Program, 15 August 2003

Unified Facilities Criteria, Heating, Ventilating and Air Conditioning, 3-520-05, 14 April 2008

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

AR 385-10, The Army Safety Program, 23 August 2007; RAR Issue Date: 4 October 2011

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

Department of Defense

DoDI 6055.12, Hearing Conservation, 3 December 2010

Creating the Ideal Computer Workstation: A Step-by-Step Guide, June 2000

National Institute for Occupational Safety and Health

Current Intelligence Bulletin 50: Carcinogenic Effects of Exposure to Diesel Exhaust, August 1988

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. Department of Housing and Urban Development

Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (1995, 1997, 2012)

U. S. Occupational Safety and Health Administration

Standard for General Industry: 29 CFR 1910

OSHA Clarification Letter – Clarification of “as free as practicable” of lead contamination under 29 CFR 1926.62, 13 January 2003.

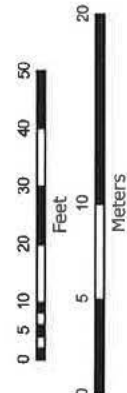
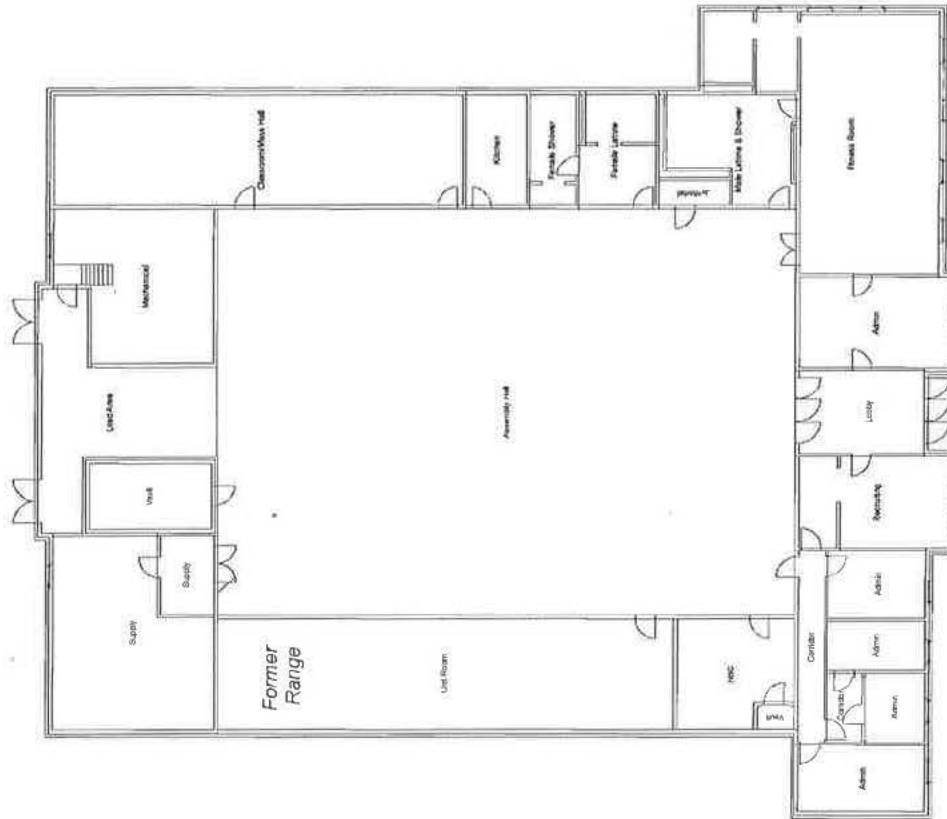
APPENDIX A
SHOP DRAWING



MASSACHUSETTS ARMY NATIONAL GUARD
JOINT FORCE HEADQUARTERS, MILFORD, MA
CONSTRUCTION AND FACILITIES MAINTENANCE OFFICE

GARDNER - 25B15

Floor Plan



Massachusetts 1:250 NAD 83

This information on this map is for planning purposes only.
This information is not a substitute for legal boundary definitions,
regulatory interpretation, or proprietary data.



8 November 2011 (Updated)

APPENDIX B
PERSONNEL LIST

Non-Responsive



APPENDIX C

ANALYTICAL RESULTS



CERTIFICATE OF ANALYSIS



Client:	National Guard Bureau	Job Name:	MA ARNG	Chain Of Custody:	516024
Address:	301-IH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	Gardner RC	Date Submitted:	6/3/2013
		Job Number:	37943799.00016	Person Submitting:	Non-Responsive
		P.O. Number:	W912K6-09-A-0003	Date Analyzed:	6/10/2013
Attention:	Non-Responsive			Report Date:	6/10/2013

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 (ft ²)	Reporting Limit	Total ug	Final Result	Comments
13067140	RC Gardener W-01	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13067141	RC Gardener W-02	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13067142	RC Gardener W-03	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13067143	RC Gardener W-04	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13067144	RC Gardener W-05	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13067145	RC Gardener W-06	Flame	Wipe	****	0.108	110 ug/ft ²	2400	22000 ug/ft ²	
13067146	RC Gardener W-07	Flame	Wipe	****	0.108	110 ug/ft ²	18	160 ug/ft ²	
13067147	RC Gardener W-08	Flame	Wipe	****	0.108	110 ug/ft ²	93	860 ug/ft ²	
13067148	RC Gardener W-09	Flame	Wipe	****	0.108	110 ug/ft ²	67	620 ug/ft ²	
13067149	RC Gardener W-10	Flame	Wipe	****	0.108	110 ug/ft ²	15	140 ug/ft ²	
13067150	RC Gardener TB-W	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.



CERTIFICATE OF ANALYSIS



Client:	National Guard Bureau	Job Name:	MA ARNG	Chain Of Custody:	516024
Address:	301-IH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	Gardner RC	Date Submitted:	6/3/2013
Attention:	Non-Responsive	Job Number:	37943799.00016	Person Submitting:	Non-Responsive
		P.O. Number:	W912K6-09-A-0003	Date Analyzed:	6/10/2013
				Report Date:	6/10/2013

Summary of Atomic Absorption Analysis for Lead

Page 2 of 2

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Total ug	Final Result	Comments
Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm) %Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb) Note: All samples were received in good condition unless otherwise noted. Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result. Air and Wipe results are not corrected for any blank results Final results for air and wipe samples are based on client supplied information nor verified by this laboratory. All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.							See QC Summary for analytical results of quality control samples associated with these samples.		
Analyst						Non-Responsive			
Technical Manager:						Non-Responsive			

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.ama-lab.com

AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)

4475 Forbes Blvd. • Lanham, MD 20706

(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY(Please Refer To This
Number For Inquires)

516024

Mailing/Billing Information:

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

Submittal Information:

- Job Name: MA ARNG
- Job Location: Gardner RC
- Job #: 39743799.00016 P.O. #: W912K6-09-A-0002
- Contact Person: Non-Responsive
- Submitted By: Non-Responsive

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

AFTER HOURS (must be pre-scheduled)		NORMAL BUSINESS HOURS		RESULTS REQUIRED BY NOON
<input type="checkbox"/> Immediate	Date Due: _____	<input type="checkbox"/> Immediate	<input type="checkbox"/> 3 Day	<input type="checkbox"/> Results Required By Noon
<input type="checkbox"/> 24 Hours	Time Due: _____	<input type="checkbox"/> Next Day	<input checked="" type="checkbox"/> 5 Day +	(Every Attempt Will Be Made to Accommodate)
Comments: _____		<input type="checkbox"/> 2 Day	Date Due: <u>6/10/13</u>	

Asbestos Analysis

PCM Air - Please Indicate Filter Type:

- ☐ NIOSH 7400 (QTY) _____
- ☐ Fiberglass (QTY) _____

TEM Air - Please Indicate Filter Type:

- ☐ AHERA (QTY) _____
- ☐ NIOSH 7402 (QTY) _____
- ☐ Other (specify) _____ (QTY) _____

PLM Bulk

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

MISC

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

TEM Bulk

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

TEM Dust

- ☐ Qual. (pres/abs) Vacuum/Dust (QTY) _____
- ☐ Quan. (s/area) Vacuum D5755-95 (QTY) _____
- ☐ Quan. (s/area) Dust D6130-99 (QTY) _____

TEM Water

- ☐ Qual. (pres/abs) (QTY) _____
- ☐ ELAP 198.2/EPA 100.2 (QTY) _____
- ☐ EPA 100.1 (QTY) _____

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

PCM Analysis

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

Spore Analysis

Collection Apparatus for Spore Traps/Air Samples: _____

Collection Media: _____

- ☐ Spore-Trap (QTY) _____ ☐ Surface Vacuum Dust (QTY) _____
- ☐ Surface Swab (QTY) _____ ☐ Culturable ID Genus (Media _____) (QTY) _____
- ☐ Surface Tape (QTY) _____ ☐ Culturable ID Species (Media _____) (QTY) _____
- ☐ Other (Specify) _____ (QTY) _____

CLIENT ID NUMBER	SAMPLE INFORMATION			ANALYSIS												CLIENT CONTACT			
	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPE AREA	TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	WATER AND OTHER	SPORE TRAP	TAPE	SWAB	(LABORATORY STAFF ONLY)		
RC Gardner	W-01	5/30/13		100cm ²								X					Date/Time:	Contact:	By:
RC Gardner	W-02	5/30/13		100cm ²								X							
RC Gardner	W-03	5/30/13		100cm ²								X							
RC Gardner	W-04	5/30/13		100cm ²								X							
RC Gardner	W-05	5/30/13		100cm ²								X					Date/Time:	Contact:	By:
RC Gardner	W-06	5/30/13		100cm ²								X							
RC Gardner	W-07	5/30/13		100cm ²								X							
RC Gardner	W-08	5/30/13		100cm ²								X							
RC Gardner	W-09	5/30/13		100cm ²								X					Date/Time:	Contact:	By:
RC Gardner	W-40	5/30/13		100cm ²								X							
RC Gardner	TB-W	5/30/13		/								X							

LABORATORY

STAFF ONLY

1. Date/Time RCVD: 6/3/13 @ 1815 Via: Fedex By (Print): _____

2. Date/Time Analyzed: _____ @ _____ By (Print): _____

3. Results Reported To: _____

4. Comments: 1940 60954 80000

BEST AVAILABLE COPY

Non-Responsive

Released by National Guard Bureau

Page 1533 of 3473

APPENDIX D
PHOTOGRAPHIC LOG



PHOTOGRAPHIC LOG




Client Name: MA ARNG- Gardner RC		Site Location: 323 West Broadway, Gardner, MA	Project No. 39743799
Photo No. 1	Date: 5/30/13		
Description: Evidence of water intrusion in the area of the roof drain in the Supply Room.			

Photo No. 2	Date: 5/30/13	
Description: Door to former Indoor Firing Range that did not have a padlock.		



PHOTOGRAPHIC LOG

Client Name: MA ARNG- Gardner RC		Site Location: 323 West Broadway, Gardner, MA	Project No. 39743799
Photo No. 3	Date: 5/30/13		
Description: Typical office setting and ergonomics, along with presumed asbestos floor tiles and associated mastic in administrative areas.			

Photo No. 4	Date: 5/30/13	
Description: Entrance to Assembly Hall, emergency exits signs not illuminated from all viewpoints in the facility.		

APPENDIX E

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 ($\mu\text{g}/\text{ft}^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.
 - a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors ($40 \mu\text{g}/\text{ft}^2$) and windowsills ($250 \mu\text{g}/\text{ft}^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.
 - b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.
 - c. OSHA used to cite a level of $200 \mu\text{g}/\text{ft}^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.
 - d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that $200 \mu\text{g}/\text{ft}^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.
 - e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no

correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:
 - a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under ($40 \mu\text{g}/\text{ft}^2$ on floors and $250 \mu\text{g}/\text{ft}^2$ 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 milligrams per cubic meter (mg/m^3) averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

Prepared For:

National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
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
GREENFIELD ARMORY
71 HOPE STREET
GREENFIELD, MASSACHUSETTS**

Non-Responsive

Office Manager

Non-Responsive

Project Manager

**September 2005
PN: 39741508**

TABLE OF CONTENTS

Section	Page
1.0 SUMMARY	1
2.0 ADMINISTRATIVE AREA.....	2
2.1 OPERATION DESCRIPTION.....	2
2.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED.....	2
2.2.1 Relative Humidity.....	2
2.2.2 Carbon Dioxide.....	2
2.2.3 Carbon Monoxide	3
2.2.4 Lighting.....	3
2.2.5 Lead	3
2.3 VENTILATION SYSTEM EVALUATION	4
2.4 NOISE MEASUREMENTS.....	4
2.5 PERSONAL PROTECTIVE EQUIPMENT.....	4
2.6 INTERPRETATION OF RESULTS.....	4
3.0 FORMER FIRING RANGE.....	6
3.1 OPERATION DESCRIPTION.....	6
3.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED.....	6
3.2.1 Lead	6
3.3 VENTILATION SYSTEM EVALUATION	7
3.4 NOISE MEASUREMENTS.....	7
3.5 PERSONAL PROTECTIVE EQUIPMENT.....	7
3.6 INTERPRETATION OF RESULTS.....	7
4.0 DRILL HALL	8
4.1 OPERATION DESCRIPTION.....	8
4.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED.....	8
4.2.1 Lead	8
4.3 VENTILATION SYSTEM EVALUATION	9
4.4 NOISE MEASUREMENTS.....	9
4.5 PERSONAL PROTECTIVE EQUIPMENT.....	9
4.6 INTERPRETATION OF RESULTS.....	9
5.0 BOILER ROOM / BASEMENT AREA.....	10
5.1 OPERATION DESCRIPTION.....	10
5.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED.....	10
5.2.1 Lead	10
5.3 VENTILATION SYSTEM EVALUATION	10
5.4 NOISE MEASUREMENTS.....	10
5.5 PERSONAL PROTECTIVE EQUIPMENT.....	10
5.6 INTERPRETATION OF RESULTS.....	10
6.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS.....	12
6.1 CONFINED SPACES.....	12
6.2 HEARING CONSERVATION	12
6.3 RESPIRATORY PROTECTION	12
6.4 HAZARD COMMUNICATION.....	12
6.5 PERSONAL PROTECTIVE EQUIPMENT.....	12
7.0 REFERENCES	13

TABLE OF CONTENTS (cont.)

APPENDICES

Appendix A	Shop Drawing
Appendix B	Personnel List
Appendix C	Hazardous Materials List
Appendix D	Analytical Results
Appendix E	Training Certificates
Appendix F	Photographs
Appendix G	Recommendations for Surface Lead Dust in Armories

FINDINGS AND RECOMMENDATIONS

Findings	Recommendation	Risk Assessment Code
Lighting		
On the day of the survey, the illuminance in the administrative area was inadequate in over half of all 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 RP-1-04)	RAC 4
Lead		
Lead was detected in wipe samples collected throughout the armory in amounts greater than 200 $\mu\text{g}/\text{ft}^2$	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))	RAC 4
Asbestos		
A site-specific asbestos operations and maintenance plan was not available.	Develop a site specific asbestos operations and maintenance plan to manage asbestos-containing materials (OSHA 29 CFR 1910.1001(j))	RAC 3
Hazard Communication		
No site specific hazard communication plan available.	Develop a site specific hazard communication plan to manage hazardous materials (OSHA 29 CFR 1910.1200(e))	RAC 4
Mold		
Evidence of water incursions throughout building that may promote growth of mold.	Repair leaks in roof and institute a moisture management plan to inform employees of best practice in handling water incursions (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 Armory located at 71 Hope Street in Greenfield, Massachusetts 01301. 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 February 3, 2004, Mr. **Non-Responsive** an industrial hygienist with URS, conducted a site visit to the Armory in Greenfield, Massachusetts. 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. Mr. **Non-Responsive** of the State of Massachusetts 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 building area contains multiple offices located throughout the building with desks and computer workstations. Asbestos-containing floor tile located throughout this area is in good condition. Mr. [Non-Responsive] did observe a few areas on the second floor where there was evidence of water incursions (Photo # 0028)

2.2 Chemical and Physical Agents Sampled

2.2.1 Relative Humidity

Relative humidity levels were measured using a TSI Q-Track (Model 8551) direct-reading instrument. Relative humidity on the day of the survey averaged 26.2%. This average reading is below the recommended range of 30.0% to 60.0% set by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ANSI / ASHRAE Standard 55-2004).

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 600 to 1058 parts per million (ppm), with an average of 751 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 (ASHRAE 62.1-2004) recommends that levels of carbon dioxide be maintained below 700 ppm above background level. A background (exterior) reading was not collected on the day of the survey, however given the average interior carbon dioxide reading of 751 ppm the likelihood that the interior carbon dioxide concentration would exceed the exterior carbon dioxide concentration is remote.

2.2.3 Carbon Monoxide

Carbon monoxide was also measured in the Administration Area. The average carbon monoxide concentration was 1.4 ppm. This average measured level was below the ASHRAE guideline for indoor environments (ASHRAE 62.1 – 2004). 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 2-1
Lighting Measurements and Recommended Lighting Requirements

Location	Function	Measured Illuminance lux / foot candles	Recommended Minimum Illuminance lux / foot candles
Main Office	Administrative Duties	98 / 9.1	500 / 50
Foyer	Hall	266 / 24.7	30 / 3
Company Locker Room	Change Area	228 / 21.1	300 / 30
Basement Corridor	Hall	520 / 48.3	30 / 3
Admin Room	Administrative Duties	298 / 27.7	500 / 50

On the day of the survey the illuminance in the administrative area was inadequate in several office spaces.

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 Analytical Services, Inc.

(AMA) is contained in Appendix D. Table 2-2 below shows the results of the lead sampling.

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

Sample Location	URS Sample Number	Area Wiped (ft ²)	Result (µg/ft ²)	Maximum Safe Surface Contamination Level (µg/ft ²)
Company Locker Room	0203-04	1.0	210	200
PLT SGT Room	0203-05	1.0	260	200
Mortar Room	0203-06	1.0	310	200
1 st SGT Room	0203-07	1.0	46	200
Foyer Lobby	0203-08	1.0	43	200
Garage	0203-19	1.0	530	200
Basement Corridor	0203-20	1.0	<14	200
Blank	0203-21	N/A	<14	200

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

GENERAL: In general, the administrative area was neat and orderly.

LIGHTING: On the day of the survey, the illuminance in the administrative area was inadequate in some office spaces. URS recommends increasing lighting in the administrative areas through task lighting. While work is in progress, the administrative area should be lighted by at least the minimum light intensities.

LEAD: The four of the six surfaces tested in this area for lead were found to contain lead above the allowable limits set by the National Guard Bureau (See Appendix F) and should be cleaned by properly trained technicians. The NGB has prepared a

memorandum titled "Recommendations for Surface Lead Dust in Armories" which is provided in Appendix G.

MOLD: There is evidence of water incursions including water stains on the ceilings that could lead to mold problems if not addressed.

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 and an exercise room.

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 Former Firing Range

Sample Location	URS Sample Number	Area Wiped (ft ²)	Result (µg/ft ²)	Maximum Safe Surface Contamination Level (µg/ft ²)
Former Firing Range-North	0203-14	1.000	4700	200
Former Firing Range-Near Divider	0203-15	1.000	440	200
Former Firing Range-Exercise Room	0203-16	1.000	78	200
Former Firing Range-South	0203-17	1.000	200	200
Blank	0203-21	N/A	<14	200

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
Level of Lead Found in the Air

Sample Location	URS Sample Number	Air Volume (L)	Result (µg/m ³)	OSHA's PEL (µg/m ³)
Former Firing Range	0203-02	245	<12	50.0
Blank	0205-LA03	0	<3.0	50.0

On the day of the survey, the airborne lead dust level 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 $50.0 \mu\text{g}/\text{m}^3$ 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

LEAD: Three of the four surface wipe samples collected in the former firing range were found to contain lead dust levels which exceeded the maximum limit set by the National Guard Bureau (See Appendix F). URS recommends that an appropriately licensed lead contractor clean the former firing range. The NGB has prepared a memorandum titled "Recommendations for Surface Lead Dust in Armories" which is provided in Appendix G.

4.0 DRILL HALL

4.1 Operation Description

The drill hall is used for assembling personnel and storing equipment. The walls are constructed of cinder block with a wood floor.

4.2 Chemical and Physical Agents Sampled

4.2.1 Lead

Wipe testing for lead dust was conducted in the drill hall 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 Number	Area Wiped (ft ²)	Result (µg/ft ²)	Maximum Safe Surface Contamination Level (µg/ft ²)
Drill Hall - Floor - Southwest	0203-09	1.000	430	200
Drill Hall - Floor - Northwest	0203-10	1.000	150	200
Drill Hall - Northeast	0203-11	1.000	83	200
Drill Hall - Southeast	0203-12	1.000	150	200
Drill Hall - Stage	0203-13		81	200
Blank	0203-21	N/A	<14	200

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

Table 4-2
Level of Lead Found in the Air

Sample Location	URS Sample Number	Air Volume (L)	Result (µg/m ³)	OSHA's PEL (µg/m ³)
Drill Hall	0203-01	224	<13	50.0
Blank	0205-LA03	0	<3.0	50.0

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 $50.0 \mu\text{g}/\text{m}^3$ averaged over an 8-hour day.

Two paint chip samples were collected in the drill hall where paint was peeling and sent to AMA for analysis. The samples were found to contain lead in a concentration below 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	URS Sample Number	Reporting Limit (% by Weight)	Final Result (% by Weight)
Drill Hall	0203-22	0.01	0.04
Drill Hall	0203-23	0.01	0.093
Drill Hall	0205-LPC07	0.01	0.22

The analytical report from AMA is contained in Appendix D.

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

LEAD: One of the five surface wipe samples collected in the drill hall was found to contain a lead dust level which exceeded the maximum limit set by the NGB (See Appendix F). URS recommends that an appropriately licensed lead contractor clean the drill hall. The NGB has prepared a memorandum titled "Recommendations for Surface Lead Dust in Armories" which is provided in Appendix G.

5.0 BOILER ROOM / BASEMENT AREA

5.1 Operation Description

The boiler room is a mechanical space constructed of cinder block walls with a concrete floor, containing a furnace and associated piping.

5.2 Chemical and Physical Agents Sampled

5.2.1 Lead

Wipe testing for lead dust was conducted in the boiler room using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA is contained in Appendix D. Table 5-1 below shows the results of the lead sampling.

Table 5-1
Level of Lead Dust Found in the Boiler Room

Sample Location	URS Sample Number	Area Wiped (ft ²)	Result (µg/ft ²)	Maximum Safe Surface Contamination Level (µg/ft ²)
Boiler Room -Locker	0203-18	1.000	300	200
Blank	0203-21	N/A	<14	200

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

LEAD: The wipe sample collected in the boiler room was found to contain a lead dust level which exceeded the maximum limit set by the National Guard Bureau URS

recommends that an appropriately licensed lead contractor clean the drill hall. The NGB has prepared a memorandum titled "Recommendations for Surface Lead Dust in Armories" which is provided in Appendix G.

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

No safety program was found regarding hearing conservation. No training records were found on site. A hearing conservation program is not required for this site.

6.3 Respiratory Protection

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

6.4 Hazard Communication

No program was found regarding hazard communication. No training records were found on site. A site-specific hazard communication program is required for this site and should include communication of hazards to employees, management of material safety data sheets, chemical labeling and spill protection.

6.5 Personal Protective Equipment

No safety program was found regarding personal protective equipment. 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 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

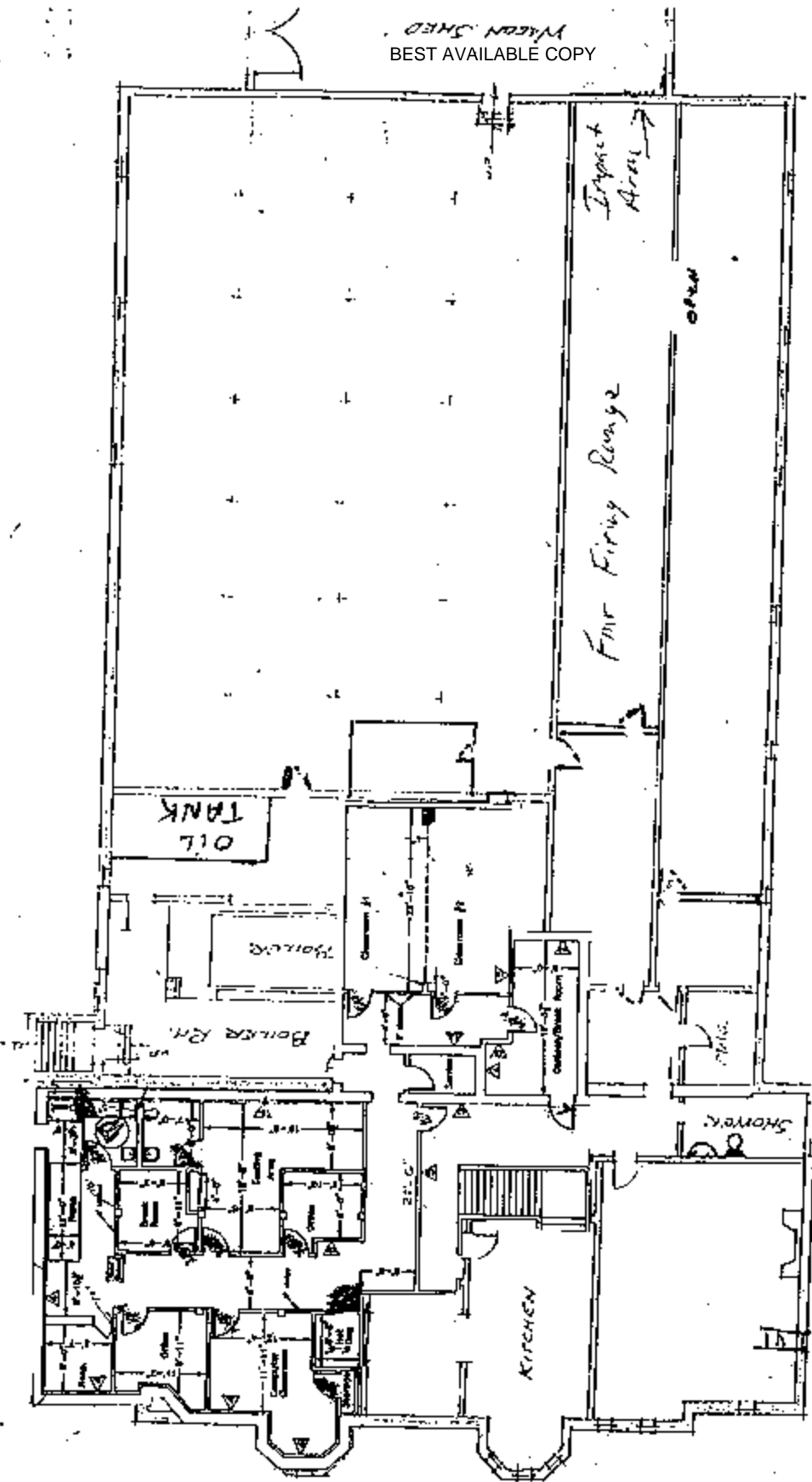
Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (1995, 1997)

U. S. Occupational Safety and Health Administration

Standard for General Industry: 29 CFR 1910

APPENDIX A
SHOP DRAWING

STATE ARMORY - GREENFIELD, MASS.



BEST AVAILABLE COPY

BASEMENT
SCALE 1"=20'

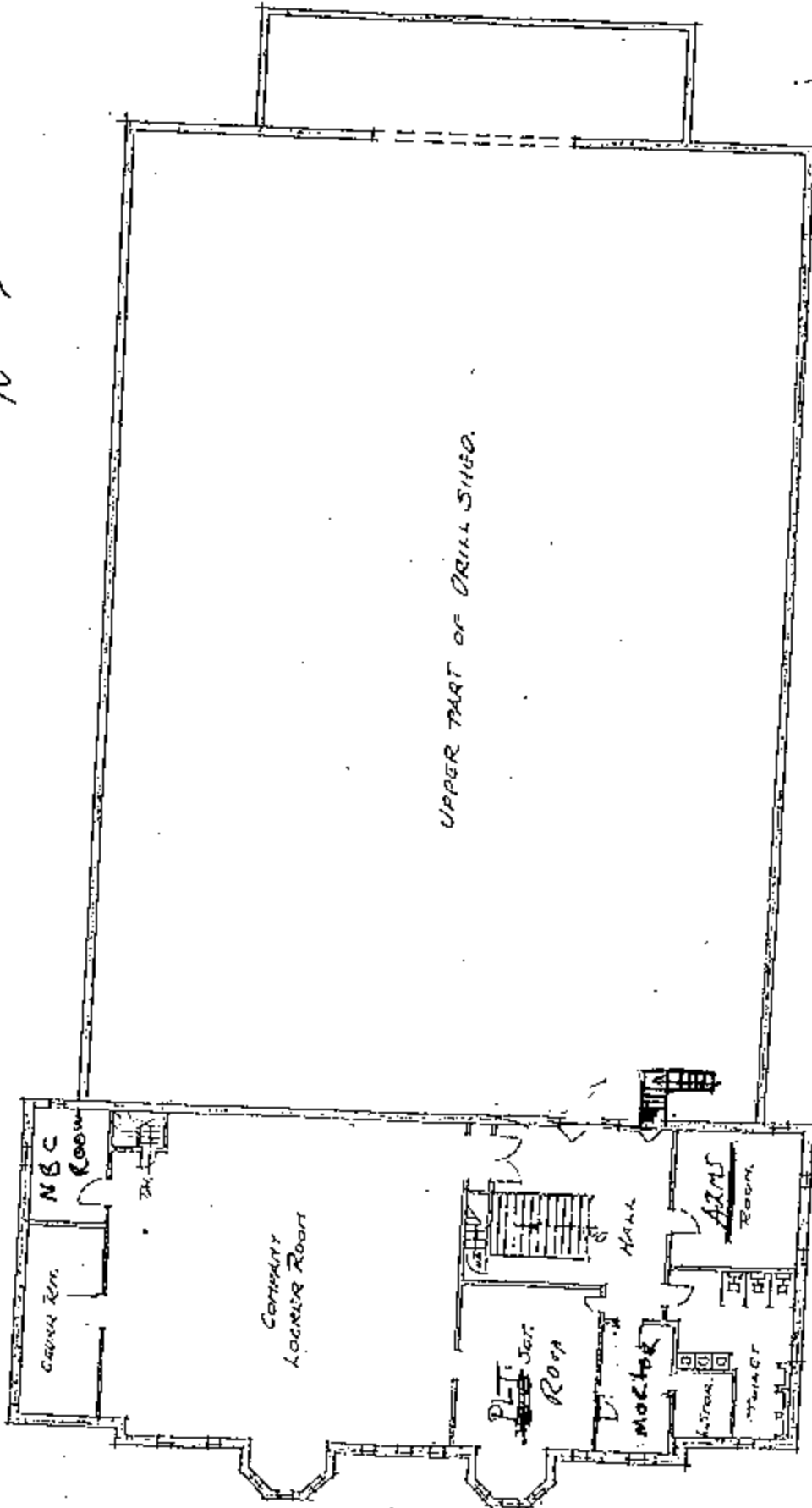
Oct. 1937

A hand-drawn floor plan of a building, likely a military installation. The plan is oriented with a large central area labeled "DRILL SHED" at the top. To the left of the drill shed is a long corridor labeled "PASSAGE". At the bottom left, there is a cluster of rooms including "CAPTAIN'S ROOM", "1st Sgts", "MALL", "ROOM", "TOILET", and "BATH". To the right of the drill shed, there is a large "COMPANY ROOM" and an "OFFICE". A "DOOR" is marked on the right wall. A "STAIR" is located near the bottom right corner. The drawing is a simple line sketch with handwritten labels.

First Floor
Scale 1"=20'

STATE ARMORY - GREENFIELD, MASS.

N →



SECOND FLOOR
SCALE 1"=20'

Oct. 1937. 649

APPENDIX B
PERSONNEL LIST

BEST AVAILABLE COPY

NOT AVAILABLE

APPENDIX C
HAZARDOUS MATERIALS LIST

**FAMILY
FIRST**

MASSACHUSETTS
NATIONAL GUARD
FAMILY SERVICES
PROGRAM

Locker B

- 1) PAINT THINNER - 4 CONTAINERS total @ 1 GAL CARB cleaner 1 can
- 2) THOMPSON WATER SEAL - 1 container @ 3/4 gal. SAE 100W Fluid 1 can
- 3) SPRAY CAN ENAMEL - 9 CANS @ 12 oz. EA.
- 4) RUSTOLEUM ENAMEL - 6 CANS @ 1 GAL total 9 Cans - Gold spray Paint
- 5) PRESSURE SENSITIVE ADHESIVE - 1 Can 14 oz.
- 6) WOOD FINISH - 2 CANS total 2 QTS.
- 7) WATER BASED STAIN & GLOSS - 10 CANS total 2.5 GALS.
- 8) OIL BASED GLOSS - 5 1 GAL CANS
- 9) ALKYD EXT. GLOSS - 3 1 GAL CANS
- 10) LATEX HOUSE PAINT - 13 1 GAL CANS
- 11) AEROSOL PHENOTHALIN INSECTICIDE - 5 CANS 12 oz. EA.
- 12) " " PERMETHRIN INSECTICIDE - 132 CANS 12 oz. EA.

Locker A

- 1) CLEANING Compound Rifle Bore - 1 can @ 1 GAL.
- 2) RUBBER & GASKET SEALER - 1 can @ 32 oz.
- 3) TIGHT PACKING SEALANT - 2 CANS total 2 PTS.
- 4) METHYL Alcohol - 7 bottles 2 1/2 EACH.
- 5) CHARCOAL Lighter fluid - 3 CANS @ 1 QT EA.
- 6) LUBE OIL - WEAPONS - 2 CANS @ 2 QT. EA.
- 7) RESIN THINNER - 5 CANS @ 1 PINT. EA.
- 8) METHYL Alcohol - 7 bottles @ 1 pint EA.
- 9) WATER Displacing Compound - 5 CANS @ 16 1/2 EA.
- 10) MOTOR OIL 10W-40 - 1 QT.
- 11) BRAKE FLUID - 1 bottle @ 1.5 gal.
- 12) Coleman Fuel - 1 can @ .5 gal.
- 13) Coleman Stoves - 13 EA. (empty)

1-800-352-4452 EXT. 2118

Hazardous Material Locker Inspection List TY02

Date Inspected	Inspector	Deficiencies
21OCT01	SFC	NONE
04OCT01	SFC	NONE
09DEC01	SFC	NONE
06JAN02	SFC	NONE
03FEB02	SFC	NONE
03MAR02	SFC	NONE
07APR02	SFC	NONE
05MAY02	SFC	NONE
29JUN02	SFC	NONE
14JUL02	SFC	NONE
04AUG02	SFC	NONE
11 AUG 02	SFC	NONE
10 SEP 02	SFC	NONE

Hazardous Material Locker Inspection List TY03

Date Inspected	Rank/Name	Deficiencies
06OCT02	SFC Non-Responsive	NONE
03NOV02	SFC	NONE
08DEC02	SFC	NONE
02FEB03		
02MAR03		
06APR03		
04MAY03		
29JUN03		
04AUG03		
07SEP03		

APPENDIX D
ANALYTICAL RESULTS

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client: National Guard Bureau
Address: 301-JH Old Bay Lane, Attn: NGB-AVN-SI,
State Military Reservation
Havre de Grace, Maryland 21078

Job Name: Armory
Job Location: Greenfield, MA
Job Number: Not Provided
P.O. Number: BPA #W912K6-04-A0002

Chain Of Custody: 128465
Date Analyzed: 06/11/2004
Person Submitting: [REDACTED]
Report Date: 11-Jun-04

Attention: [REDACTED]

Page 1 of 2

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Final Result	Comments
0448813	0203-04	Flame	Wipe	****	1.000	14.00 ug/ft²	210 ug/ft²	
0448814	0203-05	Flame	Wipe	****	1.000	14.00 ug/ft²	260 ug/ft²	
0448815	0203-06	Flame	Wipe	****	1.000	14.00 ug/ft²	310 ug/ft²	
0448816	0203-07	Flame	Wipe	****	1.000	14.00 ug/ft²	46 ug/ft²	
0448817	0203-08	Flame	Wipe	****	1.000	14.00 ug/ft²	43 ug/ft²	
0448818	0203-09	Flame	Wipe	****	1.000	14.00 ug/ft²	430 ug/ft²	
0448819	0203-10	Flame	Wipe	****	1.000	14.00 ug/ft²	150 ug/ft²	
0448820	0203-11	Flame	Wipe	****	1.000	14.00 ug/ft²	83 ug/ft²	
0448821	0203-12	Flame	Wipe	****	1.000	14.00 ug/ft²	150 ug/ft²	
0448822	0203-13	Flame	Wipe	****	1.000	14.00 ug/ft²	81 ug/ft²	
0448823	0203-14	Flame	Wipe	****	1.000	14.00 ug/ft²	4700 ug/ft²	
0448824	0203-15	Flame	Wipe	****	1.000	14.00 ug/ft²	440 ug/ft²	
0448825	0203-16	Flame	Wipe	****	1.000	14.00 ug/ft²	78 ug/ft²	
0448826	0203-17	Flame	Wipe	****	1.000	14.00 ug/ft²	200 ug/ft²	
0448827	0203-18	Flame	Wipe	****	1.000	14.00 ug/ft²	300 ug/ft²	
0448828	0203-19	Flame	Wipe	****	1.000	14.00 ug/ft²	530 ug/ft²	
0448829	0203-20	Flame	Wipe	****	1.000	14.00 ug/ft²	< 14 ug/ft²	
0448830	0203-21	Flame	Wipe Blank	****	N/A	14.00 ug	< 14 ug	
0448831	0203-22	Flame	Paint Chip	****	N/A	0.01 %Pb	0.04 %Pb	
0448832	0203-23	Flame	Paint Chip	****	N/A	0.01 %Pb	0.093 %Pb	

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, NIST, or any agency of the Federal Government.

An AIHA (00063), NVLAP (#1011-13), & New York ELAP (#10229) Accredited Laboratory

Posted to NGB FOIA Reading Room: 1475 Forbes Blvd., • Lenzburg, MD 20705 • (301) 459-2640 • Toll Free (800) 346-0501 • Fax (301) 459-2646
May, 2018

BEST AVAILABLE COPY

AMA Analytical Services, Inc.



A Specialized Environmental Laboratory

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client: National Guard Bureau
Address: 301-JH Old Bay Lane, Attn: NGB-AVN-SI,
State Military Reservation
Havre de Grace, Maryland 21078

Job Name: Armory
Job Location: Greenfield, MA
Job Number: Not Provided
P.O. Number: BPA #W912K6-04-A0002

Chain Of Custody: 128465
Date Analyzed: 06/11/2004
Person Submitting: [REDACTED]
Report Date: 11-Jun-04

Attention: [REDACTED]

Page 2 of 2

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Final Result	Comments
0448833	0203-24	Flame	Wipe Blank	***	N/A	14.00 ug	< 14 ug	
0448834	0203-03	Flame	Air Blank	0	N/A	3.00 ug/m³	< 3 ug	
0448835	0203-01	Flame	Air	224	N/A	13.39 ug/m³	< 13 ug/m³	
0448836	0203-02	Flame	Air	245	N/A	12.24 ug/m³	< 12 ug/m³	

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

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

N/A = Not Applicable mg/Kg = parts per million (ppm) by weight mg/L = parts per million (ppm)

%Pb = percent lead by weight ug = micrograms ug/L = parts per billion (ppb)

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

Analyst: [REDACTED]

Technical Manager: [REDACTED]

BEST AVAILABLE COPY

FOIA Requested Record #1-15-0085 (MM)

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, NIST, or any agency of the Federal Government.

An AIHA (68863), NVLAP (610143), & New York ELAP (810220) Accredited Laboratory

Posted to NGB FOIA Reading Room 1175 Forbes Blvd., Lanham, MD 20705 • (301) 459-2639 • Toll Free (800) 346-6291 • Fax (301) 459-2639
May, 2018

BEST AVAILABLE COPY

Client: National Guard Bureau
Address: 301-TH Old Bay Lane, Attn: NGB-AVN-SI,
 State Military Reservation
 Havre de Grace, Maryland 21078

Job Name: Armory
Job Location: Greenfield, MA
Job Number: Not Provided
P.O. Number: BPA #W912K6-04-A0002

Chain Of Custody: 128465
Date Analyzed: 6/4/2004
Person Submitting: [REDACTED]
Report Date: 04-Jan-04

Attention: [REDACTED]

Page 1 of 1

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Final Result	Comments
0448831	0203-22	Flame	Paint Chip	***	N/A	0.01 %Pb	0.04 %Pb	
0448832	0203-23	Flame	Paint Chip	***	N/A	0.01 %Pb	0.093 %Pb	
0448834	0203-03	Flame	Air Blank	0	N/A	3.00 ug/m³	< 3 ug	
0448835	0203-01	Flame	Air	224	N/A	13.39 ug/m³	< 13 ug/m³	
0448836	0203-02	Flame	Air	245	N/A	12.24 ug/m³	< 12 ug/m³	

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

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

NA = Not Applicable mg/Kg = parts per million (ppm) by weight mg/L = parts per million (ppm)

%Pb = percent lead by weight ug = micrograms ug/L = parts per billion (ppb)

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

Analyst: [REDACTED]

Technical Manager: [REDACTED]

Non-Responsive

BEST AVAILABLE COPY

APPENDIX E
TRAINING CERTIFICATES

Non-Responsive



Certificate of Training

Awarded to



For successful completion of an 8 Hour, 1 Day
Asbestos Inspector & Management Planner
Annual Refresher Training
MARCH 25, 2003

This training was approved and given in accordance with
Regulations for Connecticut State Agencies
RCSA 20-440 - 1-9 and RCSA 20-441 and meets the
requirements of the EPA Revised MAP under TSCA Title II of 4/4/94

Presented by

Mystic Air Quality Consultants, Inc.
1204 North Road, Groton, CT 06340 (800) 247-7746

Certificate Number: IMPR10543

Exam Grade: 100%

Expiration Date: 03/25/2004

Exam Date: 03/25/2003



SH, CSP, RS



Training Director

APPENDIX F
PHOTOGRAPHS



Photo 0004: Exterior View



Photo 0006: Company Locker Room
Location of wipe sample 0203-04



Photo 0007: Platoon Sergeant's Room - Location of
wipe sample 0203-05



Photo 0008: Mortar Room South -
Location of wipe sample 0203-06



Photo 0009: First Sergeant's Room - Location of
wipe sample 0203-07



Photo 0010: Foyer Lobby - Location of
wipe sample 0203-08



Photo 0011: Drill Floor Southwest --
Location of wipe sample 0203-09

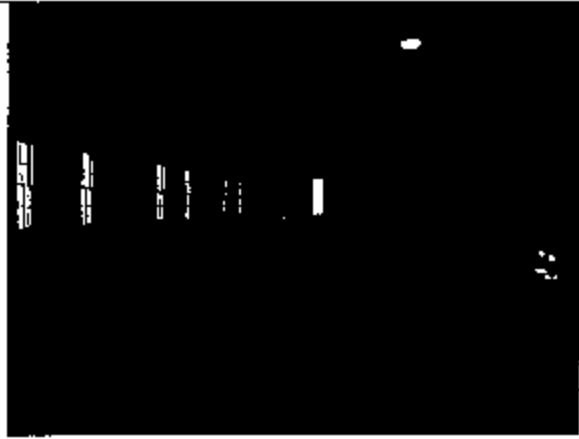


Photo 0012: Drill Floor Northwest
Location of wipe sample 0203-10

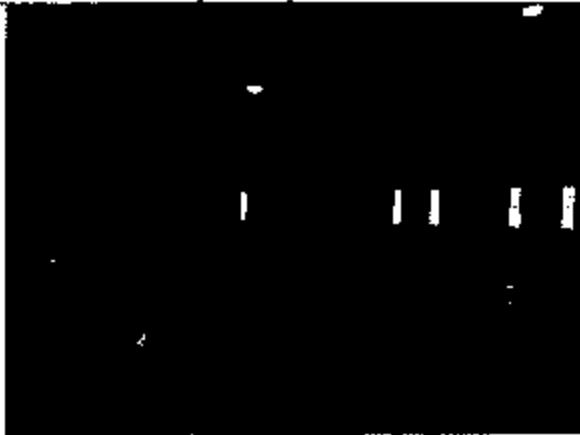


Photo 0013: Drill Floor Northeast --
Location of wipe sample 0203-11

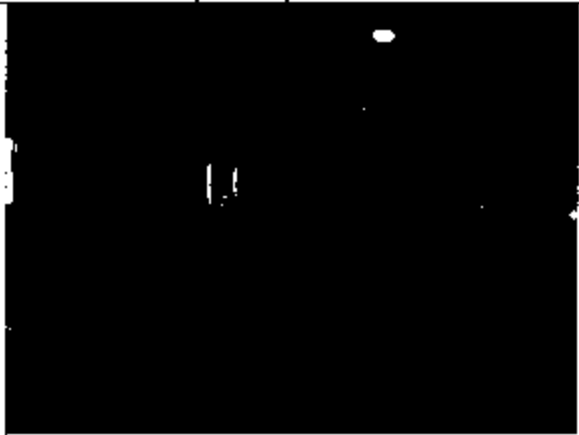


Photo 0014: Drill Floor Southeast --
Location of wipe sample 0203-12

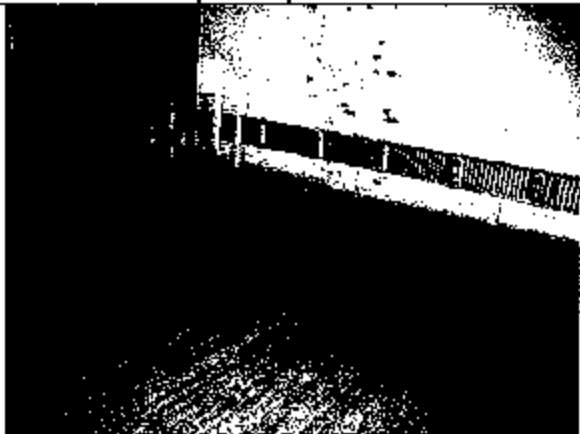


Photo 0015: Drill Floor Stage -- Location of
wipe sample 0203-13



Photo 0016: Former Firing Range North --
Location of wipe sample 0203-14



Photo 0017: Former Firing Range Near Divider - Location of wipe sample 0203-15



Photo 0018: Former Firing Rang (Exercise Room) - Location of wipe sample 0203-16

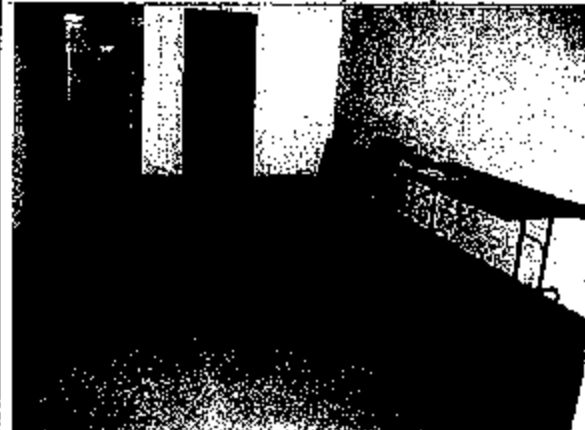


Photo 0019: Former Firing Range South - Location of wipe sample 0203-17



Photo 0020: Boiler Room - Location of wipe sample 0203-18



Photo 0021: Garage - Location of wipe sample 0203-19



Photo 0022: Basement Corridor - Location of wipe sample 0203-20

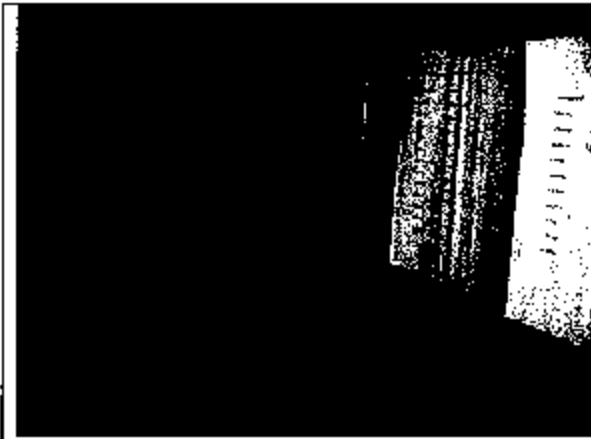


Photo 0023: Garage – Flammable Materials Cabinet

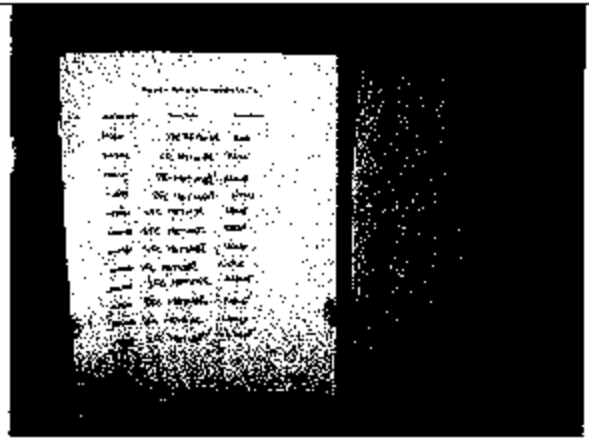


Photo 0024: Garage – Flammable Materials Cabinet Inventory



Photo 0027: Boiler Room – Boiler



Photo 0028: Second Floor – Water damaged ceiling



Photo 0029: Drill Hall – Water damage

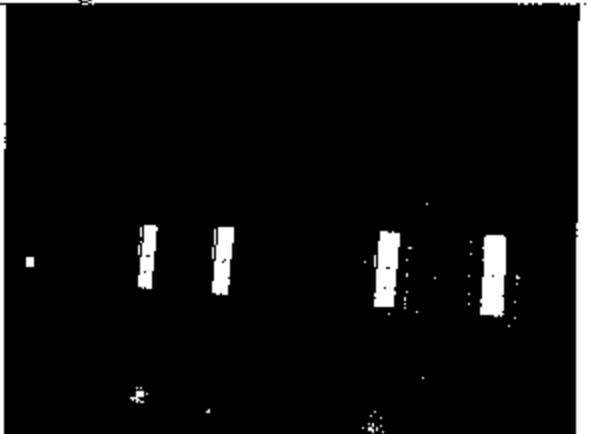


Photo 0030: Drill Hall – Water damaged

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 ($\mu\text{g}/\text{ft}^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

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

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

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

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

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

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

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under ($40 \mu\text{g}/\text{ft}^2$ on floors and $250 \mu\text{g}/\text{ft}^2$ 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 $0.05 \text{ mg}/\text{m}^3$ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

Industrial Hygiene Survey

Massachusetts Army National Guard (MA ARNG)

Prepared For: NGB ARNG– Region North IH Office

Survey Location:

Greenfield Readiness Center

71 Hope Street
Greenfield, MA 01301-3516

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

Survey Date: July 29, 2010
Report Date: September 16, 2010

AEI Project #: J10-513 3a MA Greenfield RC

Non-Responsive

Industrial Hygienist



BEST AVAILABLE COPY
Industrial Hygiene Survey Report
Massachusetts Army National Guard (MA ARNG)
Greenfield Readiness Center

Table of Contents

Executive Summary	ii
1 Introduction	1
2 Evaluation Methods	1
3 Operations	1
4 Noise Hazards	1
5 Hazard Controls	2
Ventilation Systems	2
6 Physical Condition of the Facility and Personnel Concerns	2
Paint Chip and Dust Wipe Samples for Lead Contamination	2
Visual Inspection for Damaged Suspect Asbestos-Containing Materials	4
Visual Inspection for Water Damage and Mold Growth	4
Visual Inspection for Housekeeping Concerns	4
Lighting	4
Indoor Air Quality (IAQ)	4
Temperature and Relative Humidity	5
Carbon Dioxide (CO ₂) and Carbon Monoxide (CO)	5
7 Conclusions	5
8 Limitations	6

List of Tables and Appendices

Table 1 - Results of Lead in Air Sampling for the MA ARNG Greenfield Readiness Center on July 29, 2010.

Table 2 – Results of Dust Wipe Sampling for the MA ARNG Greenfield Readiness Center on July 29, 2010.

Table 3 - Results of Asbestos Sampling for the MA ARNG RC Greenfield Readiness Center on July 29, 2010.

Table 4 - Acceptable Ranges of Temperature and Relative Humidity in Summer and Winter

Appendix A – Building Layout

Appendix B – Certificates of Analysis for Air, Dust Wipe and Bulk Samples

Appendix C – Photo Documentation

Appendix D – IAQ and Lighting Survey Log Sheets

BEST AVAILABLE COPY
Industrial Hygiene Survey Report
Massachusetts Army National Guard (MA ARNG)
Greenfield Readiness Center

Executive Summary

Aria Environmental, Inc. (AEI) was contracted to perform an industrial hygiene evaluation for the Readiness Center located at 71 Hope Street, Greenfield, MA, 01301-3516. [REDACTED] performed the evaluation on July 29, 2010. The point of contact for the facility was SGT [REDACTED]. The purpose of the evaluation was to identify and measure the existence and extent of potentially hazardous operations or conditions at Army National Guard (ARNG) facilities. The survey included: (1) evaluations of operations including operation description, ventilation system evaluations, noise dosimetry if appropriate, lighting surveys, hazard control evaluations and any additional information pertinent to the operations; (2) an evaluation of the physical condition of the facility and personnel concerns including visual inspections for peeling potentially lead-based paint, damaged suspect asbestos-containing materials, water damage or mold problems; indoor air quality concerns; and housekeeping practices; and (3) photographs of the exterior and interior of the readiness center. The results of the evaluation indicated the following:

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

Lead in Air Samples: Results of collected air samples were below regulatory limits for lead. (50 $\mu\text{g}/\text{m}^3$).

Paint Chip and Wipe Samples for Lead Contamination: Three of six wipe samples collected from the former firing range were above the National Guard criteria for lead contamination (200 $\mu\text{g}/\text{ft}^2$). Samples ranged from 1.8 to 21 times the National Guard criteria. Lead was identified on the overhead exhaust fan, on top of the light fixture, on stored footlockers and on the floor of the range. Additionally, the wipe sample taken from the floor immediately outside the former firing range was above National Guard criteria. One sample from the radiator in a basement storage room and one sample collected from the top of the flammable cabinet located in the basement were reported as 690 and 450 $\mu\text{g}/\text{ft}^2$ respectively.

Peeling paint was identified on the bullet trap remaining in the old firing range. Paint chip samples were collected from the peeling paint on the bullet trap. The lead content of the paint chip sample was less than 0.5% by weight and is not considered lead-based paint.

Visual Inspection for Damaged Asbestos-Containing Materials: No damaged suspect asbestos-containing materials were observed at the Greenfield Readiness Center.

Visual Inspection for Water Damage and Mold Growth: A visual inspection was performed to determine if there was any water damage or visible mold growth at the facility. Standing water was present in the basement storage rooms. Water has been infiltrating the storage space for some time and standing water pools along the exterior wall. Although the exact source of the water is unknown and was not readily apparent, National Guard personnel have indicated they believe it is a result of water seepage through exterior foundation walls.

Visual Inspection for Housekeeping Concerns: A visual inspection was performed to assess the state of housekeeping in the facility. The housekeeping was good. All areas were clean and tidy.

Lighting: The evaluation indicated that there are some illumination deficiencies in the: quarters, stage, classroom, kitchen, garage and boiler room. The illumination measurements indoors ranged from a low of 1.3 foot candles (fc) to a high of 141.1 fc.

BEST AVAILABLE COPY
Industrial Hygiene Survey Report
Massachusetts Army National Guard (MA ARNG)
Greenfield Readiness Center

Indoor Air Quality: Temperatures and relative humidity measurements were outside the acceptable range in most of the facility. These results are not unexpected due to outdoor conditions on the day of the survey and the lack of air conditioning in most of the facility. Those areas with window air conditioning units were within acceptable ranges. Indoor levels of CO₂ ranged from 306 to 798 parts per million (ppm) and outdoor CO₂ levels were approximately 421 ppm during the monitored period. CO₂ measurements were below the guideline in all areas, indicating adequate fresh air exchange. Carbon dioxide levels in areas over the guideline were 1.14 times or less than the established guidelines. Indoor levels of CO ranged from 0 to 0.1 ppm; therefore, concentrations are below occupational exposure limits, ASHRAE and the NAAQS-recommended CO concentrations.

BEST AVAILABLE COPY
Industrial Hygiene Survey Report
Massachusetts Army National Guard (MA ARNG)
Greenfield Readiness Center

1 Introduction

Aria Environmental, Inc. (AEI) was contracted to perform an industrial hygiene evaluation for the Massachusetts Army National Guard (MA ARNG) Readiness Center located at 71 Hope Street, Greenfield, MA 01301-3516. [REDACTED] performed the evaluation on July 29, 2010. The point of contact for the facility was SGT [REDACTED]. The purpose of the evaluation was to identify and measure the existence and extent of potentially hazardous operations or conditions at Army National Guard (ARNG) facilities.

The Greenfield Readiness Center is staffed with 3 administrative personnel. The operations conducted at the facility include supply and administrative duties. A diagram of the building layout is provided in Appendix A. All sampling sheets and laboratory certificates of analysis are provided in Appendix B. Selected photographs taken during the evaluation are provided in Appendix C. Indoor air quality and lighting survey measurement log sheets are provided in Appendix D. Lists of all references used during the evaluation are included in the main body of the report.

2 Evaluation Methods

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

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

3 Operations

Operations conducted at the Greenfield facility consists exclusively of supply and administrative duties. No maintenance of vehicles, painting of equipment or other physical tasks are performed at the facility. Ground maintenance and upkeep of the building are the responsibility of the state employed Armorer and not part of the duties of National Guard personnel.

4 Noise Hazards

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

5 Hazard Controls

Ventilation Systems

Heat is supplied to the facility through a boiler located in the boiler room and overhead heaters in the drill hall. The boiler certificate for the Greenfield facility is expired and is not up to date. Personnel indicated the new boiler certification was in the mail. Any air conditioning provided to the building is through window air conditioning units. No local ventilation systems were present at the facility.

6 Physical Condition of the Facility and Personnel Concerns

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

Lead in Air Samples

To determine if any airborne contamination of lead existed in the facility, air sampling for lead was conducted in two offices in the facility and analyzed by AMA for atomic absorption spectrophotometry (AAS) following the analytical method ASTM D3335-85A. Results are given in Table 1 and certificates of analysis are included in Appendix B.

**Table 1 – Results of Lead in Air Sampling for the MA ARNG
Greenfield Readiness Center on July 29, 2010.**

Air Sample #	Sample Location	Result ($\mu\text{g}/\text{m}^3$)*
GRE-01	Room 10, On Desk	<3.3
GRE-02	Room 13, On Desk	<3.3

*The OSHA PEL for Lead in Air is $50 \mu\text{g}/\text{m}^3$.

Paint Chip and Dust Wipe Samples for Lead Contamination

To determine if any cross contamination of lead from any source into areas of the facility existed, wipe samples were collected using ghost wipes and 10cm x 10cm templates. Wipe samples for surface dust were collected in 19 locations. The Environmental Protection Agency (EPA) and the Commonwealth of Massachusetts limits for lead in dust are 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) on floors, $250 \mu\text{g}/\text{ft}^2$ on window sills, and $400 \mu\text{g}/\text{ft}^2$ in window troughs. These limits apply to pre-1978 Army facilities only if children under 6 years of age occupy them for 60 or more hours per year. The NGB Region North Industrial Hygiene Office concurs with the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) recommended maximum level for adult exposures of $200 \mu\text{g}/\text{ft}^2$ on floors and frequently contacted surfaces, which is more stringent for window sills than the EPA/State standards. Dust wipe samples were submitted to Aerosol Monitoring and Analysis Analytical Services, Inc. (AMA) for atomic absorption spectrophotometry (AAS) following the analytical method ASTM D3335-85A. Three of six samples collected from the former firing range, now used but not converted to storage, were above the National Guard criteria for lead contamination ($200 \mu\text{g}/\text{ft}^2$). Samples ranged from 1.8 to 21 times the National Guard criteria. Lead was identified on the overhead exhaust fan, on top of the light fixture, on stored footlockers and on the floor of the range. Additionally the wipe sample taken from the floor immediately outside the former firing range was also above National Guard criteria. One sample from the radiator in a basement storage room and one sample collected from the top of the flammable cabinet located in the basement were reported as 690 and 450

BEST AVAILABLE COPY
Industrial Hygiene Survey Report
Massachusetts Army National Guard (MA ARNG)
Greenfield Readiness Center

µg/ft² respectively. Results are given in Table 2 and certificates of analysis are included in Appendix B.

**Table 2 – Results of Dust Wipe Sampling for MA ARNG
Greenfield Readiness Center on July 29, 2010.**

Wipe Sample #	Sample Location	Result (µg/ft²)*
GRE-PB-01	Room 27, Former Indoor Firing Range, Bullet Trap	180
GRE-PB-02	Room 27, Former Indoor Firing Range, Light Fixture	370
GRE-PB-03	Room 27, Former Indoor Firing Range, Foot Locker	1,100
GRE-PB-04	Room 27, Former Indoor Firing Range, Floor	4,200
GRE-PB-05	Room 27, Former Indoor Firing Range, Overhead Heater	<110
GRE-PB-06	Immediately at Side Door of Room 27	540
GRE-PB-07	Kitchen, From Prep Table	<110
GRE-PB-08	Room 10, Radiator	690
GRE-PB-09	Assembly Hall, Middle of Floor	<110
GRE-PB-10	Assembly Hall, Stage	<110
GRE-PB-11	Assembly Hall, Table Along Exterior Wall	120
GRE-PB-12	Room 26, On Top of Flammable Cabinet	450
GRE-PB-13	Room 19, From Shelving Unit	<110
GRE-PB-14	Room 20, From Mantle	<110
GRE-PB-15	Room 14, On Top of File Cabinet	<110
GRE-PB-16	Room 17, Middle of Floor	<110
GRE-PB-17	Room 15, Desk Top	<110
GRE-PB-18	Room 3, From Bar Top	<110
GRE-PB-19	Room 6, Top of Steps	<110

*The US Army CHPPM recommends a maximum level for adult exposures of 200 µg/ft² lead on floors

A visual inspection was performed to determine if there were any areas of peeling paint at the facility that could pose a lead exposure hazard. Peeling paint was identified on the bullet rap remaining in the old firing range. Paint chip samples were collected from the peeling paint on the bullet trap. Samples were submitted to Aerosol Monitoring and Analysis Analytical Services, Inc. (AMA) for atomic absorption spectrophotometry (AAS) following the analytical method ASTM D3335-85A. In Massachusetts, paint is considered to be lead-based if it contains more than 0.5 % lead by weight. The lead content of the paint chip samples was less than 0.5% by

BEST AVAILABLE COPY
Industrial Hygiene Survey Report
Massachusetts Army National Guard (MA ARNG)
Greenfield Readiness Center

weight and is not considered lead-based paint. Results are given in Table 3 and certificates of analysis are included in Appendix B.

Table 3 – Results of Paint Chip Sampling for MA ARNG
Greenfield Readiness Center on July 29, 2010.

Paint Chip Sample #	Sample Location	Result (% by wt)*
GRE-LBP-01	Peeling Paint on Bullet Trap	0.47

*Paint is considered lead-based if it is > 0.5% by weight.

Visual Inspection for Damaged Suspect Asbestos-Containing Materials

A visual inspection was performed to determine if there were any suspect asbestos-containing material and its condition. The EPA defines an asbestos-containing material as one percent (1%) or more asbestos by visual estimation. No damaged suspect asbestos-containing materials were observed at the Greenfield Readiness Center.

Visual Inspection for Water Damage and Mold Growth

A visual inspection was performed to determine if there was any water damage or visible mold growth at the facility. Standing water was present in the basement storage rooms. Water has been infiltrating the storage space for some time and standing water pools along the exterior wall. Although the exact source of the water is unknown and was not readily apparent, National Guard personnel have indicated they believe it is a result of water seepage through exterior foundation walls.

Visual Inspection for Housekeeping Concerns

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

Lighting

Illumination levels were measured using a Cal-Light 400L, calibrated on July 30, 2009, and compared to minimum lighting requirements for various facilities and functions based on the following references: American National Standards Institute/Illumination Engineering Society of North America (ANSI/IESNA) Standard RP-1-04 (Office Lighting) and ANSI/IESNA Standard RP-7-01 (Lighting Industrial Facilities).

A lighting survey was performed in all areas within the readiness center. The evaluation indicated that there are some illumination deficiencies in the: quarters, stage, classroom, kitchen, garage and boiler room. The illumination measurements indoors ranged from a low of 1.3 foot candles (fc) to a high of 141.1 fc. The complete results of the evaluation are presented in Appendix D, including whether the results met minimum requirements for illumination. Additional illumination can be achieved by replacing burned-out lamps, cleaning fixtures, relocating detailed work to more illuminated areas, using supplemental task lighting, and opening doors or windows to provide more natural lighting.

Indoor Air Quality (IAQ)

Indoor air quality measurements (i.e., temperature, relative humidity, carbon dioxide and carbon monoxide) were taken using a factory calibrated TSI Q-Trak Plus Model 7565X. Temperature, relative humidity and carbon dioxide (CO₂) measurements were compared to the recommended levels established by the American Society of Heating, Refrigerating and Air-

BEST AVAILABLE COPY
Industrial Hygiene Survey Report
Massachusetts Army National Guard (MA ARNG)
Greenfield Readiness Center

Conditioning Engineers (ASHRAE). Carbon monoxide (CO) concentrations were compared to the ACGIH Threshold Limit Value (TLV) for CO and the Environmental Protection Agency's (EPA's) National Ambient Air Quality Standard (NAAQS) for CO.

Industry guidelines or standards for seasonal temperature and humidity ranges for thermal comfort are established by ASHRAE standard 55-2004. These ranges are presented in Table 4. The U.S. EPA also recommends maintaining relative humidity below 60% and ideally between 30 and 50% to prevent mold growth. Complete results are provided in Appendix G with the lighting survey measurements.

Table 4 - Acceptable Ranges of Temperature and Relative Humidity in Summer and Winter^a

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

^aadapted from ASHRAE Standard 55-2004

Temperature and Relative Humidity

Indoor temperature and relative humidity (Rh) measurements in the facility ranged from 76.4 to 87.0° F and 42.5 to 61.1% Rh. Outdoor temperature and humidity measurements were 86.5° F and 42.5% on the day of monitoring. Temperatures and relative humidity measurements were outside the acceptable range in most of the facility. These results are not unexpected due to outdoor conditions on the day of the survey and the lack of air conditioning in most of the facility. Those areas with window air conditioning units were within acceptable ranges.

Carbon Dioxide (CO₂) and Carbon Monoxide (CO)

Carbon dioxide and carbon monoxide measurements are used to assess ventilation system performance. The exhaled breath of building occupants is the main indoor source of carbon dioxide; therefore, the build up of CO₂ indicates inadequate ventilation. The concentration of concern for carbon dioxide is set by ASHRAE standard 62.1 – 2007 as 700 ppm above outdoor concentrations. Indoor levels of CO₂ ranged from 306 to 798 parts per million (ppm) and outdoor CO₂ levels were approximately 421 ppm during the monitored period. CO₂ measurements were below the guideline in all areas, indicating adequate fresh air exchange.

Carbon monoxide is a byproduct of incomplete combustion. Indoor concentrations indicate contamination caused by improperly vented or malfunctioning boilers, furnaces or stoves or from vehicle exhaust entering the building from garages, loading docks, nearby roads or parking lots. The concentration of interest set by ASHRAE standard 62.1-2007 and the National Ambient Air Quality Standards (NAAQS) for carbon monoxide is an 8 hour average of 9 ppm. The ACGIH TLV for CO is 25 ppm. Indoor levels of CO ranged from 0 to 0.1 ppm; therefore, concentrations are below occupational exposure limits, ASHRAE and the NAAQS-recommended CO concentrations.

7 Conclusions

The results of the evaluation indicated no concerns with the following at the facility: contamination of clean air sources, the presence of damaged suspect asbestos-containing materials, peeling potentially lead-based paints, noise hazards, visible mold and housekeeping.

BEST AVAILABLE COPY
Industrial Hygiene Survey Report
Massachusetts Army National Guard (MA ARNG)
Greenfield Readiness Center

The results of the evaluation indicated industrial hygiene concerns in the following areas: cross contamination from the former firing range, indoor air quality, water intrusion and lighting. Overall, Greenfield Readiness Center has few industrial hygiene issues, and programs are in place to protect, inform and train employees.

8 Limitations

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

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

9 References

1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current edition.
2. Title 24, Code of Federal Regulations (CFR), Part 35, Subpart B, Sections 35.110, Definitions of Lead-Based Paint, Housing and Urban Development, U.S. Department of Housing.
3. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998.
4. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, May 25, 2007.
5. Army Regulation (AR) 385-10, The Army Safety Program, August 23, 2007.
6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Service, Hearing Conservation Program, December 15, 1998.
7. Department of the Army Pamphlet (DA PAM) 40-503, Medical Service, Industrial Hygiene Program, October 30, 2000.
8. Technical Manual (TM) 5-810-1, Mechanical Design, Heating, Ventilation, and Air Conditioning, June 1991.
9. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current edition.

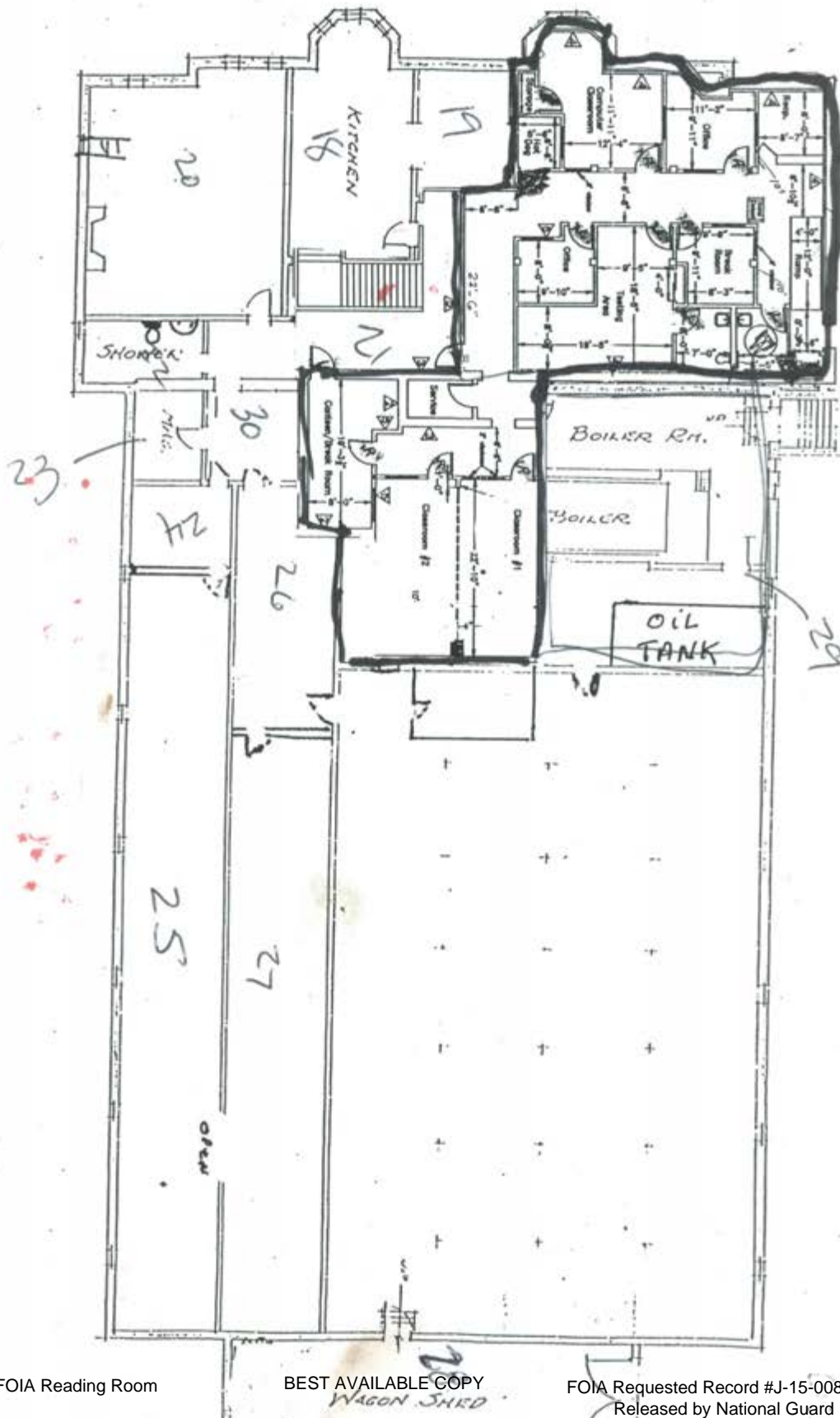
**Industrial Hygiene Survey Report
Massachusetts Army National Guard (MA ARNG)
Greenfield Readiness Center**

10. RP-1-2004 (Office Lighting) and RP-7-2001 (Industrial Lighting), Illuminating Engineering Society of North America (IESNA)/ANSI.
11. The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), Standard 62.1-2007, "Ventilation for Acceptable Indoor Air Quality" and Standard 55-2004, "Thermal Environmental Conditions for Human Occupancy".
12. NIOSH website: <http://www.cdc.gov/niosh/>
13. OSHA website: <http://www.osha.gov/>.
14. Army CHPPM website: <http://chppm-www.apgea.army.mil/>.
15. EPA website: <http://www.epa.gov>.

Appendix A Building Layout

STATE ARMORY - GREENFIELD, MASS.

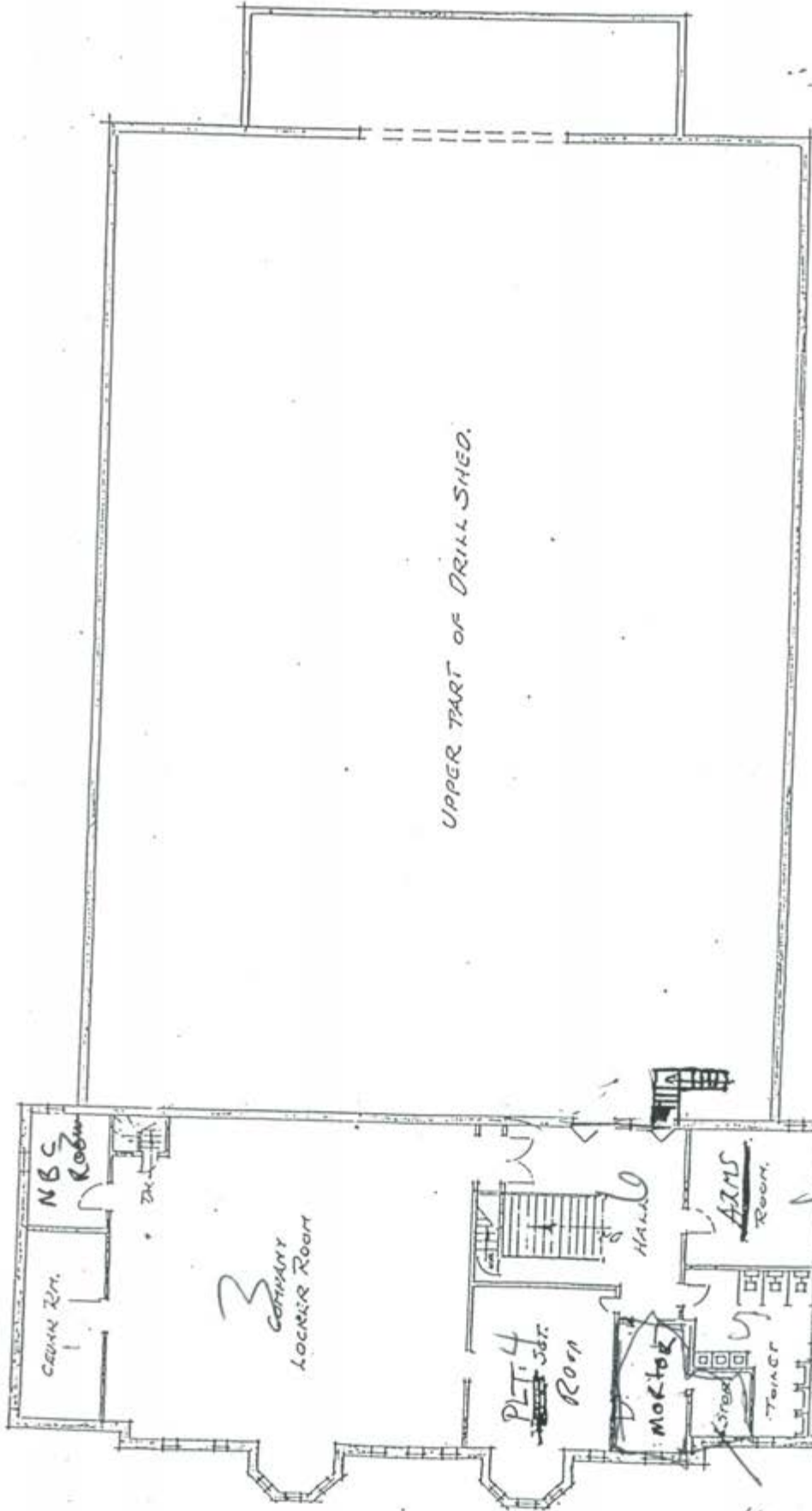
STATE POLICE



BASEMENT
SCALE 1"=20'

Oct 1937

STATE ARMORY - GREENFIELD, MASS.



UPPER PART OF DRILL SHED.

SECOND FLOOR
SCALE 1"=20'

VAULT IN ACCESS

Oct. 1937 G.H.

[illegible]

FIRST FLOOR
SCALE 1"=20'

Appendix B

Certificates of Analysis for Air, Dust Wipe and Bulk Samples



CERTIFICATE OF ANALYSIS



LAB #100470

NY ELAP

10920

Client: National Guard Bureau
Address: 301-JH Old Bay Lane, Attn: NGB-AVN-SI,
State Military Reservation
Havre de Grace, Maryland 21078

Job Name: Greenfield Amory
Job Location: Greenfield, MA
Job Number: Not Provided
P.O. Number: W912K6-09-A-0003

Chain Of Custody: 508459
Date Submitted: 8/2/2010
Person Submitting: [Redacted]
Date Analyzed: 8/9/2010

Report Date: 8/9/2010

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 (ft ²)	Reporting Limit	Total ug	Final Result	Comments
1066224	GRE-01	Flame	Air	906	N/A	3.3 ug/m ³	<3	<3.3 ug/m ³	
1066225	GRE-02	Flame	Air	909	N/A	3.3 ug/m ³	<3	<3.3 ug/m ³	
1066226	GRE-Pb-01	Flame	Wipe	****	0.108	110 ug/ft ²	19	180 ug/ft ²	
1066227	GRE-Pb-02	Flame	Wipe	****	0.108	110 ug/ft ²	40	370 ug/ft ²	
1066228	GRE-Pb-03	Flame	Wipe	****	0.108	110 ug/ft ²	120	1100 ug/ft ²	
1066229	GRE-Pb-04	Flame	Wipe	****	0.108	110 ug/ft ²	460	4200 ug/ft ²	
1066230	GRE-Pb-05	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1066231	GRE-Pb-06	Flame	Wipe	****	0.108	110 ug/ft ²	58	540 ug/ft ²	
1066232	GRE-Pb-07	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1066233	GRE-Pb-08	Flame	Wipe	****	0.108	110 ug/ft ²	74	690 ug/ft ²	
1066234	GRE-Pb-09	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1066235	GRE-Pb-10	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1066236	GRE-Pb-11	Flame	Wipe	****	0.108	110 ug/ft ²	13	120 ug/ft ²	
1066237	GRE-Pb-12	Flame	Wipe	****	0.108	110 ug/ft ²	49	450 ug/ft ²	
1066238	GRE-Pb-13	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1066239	GRE-Pb-14	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1066240	GRE-Pb-15	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1066241	GRE-Pb-16	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1066242	GRE-Pb-17	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	

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 NY ELAP, AIHA, NVLAP, NIST, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

An AIHA (#100470), NVLAP (101143-0), and NY ELAP (#10920) Accredited Laboratory



CERTIFICATE OF ANALYSIS



LAB #100470

NY ELAP

10920

Client: National Guard Bureau
Address: 301-IH Old Bay Lane, Attn: NGB-AVN-SI,
State Military Reservation
Havre de Grace, Maryland 21078

Job Name: Greenfield Amory
Job Location: Greenfield, MA
Job Number: Not Provided
P.O. Number: W912K6-09-A-0003

Chain Of Custody: 508459
Date Submitted: 8/2/2010
Person Submitting: [Redacted]
Date Analyzed: 8/9/2010

Report Date: 8/9/2010

Attention: **Non-Responsive**

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 (ft ²)	Reporting Limit	Total ug	Final Result	Comments
1066243	GRE-Pb-18	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1066244	GRE-Pb-19	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1066245	GRE-LBP-01	Flame	Paint Chip	****	N/A	0.011 %Pb		0.47 %Pb	

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

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

N/A = Not Applicable mg/Kg = parts per million (ppm) 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.

Non-Responsive

Analyst:

Technical Manager:

Non-Responsive

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations, and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AIHRA air samples. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AIHA, NVLAP, NIST, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

**AMA Analytical Services, Inc.**

Focused on Results www.amaulab.com

AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)

4475 Forbes Blvd. • Lanham, MD 20706

(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY(Please Refer To This
Number For Inquires)**508459****Mailing/Billing Information:**

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

Submittal Information:

1. Job Name: GREENFIELD Armory
 2. Job Location: GREENFIELD MA
 3. Job #: Non-Responsive
 4. Contact Person: Non-Responsive
 5. Submitted by: Non-Responsive

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

AFTER HOURS (must be pre-scheduled)		NORMAL BUSINESS HOURS		REPORT TO:
<input type="checkbox"/> Immediate	Date Due: _____	<input type="checkbox"/> 3 Day	<input type="checkbox"/> Results Required By Noon	<input checked="" type="checkbox"/> Include COC/Field Data Sheets with Report
<input type="checkbox"/> 24 Hours	Time Due: _____	<input checked="" type="checkbox"/> Next Day	(Every Attempt Will Be	<input checked="" type="checkbox"/> Email <u>Non-Responsive</u>
Comments: _____		<input type="checkbox"/> 2 Day	Made to Accomodate)	<input type="checkbox"/> Fax: _____
				<input type="checkbox"/> Ver: _____

Asbestos Analysis

PCM Air - Please Indicate Filter Type:

- ☐ NIOSH 7400 _____ (QTY)
☐ Fiberglass _____ (QTY)

TEM Air - Please Indicate Filter Type:

- ☐ AHERA _____ (QTY)
☐ NIOSH 7402 _____ (QTY)
☐ Other (specify _____) _____ (QTY)

PLM Bulk

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

MISC

- ☐ Vermiculite
☐ Asbestos Soil PLM _____ (Qual) PLM _____ (Quan) PLM/TEM _____ (Qual) PLM/TEM _____ (Quan)

TEM Bulk

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

TEM Dust

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

TEM Water

- ☐ Qual. (pres/abs) _____ (QTY)
☐ ELAP 198.2/EPA 100.2 _____ (QTY)
☐ EPA 100.1 _____ (QTY)

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

Metals Analysis

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

Fungal Analysis

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

SAMPLE INFORMATION**ANALYSIS****MATRIX****CLIENT CONTACT**

CLIENT ID NUMBER	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPE AREA	TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	MATRIX	MOON TRAP	TAPE	SWAB	LABORATORY STAFF ONLY
GRE-01		7/29/10	200.2					X									
GRE-02			28.5														
GRE-PB-01				6x6cm													
GRE-PB-02																	
GRE-PB-03																	
GRE-PB-04																	
GRE-PB-05																	
GRE-PB-06																	
GRE-PB-07																	
GRE-PB-08																	
GRE-PB-09																	
GRE-PB-10																	

**LABORATORY
STAFF ONLY:**

1. Date/Time RCVD: 8/2/10 @ 10:00 Via: mail By (Print):
 2. Date/Time Analyzed: _____ @ _____ By (Print):
 3. Results Reported To: _____
 4. Comments: _____

BEST AVAILABLE COPY

Non-Responsive

**AMA Analytical Services, Inc.**

Focused on Results www.ama-lab.com

AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)

4475 Forbes Blvd. • Lanham, MD 20706

(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY(Please Refer To This
Number For Inquires)

500159
p2/2

Mailing/Billing Information:

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

Submittal Information:

1. Job Name: GREENFIELD ARMY
 2. Job Location: GREEN FIELD MA
 3. Job #: _____ P.O. #: W912K6-09-A-0002
 4. Contact Person: _____
 5. Submitted by: _____

Reporting Information (Results will be provided)

AFTER HOURS (must be pre-scheduled) <input type="checkbox"/> Immediate Date Due: _____ <input type="checkbox"/> 24 Hours Time Due: _____ Comments: _____		NORMAL BUSINESS HOURS <input type="checkbox"/> Immediate <input type="checkbox"/> 3 Day <input type="checkbox"/> Next Day <input type="checkbox"/> 5 Day + <input type="checkbox"/> 2 Day Date Due: _____ <input type="checkbox"/> Results Required By Noon (Every Attempt Will Be Made to Accomodate)		REPORT TO: <input checked="" type="checkbox"/> Include COC/Field Data Sheets with Report <input checked="" type="checkbox"/> Email: <u>Non-Responsive@us.army.mil</u> <input type="checkbox"/> Fax: _____ <input type="checkbox"/> Ver: _____
--	--	---	--	--

Asbestos Analysis

PCMAir - Please Indicate Filter Type:

☐ NIOSH 7400 (QTY) _____
☐ Fiberglass (QTY) _____

TEM Air - Please Indicate Filter Type:

☐ AHERA (QTY) _____
☐ NIOSH 7402 (QTY) _____
☐ Other (specify) _____ (QTY) _____
PLM Bulk
☐ EPA 600 - Visual Estimate (QTY) _____
☐ EPA Point Count (QTY) _____
☐ NY State Friable 198.1 (QTY) _____
☐ Grav. Reduction ELAP 198.6 (QTY) _____
☐ Other (specify) _____ (QTY) _____
MISC
☐ Vermiculite
☐ Asbestos Soil PLM (Qual) PLM (Quan) PLM/TEM (Qual) PLM/TEM (Quan)
TEM Bulk
☐ ELAP 198.4/Chatfield (QTY) _____
☐ NY State PLM/TEM (QTY) _____
☐ Residual Ash (QTY) _____
TEM Dust
☐ Qual. (pres/abs) Vacuum/Dust (QTY) _____
☐ Quan. (s/area) Vacuum D5755-95 (QTY) _____
☐ Quan. (s/area) Dust D6480-99 (QTY) _____
TEM Water
☐ Qual. (pres/abs) (QTY) _____
☐ ELAP 198.2/EPA 100.2 (QTY) _____
☐ EPA 100.1 (QTY) _____

☐ All samples received in good condition unless otherwise noted.
 (TEM Water samples _____ °C)
Metals Analysis
☐ Pb Paint Chip (QTY) _____
☐ Pb Dust Wipe (wipe type _____) (QTY) _____
☐ Pb Air (QTY) _____
☐ Pb Soil/Solid (QTY) _____
☐ Pb TCLP (QTY) _____
☐ Drinking Water ☐ Pb (QTY) _____ ☐ Cu (QTY) _____ ☐ As (QTY) _____
☐ Waste Water ☐ Pb (QTY) _____ ☐ Cu (QTY) _____ ☐ As (QTY) _____
☐ Pb Furnace (Media _____) (QTY) _____
Fungal Analysis

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

SAMPLE INFORMATIONCLIENT ID
NUMBERSAMPLE LOCATION/
IDENTIFICATION

DATE

VOLUME
(LITERS)WIPE
AREA

TEM

PCM

PLM

LEAD

MOLD

AIR

BULK

DUST

MATRIX

WATER

OTHER

SPORE TRAP

TAPE

SWAB

CLIENT CONTACT

(LABORATORY STAFF ONLY)

CLIENT ID NUMBER	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPE AREA	TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	MATRIX	WATER	OTHER	SPORE TRAP	TAPE	SWAB	Date/Time:	Contact:	By:
GRE-PB-11		7/29/10		10x100				X				X									
GRE-PB-12																					
GRE-PB-13																					
GRE-PB-14																					
GRE-PB-15																					
GRE-PB-16																					
GRE-PB-17																					
GRE-PB-18																					
GRE-PB-19																					
GRE-LP-21								X			X										

**LABORATORY
STAFF ONLY:**

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

Non-Responsive

Appendix C

Photo Documentation

Greenfield RC



Storage Area, Former Firing Range



Standing Water



Storage Area

Posted to NGB FOIA Reading Room
May, 2018



Kitchen

Greenfield RC



Drill Hall



Office



Damaged Ceiling

Appendix D

IAQ and Lighting Survey Log Sheets

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

State	MA	City	Greenfield	IAQ								Light		
Date	7/29/2010	Inspector	Non-Responsive	Instrument		Q-TRAK 7565-X						Instrument		CAL-LIGHT 400
Facility Description	Readiness Ctr			Serial Number		7565X0839017						Serial Number		K070277
Weather Conditions				Last Calibration		Sep-08						Last Calibration		30-Jul-09
Location	Function	No. Occupants	Time	Temp. (°F)	Exceeded	RH (%)	Exceeded	CO ₂ (ppm)	Exceeded	CO (ppm)	Exceeded	Illuminance (fc)	Insufficient	Illuminance Reference Value (fc)
1	Storage	0		83.8	X	54.4	X	402		0.0		33.3		5-30
2	Storage	0		83.8	X	54.4	X	306		0.0		34.4		5-30
3	Empty Room	0		84.4	X	60.5	X	463		0.0		122.2		5-30
4	Quarters	0		84.8	X	51.8	X	465		0.0		24.7	X	5
5	Toilet	0		87.0	X	43.4	X	668		0.0		33.0		5
6	Hall	0		86.4	X	42.5	X	391		0.0		20.4		5
7	Stage	0		84.1	X	51.0	X	391		0.0		7.1	X	30-50
8	Assembly Hall	0		82.8	X	51.9	X	445		0.0		26.5	X	30-50
9	Classroom	0		83.9	X	49.9	X	459		0.0		38.4	X	50
10	Office	0		83.3	X	49.6	X	514		0.0		67.7		50
11	Entry/Hall	0		83.4	X	48.7	X	378		0.1		44.6		10
12	Office	0		83.7	X	48.0	X	378		0.0		54.8		50
13	Office	0		83.5	X	50.5	X	417		0.0		122.7		50
14	Office	0		83.6	X	46.5	X	356		0.0		101.7		50
15	Office	0		83.1	X	46.8	X	348		0.0		71.7		50
16	Toilet	0		84.0	X	49.5	X	372		0.0		16.8		5
17	Hall	0		83.5	X	47.2	X	428		0.0		65.6		5
18	Kitchen	0		82.3	X	49.1	X	570		0.0		24.2	X	50
Notes:				Relative Humidity			Winter Temp.		Summer Temp.					
				30%			68.5°F-76.0°F		74.0°F-80.0°F					
				40%			68.5°F-75.5°F		73.5°F-79.5°F					
				50%			68.5°F-74.5°F		73.0°F-79.0°F					
				60%			68.0°F-74.0°F		72.5°F-78.0°F					

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

State	MA	City	Greenfield	IAQ								Light		
Date	7/29/2010	Inspector	Non-Responsive	Instrument		Q-TRAK 7565-X						Instrument		CAL-LIGHT 400
Facility Description	Readiness Ctr			Serial Number		7565X0839017						Serial Number		K070277
Weather Conditions				Last Calibration		Sep-08						Last Calibration		30-Jul-09
Location	Function	No. Occupants	Time	Temp. (°F)	Exceeded	RH (%)	Exceeded	CO ₂ (ppm)	Exceeded	CO (ppm)	Exceeded	Illuminance (fc)	Insufficient	Illuminance Reference Value (fc)
19	Pantry	0		81.7	X	48.2	X	629		0.0		16.8		5
20	Office/Storage	0		80.5	X	54.0	X	603		0.0		33.7		30-50
21	Hall	0		79.7	X	61.8	X	664		0.0		38.0		5
22	Bath/Shower	0		81.2	X	52.3	X	598		0.0		141.1		5
23	Storage	0		80.2	X	53.0	X	597		0.0		22.3		5-30
24	Entry	0		78.1	X	61.1	X	617		0.0		26.2		10
25	Storage	0		78.1	X	61.1	X	607		0.0		22.4		5-30
26	Storage	0		76.5	X	60.3	X	798		0.1		23.4		5-30
27	Storage	0		76.5	X	60.3	X	798		0.0		24.8		5-30
28	Garage	0		76.9	X	60.1	X	584		0.0		1.3	X	5
29	Boiler Room	0		77.0		48.7		734		0.0		5.4	X	30
30	Storage	0		76.4	X	60.3	X	592		0.0		113.7		5-30
Notes:				Relative Humidity		Winter Temp.		Summer Temp.						
				30%		68.5°F-76.0°F		74.0°F-80.0°F						
				40%		68.5°F-75.5°F		73.5°F-79.5°F						
				50%		68.5°F-74.5°F		73.0°F-79.0°F						
				60%		68.0°F-74.0°F		72.5°F-78.0°F						



Prepared For:

National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
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
MASSACHUSETTS NATIONAL GUARD READINESS CENTER
71 HOPE STREET
GREENFIELD, MA 01301**

July 11, 2013
PN: 39743799

Non-Responsive

Director, Industrial Hygiene Services

Non-Responsive

Project Manager

TABLE OF CONTENTS

Section	Page
1.0 SUMMARY	1
2.0 SUPPLY / TRAINING AREA.....	3
2.1 Operation Description.....	3
2.2 Chemical and Physical Agents Sampled	3
2.2.1 Carbon Dioxide.....	3
2.2.2 Carbon Monoxide	4
2.2.3 Relative Humidity	4
2.2.4 Temperature.....	4
2.2.5 Lighting.....	5
2.2.6 Lead	5
2.2.7 Asbestos.....	7
2.3 Ventilation System Evaluation	8
2.4 Noise Measurements.....	8
2.5 Personal Protective Equipment	8
3.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS.....	9
3.1 Confined Spaces	9
3.2 Hearing Conservation.....	9
3.3 Respiratory Protection	9
3.4 Hazard Communication	9
3.5 Personal Protective Equipment	9
3.6 Asbestos Operations and Maintenance Program	9
3.7 Safety	9
4.0 REFERENCES.....	10

APPENDICES

APPENDIX A	SHOP DRAWING
APPENDIX B	PERSONNEL LIST
APPENDIX C	ANALYTICAL RESULTS
APPENDIX D	PHOTOGRAPHIC LOG
APPENDIX E	RECOMMENDATIONS FOR SURFACE LEAD DUST IN ARMORIES

FINDINGS AND RECOMMENDATIONS
MASSACHUSETTS NATIONAL GUARD READINESS CENTER
71 HOPE STREET, GREENFIELD, MA

Findings	Recommendations	Risk Assessment Code (RAC)
Lighting		
On the day of the survey, the illuminance was inadequate in several locations tested.	Increase lighting in the work areas. While work is in progress, these areas must be lighted by at least the minimum lighting intensities (ANSI / IESNA RP-1-04).	RAC 4
Ergonomics		
Computer workstations in the Administrative Areas were observed with un-adjustable chairs, arm rests and keyboards.	Ergonomic issues with regard to 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
Water Intrusion		
Evidence of water intrusion was noted on the ceiling on the second floor.	The source of the water intrusion should be identified and repaired. The water-stained materials should be repaired or replaced (ACGIH – Guidelines for the Assessment of Bio-aerosols in the Indoor Environment).	RAC 3
Lead		
Five of the 10 lead wipe samples indicated elevated lead levels.	Personnel trained in accordance with the OSHA Lead Standard should clean the areas where elevated lead dust levels were identified (OSHA 29 CFR 1910.1025(h)(1)).	RAC 3
Emergency Exits		
Emergency exit signs and escape plans were not visible from all areas of the facility or illuminated.	Emergency exits should be properly illuminated (29 CFR 1910.37 (q)(6)).	RAC 3
Asbestos		
Asbestos-containing floor tiles and associated mastic were identified; an Asbestos Operation and Maintenance Program was not available on-Site.	Develop a site-specific asbestos operations and maintenance program for management of asbestos-containing materials in place as required by OSHA 29 CFR 1910.1001(j)(2).	RAC 4

Findings	Recommendations	Risk Assessment Code (RAC)
PPE		
Hazard assessments have not been conducted to determine whether personal protective equipment is required.	Conduct a hazard assessment of site operations to determine what types of PPE are required for each type of work (29 CFR 1910.132(d)(1)).	RAC 4
Former Indoor Firing Range		
Since the former indoor firing range is contaminated with lead and several wipe samples were found to contain elevated lead levels, good hygiene practices should be used when entering this building area.	Good hygiene practices shall be employed when entering building areas where lead dust may become airborne (29 CFR 1910.1025 (i)(1)).	RAC 3
Former Indoor Firing Range		
Ladders were not properly secured and stored.	Ladders not in use shall be properly stored in a vertical position fastened to walls (29 CFR 1910.25 (c)(2)(i)).	RAC 4
Hazard Communication		
No written hazard communication program was identified on site.	Employers shall develop, implement and maintain a written hazard communication program (29 CFR 1910.1200 (e)(1)).	RAC 3

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 in Greenfield, Massachusetts.

URS representative, Mr. Non-Responsive, conducted the Industrial Hygiene Survey on May 20, 2013. The scope of work included an overall assessment of the facility as it relates to industrial hygiene and included a walkthrough of the facility, collection of photographs, and when required, measurements for illumination (light), area and personal air sampling, and noise mapping.

The Greenfield Readiness Center is a two-story brick building, consisting of offices, classrooms, a supply area, a kitchen, storage areas, PT room, gender separate bathrooms, an Assembly Hall and a former Indoor Firing Range. A layout of the Readiness Center is provided in Appendix A. The former Indoor Firing Range is currently used for storage.

GENERAL: Illuminated emergency exit signs were not observed throughout the facility. Emergency escape plans were not posted throughout the facility. Ladders were not properly secured and stored. Evidence of water intrusion was observed on the ceiling of the second floor.

LIGHTING: Lighting in the Readiness Center was found to be inadequate in several of the areas measured. Areas noted within the report as having inadequate lighting require upgrading by either increasing the general lighting or through the use of task lighting. While work is in progress work areas must be lighted by at least the minimum light intensities.

LEAD: Five of the ten wipe samples collected in the Readiness Center were found to contain lead in a concentration above the recommended limit set by the NGB, Region North IH Office.

ASBESTOS: Damaged asbestos-containing floor tiles and associated mastic were identified during this survey; however no Asbestos Operations and Maintenance Program was available on site.

ERGONOMICS: Many of the work stations had ergonomic issues which require attention. Computer workstations were assessed during the walkthrough for ergonomic issues. The computer workstations in the facility did not meet the current Occupational Safety and Health Administration (OSHA) ergonomic recommendations. The chair armrests, keyboards, and monitors were not adjustable. All workstations in the facility should be adjusted and monitored. The ergonomic issues with regard to the workstations and chairs need to be corrected by fitting the workplace to the worker.

NOISE: Noise monitoring in the Readiness Center determined that noise levels were below the OSHA permissible exposure limit (PEL) and Department of Defense Instruction (DoDI) Hearing Conservation Standard (6055.12 3 December 2010) on the day of URS' site visit.

2.0 SUPPLY / TRAINING AREA

2.1 Operation Description

This Readiness Center is primarily used for weekend training drills and conducting administrative functions. The building includes offices, classrooms, a supply area, kitchen, storage areas, PT room, gender separate bathrooms, an Assembly Hall and a former Indoor Firing Range.

The Readiness Center was found to be neat and organized at the time of URS' site visit.

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. Interior carbon dioxide concentrations were found to be between 447 and 533 parts per million (ppm). Carbon dioxide levels were measured using a direct-reading TSI Q-Trak (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 human respiration. 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 but is typically 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.

To minimize air quality complaints, the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) has proposed that the carbon dioxide concentration within an occupied workspace be maintained below 700 ppm above ambient outside levels. For example, on the day of the survey, the outside carbon dioxide level was measured at 479 ppm. Therefore ASHRAE (Standard 62.1-2010) would recommend that interior carbon dioxide concentrations be maintained at or below 1,179 ppm. Using the ASHRAE guideline, the readings at the subject site were found to be below the suggested indoor to outdoor differential concentration.

2.2.2 Carbon Monoxide

The carbon monoxide concentrations in the Readiness Center were measured between 0.2 ppm and 0.7 ppm on the day of the survey. ASHRAE recommends that average carbon monoxide concentrations not exceed 9 ppm. Typical average concentrations found in commercial buildings range from 0 to 6 ppm. The measured levels were below the ASHRAE guideline for indoor environments. Carbon monoxide was measured using a TSI Q-Trak Plus (Model 8554).

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.

2.2.3 Relative Humidity

The average relative humidity within the Readiness Center measured with the Q-Trak Plus was 46.7%, which was within the guideline of less than 65% recommended by ASHRAE.

2.2.4 Temperature

Temperature should be maintained within the thermal comfort envelope suggested in ASHRAE Standard 55-2010. This standard on thermal environments specifies conditions in which 80% or more of building occupants should find the thermal environment acceptable. ASHRAE 55-2010 suggests temperatures of 68 to 75 degrees Fahrenheit (°F), during winter months, for people in typical seasonal clothing during light sedentary activity. For summer, the temperature should be in the range of 73 to 79 °F.

The average temperature inside the Readiness Center was, 69.1 °F, which was within the guideline of 68 to 75 °F recommended by ASHRAE for thermal comfort. Complaints regarding elevated indoor temperature during summer months were received by URS during this survey, although the measured temperature was within the recommended range

2.2.5 Lighting

Lighting in the Readiness Center was measured using a cal-Light 400 Light Meter. Table 2-1 below shows lighting measurements in foot candles (FC) and the recommended lighting requirements (Illuminating Engineering Society of North America (IESNA) RP-7-01).

Table 2-1
Lighting Measurements and Recommended Lighting Requirements

Location	Function	Measured Illuminance in Foot Candles (FC)	Recommended Minimum Illuminance in Foot Candles (FC)
First Sergeant Office, desk	Admin	56.5	50
Company Commander Office, desk	Admin	99.3	50
B104 Office, desk	Admin	38.2	50
1 st Floor, Classroom, table	Admin	26.4	50
Main Hall, desk	Admin	10.0	50
2 nd Floor, Office, vacant desk	Admin	25.3	50
Drill Shed	Hall	29.0	5
1 st Floor, restroom	Break Room	27.9	10
Basement, kitchen	Break Room	25.7	10
Basement, Supply Room	Storage	4.1	30
Rear Stairwell	Hall	13.4	5
Main Stairwell	Hall	24.3	5
First Sergeant Office, desk	Admin	105.0	50

On the day of the survey, the illuminance in the Readiness Center was determined to be inadequate in five of the locations surveyed.

2.2.6 Lead

Wipe testing for lead dust was conducted in the Readiness Center using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA Analytical Services, Inc. (AMA) is contained in Appendix C. Table 2-2 below shows the results of the lead wipe testing.

Table 2-2
Levels of Lead Dust Found in the Readiness Center

Sample Location	URS Sample Number	Area Wiped in Square Feet (ft²)	Result in Micrograms/Square Foot (µg/ft²)	Maximum Surface Contamination Level in Micrograms/Square Foot (µg/ft²)
Basement, former Indoor Firing Range, end, metal shelf	Greenfield RC W-01	0.108	380	200
Basement, corridor, top of flammable cabinet	Greenfield RC W-02	0.108	1,000	200
Basement, former Indoor Firing Range, floor at storage	Greenfield RC W-03	0.108	620	200
Basement, kitchen, metal shelf	Greenfield RC W-04	0.108	200	200
Stairwell landing, basement to first floor	Greenfield RC W-05	0.108	370	200
1 st floor, First Sergeant office	Greenfield RC W-06	0.108	<110	200
1 st Floor, classroom, glass countertop	Greenfield RC W-07	0.108	<110	200
1 st Floor, Company Commander office	Greenfield RC W-08	0.108	<110	200
1 st Floor, Drill Shed, stage floor	Greenfield RC W-09	0.108	<110	200
1 st Floor, Drill Shed, table	Greenfield RC W-10	0.108	<110	200

Five of the ten surface dust level measurements were found to contain lead at a level above the NGB recommended level, based on the OSHA clarification letter which states “as free as practicable” of lead contamination as specified under OSHA 29 CFR 1926.62.

Two paint chip samples were collected from areas of peeling paint in the facility and were analyzed for lead content. The analytical report from AMA is contained in Appendix C.

According to the U.S. Department of Housing and Urban Development (HUD), paint is considered to be lead-based if the quantity of lead is greater than 0.5% by weight. OSHA has not established a minimum percentage of lead to be defined as lead-based paint therefore, paint with lead in any amount above the analytical detection limit is considered to be lead-based under these regulations. The results of URS' lead paint testing are contained in Table 2-3.

Table 2-3
Lead Content in Painted Surfaces

Paint Location	Lead Concentration (Percent Weight)	HUD Lead-Based Quantity (Percent Weight)
White paint, Drill Shed wall	0.031	0.5
White paint, Drill Shed wall	0.089	0.5

On the day of the survey, neither of the paint chip samples were found to have a lead content above the HUD criteria for determination of paint as lead-based.

2.2.7 Asbestos

URS collected a total of two samples from damaged suspect asbestos-containing material (ACM) in the administrative areas 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 with dispersion staining (EPA-600/M4-82-020). Table 2-4 below shows the results of the asbestos sampling.

Table 2-4
Asbestos Bulk Sample Results – Basement

Sample Location	Sample Description	URS Sample Number	Result Total Asbestos
1 st Floor, Commander/ 1 st Sergeant Offices	Red 9x9 Floor Tile	Greenfield RC PLM-01-02	3% Chrysotile

The EPA states that any material with an asbestos content greater than 1% must be treated as ACM (EPA, Title 40 CFR Part 763.87 (c)(2)). The analytical report from AMA is contained in Appendix C.

2.3 Ventilation System Evaluation

The facility, not designed for vehicle maintenance, contains a ventilation system that is limited to localized personal ventilation (i.e. room fans, window air conditioning units) within the majority of rooms, and main negative draw fans in the Assembly Hall.

2.4 Noise Measurements

Area noise dosimetry was conducted within the administrative office area. Noise exposures were measured using a data-logging Spark 703+ Noise Dosimeter. Area noise dosimetry results indicated that, on the day of the survey, workers were not exposed to noise levels above the DoDI Hearing Conservation Standard (6055.12 3 December 2010) of 85 decibels, A scale (dBA)/8-hour day. Table 2-5 indicates the individual monitored, the tasks performed and noise exposures.

**Table 2-5
Noise Dosimetry Data**

Location	Task	Sample Duration in Minutes	Monitoring Result TWA (dBA)*	Hearing Protection
Office Non-Responsive	Administrative	360	71.6	N/A

* The calculated 8-hour, time-weighted average (TWA) noise exposure in dBA. The OSHA PEL for noise exposure is 90 dBA. DoDI has established an employee exposure level of 85 dBA for requirement of a hearing conservation program.

2.5 Personal Protective Equipment

Personal protective equipment was orderly and readily available to employees in the Readiness Center. Personal protective equipment included safety glasses, ear plugs and nitrile gloves. Personal protective equipment was not observed in use during URS' site visit.

3.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS

3.1 Confined Spaces

A written confined spaces program is not required for this site.

3.2 Hearing Conservation

A written hearing conservation program was not identified on site. A review of normal site activities determined that no operations were identified that would warrant hearing protection. Based on area noise dosimetry results, a hearing conservation program is not required for this site.

3.3 Respiratory Protection

A site-specific written program regarding Respiratory Protection was not identified on site and is not required for this facility

3.4 Hazard Communication

A site-specific hazard communication program was not identified on site.

Material safety data sheets, a site map, and list of full time personnel were readily available on the day of the survey.

3.5 Personal Protective Equipment

A written personal protective equipment program was not identified on site. A hazard assessment should be conducted to determine whether personal protective equipment is required for activities typically undertaken at the Readiness Center.

3.6 Asbestos Operations and Maintenance Program

A written asbestos operations and maintenance program was not identified on site.

3.7 Safety

Ladders were not properly secured and stored. Illuminated emergency exit signs and emergency escape plans were not properly posted throughout the facility. Evidence of water intrusion was observed throughout ceilings on the second floor.

4.0 REFERENCES

American Conference of Governmental Industrial Hygienists

Industrial Ventilation: A Manual of Recommended Practice, 27th Edition, 2010

Guidelines for the Assessment of Bio-aerosols in the Indoor Environment, 1989

American National Standards Institute

American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IESNA) RP-1-04: American National Standard Practice for Office Lighting

ANSI/IESNA RP-7-01: Recommended Practice for Lighting Industrial Facilities

American Society of Heating, Refrigerating and Air-Conditioning Engineers

ANSI/ASHRAE Standard 62.1-2010: Ventilation for Acceptable Indoor Air Quality

ANSI/ASHRAE Standard 55-2010: Thermal Environmental Conditions for Human Occupancy.

Department of the Army

DA PAM 40-21, Ergonomics Program, 15 August 2003

Unified Facilities Criteria, Heating, Ventilating and Air Conditioning, 3-520-05, 14 April 2008

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

AR 385-10, The Army Safety Program, 23 August 2007; RAR Issue Date: 4 October 2011

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

Department of Defense

DoDI 6055.12, Hearing Conservation, 3 December 2010

Creating the Ideal Computer Workstation: A Step-by-Step Guide, June 2000

National Institute for Occupational Safety and Health

Current Intelligence Bulletin 50: Carcinogenic Effects of Exposure to Diesel Exhaust, August 1988

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. Department of Housing and Urban Development

Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (1995, 1997, 2012)

U. S. Occupational Safety and Health Administration

Standard for General Industry: 29 CFR 1910

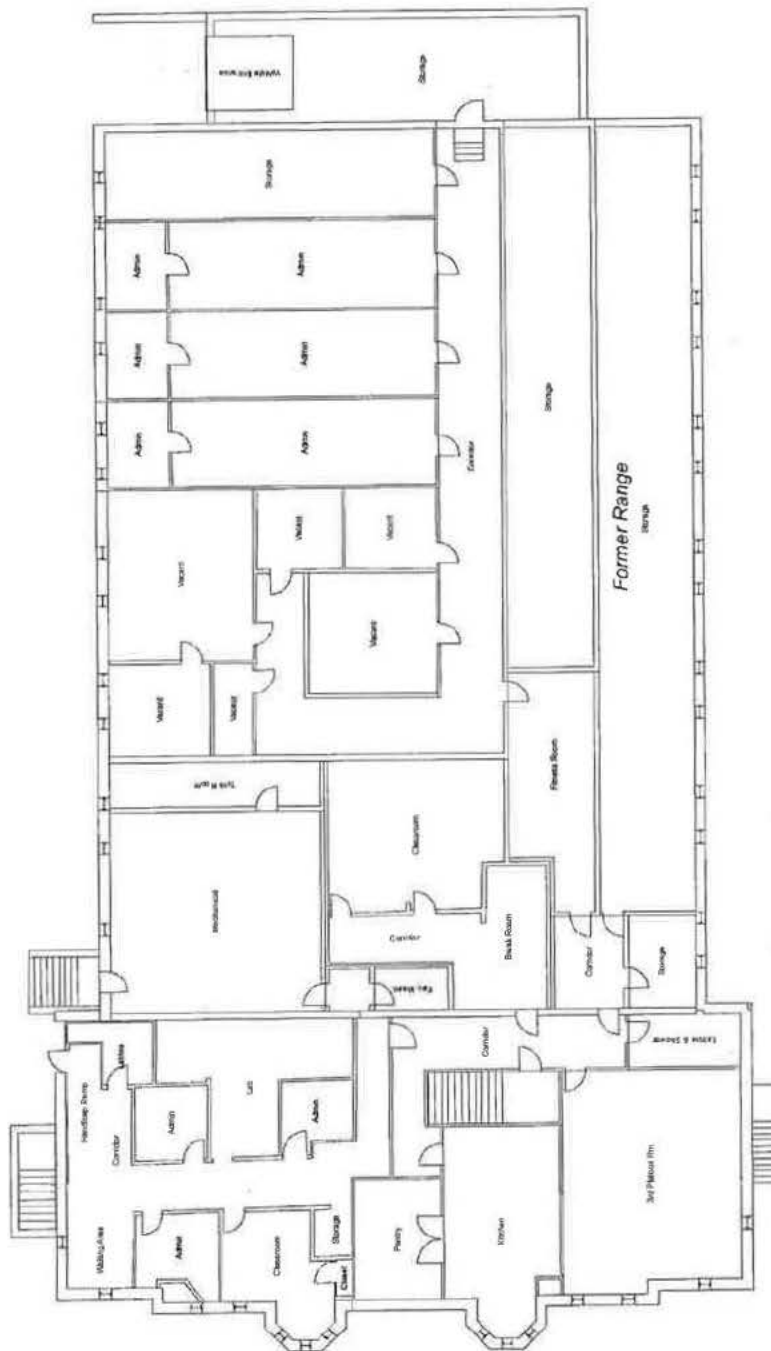
OSHA Clarification Letter – Clarification of “as free as practicable” of lead contamination under 29 CFR 1926.62, 13 January 2003.

APPENDIX A
SHOP DRAWING

MASSACHUSETTS ARMY NATIONAL GUARD
JOINT FORCE HEADQUARTERS, MILFORD, MA
CONSTRUCTION AND FACILITIES MAINTENANCE OFFICE

GREENFIELD - 25B20

Basement Floor Plan



A vertical scale bar with two units of measurement. The top scale is in feet, with markings at 0, 9, 18, 27, and 36. The bottom scale is in meters, with markings at 0, 5, 10, and 20. The word "Feet" is written vertically next to the top scale, and "Meters" is written vertically next to the bottom scale.

Massachusetts 1 (009 F.R.O.S.) NW2534

The information on this map is for planning purposes only. This information is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analysis.



3 May 2012



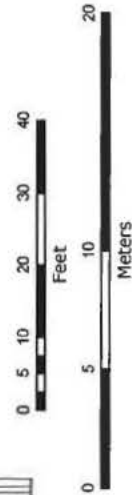
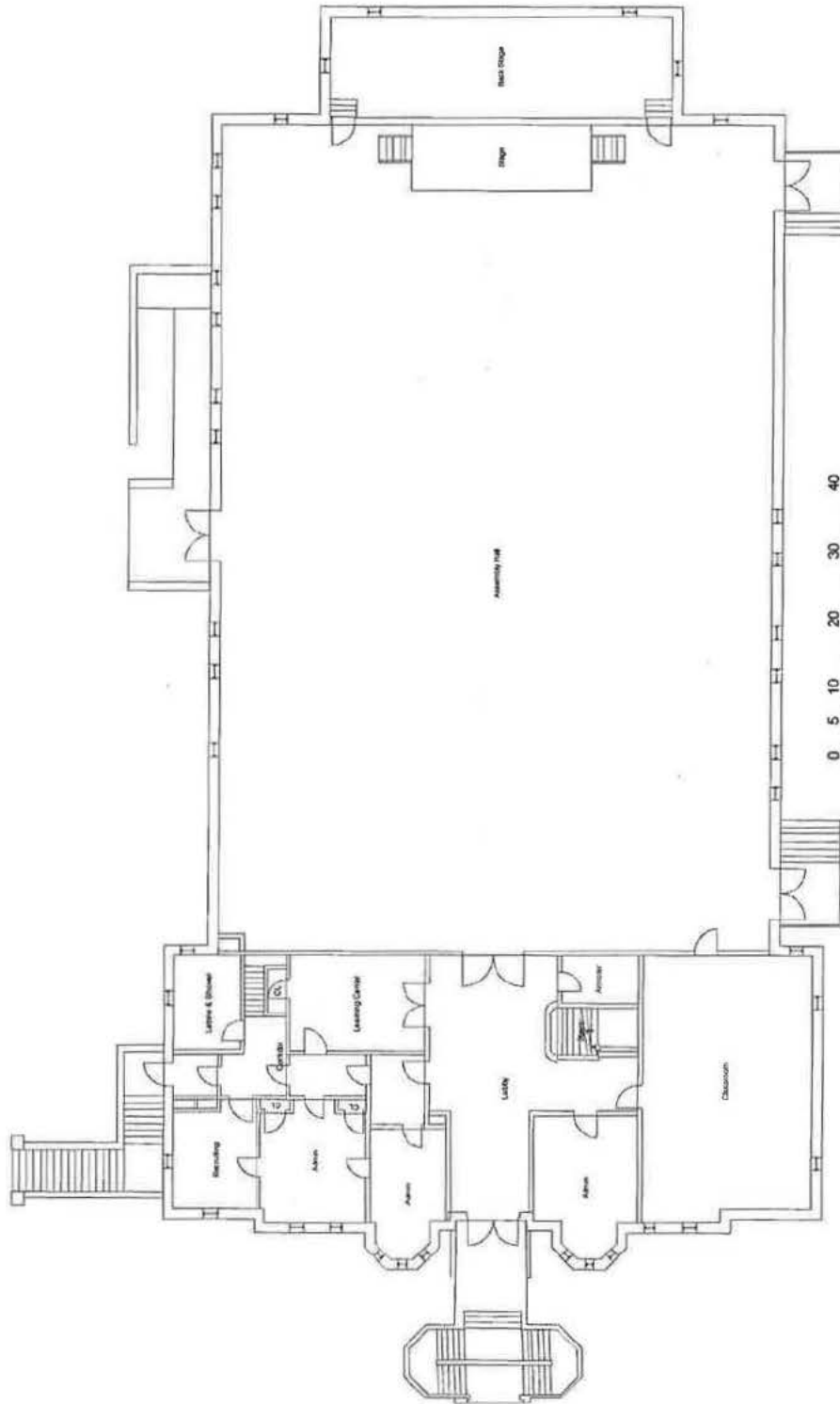
MASSACHUSETTS ARMY NATIONAL GUARD
JOINT FORCE HEADQUARTERS, MILFORD, MA
CONSTRUCTION AND FACILITIES MAINTENANCE OFFICE

GREENFIELD - 25B20

First Floor Plan



Posted to NGB FOIA Reading Room
May, 2018



MASSACHUSETTS 1:500 MAP/PLAN/FORM
The information on this map is for planning purposes only.
This information is not a substitute for legal boundary definition.
Inquiries, interpretations, or questions are invited.



3 May 2012



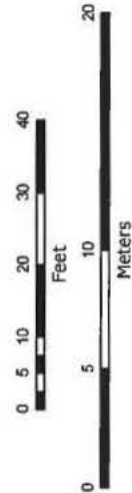
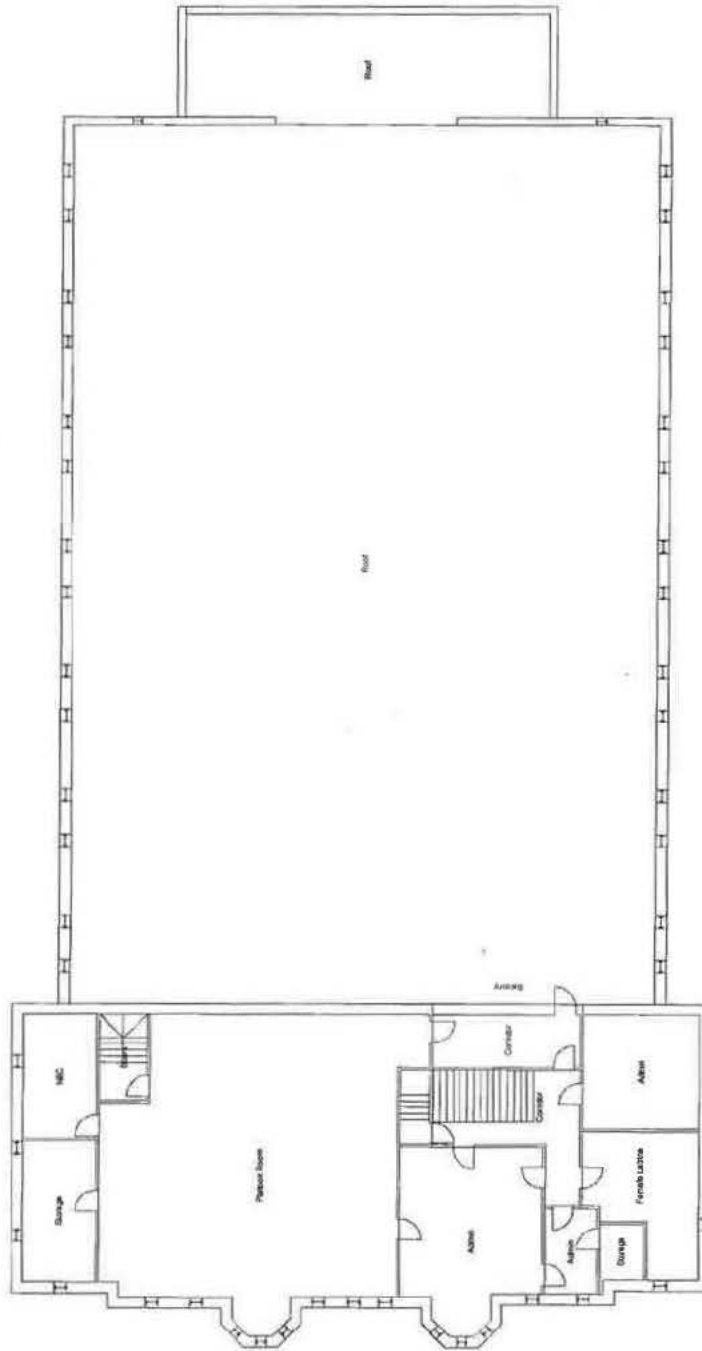
Drawn by William A. Conroy
Checked by William A. Conroy
Approved by William A. Conroy
Commonwealth of Massachusetts
Military District



MASSACHUSETTS ARMY NATIONAL GUARD
JOINT FORCE HEADQUARTERS, MILFORD, MA
CONSTRUCTION AND FACILITIES MAINTENANCE OFFICE

GREENFIELD - 25B20

Second Floor Plan



The information on this map is for planning purposes only.
It is not intended to be used for any other purpose.
Regulatory interpretation or other use may vary.

MASSACHUSETTS ARMY NATIONAL GUARD



3 May 2012

APPENDIX B
PERSONNEL LIST

List of Personnel

Non-Responsive

APPENDIX C

ANALYTICAL RESULTS



CERTIFICATE OF ANALYSIS



Client:	National Guard Bureau	Job Name:	MA ARNG	Chain Of Custody:	515976
Address:	301-JH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	Greenfield MA	Date Submitted:	5/28/2013
		Job Number:	Greenfield RC	Person Submitting:	Non-Responsive
		P.O. Number:	W912K6-09-A-0003	Date Analyzed:	6/4/2013
Attention:	Non-Responsive			Report Date:	6/4/2013

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 (ft ²)	Reporting Limit	Total ug	Final Result	Comments
13065700	Greenfield RC W-01	Flame	Wipe	****	0.108	110 ug/ft ²	41	380 ug/ft ²	
13065701	Greenfield RC W-02	Flame	Wipe	****	0.108	110 ug/ft ²	110	1000 ug/ft ²	
13065702	Greenfield RC W-03	Flame	Wipe	****	0.108	110 ug/ft ²	67	620 ug/ft ²	
13065703	Greenfield RC W-04	Flame	Wipe	****	0.108	110 ug/ft ²	21	200 ug/ft ²	
13065704	Greenfield RC W-05	Flame	Wipe	****	0.108	110 ug/ft ²	39	370 ug/ft ²	
13065705	Greenfield RC W-06	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13065706	Greenfield RC W-07	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13065707	Greenfield RC W-08	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13065708	Greenfield RC W-09	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13065709	Greenfield RC W-10	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13065710	Greenfield RC LBP-01	Flame	Paint Chip	****	N/A	0.0077 %Pb		0.031 %Pb	
13065711	Greenfield RC LBP-02	Flame	Paint Chip	****	N/A	0.0072 %Pb		0.089 %Pb	
13065714	Greenfield RC TB-W	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.



CERTIFICATE OF ANALYSIS



Client:	National Guard Bureau	Job Name:	MA ARNG	Chain Of Custody:	515976
Address:	301-IH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	Greenfield MA	Date Submitted:	5/28/2013
		Job Number:	Greenfield RC	Person Submitting:	Non-Responsive
		P.O. Number:	W912K6-09-A-0003	Date Analyzed:	6/4/2013
Attention:	Non-Responsive				
				Report Date:	6/4/2013

Summary of Atomic Absorption Analysis for Lead

Page 2 of 2

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Total ug	Final Result	Comments
Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm) %Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb) Note: All samples were received in good condition unless otherwise noted. Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result. Air and Wipe results are not corrected for any blank results Final results for air and wipe samples are based on client supplied information nor verified by this laboratory. All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.							See QC Summary for analytical results of quality control samples associated with these samples.		
Analyst:						Non-Responsive			
Technical Manager:						Non-Responsive			

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

CHAIN OF CUSTODY

(Please Refer To This
Number For Inquiries)

515976
(page 1 of 2)

Mailing/Billing Information:

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

Submission Information:

- Job Name: MAA LABS
- Job Location: Greenfield MA
- Job #: Greenfield RC
- Contact Person: [Redacted]
- Submitted by: [Redacted]

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

AFTER HOURS (must be pre-scheduled)		NORMAL BUSINESS HOURS		Include	
<input type="checkbox"/> Immediate	Date Due: _____	<input type="checkbox"/> Immediate	Date Due: _____	<input type="checkbox"/> Include	Report
<input type="checkbox"/> 24 Hours	Time Due: _____	<input type="checkbox"/> Next Day	Date Due: <u>6/4/13</u>	<input type="checkbox"/> Results Required By Noon	(Every Attempt Will Be Made to Accommodate)
Comments: _____		<input type="checkbox"/> 2 Day		<input type="checkbox"/> Fax: _____	<u>army.mil</u>
				<input type="checkbox"/> Verbal: _____	<u>army.mil</u>

Asbestos Analysis

PCM Air - Please Indicate Filter Type:

- ☐ NIOSH 7400 (QTY) _____
☐ Fiberglass (QTY) _____

TEM Air - Please Indicate Filter Type:

- ☐ AHERA (QTY) _____
☐ NIOSH 7402 (QTY) _____
☐ Other (specify) _____ (QTY) _____

PLM Bulk

- ☒ EPA 600 - Visual Estimate 2 (QTY) _____
☐ EPA Point Count (QTY) _____
☐ NY State Friable 198.1 (QTY) _____
☐ Grav. Reduction ELAP 198.6 (QTY) _____
☐ Other (specify) _____ (QTY) _____

MISC

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

DEM Bulk

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

TEM Dust

- ☐ Qual. (pres/abs) Vacuum/Dust (QTY) _____
☐ Quan. (s/area) Vacuum D5735-95 (QTY) _____
☐ Quan. (s/area) Dust D6480-99 (QTY) _____

TEM Water

- ☐ Qual. (pres/abs) (QTY) _____
☐ ELAP 198.2/EPA 100.2 (QTY) _____
☐ EPA 100.1 (QTY) _____

☒ All samples received in good condition unless otherwise noted.
 TEM Water samples _____ °C

Other Analysis

- ☐ Pb Paint Chip 2 (QTY) _____
☐ Pb Dust Wipe (wipe type chose wipe) 10 (QTY) _____
☐ Pb Air (QTY) _____
☐ Pb Soil/Solid (QTY) _____
☐ Pb TCLP (QTY) _____
☐ Drinking Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY) _____
☐ Waste Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY) _____
☐ Pb Furnace (Media _____) (QTY) _____

Spore Analysis

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

CLIENT ID		SAMPLE INFORMATION		VOLUME		WIPER AREA		ANALYSIS		CLIENT CONTACT	
NUMBER	IDENTIFICATION	DATE	(LITERS)					TEM	PCM	DATE/TIME	CONTACT
Greenfield RC W-01	W-01	5/20/13	1000ml					X			
Greenfield RC W-02	W-02							X			
Greenfield RC W-03	W-03							X			
Greenfield RC W-04	W-04							X			
Greenfield RC W-05	W-05							X			
Greenfield RC W-06	W-06							X			
Greenfield RC W-07	W-07							X			
Greenfield RC W-08	W-08							X			
Greenfield RC W-09	W-09							X			
Greenfield RC W-10	W-10							X			
Greenfield RC PLM C1 Red 9X9								X			
Greenfield RC PLM C2 Red 9X9								X			

LABORATORY

1. Date/Time RCVD: 5/20/13 0800 By (Print): [Redacted]

2. Date/Time Analyzed: _____ By (Print): _____

3. Results Reported To: _____

4. Comments: 2nd 6/25/13 8:55

Non-Responsive



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

CHAIN OF CUSTODY

(Please Refer To This
Number For Inquires)

515976
(page 2 of 2)

Mailing/Billing Information:

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

Submittal Information:

1. Job Name: MIA KASNA
2. Job Location: Greenfield MA
3. Job #: Greenfield, R PO #: W912K6-09-A-0003
4. Contact Person: **Non-Responsive** @ phone #: **Non-Responsive**
5. Submitted By: **Non-Responsive** Signature: **Non-Responsive**

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

AFTER HOURS (must be pre-scheduled)		NORMAL BUSINESS HOURS:		REPORT TO:
<input type="checkbox"/> Immediate Date Due: _____	<input type="checkbox"/> Immediate	<input type="checkbox"/> 3 Day	<input type="checkbox"/> Results Required By Noon (Every Attempt Will Be Made To Accommodate)	<input checked="" type="checkbox"/> Include [unclear] with Report
<input type="checkbox"/> 24 Hours Time Due: _____	<input type="checkbox"/> Next Day	<input checked="" type="checkbox"/> 5 Day + Date Due: _____		<input type="checkbox"/> Email
Comments: _____	<input type="checkbox"/> 2 Day			<input type="checkbox"/> Fax: _____
				<input type="checkbox"/> Verbal _____

Asbestos Analysis

PCMAir – Please Indicate Filter Type:
☐ NIOSH 7400 _____ (QTY)
☐ Fiberglass _____ (QTY)
TEMAir – Please Indicate Filter Type:
☐ AHERA _____ (QTY)
☐ NIOSH 7402 _____ (QTY)
☐ Other (specify _____) _____ (QTY)

PLM Bulk

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

MISC

☐ Asbestos Soil PLM__ (Qual) PLM__ (Quan) PLM/TEM__ (Qual) PLM/TEM__ (Quan)

TEM Bulk

☒ ELAP 198.4/Chatfield_____ (QTY)
☐ NY State PLM/TEM_____ (QTY)
☒ Residual Ash_____ (QTY)

TEM Dust

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

DEM. Watson

☐ Qual. (pres/abs)_____ (QTY)
☐ ELAP 198.2/EPA 100.2_____ (QTY)
☐ EPA 100.1_____ (QTY)

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

WILSON, R. A. 1990.

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

Threat Analysis

Collection Apparatus for Spore Traps/Air Samples: _____
Collection Media _____

<input type="checkbox"/> Spore-Trap _____ (QTY) _____	<input type="checkbox"/> Surface Vacuum Dust _____ (QTY) _____
<input type="checkbox"/> Surface Swab _____ (QTY) _____	<input type="checkbox"/> Culturable ID Genus (Media _____) _____ (QTY) _____
<input type="checkbox"/> Surface Tape _____ (QTY) _____	<input type="checkbox"/> Culturable ID Species (Media _____) _____ (QTY) _____
<input type="checkbox"/> Other (Specify _____) _____ (QTY) _____	

CLIENT CONTACT

(LABORATORY STAFF ONLY)

[illegible]

LABORATORY

1. Date/Time RCVD: _____ / _____ / _____ @ _____ Via: _____ By (Print): _____ Sign: _____

2. Date/Time Analyzed: _____ / _____ / _____ @ _____ By (Print): _____ Sign: _____

3. Results Reported To: BEST AVAILABLE COPY Date: 11/1/81 FOIA Requester: TIME

4. Comments: _____
Released

Non-Responsive



CERTIFICATE OF ANALYSIS

Client:	National Guard Bureau	Job Name:	MA ARNG	Chain Of Custody:	515976
Address:	301-IH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation	Job Location:	Greenfield MA	Date Analyzed:	6/4/2013
	Havre de Grace, Maryland 21078	Job Number:	Greenfield RC	Person Submitting:	Non-Responsive
		P.O. Number:	W912K6-09-A-0003		

Attention: **Non-Responsive**

Page 1 of 1

Summary of Polarized Light Microscopy

AMA Sample Number	Client Sample #	Total Asbestos	Chrysotile Percent	Amosite Percent	Crocidolite Percent	Other Asbestos Percent	Mineral Wool Percent	Fiberglass Percent	Organic Percent	Synthetic Percent	Other Percent	Particulate Percent	Sample Type	Sample Color	Homogeneity	Analyst ID	Comments
13065712	Greenfield RC PLM-01	3	3	--	--	--	--	--	--	--	--	97	FT	Red	Homogeneous	SW	
13065713	Greenfield RC PLM-02	3	3	--	--	--	--	--	--	--	--	97	FT	Red	Homogeneous	SW	

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

- 1 TEM RECOMMENDATION - Please note, due to resolution limitations with optical microscopy and/or interference from matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos. It is recommended that the additional analytical technique of TEM be used to check for asbestos fibers below the resolution limits of optical microscopy.
- 2 MATRIX REDUCTION RECOMMENDATION - Please note, due to interference from the matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos which is obscured from view. It is recommended that the additional preparation technique of gravimetric reduction be performed on this sample to minimize the obscuring effects of matrix components, followed by reanalysis by PLM and/or TEM.

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

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

Uncertainty: For samples containing asbestos in range of 1-10% the CV is 0.43, 11-35% CV=0.55, >35 CV=0.23

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

Technical Director

Non-Responsive

Analyst(s)

Non-Responsive

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.

**AMA Analytical Services, Inc.**

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

CHAIN OF CUSTODY

(Please Refer To This
Number For Inquiries)

515976**Mailing/Billing Information:**

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

Submittal Information:

- Job Name: MA JABNG
- Job Location: Greenfield MA
- Job #: Greenfield
- Contact Person: Non-Responsive
- Submitted By: Non-Responsive

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

AFTER HOURS (must be pre-scheduled)		NORMAL BUSINESS HOURS		RESULTS REQUIRED BY NOON (Every Attempt Will Be Made to Accommodate)	
<input type="checkbox"/> Immediate	Date Due: _____	<input type="checkbox"/> Immediate	<input type="checkbox"/> 3 Day	<input type="checkbox"/> Results Required By Noon	<input type="checkbox"/> Inc. with Report
<input type="checkbox"/> 24 Hours	Time Due: _____	<input type="checkbox"/> Next Day	<input checked="" type="checkbox"/> 5 Day + <u>6/4/13</u>	<input type="checkbox"/> (Every Attempt Will Be Made to Accommodate)	<input type="checkbox"/> Fax
Comments: _____		<input type="checkbox"/> 2 Day	Date Due: _____	<input type="checkbox"/> Yes	<input type="checkbox"/> Us.army.mil

Asbestos Analysis**PCM Air** - Please Indicate Filter Type:

- ☐ NIOSH 7400 (QTY) _____
☐ Fiberglass (QTY) _____

TEM Air - Please Indicate Filter Type:

- ☐ AHERA (QTY) _____
☐ NIOSH 7402 (QTY) _____
☐ Other (specify) (QTY) _____

PLM Bulk

- ☒ EPA 600 - Visual Estimate 2 (QTY) _____
☐ EPA Point Count (QTY) _____
☐ NY State Friable 198.1 (QTY) _____
☐ Grav. Reduction ELAP 198.6 (QTY) _____
☐ Other (specify) (QTY) _____

MISC

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

TEM Bulk

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

TEM Dust

- ☐ Qual. (pres/nbs) Vacuum/Dust (QTY) _____
☐ Quan. (s/area) Vacuum D5755-95 (QTY) _____
☐ Quan. (s/area) Dust D6490-99 (QTY) _____

TEM Water

- ☐ Qual. (pres/abs) (QTY) _____
☐ ELAP 198.2/EPA 100.2 (QTY) _____
☐ EPA 100.1 (QTY) _____

- ☒ All samples received in good condition unless otherwise noted.
☐ TEM Water samples _____ °C

- ☐ Pb Paint Chip 2 (QTY) _____
☐ Pb Dust Wipe (wipe type Chalk Wipe) 10 (QTY) _____
☐ Pb Air (QTY) _____
☐ Pb Soil/Solid (QTY) _____
☐ Pb TCLP (QTY) _____
☐ Drinking Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY) _____
☐ Waste Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY) _____
☐ Pb Furnace (Media) (QTY) _____

Collection Apparatus for Spore Traps/Air Samples:

- Collection Media _____
☐ Spore-Trap (QTY) _____ ☐ Surface Vacuum Dust (QTY) _____
☐ Surface Swab (QTY) _____ ☐ Culturable ID Gema (Media) (QTY) _____
☐ Surface Tape (QTY) _____ ☐ Culturable ID Species (Media) 1 (QTY) _____
☐ Other (Specify) (QTY) _____

SAMPLE INFORMATION

CLIENT ID NUMBER	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPE AREA	TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	SWAB	SPORE TRAP	TAPE	SWAB	CLIENT CONTACT (LABORATORY STAFF ONLY)
Greenfield RC W-01	W-01	5/20/12		100cm ²				X									Date/Time: _____ Contact: _____ By: _____
Greenfield RC W-02	W-02							X									Sample TB-W submitted but not listed on the lab card. Need wipe area.
Greenfield RC W-03	W-03							X									Date/Time: _____ Contact: _____ By: _____
Greenfield RC W-04	W-04							X									
Greenfield RC W-05	W-05							X									
Greenfield RC W-06	W-06							X									
Greenfield RC W-07	W-07							X									
Greenfield RC W-08	W-08							X									
Greenfield RC W-09	W-09							X									
Greenfield RC W-10	W-10							X									
Greenfield RC PLM-01	Red 9X9							X									Date/Time: _____ Contact: _____ By: _____
Greenfield RC PLM-02	Red 9X9							X									

LABORATORY**STAFF ONLY:****(CUSTODY)**

- Date/Time RCVD: 5/20/12 Via mail
- Date/Time Analyzed: 6/4/13 By (Print): Non-Responsive
- Results Reported To: Non-Responsive
- Comments: 2440 6454 7055

BEST AVAILABLE COPY



AMA Analytical Services, Inc.

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

CHAIN OF CUSTODY

(Please Refer To This
Number For Inquires)

515976

Mailing/Billing Information:

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

Submittal Information:

1. Job Name: MIT ARBOR
2. Job Location: Greenfield MA
3. Job #: W912K6-09-A-0000
4. Contact Person: Non-Responsive @ phone # Non-Responsive
5. Submitted by: Signature: Non-Responsive

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

AFTER HOURS (must be pre-scheduled) <input type="checkbox"/> Immediate Date Due: _____ <input type="checkbox"/> 24 Hours Time Due: _____ Comments: _____		NORMAL BUSINESS HOURS <input type="checkbox"/> Immediate <input checked="" type="checkbox"/> 3 Day <input type="checkbox"/> Next Day <input checked="" type="checkbox"/> 5 Day + <input type="checkbox"/> 2 Day Date Due: _____ <input type="checkbox"/> Results Required By Noon (Every Attempt Will Be Made to Accomodate)		REP: [Redacted] with Report @ us.army.mil @ us.army.mil @ us.army.mil
--	--	--	--	--

Asbestos Analysis

- ICMAir** - Please Indicate Filter Type:
☐ NIOSH 7400 _____ (QTY)
☐ Fiberglass _____ (QTY)
- JEMAir** - Please Indicate Filter Type:
☐ AHERA _____ (QTY)
☐ NIOSH 7402 _____ (QTY)
☐ Other (specify _____) _____ (QTY)

PLM Bulk

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

MISC

- ☐ Vermiculite
☐ Asbestos Soil PLM__ (Qual) PLM__ (Quan) PLM/TEM__ (Qual) PLM/TEM__ (Quan)

TEM Bulk

- ☐ ELAP 198,4/Chatfield_____ (QTY)
☐ NY State PLM/TEM_____ (QTY)
☐ Residual Ash_____ (QTY)

TEM Dust

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

TEM Water

- ☐ Qual. (pres/abs)_____ (QTY)
☐ ELAP 198.2/EPA 100.2_____ (QTY)
☐ EPA 100.1_____ (QTY)

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

MEASUREMENT

- ☐ Pb Paint Chip _____ (QTY)
☐ Pb Dust Wipe (wipe type _____) _____ (QTY)
☐ Pb Air _____ (QTY)
☐ Pb Soil/Solid _____ (QTY)
☐ Pb TCLP _____ (QTY)
☐ Drinking Water ☐ Pb _____ (QTY) ☐ Cu _____ (QTY) ☐ As _____ (QTY)
☐ Waste Water ☐ Pb _____ (QTY) ☐ Cu _____ (QTY) ☐ As _____ (QTY)
☐ Pb Furnace (Media _____) _____ (QTY)
- Collection Apparatus for Spore Traps/Air Samples: _____
 Collection Media _____
☐ Spore-Trap _____ (QTY) ☐ Surface Vacuum Dust _____ (QTY)
☐ Surface Swab _____ (QTY) ☐ Culturable ID Gems (Media _____) _____ (QTY)
☐ Surface Tape _____ (QTY) ☐ Culturable ID Species (Media _____) _____ (QTY)
☐ Other (Specify _____) _____ (QTY)

SAMPLE INFORMATION

CLIENT ID NUMBER	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPE AREA	TEH	PCH	PLM	LBD	MOL	AIR	BULK	DUST	WETS AND DRY MEDIA	SPECIAL TRAYS	TAPE	SWAB	(LABORATORY STAFF ONLY) Date/Time:	Contact:	By:
Greenfield RC LBP-01	LBP-01	5/26/18	-	-				X									Date/Time:	Contact:	By:
Greenfield RC LBP-07	LBP-07	5/26/18	-	-				X											
Greenfield RC TB-W	TB-W																Date/Time:	Contact:	By:
																	Date/Time:	Contact:	By:
																	Date/Time:	Contact:	By:

Non-Responsive

LABORATORY

STAFF ONLY:
to NGB FOIA R
(CUSTODY)

1. Date/Time RCVD: _____ / _____ / _____ @ _____ Via: _____ By (Print): _____ Sign: _____
2. Date/Time Analyzed: _____ / _____ / _____ @ _____ By (Print): _____ Sign: _____
3. Results Reported To: _____ BEST AVAILABLE COPY Date: _____ / _____ / _____ FOIA Requested _____
4. Comments: _____ Released By: _____

Non-Responsive

2 of 2

APPENDIX D
PHOTOGRAPHIC LOG



PHOTOGRAPHIC LOG

Client Name: MA ARNG- Greenfield RC		Site Location: 71 Hope St., Greenfield, MA	Project No. 39743799
Photo No. 1	Date: 5/20/13		
Description: Former bullet trap currently used for storage in basement former Indoor Firing Range.			

Photo No. 2	Date: 5/20/13	
Description: Water staining on ceiling of second floor.		



PHOTOGRAPHIC LOG

Client Name: MA ARNG- Greenfield RC		Site Location: 71 Hope St., Greenfield, MA	Project No. 39743799
Photo No. 3	Date: 5/20/13		
Description: Improperly stored ladder in the Drill Hall.			

Photo No. 4	Date: 5/20/13	
Description: Damaged 9x9 asbestos-containing floor tiles throughout the administrative areas.		

APPENDIX E

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 ($\mu\text{g}/\text{ft}^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.
 - a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors ($40 \mu\text{g}/\text{ft}^2$) and windowsills ($250 \mu\text{g}/\text{ft}^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.
 - b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.
 - c. OSHA used to cite a level of $200 \mu\text{g}/\text{ft}^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.
 - d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that $200 \mu\text{g}/\text{ft}^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.
 - e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no

correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:
 - a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under ($40 \mu\text{g}/\text{ft}^2$ on floors and $250 \mu\text{g}/\text{ft}^2$ 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 milligrams per cubic meter (mg/m^3) averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

Prepared For:

National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
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
HINGHAM READINESS CENTER
96 CENTRAL STREET
HINGHAM, MASSACHUSETTS**

April 2006
PN: 39741508

Non-Responsive

Office Manager

Non-Responsive

Project Manager

TABLE OF CONTENTS

Section	Page
1.0 SUMMARY.....	1
2.0 ADMINISTRATIVE AREA.....	2
2.1 OPERATION DESCRIPTION.....	2
2.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED.....	2
2.2.1 Relative Humidity.....	2
2.2.2 Carbon Dioxide.....	2
2.2.3 Carbon Monoxide.....	3
2.2.4 Lighting.....	3
2.2.5 Lead.....	4
2.2.6 Asbestos.....	5
2.3 VENTILATION SYSTEM EVALUATION.....	6
2.4 NOISE MEASUREMENTS.....	6
2.5 PERSONAL PROTECTIVE EQUIPMENT.....	6
2.6 INTERPRETATION OF RESULTS.....	6
3.0 FORMER FIRING RANGE.....	7
3.1 OPERATION DESCRIPTION.....	7
3.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED.....	7
3.2.1 Lead.....	7
3.3 VENTILATION SYSTEM EVALUATION.....	8
3.4 NOISE MEASUREMENTS.....	8
3.5 PERSONAL PROTECTIVE EQUIPMENT.....	8
3.6 INTERPRETATION OF RESULTS.....	8
4.0 DRILL HALL.....	9
4.1 OPERATION DESCRIPTION.....	9
4.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED.....	9
4.2.1 Lead.....	9
4.3 VENTILATION SYSTEM EVALUATION.....	10
4.4 NOISE MEASUREMENTS.....	10
4.5 PERSONAL PROTECTIVE EQUIPMENT.....	11
4.6 INTERPRETATION OF RESULTS.....	11
5.0 BOILER ROOM.....	12
5.1 OPERATION DESCRIPTION.....	12
5.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED.....	12
5.2.1 Asbestos.....	12
5.3 VENTILATION SYSTEM EVALUATION.....	12
5.4 NOISE MEASUREMENTS.....	12
5.5 PERSONAL PROTECTIVE EQUIPMENT.....	13
5.6 INTERPRETATION OF RESULTS.....	13
6.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS.....	14
6.1 CONFINED SPACES.....	14
6.2 HEARING CONSERVATION.....	14

TABLE OF CONTENTS (Cont)

6.3	RESPIRATORY PROTECTION	14
6.4	HAZARD COMMUNICATION.....	14
6.5	PERSONAL PROTECTIVE EQUIPMENT	14
7.0	REFERENCES.....	15

APPENDICES

Appendix A	Shop Drawing
Appendix B	Personnel List
Appendix C	Hazardous Materials List
Appendix D	Analytical Results
Appendix E	Training Certificates
Appendix F	Photographs
Appendix G	Recommendations for Surface Lead Dust in Armories
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)

FINDINGS AND RECOMMENDATIONS

Findings	Recommendation	Risk Assessment Code
Ergonomic		
Computer workstations 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
Lighting		
On the day of the survey, the illuminance in the administrative area was inadequate in half of all 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 RP-1-04)	RAC 4
Lead		
Lead was detected in wipe samples collected from the firing range in amounts greater than 200 µg/ft ²	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))	RAC 4
Peeling lead-based paint was present in storage room #3, room #16 and in the drill hall.	Personnel trained in accordance with the OSHA Lead Standard should stabilize peeling lead paint (OSHA 29 CFR 1910.1025(h)(1))	RAC 4
Asbestos		
Damaged floor tile containing greater than 1% asbestos was present in room #14. Exposed pipe and pipefitting insulation was present in room #6, boiler room #5, area #9 and in the drill hall.	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
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(j))	RAC 3
Hazard Communication		
No site specific hazard communication plan available.	Develop a site specific hazard communication plan to manage hazardous materials (OSHA 29 CFR 1910.1200(e))	RAC 4

FINDINGS AND RECOMMENDATIONS (Continued)

Findings	Recommendation	Risk Assessment Code
Machinery and Machine Guarding		
The grinding wheel in area #9 was missing a safety guard.	Abrasive wheels shall be used only on machines provided with safety guards (OSHA 29 CFR 1910.215(a)(2))	RAC 3
Walking-Working Surfaces		
There was a hole in the floor of the boiler room.	Covers and/or guardrails shall be provided to protect personnel from the hazards of open pits, tanks, vats, ditches, etc. (OSHA 29CFR 1910.23(a)(8))	RAC 3
Mold		
Watermarks and visible mold growth were observed throughout.	Determine and repair source of water. Replace water damaged building materials and implement a moisture management program to provide direction for future water incursions (Best management practice)	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 at 96 Central Street in Hingham, Massachusetts. 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 February 18, 2004, Mr. **Non-Responsive** an industrial hygienist with URS, conducted a site visit to the Readiness Center in Hingham, Massachusetts. 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. Mr. **Non-Responsive** of the State of Massachusetts 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 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 armrests were in a fixed position and keyboards in office # 15 could not be adjusted (Photo # 3821). Computer monitors could not be adjusted for different individuals working at the work stations. If more than one person is using a work station, then proper adjustments need to be made to accommodate each person.

Watermarks were observed on the ceiling in hallway #15 (Photo # 3820). Watermarks with mold growth were found in the kitchen #2 (Photo # 3809) and in room # 10 (Photo # 3816). There was some water damage to the ceiling in the locker room # 28 (Photo # 3830).

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 22.3 – 26.0% with an average of 24.2% on the 1st floor. The 2nd floor ranged from 21.5 – 22.4% with an average of 22.0%. The basement level ranged from 21.6 – 24.9% with an average of 22.9%. These readings were below the recommended range of 30.0% and 60.0% set by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ANSI / ASHRAE Standard 55-2004).

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 on the 1st floor ranged from 383 to 475 parts per million (ppm), with an average of 392 ppm. The 2nd floor ranged from 460 to 472 ppm, with an average of 466 ppm. The basement level

ranged from 411 to 433 ppm, with an average of 416 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 700 ppm above background level. Given a background level of 425 ppm on the day of the survey, the ASHRAE limit would be approximately 1125 ppm.

2.2.3 Carbon Monoxide

Carbon monoxide was also measured in the Readiness Center. The carbon monoxide concentration 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 2-1
Lighting Measurements and Recommended Lighting Requirements

Location	Function	Measured Illuminance (lux)	Recommended Illuminance (lux)
Office # 15	Administrative Duties	286	500
Office # 16	Administrative Duties	199	500
Office # 17	Administrative Duties	195	500
Office # 18	Administrative Duties	166	500
Office # 27	Administrative Duties	130	500
Office # 29	Administrative Duties	139	500
Office # 30	Administrative Duties	036	500
Hallway # 1	Accessway	088	30
Hallway # 19	Accessway	112	30

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

2.2.5 Lead

Paint chips were collected where paint was peeling and sent to AMA Analytical Services, Inc. (AMA) for analysis. Two samples were found to contain lead in a concentration above the allowable limit 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 2-2 below shows the results of the lead paint testing.

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

Sample Location	URS Sample Number	Reporting Limit (% by Weight)	Final Result (% by Weight)
Storage #3	0218-LPC01	0.01	0.88
Mess Hall #4	0218-LPC02	0.01	0.051

Table 2-2 (Cont)
Levels of Lead in Paint Found in the Administrative Area

Sample Location	URS Sample Number	Reporting Limit (% by Weight)	Final Result (% by Weight)
Mess Hall #4	0218-LPC03	0.01	<0.0091
Mess Hall #4	0218-LPC04	0.01	0.19
Kitchen #2	0218-LPC05	0.01	0.34
Room #10	0218-LPC06	0.01	0.043
Room #10	0218-LPC07	0.01	<0.008
Room #16	0218-LPC08	0.01	1.4
Locker Room #28	0218-LPC10	0.01	0.35

The analytical report from AMA is contained in Appendix D.

Wipe testing for lead dust 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 (ft ²)	Result (µg/ft ²)	Maximum Safe Surface Contamination Level (µg/ft ²)
Hallway #19 – Top of the Coca Cola Machine	0218-LW03	0.111	610	200
Office #15 – Top of a Book Case	0218-LW04	0.111	49	200
Office #17 – Top of a Book Case	0218-LW05	0.111	31	200
Blank	0218-LWBlank	N/A	0.62	200

2.2.6 Asbestos

Pipe insulation, 9"x9" floor tile and cove base mastic were determined to contain asbestos in a previous survey conducted by ATC Associates of Woburn, Massachusetts in June of 1999

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

GENERAL: In general, the administrative area was neat and orderly.

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

LEAD: One of the three surface wipes that were tested in the administrative area for lead, was found to contain lead in a quantity greater than 200 micrograms per square foot. URS recommends that an appropriately licensed lead contractor clean the areas with high lead dust levels. The NGB Region North Industrial Hygiene Office has prepared a memorandum titled "Recommendations for Surface Lead Dust in Armories" which is provided in Appendix G.

The light blue paint chip sample from storage room #3 (Photo # 3805) and the brown paint chip sample from room #16 (Photo # 3823) were found to contain lead above the HUD Guideline for lead-based paint. It is recommended that the peeling lead paint be stabilized to prevent further spread of lead dust.

ASBESTOS: Broken 9"x9" floor tile was found throughout room #14 (Photo # 3822). This material was determined to contain asbestos in a previous survey conducted by ATC Associates of Woburn, Massachusetts in June of 1999.

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 Former Firing Range**

Sample Location	URS Sample Number	Area Wiped (ft ²)	Result (µg/ft ²)	Maximum Safe Surface Contamination Level (µg/ft ²)
Former Firing Range-Top of Light Guard	0218-LW06	0.111	78,000	200
Former Firing Range-Top of Light Guard	0218-LW07	0.111	100,000	200
Former Firing Range-Floor-Rear	0218-LW08	0.111	8,500	200
Former Firing Range-Floor-Center	0218-LW09	0.111	3,100	200
Former Firing Range-Floor-Front	0218-LW10	0.111	2,700	200
Blank	0218-LWBlank	N/A	0.62	200

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 Location	URS Sample Number	Air Volume (L)	Result ($\mu\text{g}/\text{m}^3$)	OSHA's PEL($\mu\text{g}/\text{m}^3$)
Former Firing Range	0218-LA02	900	<3.3	50.0
Blank	0218-LA03	0	<3.0	50.0

On the day of the survey, the airborne lead dust level 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 $50.0 \mu\text{g}/\text{m}^3$ 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

LEAD: The five surface wipe samples collected in the former firing range were found to contain lead dust levels above the maximum limit set by the National Guard Bureau. The NGB Region North Industrial Hygiene Office has prepared a memorandum titled "Recommendations for Surface Lead Dust in Armories" which is provided in Appendix G. Guidelines for the cleaning and rehabilitation of indoor firing ranges is provided in Appendix H.

4.0 DRILL HALL

4.1 Operation Description

The drill hall is a 6,600 square foot area with about a 30-foot high ceiling used for assembling personnel and storing equipment. The walls are constructed of brick with a wood floor.

The asbestos-containing pipe insulation in this area is in poor condition (Photo # 3824). URS recommends removing the insulation before further deterioration occurs. This work should be performed by a properly trained, licensed technician.

Watermarks were discovered in the drill hall on the ceiling (Photo # 3826). URS was told by the on-site escort that the roof was new and the watermarks had been there prior to the installation of the new roof. URS recommends frequent visual inspections by for any new water stains or mold growth.

4.2 Chemical and Physical Agents Sampled

4.2.1 Lead

Wipe testing for lead dust was conducted in the drill hall 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 Number	Area Wiped (ft ²)	Result (µg/ft ²)	Maximum Safe Surface Contamination Level (µg/ft ²)
Drill Hall # 22 – Floor – Rear	0218-LW01	0.111	130	200
Drill Hall # 22 – Floor – Front	0218-LW02	0.111	100	200
Blank	0218-LWBlank	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.

Table 4-2
Levels of Lead Found in the Air

Sample Location	URS Sample Number	Air Volume (L)	Result ($\mu\text{g}/\text{m}^3$)	OSHA's PEL ($\mu\text{g}/\text{m}^3$)
Drill Hall	0218-LA01	864	<3.5	50.0
Blank	0218-LA03	0	<3.0	50.0

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 $50.0 \mu\text{g}/\text{m}^3$ averaged over an 8-hour day.

A Paint chip was collected 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	URS Sample Number	Reporting Limit (% by Weight)	Final Result (% by Weight)
Drill Hall # 22	0218-LPC09	0.01	0.2

The analytical report from AMA is contained in Appendix D.

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

LEAD: The air and paint chip samples collected in the drill hall for lead were found to be within allowable limits and require no further action at this time. The NGB has prepared a memorandum titled "Recommendations for Surface Lead Dust in Armories" which is provided in Appendix G.

5.0 BOILER ROOM

5.1 Operation Description

The boiler room is a mechanical space constructed of cinder block walls with a concrete floor, containing a furnace and associated piping.

5.2 Chemical and Physical Agents Sampled

5.2.1 Asbestos

An air sample was collected in the boiler room to determine the airborne fiber count in this building 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 accordance with the NIOSH Method 7400, analyzed the air sample. Table 5-1 below shows the result of the air sample.

Table 5-1
Airborne Fiber Level in the Boiler Room

Location Of Sample Taken	URS Sample Number	Volume (Liters)	Results: Fibers Per Cubic Centimeter
Boiler Room # 5	0218-AA01	2618	0.009
Blank 1	0218-AA02	0	*****
Blank 2	0218-AA03	0	*****

The result of the air sample was found to be below the analytical detection limit as defined in 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

ASBESTOS: The aircell pipe and pipe fitting insulation in the boiler room (Photo # 3812), room #6 (Photo # 3811) and area #9 (Photo # 3819) was exposed at the time of this survey. URS recommends that a properly trained and licensed technician remove the exposed insulation.

WALKING-WORKING SURFACES: There was a hole in the floor of the boiler room that is a hazard to anyone walking in the room (Photo # 3813). URS recommends filling in the hole to make it level with the existing floor.

MACHINERY AND MACHINE GUARDING: There was a grinding wheel in area #9 that did not have a safety guard (Photo # 3818). A safety guard is required if this grinding wheel is to be used.

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

No safety program was found regarding hearing conservation. No training records were found on site. A hearing conservation program is not required for this site.

6.3 Respiratory Protection

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

6.4 Hazard Communication

No program was found regarding hazard communication. No training records were found on site. A site-specific hazard communication program is required for this site and should include communication of hazards to employees, management of material safety data sheets, chemical labeling and spill protection.

6.5 Personal Protective Equipment

No safety program was found regarding personal protective equipment. 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

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

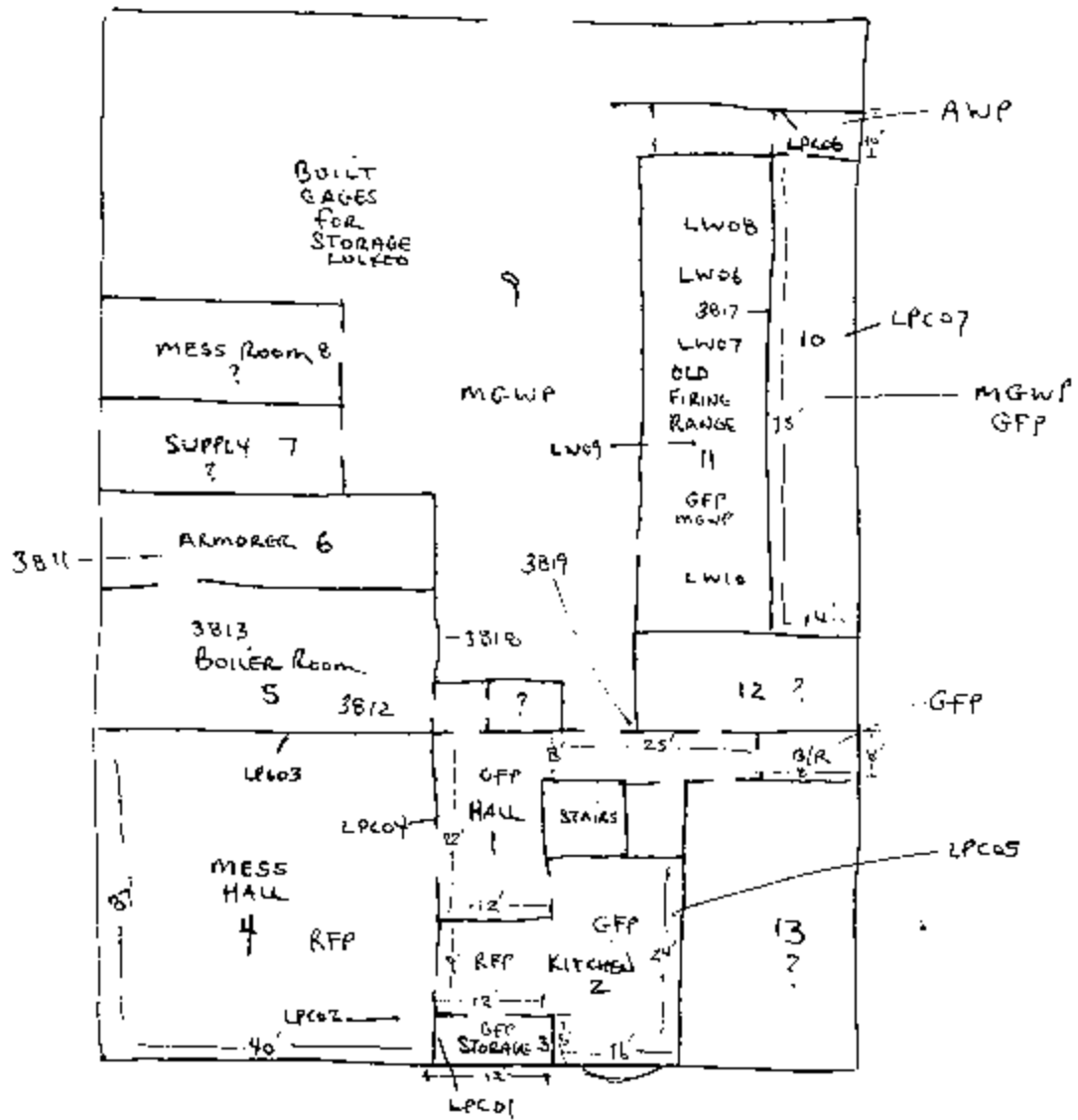
Standard for General Industry: 29 CFR 1910

APPENDIX A
SHOP DRAWING

Job _____ Project No. _____ Page _____ of _____
 Description _____ Computed by _____ Sheet _____ of _____
 _____ Checked by _____ Date _____
 _____ Date _____

Reference

BASEMENT



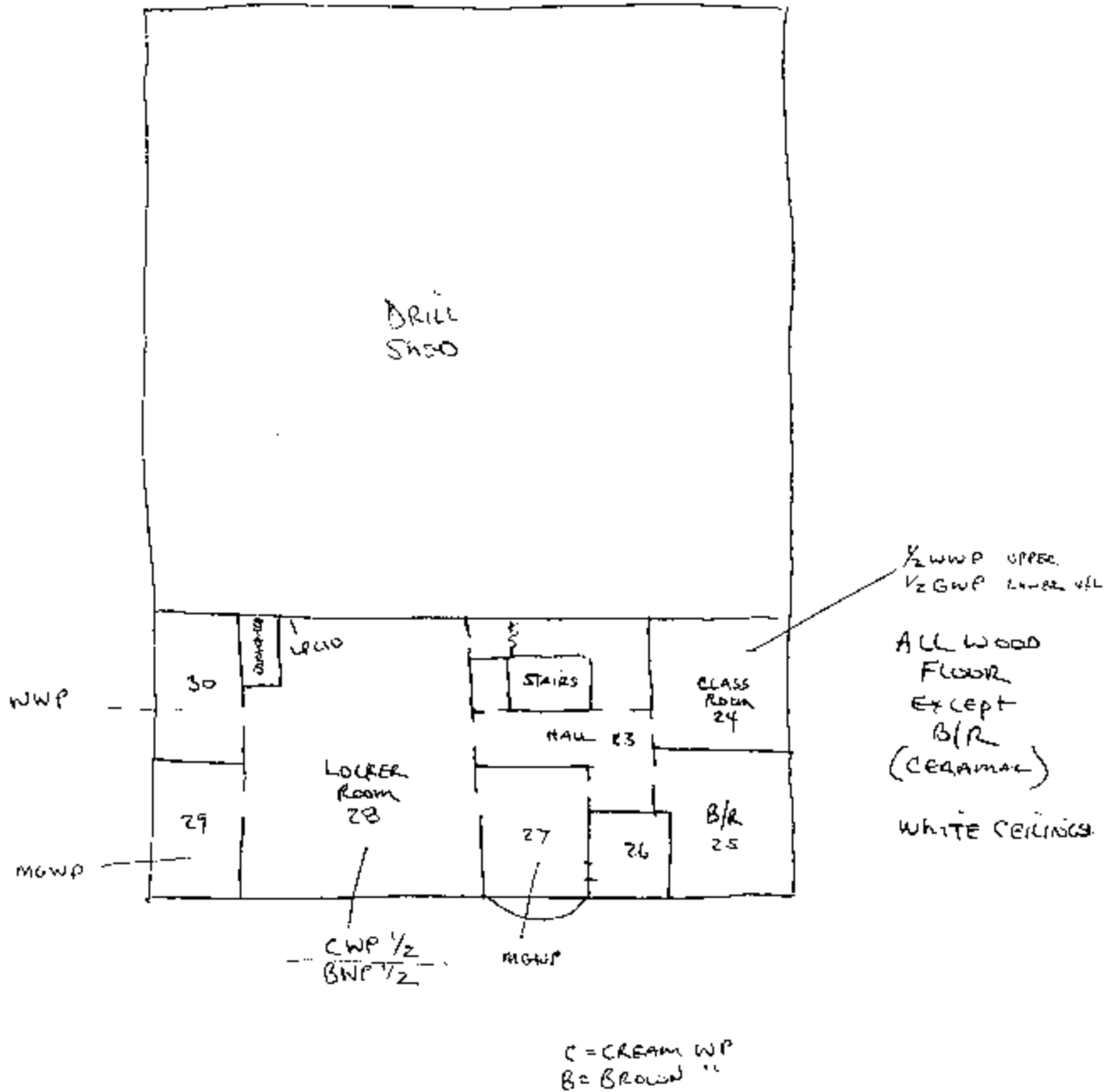
FRONT

RFP = RED FLOOR PAINT
 GFP = GRAY " "

AWP = AQUA WALL PAINT
 MGWP = MINT GREEN " "

Job _____ Project No. _____ Page ____ of ____
 Description _____ Computed by _____ Sheet ____ of ____
 _____ Checked by _____ Date _____
 _____ Date _____
 Reference _____

2ND FLOOR



APPENDIX B
PERSONNEL LIST

BEST AVAILABLE COPY

PERSONEL LIST

HINGHAM ARMORY

Name	Rank
Non-Responsive	CIV – Armorer
No Staff on site Unit Deployed	

APPENDIX C
HAZARDOUS MATERIALS LIST

NO CHEMICAL INVENTORY AVAILABLE

APPENDIX D
ANALYTICAL RESULTS

AMA Analytical Services, Inc.

Electron & Optical Microscopy Services

CERTIFICATE OF ANALYSIS
NVLAP
NY ELAP
AIHA

Client: National Guard Bureau
Address: 301-1H Old Bay Lane, Attn: NGB-AVN-SI,
 State Military Reservation
 Havre de Grace, Maryland 21078

Job Name: Army National Guard
Job Location: 96 Central Street Hingham, MA
Job Number: 42056-012-211
P.O. Number: Not Provided

Chain Of Custody: 123112
Date Analyzed: 3/2/04

Person Submitting: [REDACTED]

Attention: [REDACTED]

Summary of Phase Contrast Microscopy

Page 1 of 1

AMA Sample Number	Client Sample Number	Volume Sampled (Liters)	Fibers Per Millimeter Squared	Fibers Per Cubic Centimeter	Analyst I.D.	Sample Type	Comments
0427571	0218 AA 01	2618	59.2	0.009	CK	N/P	
0427572	0218 AA 02	0	*****	*****	CK	BLK	
0427573	0218 AA 03	0	< 7.0 *	*****	CK	BLK	2 fiber(s) per 100 fields

* The Reporting Limit for AMA Laboratory is 7.0 fibers per square millimeter of filter. The reporting limit for the air concentration of fibers (/cc) is dependent on the sampled air volume. Fibers counts were determined by the methods described in NIOSH Analytical Method 7400, 'Fibers' (Revision 3, Issue 2, 8/15/94). All personnel samples were analyzed following the OSHA Reference Method.



This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition 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.

An AIHA (#8863), NVLAP (#101133), & New York ELAP (#10920) Accredited Laboratory

Posted to NGB FOIA Reading Room
 May, 2018

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

BEST AVAILABLE COPY

AMA Analytical Services, Inc.



Electron & Optical Microscopy Services

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Mar 04 04 04:58P

AMA Analytical Services

(301) 459 - 2643

P.1

Client: National Guard Bureau
Address: 301-TH Old Bay Lane, Attn: NGB-AVN-SI,
State Military Reservation
Havre de Grace, Maryland 21078

Job Name: Army National Guard
Job Location: 96 Central Street Hingham, MA
Job Number: 42056-012-211
P.O. Number: Not Provided

Chain Of Custody: 123112
Date Analyzed: 3/2/2004
Person Submitting: [REDACTED]
Report Date: 04-Mar-04

Attention: [REDACTED]

Page 1 of 2

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Final Result	Comments
0427547	0218 LA 01	Flame	Air	864	N/A	3.47 ug/m³	< 3.5 ug/m³	
0427548	0218 LA 02	Flame	Air	900	N/A	3.33 ug/m³	< 3.3 ug/m³	
0427549	0218 LA 03	Flame	Air Blank	0	N/A	3.00 ug/m³	< 3 ug	
0427550	0218 LPC 01	Flame	Paint Chip	****	N/A	0.01 %Pb	0.88 %Pb	
0427551	0218 LPC 02	Flame	Paint Chip	****	N/A	0.01 %Pb	0.051 %Pb	
0427552	0218 LPC 03	Flame	Paint Chip	****	N/A	0.01 %Pb	< 0.0091 %Pb	
0427553	0218 LPC 04	Flame	Paint Chip	****	N/A	0.01 %Pb	0.19 %Pb	
0427554	0218 LPC 05	Flame	Paint Chip	****	N/A	0.01 %Pb	0.34 %Pb	
0427555	0218 LPC 06	Flame	Paint Chip	****	N/A	0.01 %Pb	0.043 %Pb	
0427556	0218 LPC 07	Flame	Paint Chip	****	N/A	0.01 %Pb	< 0.008 %Pb	
0427557	0218 LPC 08	Flame	Paint Chip	****	N/A	0.01 %Pb	1.4 %Pb	
0427558	0218 LPC 09	Flame	Paint Chip	****	N/A	0.01 %Pb	0.2 %Pb	
0427559	0218 LPC 10	Flame	Paint Chip	****	N/A	0.01 %Pb	0.35 %Pb	
0427560	0218 LW 01	Furnace	Wipe	****	0.111	67.51 ug/ft²	130 ug/ft²	
0427561	0218 LW 02	Furnace	Wipe	****	0.111	33.75 ug/ft²	100 ug/ft²	
0427562	0218 LW 03	Flame	Wipe	****	0.111	108.01 ug/ft²	610 ug/ft²	
0427563	0218 LW 04	Furnace	Wipe	****	0.111	13.50 ug/ft²	49 ug/ft²	
0427564	0218 LW 05	Furnace	Wipe	****	0.111	6.75 ug/ft²	31 ug/ft²	
0427565	0218 LW 06	Flame	Wipe	****	0.111	108.01 ug/ft²	78000 ug/ft²	
0427566	0218 LW 07	Flame	Wipe	****	0.111	108.01 ug/ft²	100000 ug/ft²	

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples.

All rights reserved. AMA Analytical Services, Inc.

An AIHA (00063), NVLAP (#101143), & New York ELAP (#10720) Accredited Laboratory.

3475 Forbes Blvd. • Lanham, MD 20706 • (301) 459-2640 • Toll Free (800) 346-0961 • Fax (301) 459-2643

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

FOIA Requested Record #15-0085 (MA)

Released by National Guard Bureau

Page 1673 of 3473

AMA Analytical Services, Inc.



Electron & Optical Microscopy Services

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client: National Guard Bureau
Address: 301-1H Old Bay Lane, Attn: NGB-AVN-SI,
State Military Reservation
Havre de Grace, Maryland 21078

Job Name: Army National Guard
Job Location: 96 Central Street Hingham, MA
Job Number: 42056-012-211
P.O. Number: Not Provided

Chain Of Custody: 123112
Date Analyzed: 3/2/2004
Person Submitting: [REDACTED]
Report Date: 04-Mar-04

Attention: [REDACTED]

Page 2 of 2

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Final Result	Comments
0427567	0218 LW 08	Flame	Wipe	***	0.111	108.01 ug/ft²	8500 ug/ft²	
0427568	0218 LW 09	Flame	Wipe	***	0.111	108.01 ug/ft²	3100 ug/ft²	
0427569	0218 LW 10	Flame	Wipe	***	0.111	108.01 ug/ft²	2700 ug/ft²	
0427570	0218 LW BLANK 1	Furnace	Wipe Blank	***	N/A	0.30 ug	0.62 ug	

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

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

N/A = Not Applicable mg/Kg = parts per million (ppm) by weight mg/L = parts per million (ppm)

%Pb = percent lead by weight ug = micrograms ug/L = parts per billion (ppb)

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

Analyst

Technical Manager

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition 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.

AIHA (#0063), NVLAP (#101133), New York ELAP (#10020) Accredited Laboratory.

3475 Forbes Blvd. • Lanham, MD 20706 • (301) 459-2640 • Toll Free (800) 346-0961 • Fax (301) 459-2643

Posted to NGB FOIA Reading Room
May, 2018

BEST AVAILABLE COPY

BEST AVAILABLE COPY

Mar 04 04 04:58P

AMA Analytical Services

(301) 459 - 2643

P.2

APPENDIX E
TRAINING CERTIFICATES

Non-Responsive



**INSTITUTE FOR
ENVIRONMENTAL EDUCATION, INC.**

16 Upton Drive, Wilmington, MA 01887

(978) 658-5272

IEE

IEE

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

April 11, 2003

Examination Date

03518010625349

Certificate Number

April 10, 2004

Expiration Date



President/Director of Training

BEST AVAILABLE COPY

BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (MA)
Released by National Guard Bureau
Page 1677 of 3473

APPENDIX F
PHOTOGRAPHS

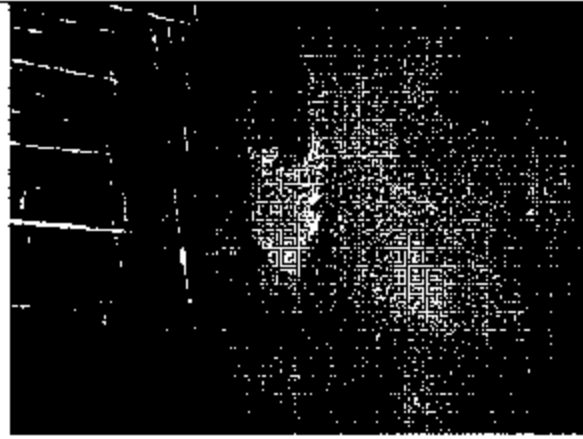


Photo 3805: Storage #3 - Light blue paint peeling off wall

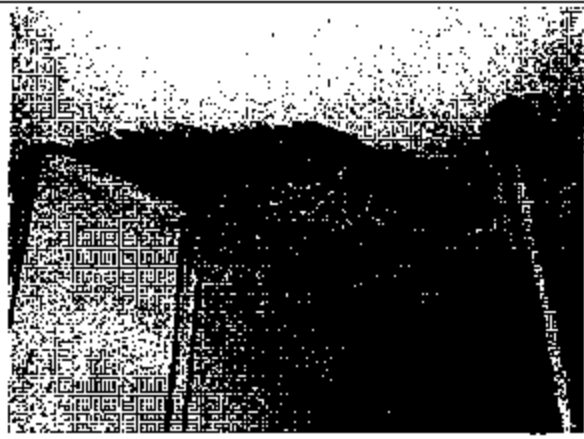


Photo 3809: Kitchen #2 - Water stain on ceiling tile

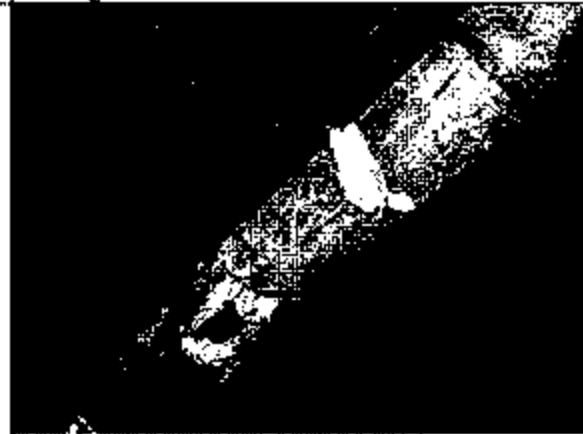


Photo 3811: Armorer #6 - Damaged asbestos-containing pipe insulation

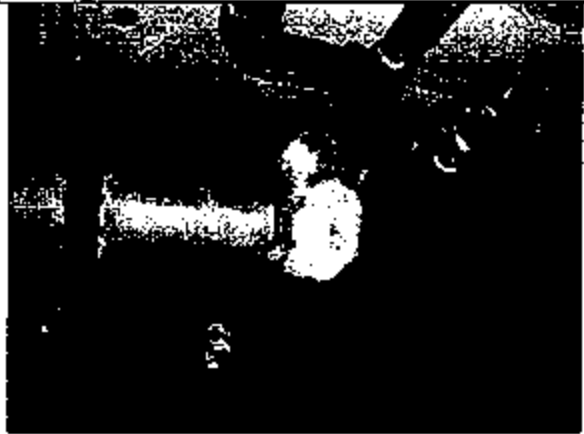


Photo 3812: Boiler Room #5 - Damaged asbestos-containing pipe insulation

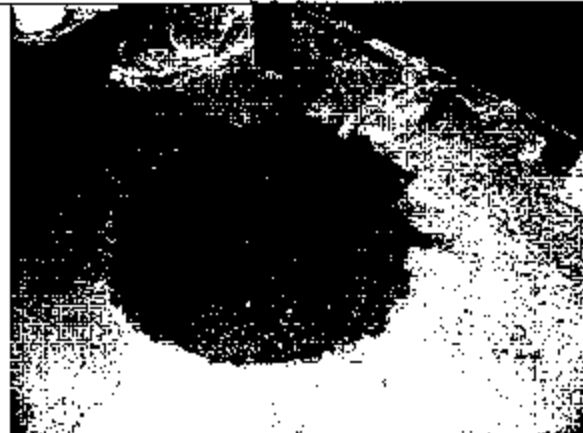


Photo 3813: Boiler Room #5 - Hole in floor

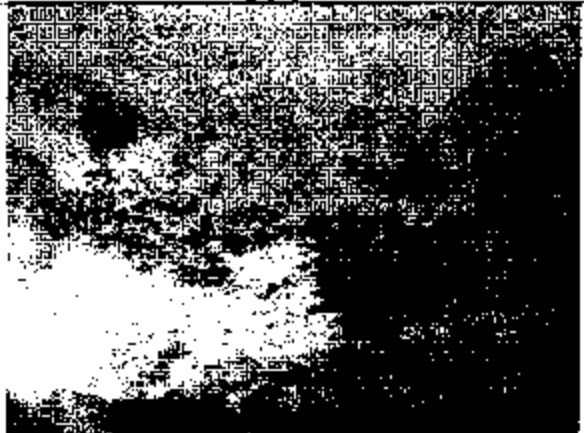


Photo 3816: Room #10 - Water stained floor with mold growth



Photo 3818: Area #9 - Grinding wheel without proper machine guarding



Photo 3819: Area #9 - Damaged asbestos-containing pipe insulation

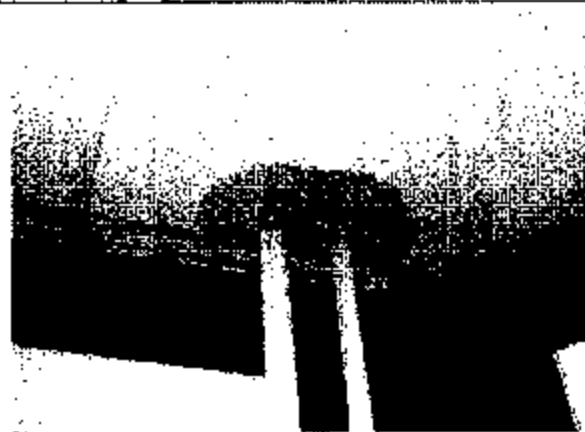


Photo 3820: Office #15 - Water stained ceiling tiles



Photo 3821: Office #15 - Computer work station



Photo 3822: Room #14 - Damaged asbestos-containing floor tiles

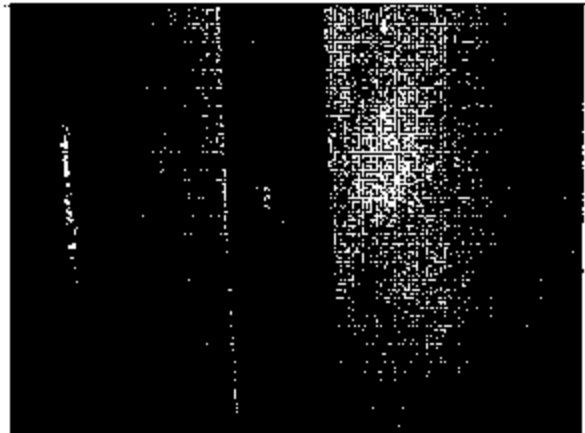


Photo 3823: Room #16 - Damaged asbestos-containing pipe insulation

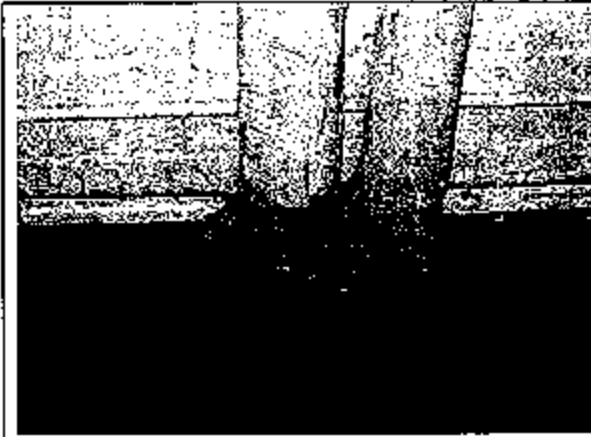


Photo 3824: Drill Shed - Damaged asbestos-containing pipe insulation



Photo 3826: Drill Shed - Water marks on wood roof deck

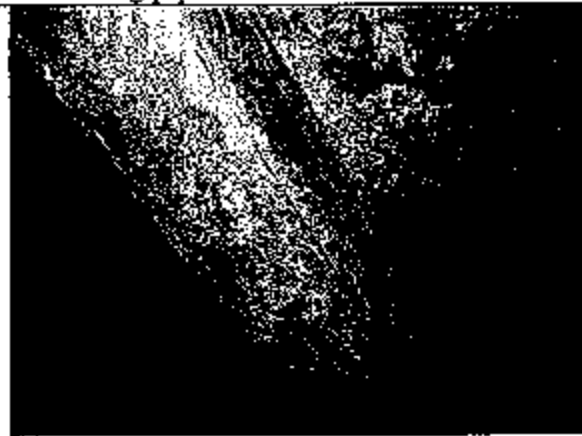


Photo 3830: Locker Room #28 - Water stains on roof deck

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 ($\mu\text{g}/\text{ft}^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

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

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

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

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

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

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

- a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under ($40 \mu\text{g}/\text{ft}^2$ on floors and $250 \mu\text{g}/\text{ft}^2$ 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 $0.05 \text{ mg}/\text{m}^3$ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

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-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

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
Goal	5
Background	6
Wipe Sample Media	7
Wipe Sampling Protocol	8
Range Cleaning Instructions	9
Cleaning Stored Contaminated Equipment	10
Contaminated Sand and Lead Waste	11
Medical Surveillance	12
Worker Education	13
Personal Protection Equipment	14
Housekeeping	15
Maintenance	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

Purpose

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. 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 1910, 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).

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

3. 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, 5th 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 foot (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 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 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. 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.

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

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 deionized 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 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.

~~NOTE: Do not use MCE filters for lead dust 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 GUARD INDOOR FIRING RANGES

(2) Unacceptable Media consists of but is not limited to—

- (a) Cotton balls
- (b) Baby wipes or wet 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.

8. 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 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 maintained. 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 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, Spic and Span™ has been found to be an effective cleaning solution by other Army organizations. Mix new solutions of cleaning solution frequently. Wet wiping will require dual containers of water; one container for wetting the applicator (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 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 deck enamel or urethane; concrete floors should be sealed with deck enamel and linoleum 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 plate(s) should be cleaned. Next, clean the ceiling, 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 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.

l. 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 lead dust must be decontaminated before it is removed from the range.

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

b. Equipment located near the bullet trap and firing line should be cleaned first and then removed. The cleaning method depends on the size of the equipment and the material it is comprised of, i.e. metal, wood, concrete, porous, non-porous, smooth or rough finish etc. However, either HEPA vacuum or the wet wipe method will be used. Refer to paragraph 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 (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 all individuals who are subject to exposure to lead at or above the action level or for whom the possibility of skin or eye irritations 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, 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, fitting, 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.
- f. Smoking and smoking materials will not be permitted in contaminated areas.

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

- 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 clothing 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, 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. 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 bolts to ensure that they are not frayed or slipping.

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

- 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 trap for pitting or other damage and for sharp edges on venetian blind type bullet traps.
- e. Bullet Trap. The bullet 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 bullet 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 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.

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.
- c. 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 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 decontaminated or removed.
- h. 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

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 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™, 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, moisten the filter with distilled or deionized 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 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 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 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 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 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 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 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 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 cassette 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.

<u>Order From</u>	<u>Catalog Number</u>
a. Millipore Corp. Ashby Road Bedford, MA 01730 617-275-9200 800-225-1380	MAWP-037-A0
b. Gelman Sciences 800 South Wagner Rd Ann Arbor, MI 48106 313-605-0651 800-521-1520	64678 (GN-4)
c. Supelco, Inc. Supelco Park Bellefonte, PA 16823 800-247-6628 800-359-3041	2-3368M

E-3 37 mm MCE Filter with pad, no cassette included, for lead surface wipe samples

<u>Order From</u>	<u>Catalog Number</u>
a. Supelco Inc. Supelco Park Bellefonte, PA 16823	2-33811M

NGB-AVS-SG

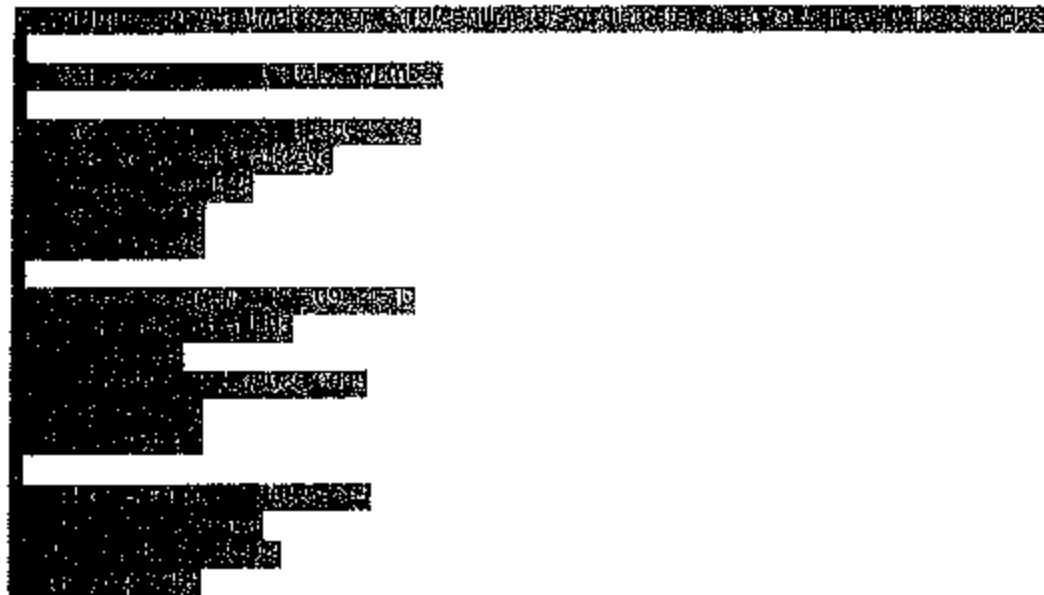
SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program – POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

APPENDIX E (Continued)

800-247-6628
600-359-3041

b. Millipore Corp. AAWP-037-00
Ashdy Road
Bedford, MA 01730
617-275-9200
800-225-1380

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



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

<u>Order From</u>	<u>Catalog Number</u>
a. Pierce Chemical Co. P.O. Box 117 Rockford, IL 61105 815-968-0747 800-874-3723	13219 (screw cap)
b. Alltech Associates, Inc. Applied Science Labs 2051 Waukegan Rd. Deerfield, IL 60015 312-948-8600	95321 (screw cap)

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 E (Continued)

800-255-8324

E-6. Ghost Wipes™

<u>Order From</u>	<u>Catalog Number</u>
-------------------	-----------------------

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

E-7. Ghost Wipe™ Containers

<u>Order From</u>	<u>Catalog Number</u>
-------------------	-----------------------

Environmental Express	SC489
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. 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:

$$\frac{75 \text{ ug}}{100 \text{ cm}^2} \times \frac{929 \text{ cm}^2}{1 \text{ sq ft}} = \frac{75 \times 929}{100} = \frac{69675}{100} = 696.75 \text{ ug/sq ft}$$

ug – Microgram

Cm2 – Centimeters squared

Sq ft – Square foot

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 H
AIR SAMPLING SHEET

Industrial Hygiene Air Sample Sheet							
Return Address				Point of Contact (name/phone #)			
				Samples Collected By			
Sampled Facility	City	State	Location (bldg/area)				
Description of Operation	Persons Exposed		Hrs/Day		Method of Collection		
Analysis Desired							
Sampling Data							
Sample No.							
Pump No.							B
Time On							L
Time Off							A
Total Time (min)							N
Flow Rate (LPM)							K
Volume (liters)							
GA/BZ							
Employee Name/ID							
Laboratory No.							
Calibration Information							
Pump No.	Calibration (LPM)		Rotameter Setting	Date			
	Pre-Use	Post-Use					
Name of Calibrator		Calibration Date	Pump Manufacturer				
Comments to Lab							

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 I
ABBREVIATIONS AND TERMS

Section I
Abbreviations

ARNG

Army National Guard

BUN

Blood urea nitrogen

BZ

Breathing zone

CBC

Complete blood count

CFR

Code of Federal Regulations

cm

Centimeter

DHEW

Department of Health, Education and Welfare

EPA

Environmental Protection Agency

GA

General area

OMPF

Official Military Personnel File

OPF

Official Personnel File

OSHA

Occupational Safety and Health Administration

TCLP

Toxic Characteristic Leaching Procedures

ug/sq ft

Micrograms per square foot

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 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 used synonymously to describe the techniques utilized for assessing lead surface contamination.

Industrial Hygiene Survey

Massachusetts Army National Guard (MA ARNG)

Prepared For: NGB ARNG – Region North IH Office

Survey Location:

**Hingham Readiness Center
96 Central Street
Hingham, MA 02043-2517**

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

**Survey Date: August 19, 2010
Report Date: September 30, 2010**

AEI Project #: J10-515 3d MA Hingham RC

Non-Responsive

Industrial Hygienist



BEST AVAILABLE COPY
Industrial Hygiene Survey Report
Massachusetts Army National Guard (MA ARNG)
Hingham Readiness Center

Table of Contents

Executive Summary	ii
1 Introduction	1
2 Evaluation Methods	1
3 Operations.....	1
4 Noise Hazards.....	1
5 Hazard Controls	2
Ventilation Systems.....	2
6 Physical Condition of the Facility and Personnel Concerns.....	2
Paint Chip and Dust Wipe Samples for Lead Contamination.....	2
Visual Inspection for Damaged Asbestos-Containing Materials	4
Visual Inspection for Water Damage and Mold Growth.....	4
Visual Inspection for Housekeeping Concerns.....	4
Lighting.....	4
Indoor Air Quality (IAQ)	5
Temperature and Relative Humidity.....	5
Carbon Dioxide (CO ₂) and Carbon Monoxide (CO).....	5
7 Conclusions	6
8 Limitations	6

List of Tables and Appendices

Table 1 - Results of Lead in Air Sampling for the MA ARNG Hingham Readiness Center on August 19, 2010.

Table 2 – Results of Dust Wipe Sampling for the MA ARNG Hingham Readiness Center on August 19, 2010.

Table 3 - Results of Asbestos Sampling for the MA ARNG RC Hingham, Readiness Center on August 19, 2010.

Table 4 - Acceptable Ranges of Temperature and Relative Humidity in Summer and Winter

Appendix A – Building Layout

Appendix B – Certificates of Analysis for Air, Dust Wipe and Bulk Samples

Appendix C – Photo Documentation

Appendix D – IAQ and Lighting Survey Log Sheets

BEST AVAILABLE COPY
Industrial Hygiene Survey Report
Massachusetts Army National Guard (MA ARNG)
Hingham Readiness Center

Executive Summary

Aria Environmental, Inc. (AEI) was contracted to perform an industrial hygiene evaluation for the Readiness Center located at 96 Central Street, Hingham, MA 02043-2517. **Non-Responsive** performed the evaluation on August 19, 2010. The point of contact for the facility was Specialist **Non-Responsive**. The purpose of the evaluation was to identify and measure the existence and extent of potentially hazardous operations or conditions at Army National Guard (ARNG) facilities. The survey included: (1) evaluations of operations including operation description, ventilation system evaluations, noise dosimetry if appropriate, lighting surveys, hazard control evaluations and any additional information pertinent to the operations; (2) an evaluation of the physical condition of the facility and personnel concerns including visual inspections for peeling potentially lead-based paint, damaged suspect asbestos-containing materials, water damage or mold problems; indoor air quality concerns; and housekeeping practices; and (3) photographs of the exterior and interior of the readiness center. The results of the evaluation indicated the following:

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

Lead in Air Samples: Lead in air samples to determine if any airborne contamination of lead existed in the facility were not collected at the Hingham Readiness Center due to sample pump malfunction.

Paint Chip and Wipe Samples for Lead Contamination: Two wipe samples collected from the top of a flammable cabinet and from the top of a locker were above the National Guard criteria for lead contamination (200 µg/ft²). Samples ranged from 1.05 to 1.1 times the National Guard criteria. It should be noted that the former firing range located in the basement of the facility was not accessible at the time of the survey. All paint chip samples were below regulatory limits of 0.5% lead by weight except for the yellow paint in room 18 (0.78%). Peeling paint was observed over the majority of the second floor and in one room (room 13 on the drawing) on the first floor where extensive water damage has occurred.

Visual Inspection for Damaged Asbestos-Containing Materials: Damaged plaster that may contain asbestos were observed in one room (room 13 on the drawing) on the first floor where extensive water damage has occurred. The EPA defines an asbestos-containing material as one percent (1%) or more asbestos by visual estimation. The plaster was reported to contain no asbestos.

Visual Inspection for Water Damage and Mold Growth: A visual inspection was performed to determine if there was any water damage or visible mold growth at the facility. Extensive water damage was observed in one room (room 13 on the drawing) on the first floor. Water intrusion was reportedly from an old water leak in the roof which has been repaired. The ceiling of the room had collapsed due to the water damage and a determination of whether mold was present was not feasible.

Visual Inspection for Housekeeping Concerns: A visual inspection was performed to assess the state of housekeeping in the facility. The housekeeping was good. All areas were clean and tidy except where mold was observed.

BEST AVAILABLE COPY
Industrial Hygiene Survey Report
Massachusetts Army National Guard (MA ARNG)
Hingham Readiness Center

Lighting: The evaluation indicated that there are some illumination deficiencies in several areas of the facility. The illumination measurements indoors ranged from a low of 4.4 foot candles (fc) to a high of 101.7 fc.

Indoor Air Quality: Temperatures and relative humidity measurements were outside the acceptable range in approximately one third of the facility. These results are not unexpected due to outdoor conditions on the day of the survey and the lack of air conditioning in most of the facility. Indoor levels of CO₂ ranged from 359 to 712 parts per million (ppm) and outdoor CO₂ levels were approximately 345 ppm during the monitored period. CO₂ measurements were below the guideline in all areas, indicating adequate fresh air exchange. Indoor levels of CO ranged from 0.1 to 4.7 ppm; therefore, concentrations are below occupational exposure limits, ASHRAE and the NAAQS-recommended CO concentrations.

BEST AVAILABLE COPY
Industrial Hygiene Survey Report
Massachusetts Army National Guard (MA ARNG)
Hingham Readiness Center

1 Introduction

Aria Environmental, Inc. (AEI) was contracted to perform an industrial hygiene evaluation for the Massachusetts Army National Guard (MA ARNG) Readiness Center located at 96 Central Street, Hingham, MA 02043-2517. **Non-Responsive** performed the evaluation on August 19, 2010. The point of contact for the facility was Specialist **Non-Responsive**. The purpose of the evaluation was to identify and measure the existence and extent of potentially hazardous operations or conditions at Army National Guard (ARNG) facilities.

The Hingham Readiness Center is staffed with 3 administrative personnel. The operations conducted at the facility include supply and administrative duties. A diagram of the building layout is provided in Appendix A. All sampling sheets and laboratory certificates of analysis are provided in Appendix B. Selected photographs taken during the evaluation are provided in Appendix C. Indoor air quality and lighting survey measurement log sheets are provided in Appendix D. Lists of all references used during the evaluation are included in the main body of the report.

2 Evaluation Methods

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

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

3 Operations

Operations conducted at the Hingham facility consists exclusively of supply and administrative duties. No maintenance of vehicles, painting of equipment or other physical tasks are performed at the facility. Ground maintenance and upkeep of the building are the responsibility of the state employed Armorer and not part of the duties of National Guard personnel.

4 Noise Hazards

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

5 Hazard Controls

Ventilation Systems

Heat is supplied to the facility through a boiler located in the boiler room and overhead heaters in the drill hall. The boiler certificate for the Hingham facility expired in 1994 and is not up to date. Any air conditioning provided to the building is through window air conditioning units. No local ventilation systems were present at the facility.

6 Physical Condition of the Facility and Personnel Concerns

An evaluation of the physical condition of the facility and personnel concerns was performed including visual inspections for peeling potentially lead-based paint, damaged suspect asbestos-containing materials, water damage or mold problems; indoor air quality concerns; and housekeeping practices. Lighting and indoor air quality measurements were taken in all areas of the facility as well.

Lead in Air Samples

Lead in air samples to determine if any airborne contamination of lead existed in the facility were not collected at the Hingham Readiness Center due to sample pump malfunction.

Paint Chip and Dust Wipe Samples for Lead Contamination

To determine if any cross contamination of lead from any source into areas of the facility existed, wipe samples were collected using ghost wipes and 10cm x 10cm templates. Wipe samples for surface dust were collected in 13 locations. The Environmental Protection Agency (EPA) and the Commonwealth of Massachusetts limits for lead in dust are 40 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) on floors, 250 $\mu\text{g}/\text{ft}^2$ on window sills, and 400 $\mu\text{g}/\text{ft}^2$ in window troughs. These limits apply to pre-1978 Army facilities only if children under 6 years of age occupy them for 60 or more hours per year. The NGB Region North Industrial Hygiene Office concurs with the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) recommended maximum level for adult exposures of 200 $\mu\text{g}/\text{ft}^2$ on floors and frequently contacted surfaces, which is more stringent for window sills than the EPA/State standards. Dust wipe samples were submitted to Aerosol Monitoring and Analysis Analytical Services, Inc. (AMA) for atomic absorption spectrophotometry (AAS) following the analytical method ASTM D3335-85A. Two samples collected from the top of a flammable cabinet and from the top of a locker were above the National Guard criteria for lead contamination (200 $\mu\text{g}/\text{ft}^2$). Samples ranged from 1.05 to 1.1 times the National Guard criteria. The history of the former indoor firing range was not known by current Readiness Center employees, and the range was inaccessible at the time of the survey. All indoor firing ranges must be properly converted and/or maintained in accordance with NG PAM 420-15 *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges*. These procedures include worker education, range cleaning instructions, cleaning stored contaminated equipment, management of contaminated sand and lead waste, range rehabilitation and conversion of indoor firing ranges. Results are given in Table 1 and certificates of analysis are included in Appendix B.

BEST AVAILABLE COPY
Industrial Hygiene Survey Report
Massachusetts Army National Guard (MA ARNG)
Hingham Readiness Center

**Table 1 – Results of Dust Wipe Sampling for MA ARNG
Hingham Readiness Center on August 19, 2010.**

Wipe Sample #	Sample Location	Result (µg/ft²)*
HIN-PB-01	Room 2, Radiator Cover	150
HIN-PB-02	Room 22 Kitchen, Prep Table	<110
HIN-PB-03	Drill Hall, Bench by Door	<110
HIN-PB-04	Drill Hall, Middle of Floor	<110
HIN-PB-05	Drill Hall, Center Stage	<110
HIN-PB-06	Room 4, Top of File Cabinet	<110
HIN-PB-07	Room 6, Desktop	<110
HIN-PB-08	Room 8, Storage Room on Desk	<110
HIN-PB-09	Room 1, Top of Refrigerator	<110
HIN-PB-10	Room 29, From Top of Flammable Cabinet	210
HIN-PB-11	Room 23, From Stored Mess Table Seat	<110
HIN-PB-12	Room 18, Top of Locker	220
HIN-PB-13	Room 29, Middle of Floor	180

*The US Army CHPPM recommends a maximum level for adult exposures of 200 µg/ft² lead on floors

A visual inspection was performed to determine if there were any areas of peeling paint at the facility that could pose a lead exposure hazard. Peeling paint was observed over the majority of the second floor and in one room (room 13 on the drawing) on the first floor where extensive water damage has occurred. The paint chip samples were collected following operational protocols set forth in HUD's *Guidelines for the Evaluation and Control of Lead-Based Paint Hazard in Housing (1995)*. The paint chip samples were submitted to Aerosol Monitoring and Analysis Analytical Services, Inc. (AMA) of Lanham, MD for analysis. The analyses were performed using Flame Atomic Absorption Spectrophotometry (AAS) following the analytical method SW 846 7420. AMA is accredited for the analysis of paint chip samples through the AIHA Proficiency Testing Program (#100470). In the Commonwealth of Massachusetts, paint is considered to be lead-based if it contains more than 0.5 % lead by weight. All paint chip samples were below regulatory limits of 0.5% lead by weight except for the yellow paint in Room 18 (0.78%). Results are given in Table 2 and certificates of analysis are included in Appendix B.

BEST AVAILABLE COPY
Industrial Hygiene Survey Report
Massachusetts Army National Guard (MA ARNG)
Hingham Readiness Center

**Table 2 – Results of Paint Chip Sampling for MA ARNG
Hingham Readiness Center on August 19, 2010.**

Paint Chip Sample #	Sample Location	Result (% by wt)*
HIN-LBP-01	White Ceiling Paint, From Stair Leading to Basement	0.055
HIN-LBP-02	White Hallway Wall Paint, Room 15	0.38
HIN-LBP-03	Yellow Wall Paint, Room 18	0.78
HIN-LBP-04	Green Wall Paint, Room 13	0.026

*Paint is considered lead-based if it is > 0.5% by weight.

Visual Inspection for Damaged Asbestos-Containing Materials

A visual inspection was performed to determine if there were any suspect asbestos-containing material and its condition. Damaged plaster that may contain asbestos was observed in one room (room 13 on the drawing) on the first floor where extensive water damage has occurred. Bulk samples of pipe fittings were collected. Samples were submitted to AMA Analytical Services, Inc. of Lanham, MD 20706 (NIST-NVLAP Accreditation No. 101143-0) for analysis by Polarized Light Microscopy (PLM) using EPA method 600/R-93/116. The EPA defines an asbestos-containing material as one percent (1%) or more asbestos by visual estimation. The plaster was reported to contain no asbestos. Results are given in Table 4 and certificates of analysis are included in Appendix B.

**Table 3 – Results of Asbestos Sampling for the MA ARNG RC
Hingham, MA on August 19, 2010.**

Bulk Sample #	Sample Location	Result (%)*
HIN-ASB-01	Plaster from Wall and Ceiling Debris, Room 13	NAD**

*The EPA defines an asbestos-containing material as one percent (1%) or more asbestos by visual estimation. **NAD – No Asbestos Detected.

Visual Inspection for Water Damage and Mold Growth

A visual inspection was performed to determine if there was any water damage or visible mold growth at the facility. Extensive water damage was observed in one room (room 13 on the drawing) on the first floor. Water intrusion was reportedly from an old water leak in the roof which has been repaired. The plaster ceiling of the room had collapsed due to the water damage and a determination of whether mold was present was not feasible.

Visual Inspection for Housekeeping Concerns

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

Lighting

Illumination levels were measured using a Cal-Light 400L, calibrated on July 30, 2010, and compared to minimum lighting requirements for various facilities and functions based on the following references: American National Standards Institute/Illumination Engineering Society of North America (ANSI/IESNA) Standard RP-1-04 (Office Lighting) and ANSI/IESNA Standard RP-7-01 (Lighting Industrial Facilities).

BEST AVAILABLE COPY
Industrial Hygiene Survey Report
Massachusetts Army National Guard (MA ARNG)
Hingham Readiness Center

A lighting survey was performed in all areas within the readiness center. The evaluation indicated that there are some illumination deficiencies in several areas of the facility. The illumination measurements indoors ranged from a low of 4.4 foot candles (fc) to a high of 101.7 fc. The complete results of the evaluation are presented in Appendix D, including whether the results met minimum requirements for illumination. Additional illumination can be achieved by replacing burned-out lamps, cleaning fixtures, relocating detailed work to more illuminated areas, using supplemental task lighting, and opening doors or windows to provide more natural lighting.

Indoor Air Quality (IAQ)

Indoor air quality measurements (i.e., temperature, relative humidity, carbon dioxide and carbon monoxide) were taken using a TSI Q-Trak Plus Model 8554, factory calibrated in March 2010. Temperature, relative humidity and carbon dioxide (CO₂) measurements were compared to the recommended levels established by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE). Carbon monoxide (CO) concentrations were compared to the ACGIH Threshold Limit Value (TLV) for CO and the Environmental Protection Agency's (EPA's) National Ambient Air Quality Standard (NAAQS) for CO.

Industry guidelines or standards for seasonal temperature and humidity ranges for thermal comfort are established by ASHRAE standard 55-2004. These ranges are presented in Table 4. The U.S. EPA also recommends maintaining relative humidity below 60% and ideally between 30 and 50% to prevent mold growth. Complete results are provided in Appendix G with the lighting survey measurements.

Table 4 - Acceptable Ranges of Temperature and Relative Humidity in Summer and Winter^a

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

^aadapted from ASHRAE Standard 55-2004

Temperature and Relative Humidity

Indoor temperature and relative humidity (Rh) measurements in the facility ranged from 73.9 to 80.2° F and 54.3 to 66.8% Rh. Outdoor temperature and humidity measurements were 78.5° F and 58.4% on the day of monitoring. Temperatures and relative humidity measurements were outside the acceptable range in approximately one third of the facility. These results are not unexpected due to outdoor conditions on the day of the survey and the lack of air conditioning in most of the facility.

Carbon Dioxide (CO₂) and Carbon Monoxide (CO)

Carbon dioxide and carbon monoxide measurements are used to assess ventilation system performance. The exhaled breath of building occupants is the main indoor source of carbon dioxide; therefore, the build up of CO₂ indicates inadequate ventilation. The concentration of concern for carbon dioxide is set by ASHRAE standard 62.1 – 2007 as 700 ppm above outdoor concentrations. Indoor levels of CO₂ ranged from 359 to 712 parts per million (ppm) and

BEST AVAILABLE COPY
Industrial Hygiene Survey Report
Massachusetts Army National Guard (MA ARNG)
Hingham Readiness Center

outdoor CO₂ levels were approximately 345 ppm during the monitored period. CO₂ measurements were below the guideline in all areas, indicating adequate fresh air exchange.

Carbon monoxide is a byproduct of incomplete combustion. Indoor concentrations indicate contamination caused by improperly vented or malfunctioning boilers, furnaces or stoves or from vehicle exhaust entering the building from garages, loading docks, nearby roads or parking lots. The concentration of interest set by ASHRAE standard 62.1-2007 and the National Ambient Air Quality Standards (NAAQS) for carbon monoxide is an 8 hour average of 9 ppm. The ACGIH TLV for CO is 25 ppm. Indoor levels of CO ranged from 0.1 to 4.7 ppm; therefore, concentrations are below occupational exposure limits, ASHRAE and the NAAQS-recommended CO concentrations.

7 Conclusions

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

8 Limitations

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

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

9 References

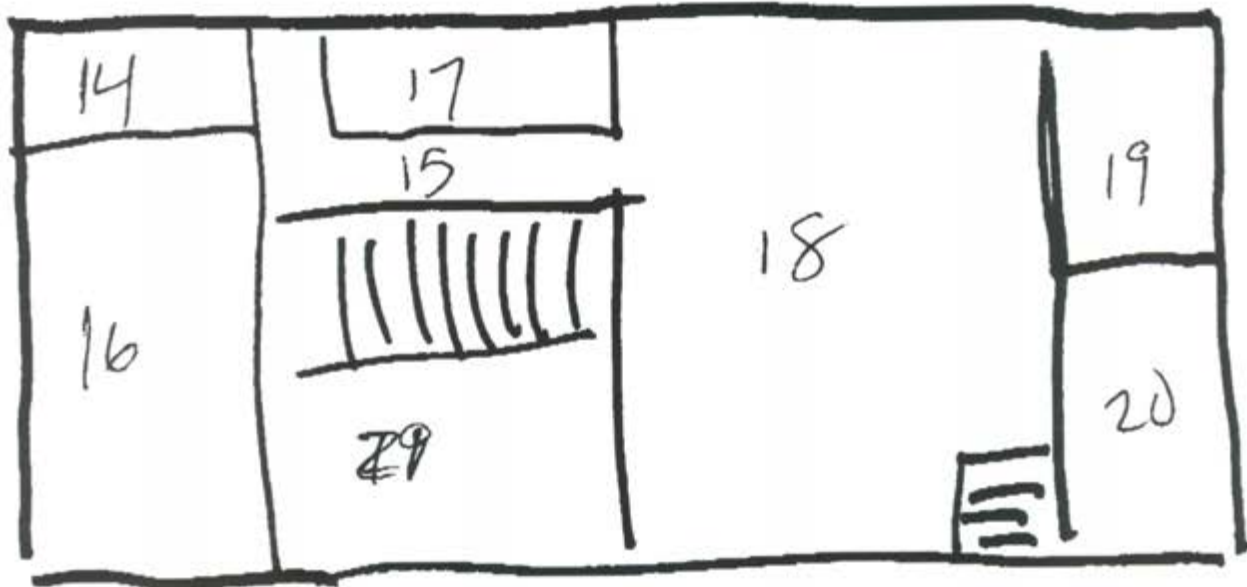
1. Title 29, Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Administration, current edition.
2. Title 24, Code of Federal Regulations (CFR), Part 35, Subpart B, Sections 35.110, Definitions of Lead-Based Paint, Housing and Urban Development, U.S. Department of Housing.

**Industrial Hygiene Survey Report
Massachusetts Army National Guard (MA ARNG)
Hingham Readiness Center**

3. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, August 19, 1998.
4. Army Regulation (AR) 40-5, Medical Service, Preventive Medicine, May 25, 2007.
5. Army Regulation (AR) 385-10, The Army Safety Program, August 23, 2007.
6. Department of the Army Pamphlet (DA PAM) 40-501, Medical Service, Hearing Conservation Program, December 15, 1998.
7. Department of the Army Pamphlet (DA PAM) 40-503, Medical Service, Industrial Hygiene Program, October 30, 2000.
8. Technical Manual (TM) 5-810-1, Mechanical Design, Heating, Ventilation, and Air Conditioning, June 1991.
9. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), American Conference of Governmental Industrial Hygienists (ACGIH), current edition.
10. RP-1-2004 (Office Lighting) and RP-7-2001 (Industrial Lighting), Illuminating Engineering Society of North America (IESNA)/ANSI.
11. The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), Standard 62.1-2007, "Ventilation for Acceptable Indoor Air Quality" and Standard 55-2004, "Thermal Environmental Conditions for Human Occupancy".
12. NIOSH website: <http://www.cdc.gov/niosh/>
13. OSHA website: <http://www.osha.gov/>.
14. Army CHPPM website: <http://chppm-www.apgea.army.mil/>.
15. EPA website: <http://www.epa.gov>.

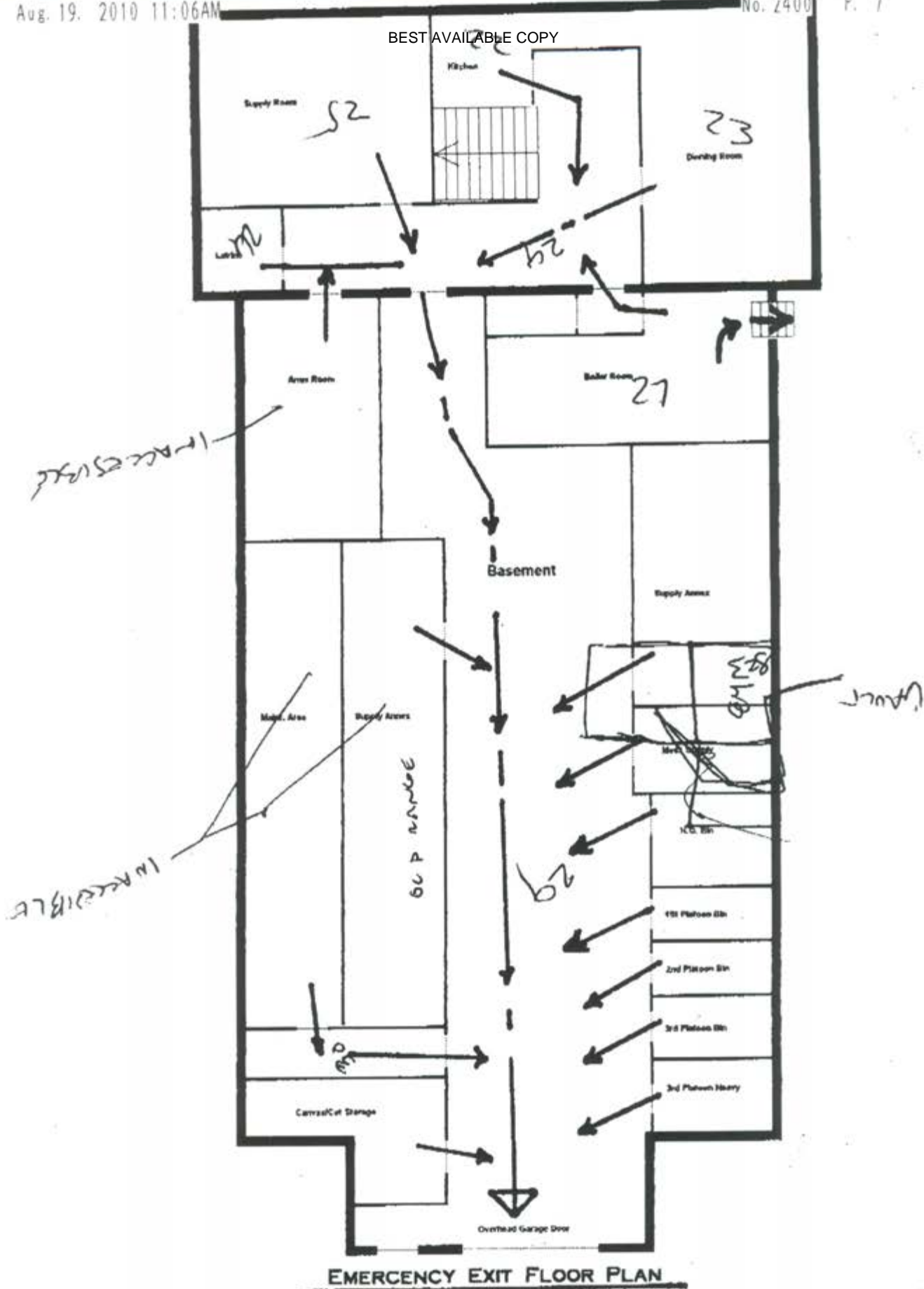
Appendix A Building Layout

BEST AVAILABLE COPY



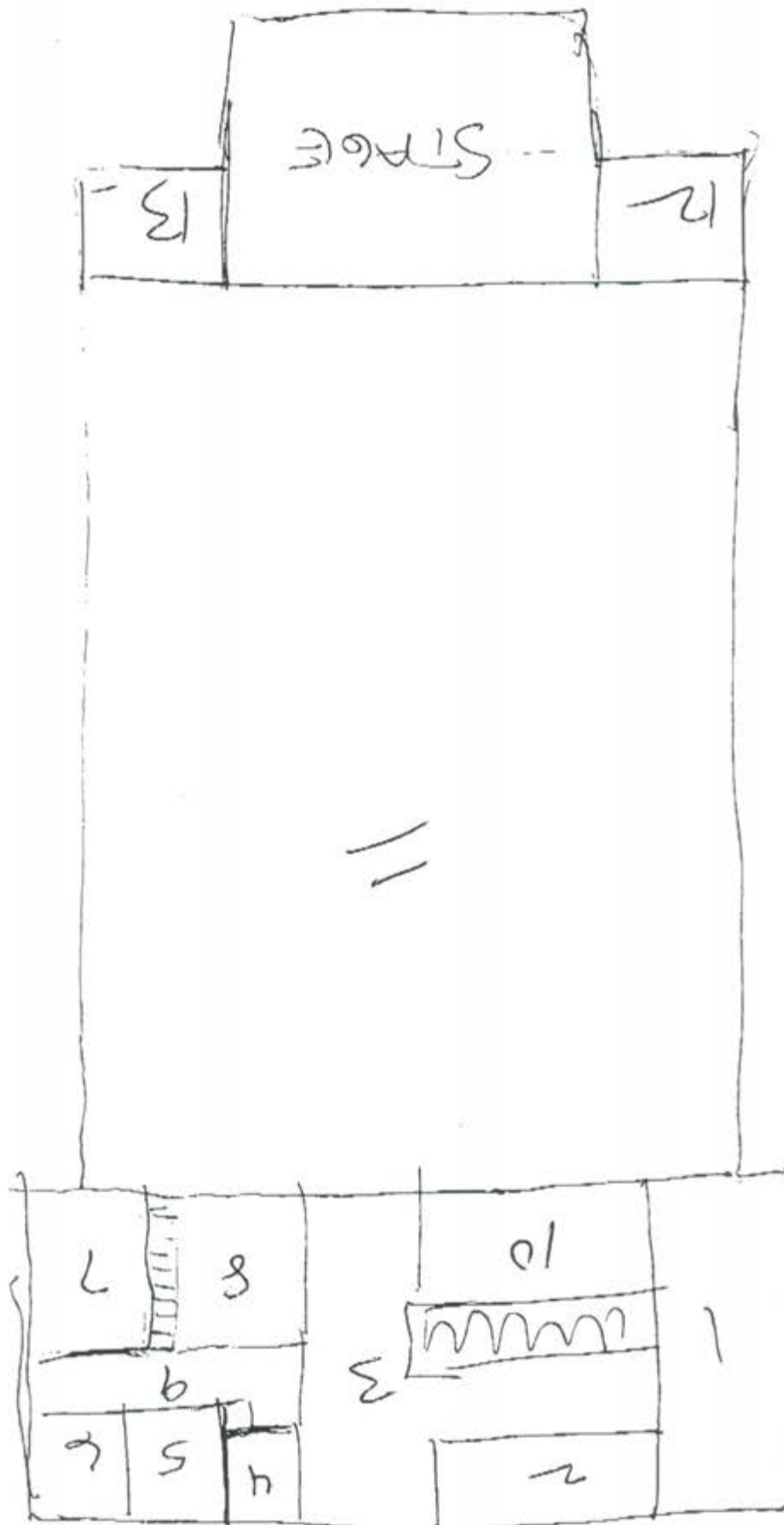
HINGHAM 2ND FLOOR

BEST AVAILABLE COPY



EMERGENCY EXIT FLOOR PLAN

BEST AVAILABLE COPY



Appendix B

Certificates of Analysis for Dust Wipe and Bulk Samples



CERTIFICATE OF ANALYSIS



Client:	National Guard Bureau	Job Name:	Hingham Readiness Center	Chain Of Custody:	508619
Address:	301-IH Old Bay Lane, Attn: NGB-AVN-SI, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	Hingham, MA	Date Submitted:	8/23/2010
Attention:	Non-Responsive	Job Number:	Not Provided	Person Submitting:	Non-Responsive
		P.O. Number:	W912K6-09-A-0003	Date Analyzed:	8/29/2010
				Report Date:	8/30/2010

NY ELAP
10920

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 (ft ²)	Reporting Limit	Total ug	Final Result	Comments
1073105	HIN-PB-01	Flame	Wipe	****	0.108	110 ug/ft ²	17	150 ug/ft ²	
1073106	HIN-PB-02	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1073107	HIN-PB-03	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1073108	HIN-PB-04	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1073109	HIN-PB-05	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1073110	HIN-PB-06	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1073111	HIN-PB-07	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1073112	HIN-PB-08	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1073113	HIN-PB-09	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1073114	HIN-PB-10	Flame	Wipe	****	0.108	110 ug/ft ²	22	210 ug/ft ²	
1073115	HIN-PB-11	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
1073116	HIN-PB-12	Flame	Wipe	****	0.108	110 ug/ft ²	23	220 ug/ft ²	
1073117	HIN-PB-13	Flame	Wipe	****	0.108	110 ug/ft ²	20	180 ug/ft ²	
1073118	HIN-LBP-01	Flame	Paint Chip	****	N/A	0.0092 %Pb		0.055 %Pb	
1073119	HIN-LBP-02	Flame	Paint Chip	****	N/A	0.009 %Pb		0.38 %Pb	
1073120	HIN-LBP-03	Flame	Paint Chip	****	N/A	0.0077 %Pb		0.78 %Pb	
1073121	HIN-LBP-04	Flame	Paint Chip	****	N/A	0.01 %Pb		0.026 %Pb	

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



CERTIFICATE OF ANALYSIS



Client:	National Guard Bureau	Job Name:	Hingham Readiness Center	Chain Of Custody:	508619	NY ELAP 10920 LAB #100470	
Address:	301-IH Old Bay Lane, Attn: NGB-AVN-SI, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	Hingham, MA	Date Submitted:	8/23/2010		
		Job Number:	Not Provided	Person Submitting:	Non-Responsive		
		P.O. Number:	W912K6-09-A-0003	Date Analyzed:	8/29/2010		
Attention:	Non-Responsive					Report Date:	8/30/2010

Summary of Atomic Absorption Analysis for Lead

Page 2 of 2

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Total ug	Final Result	Comments
Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7420; Water: SM-3111B Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7421; Water: SM-3113B N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm) %Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb) Note: All samples were received in good condition unless otherwise noted. Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result. Air and Wipe results are not corrected for any blank results Final results for air and wipe samples are based on client supplied information nor verified by this laboratory. All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.						See QC Summary for analytical results of quality control samples associated with these sampes. NY ELAP accreditation applies only to paint chip, wipe, and soil samples.			
						Non-Responsive		Non-Responsive	


AMA Analytical Services, Inc.

Focused on Results www.amalab.com

AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)

4475 Forbes Blvd. • Lanham, MD 20706

(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

 (Please Refer To This
Number For Inquiries)

508619

p. 1/2

Mailing/Billing Information:

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

Submittal Information:

- Job Name: Hingham Readiness Center
- Job Location: Hingham MA
- Job #: 1012K608-1-0000
- Contact Person: Non-Responsive
- Submitted by: Non-Responsive

Reporting Information (Results will be provided)

AFTER HOURS (must be pre-scheduled) <input type="checkbox"/> Immediate Date Due: _____ <input type="checkbox"/> 24 Hours Time Due: _____ Comments: _____		NORMAL BUSINESS HOURS <input type="checkbox"/> Immediate <input type="checkbox"/> Next Day <input type="checkbox"/> 2 Day <input checked="" type="checkbox"/> 3 Day <input checked="" type="checkbox"/> 5 Day + <u>8/18/10</u> Date Due: <u>8/18/10</u>		REPORT TO: <input type="checkbox"/> Include with Report <input type="checkbox"/> Email <u>ARIA@VINO.COM</u> <input type="checkbox"/> Fax: <u>us.army.mil</u> <input type="checkbox"/> Verbal <u>us.army.mil</u>	
--	--	--	--	--	--

Asbestos Analysis
PCM Air - Please Indicate Filter Type:

- ☐
- NIOSH 7400 (QTY)
-
- ☐
- Fiberglass (QTY)

TEM Air - Please Indicate Filter Type:

- ☐
- AHERA (QTY)
-
- ☐
- NIOSH 7402 (QTY)
-
- ☐
- Other (specify) _____ (QTY)

PLM Bulk

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

MISC

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

TEM Bulk

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

TEM Dust

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

TEM Water

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

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

Metals Analysis

- ☒
- Pb Paint Chip
- 4
- (QTY)
-
- ☒
- Pb Dust Wipe (wipe type
- GHOST
-)
- 13
- (QTY)
-
- ☐
- Pb Air (QTY)
-
- ☐
- Pb Soil/Solid (QTY)
-
- ☐
- Pb TCLP (QTY)
-
- ☐
- Drinking Water
- ☐
- Pb (QTY)
- ☐
- Cu (QTY)
- ☐
- As (QTY)
-
- ☐
- Waste Water
- ☐
- Pb (QTY)
- ☐
- Cu (QTY)
- ☐
- As (QTY)
-
- ☐
- Pb Furnace (Media _____) (QTY)

Fungal Analysis

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

SAMPLE INFORMATION
ANALYSIS
MATRIX
CLIENT CONTACT

(LABORATORY STAFF ONLY)

CLIENT ID NUMBER	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPE AREA	TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	WATER	SPORE TRAP	TAPE	SWAB	DATE/TIME	CONTACT	BY
HIN-PB-01		8/19/10		10 NOC															
HIN-PB-02																			
HIN-PB-03																			
HIN-PB-04																			
HIN-PB-05																			
HIN-PB-06																			
HIN-PB-07																			
HIN-PB-08																			
HIN-PB-09																			
HIN-PB-10																			
HIN-PB-11																			
HIN-PB-12																			

LABORATORY

 1. Date/Time RCVD: 8/23/10 @ 1015 Via Fedex By (P) _____

2. Date/Time Analyzed: _____ / _____ / _____ @ _____ By (Print) _____

3. Results Reported To: _____ Via: _____ Date: _____ / _____ / _____

4. Comments: _____

 Posted to OGB FOIA Reading Room
 May, 2008 (STUDY)

BEST AVAILABLE COPY

Sign: _____

FOIA Request

Released by National Guard Bureau

Page 1719 of 3473

**AMA Analytical Services, Inc.**

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

CHAIN OF CUSTODY

(Please Refer To This
 Number For Inquiries)

508619
 p.2/2

Mailing/Billing Information:

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

Submittal Information:

- Job Name: SAME
- Job Location: SAME
- Job #: W912K6 09 A 0003
- Contact Person: Non-Responsive
- Submitted by: Non-Responsive

Reporting Information (Results will be provided as soon as reasonably practicable)

AFTER HOURS (must be pre-scheduled)		NORMAL BUSINESS HOURS		REPORT TO:
<input type="checkbox"/> Immediate Date Due: _____	<input type="checkbox"/> Immediate	<input type="checkbox"/> 3 Day	<input type="checkbox"/> Results Required By Noon (Every Attempt Will Be Made to Accommodate)	<input checked="" type="checkbox"/> Include COC/Field Data Sheets with Report
<input type="checkbox"/> 24 Hours Time Due: _____	<input type="checkbox"/> Next Day	<input type="checkbox"/> 5 Day +		<input checked="" type="checkbox"/> Email: <u>Non-Responsive@us.army.mil</u>
Comments: _____	<input type="checkbox"/> 2 Day	Date Due: _____		<input type="checkbox"/> Fax: _____
				<input type="checkbox"/> Verbal: _____

Asbestos Analysis**PCM Air** - Please Indicate Filter Type:

- ☐ NIOSH 7400 (QTY) _____
- ☐ Fiberglass (QTY) _____

TEM Air - Please Indicate Filter Type:

- ☐ AHERA (QTY) _____
- ☐ NIOSH 7402 (QTY) _____
- ☐ Other (specify) _____ (QTY) _____

PLM Bulk

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

MISC

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

TEM Bulk

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

TEM Dust

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

TEM Water

- ☐ Qual. (pres/abs) (QTY) _____
- ☐ ELAP 198.2/EPA 100.2 (QTY) _____
- ☐ EPA 100.1 (QTY) _____

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

Metals Analysis

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

Fungal Analysis

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

CLIENT ID NUMBER		SAMPLE INFORMATION		VOLUME (LITERS)	WIPE AREA	ANALYSIS										CLIENT CONTACT			
SAMPLE LOCATION/ IDENTIFICATION		DATE	TEM			PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	WATER AND/OR OTHER	SPORE TRAP	TAPES	SWAB	(LABORATORY STAFF ONLY)		
HIN-88-13		8/17/10		10-110 cm				X			X					Date/Time:	Contact:	By:	
HIN-88-01											X								
HIN-88-02											X								
HIN-88-03											X								
HIN-88-04											X					Date/Time:	Contact:	By:	
HIN-AS8-01						X					X								
																Date/Time:	Contact:	By:	

LABORATORY

Post Office Box 100
 May, (2008)

1. Date/Time RCVD: _____ / _____ / _____ @ _____ Via: _____ By (Print): _____

2. Date/Time Analyzed: _____ / _____ / _____ @ _____ By (Print): _____ Sign: _____

3. Results Reported To: _____ Via: _____ Date: _____ / _____ / _____

4. Comments: _____

BEST AVAILABLE COPY

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

Released by National Guard Bureau

Page 1720 of 3473

Non-Responsive



CERTIFICATE OF ANALYSIS

Client:	National Guard Bureau	Job Name:	Hingham Readiness Center	Chain Of Custody:	508619
Address:	301-IH Old Bay Lane, Attn: NGB-AVN-SI, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	Hingham, MA	Date Analyzed:	8/29/2010
		Job Number:	Not Provided	Person Submitting:	Non-Responsive
		P.O. Number:	W912K6-09-A-0003		

Attention: Non-Responsive

Page 1 of 1

Summary of Polarized Light Microscopy

AMA Sample Number	Client Sample #	Total Asbestos	Chrysotile Percent	Amosite Percent	Crocidolite Percent	Other Asbestos Percent	Mineral Wool Percent	Fiberglass Percent	Organic Percent	Synthetic Percent	Other Percent	Particulate Percent	Sample Color	Homogeneity	Analyst ID	Comments
1073122	HIN-ASB-01	NAD	--	--	--	--	--	--	--	--	--	100	White	Homogeneous	SW	White Plaster only was analyzed

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

- 1 TEM RECOMMENDATION - Please note, due to resolution limitations with optical microscopy and/or interference from matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos. It is recommended that the additional analytical technique of TEM be used to check for asbestos fibers below the resolution limits of optical microscopy.
- 2 MATRIX REDUCTION RECOMMENDATION - Please note, due to interference from the matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos which is obscured from view. It is recommended that the additional preparation technique of gravimetric reduction be performed on this sample to minimize the obscuring effects of matrix components, followed by reanalysis by PLM and/or TEM.

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

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

Uncertainty: For samples containing asbestos in range of 1-10% the CV is 0.43, 11-35% CV=0.55, >35 CV=0.23

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

Technical Director

Non-Responsive

Analyst(s)

Non-Responsive

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 NY ELAP, NVLAP, NIST, 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 This
Number For Inquiries)

508619

1/2

Mailing/Billing Information:

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

Submittal Information:

- Job Name: HINGHAM READINESS CENTER
- Job Location: HINGHAM MA
- Job #: PO # W912K6-09-A-0008
- Contact Person: Non-Responsive
- Submitted By: Non-Responsive

Reporting Information (Results will be provided)

AFTER HOURS (must be pre-scheduled) <input type="checkbox"/> Immediate Date Due: _____ <input type="checkbox"/> 24 Hours Time Due: _____ Comments: _____		NORMAL/BUSINESS HOURS <input type="checkbox"/> Immediate <input type="checkbox"/> Next Day <input checked="" type="checkbox"/> 2 Day <input type="checkbox"/> 3 Day <input checked="" type="checkbox"/> 5 Day + Date Due: <u>8/30/10</u>		REPORT TO: <input checked="" type="checkbox"/> Include COC with Report <input checked="" type="checkbox"/> Non-Responsive <input type="checkbox"/> Fax: <u>Non-Responsive</u> <input type="checkbox"/> Ver: <u>Non-Responsive</u>	
--	--	---	--	--	--

Asbestos Analysis
PCMA Air - Please Indicate Filter Type:

- ☐
- NIOSH 7400 (QTY)
-
- ☐
- Fiberglass (QTY)

TEMA Air - Please Indicate Filter Type:

- ☐
- AHERA (QTY)
-
- ☐
- NIOSH 7402 (QTY)
-
- ☐
- Other (specify) _____ (QTY)

PLM Bulk

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

MISC

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

TEM Bulk

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

TEM Dust

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

TEM Water

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

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

Metals Analysis

- ☒
- Pb Paint Chip
- 4
- (QTY)
-
- ☒
- Pb Dust Wipe (wipe type
- GHOST
-)
- 13
- (QTY)
-
- ☐
- Pb Air (QTY)
-
- ☐
- Pb Soil/Solid (QTY)
-
- ☐
- Pb TCLP (QTY)
-
- ☐
- Drinking Water
- ☐
- Pb (QTY)
- ☐
- Cu (QTY)
- ☐
- As (QTY)
-
- ☐
- Waste Water
- ☐
- Pb (QTY)
- ☐
- Cu (QTY)
- ☐
- As (QTY)
-
- ☐
- Pb Furnace (Media _____) (QTY)

Fungal Analysis

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

CLIENT ID NUMBER	SAMPLE INFORMATION		VOLUME (LITERS)	WIPE AREA	ANALYSIS										MATRIX				CLIENT CONTACT		
	SAMPLE LOCATION/ IDENTIFICATION	DATE			TEM	PCM	PLAN	LEAD	MOLD	AIR	BULK	DUST	WATER AND OILS	STONE TRAP	TAPE	SWAB	(LABORATORY STAFF ONLY)				
HIN-PB-01		8/19/10		10'x10'cm														Date/Time:	Contact:	By:	
HIN-PB-02																					
HIN-PB-03																					
HIN-PB-04																					
HIN-PB-05																		Date/Time:	Contact:	By:	
HIN-PB-06																					
HIN-PB-07																					
HIN-PB-08																					
HIN-PB-09																		Date/Time:	Contact:	By:	
HIN-PB-10																					
HIN-PB-11																					
HIN-PB-12																					

LABORATORY

STAFF ONLY:

- Date/Time RCVD: 8/23/10 @ 1015 Vin Fidel
- Date/Time Analyzed: 8/30/10 @ _____ By (Print): _____
- Room Reported To: Non-Responsive
- Comments: _____

Non-Responsive

 Posted to NGB FOIA Reading Room
 May, 2010



Focused on Results www.unalab.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

(Please Refer To This
Number For Inquires)

508619

2/2

Mailing/Billing Information:

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

Submitted Information:

1. Job Name: SAME
2. Job Location: SAME
3. Job #: 13
4. Contact Person: Non-Responsive
5. Submitted by: Non-Responsive

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

AFTER HOURS (must be pre-scheduled)		NORMAL BUSINESS HOURS		REPORT TO:
<input type="checkbox"/> Immediate Date Due: _____	<input type="checkbox"/> Intermediate <input type="checkbox"/> 3 Day	<input type="checkbox"/> Results Required By Noon (Every Attempt Will Be Made to Accomodate)	<input checked="" type="checkbox"/> Include COC/Field Data Sheets with Report	
<input type="checkbox"/> 24 Hours Time Due: _____	<input type="checkbox"/> Next Day <input type="checkbox"/> 5 Day +		<input checked="" type="checkbox"/> Email Non-Responsive@_____	@us.army.mil
Comments: _____	<input type="checkbox"/> 2 Day Date Due: _____		<input type="checkbox"/> Fax: _____	@us.army.mil
			<input type="checkbox"/> Verb: _____	

Asbestos Analysis

PCM Air – Please Indicate Filter Type:

- ☐ NIOSH 7400 _____ (QTY)
☐ Fiberglass _____ (QTY)

TEM Air – Please Indicate Filter Type:

- ☐ AHERA _____ (QTY)
☐ NIOSH 7402 _____ (QTY)
☐ Other (specify _____) _____ (QTY)

PLM Biełk

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

MISC

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

TEM Bulk

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

TEM Dust

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

TEM Water

- ☐ Qual. (pres/abs) _____ (QTY)
☐ ELAP 198.2/EPA 100.2 _____ (QTY)
☐ EPA 100.1 _____ (QTY)

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

Metals Analysis

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

Fungal Analysis

Collection Apparatus for Spore Traps/Air Samples: _____
Collection Media _____

<input type="checkbox"/> Spore-Trap _____ (QTY) _____	<input type="checkbox"/> Surface Vacuum Dust _____ (QTY) _____
<input type="checkbox"/> Surface Swab _____ (QTY) _____	<input type="checkbox"/> Culturable ID Genus (Media _____) (QTY) _____
<input type="checkbox"/> Surface Tape _____ (QTY) _____	<input type="checkbox"/> Culturable ID Species (Media _____) (QTY) _____
<input type="checkbox"/> Other (Specify _____) (QTY) _____	

[illegible]

LABORATORY

STAFF ONLY:

1. Date/Time RCVD: _____ / _____ / _____ @ _____ Via: _____

2. Date/Time Analyzed: **Non-Responsive** By (Firm):

ing Room Reported To: **Non Responsive** VAILA

4. Comments: [REDACTED]

Non-Responsive

Appendix C

Photo Documentation

Hingham RC



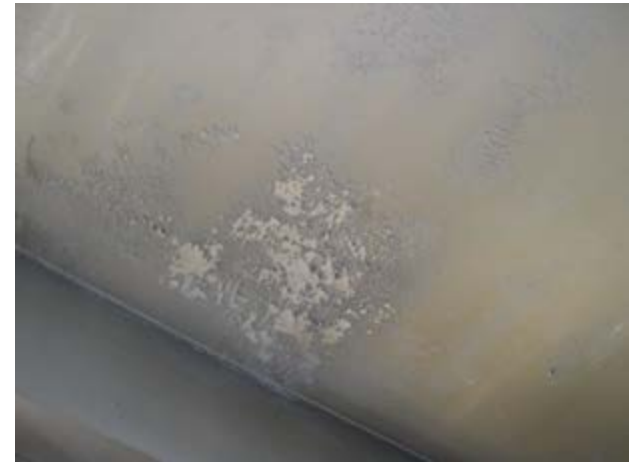
Front Entry



Flaking Paint on Walls



Storage Area in Basement



Flaking Paint on Ceiling

Hingham RC



Damaged Plaster and Peeling Paint on Ceiling



Kitchen



Mess Hall

Posted to NGB FOIA Reading Room
May, 2018



Boiler Room

Hingham RC



Basement Hallway



Flaking Paint and Damaged Plaster

Appendix D

IAQ and Lighting Survey Log Sheets

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

State	MA	City	Hingham	IAQ								Light		
Date	8/19/2010	Inspector	Non-Responsive	Instrument		TSI Q-Trak Plus Model 8554						Instrument		CAL-LIGHT 400
Facility Description	Readiness Ctr			Serial Number		8554-02041015						Serial Number		K070277
Weather Conditions				Last Calibration		Mar-10						Last Calibration		30-Jul-10
Location	Function	No. Occupants	Time	Temp. (°F)	Exceeded	RH (%)	Exceeded	CO ₂ (ppm)	Exceeded	CO (ppm)	Exceeded	Illuminance (fc)	Insufficient	Illuminance Reference Values (fc)
1	Meeting Room			78.6		59.4		455		0.7		63.8		50
2	Admin Office			78.6		59.5		485		0.4		30.2	X	50
3	Foyer			78.8		59.1		472		0.3		59.5		10
4	Office			78.8		58.3		436		0.2		63.3		50
5	Commander's Office			78.8		57.6		404		0.3		70.2		50
6	1st SGT. Office			78.8		57.3		382		0.8		21.3	X	50
7	Women's Room			78.8		57.4		419		0.6		40.0		5
8	Operational Range			78.6		57.4		421		0.0		51.1		50
9	Hall			78.6		57.0		416		0.5		19.4		5
10	Office			78.6		57.6		400		0.5		70.0		50
11	Drill Hall			78.4		58.3		374		0.5		4.4	X	10-50
12	Stage			79.0		57.1		360		0.4		12.2		10-50
13	Stage			79.9	X	56.5	X	405		0.4		28.6		10-50
14	Men's Room			80.1	X	56.8	X	398		0.6		76.9		5
15	Hall			79.9	X	56.6	X	377		0.4		25.2		5
16	Recruiter's Office			79.2	X	58.3	X	438		0.5		50.0		50
17	Office			79.9	X	58.5	X	439		0.1		22.7	X	50
18	Locker Room			80.1	X	56.8	X	419		0.2		6.0	X	7
Notes:				Relative Humidity			Winter Temp.		Summer Temp.					
				30%			68.5°F-76.0°F		74.0°F-80.0°F					
				40%			68.5°F-75.5°F		73.5°F-79.5°F					
				50%			68.5°F-74.5°F		73.0°F-79.0°F					
				60%			68.0°F-74.0°F		72.5°F-78.0°F					

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

State	MA	City		IAQ								Light		
Date		Inspector	Non-Responsive	Instrument		TSI Q-Trak Plus Model 8554						Instrument		CAL-LIGHT 400
Facility Description	Readiness Ctr			Serial Number		8554-02041015						Serial Number		K070277
Weather Conditions				Last Calibration		Mar-10						Last Calibration		30-Jul-10
Location	Function	No. Occupants	Time	Temp. (°F)	Exceeded	RH (%)	Exceeded	CO ₂ (ppm)	Exceeded	CO (ppm)	Exceeded	Illuminance (fc)	Insufficient	Illuminance Reference Values (fc)
19	Office			80.2	X	55.3	X	422		0.5		25.4	X	50
20	Office			80.2	X	54.3	X	359		0.2		11.8	X	50
21	2nd Floor Landing			80.2	X	55.6	X	390		0.5		101.7		5
22	Kitchen			77.0		58.8		386		1.1		98.8		50
23	Mess Hall			75.2		61.8		367		0.7		50.7		10
24	Basement Hall			74.7		64.4		393		0.8		20.5		5
25	Supply Room			74.3		65.5		392		0.2		15.3		10
26	Latrine			73.9		65.9		359		0.5		38.1		5
27	Boiler Room			73.9		66.4		363		0.3		18.7	X	30
28	Gym			77.5		66.8		712		4.7		44.0		30
29	Basement			76.3		61.1		428		0.7		39.0		10
30	Basement Hall			75.6		63.4		421		0.4		6.0		5
Notes:				Relative Humidity		Winter Temp.		Summer Temp.						
				30%		68.5°F-76.0°F		74.0°F-80.0°F						
				40%		68.5°F-75.5°F		73.5°F-79.5°F						
				50%		68.5°F-74.5°F		73.0°F-79.0°F						
				60%		68.0°F-74.0°F		72.5°F-78.0°F						



Prepared For:

National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
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
MASSACHUSETTS NATIONAL GUARD READINESS CENTER
96 CENTRAL STREET
HINGHAM, MA 02043**

July 11, 2013
PN: 39743799

Non-Responsive

Director, Industrial Hygiene Services

Non-Responsive

Project Manager

TABLE OF CONTENTS

Section	Page
1.0 SUMMARY	1
2.0 SUPPLY / TRAINING AREA.....	3
2.1 Operation Description.....	3
2.2 Chemical and Physical Agents Sampled	3
2.2.1 Carbon Dioxide.....	3
2.2.2 Carbon Monoxide	4
2.2.3 Relative Humidity	4
2.2.4 Temperature.....	4
2.2.5 Lighting.....	5
2.2.6 Lead	5
2.2.7 Asbestos.....	7
2.3 Ventilation System Evaluation	7
2.4 Noise Measurements.....	8
2.5 Personal Protective Equipment	8
3.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS.....	9
3.1 Confined Spaces	9
3.2 Hearing Conservation.....	9
3.3 Respiratory Protection	9
3.4 Hazard Communication	9
3.5 Personal Protective Equipment	9
3.6 Asbestos Operations and Maintenance Program	9
3.7 Safety	10
4.0 REFERENCES.....	11

APPENDICES

APPENDIX A	SHOP DRAWING
APPENDIX B	PERSONNEL LIST
APPENDIX C	ANALYTICAL RESULTS
APPENDIX D	PHOTOGRAPHIC LOG
APPENDIX E	RECOMMENDATIONS FOR SURFACE LEAD DUST IN ARMORIES

**FINDINGS AND RECOMMENDATIONS
MASSACHUSETTS NATIONAL GUARD READINESS CENTER
96 CENTRAL ST., HINGHAM, MA**

Findings	Recommendations	Risk Assessment Code (RAC)
Lighting		
On the day of the survey, the illuminance was inadequate in several locations tested.	Increase lighting in the work areas. While work is in progress, these areas must be lighted by at least the minimum lighting intensities (ANSI / IESNA RP-1-04).	RAC 4
Ergonomics		
Computer workstations in the Administrative Areas were observed with un-adjustable chairs, arm rests and keyboards	Ergonomic issues with regard to 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
Water Intrusion		
Water staining was observed on ceiling tiles and on ceiling throughout the facility. Water damage in Drill Hall has led to a warped wooden Drill Hall floor.	The source of the water intrusion should be identified and repaired. The water-stained materials should be repaired or replaced (ACGIH – Guidelines for the Assessment of Bio-aerosols in the Indoor Environment).	RAC 3
Lead		
Eight of the 10 lead wipe samples indicated elevated lead levels. Two of four paint chip samples indicated elevated lead levels.	Personnel trained in accordance with the OSHA Lead Standard should clean the areas where elevated lead dust levels were identified (OSHA 29 CFR 1910.1025(h)(1)).	RAC 3
Emergency Exits		
Emergency exit signs and escape plans were not visible from all areas of the facility or illuminated.	Emergency exits should be properly illuminated (29 CFR 1910.37 (q)(6)).	RAC 3
Asbestos		
Presumed asbestos-containing floor tiles and associated mastic and pipe insulation were observed throughout the facility; an Asbestos Operation and Maintenance Program was not available on-Site.	Develop a site-specific asbestos operations and maintenance program for management of asbestos-containing materials in place as required by OSHA 29 CFR 1910.1001(j)(2).	RAC 4

Findings	Recommendations	Risk Assessment Code (RAC)
PPE		
Hazard assessments have not been conducted to determine whether personal protective equipment is required	Conduct a hazard assessment of site operations to determine what types of PPE are required for each type of work (29 CFR 1910.132(d)(1)).	RAC 4
Housekeeping		
Storage areas were found to be somewhat unorganized at the time of URS' site visit.	All places of employment, passageways, storerooms and service rooms shall be kept clean and orderly and in a sanitary condition. (29 CFR 1910.22 (a)(1))	RAC 3
Railings		
A stairway outside the boiler room does not have a standard railing.	Every flight of stairs having four or more risers shall be equipped with standard stair railings. (29 CFR 1910.23 (d)(1)).	RAC 3
Fire Extinguishers		
No evidence was found that all fire extinguishers were being inspected on a monthly basis.	All fire extinguishers must be inspected on a monthly basis to determine that they are full and readily accessible. (OSHA 29 CFR 1910.157(e)(2))	RAC 3
Flammable Storage		
Chemicals/ flammable materials were observed improperly stored in Basement Boiler Room	Each container of hazardous chemicals in the work place must be labeled with the identity of the chemical and appropriate hazard warnings (29 CFR 1910.1200).	RAC 3

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 in Hingham, Massachusetts.

URS representative, Mr. **Non-Responsive**, conducted the Industrial Hygiene Survey on May 2, 2013. The scope of work included an overall assessment of the facility as it relates to industrial hygiene and included a walkthrough of the facility, collection of photographs, and when required, measurements for illumination (light), area and personal air sampling, and noise mapping.

The Hingham Readiness Center is a two-story brick building, consisting of offices, classrooms, a supply area, a mess hall, gender separate bathrooms, locker storage rooms, storage rooms, a kitchen, an Assembly Hall and a former Indoor Firing Range. A layout of the Readiness Center is provided in Appendix A.

GENERAL: Moderate water staining was observed on ceiling tiles throughout the facility, including the 2nd floor classroom, locker room, break room/mess hall, and unit room. The basement former Indoor Firing Range is posted as unsafe due to lead contamination, but is missing the proper notice of closure. No evidence was found that all fire extinguishers were being inspected on a monthly basis. Illuminated emergency exit signs were not observed throughout the facility. Emergency escape plans were not posted throughout the facility. Walkways in storage areas were cluttered at the time of the survey. Chemicals/flammable materials were observed not properly stored in the Basement Boiler Room. The stairway from outside to the boiler room does not have handrails; planks used for bringing in supplies are unsafe.

LIGHTING: Lighting in the Readiness Center was found to be inadequate in several of the areas measured. Areas noted within the report as having inadequate lighting require upgrading by either increasing the general lighting or through the use of task lighting. While work is in progress work areas must be lighted by at least the minimum light intensities.

LEAD: Eight of ten wipe samples collected in the Readiness Center were found to contain lead in a concentration above the recommended limit set by the NGB, Region North IH Office.

On the day of the survey, two of the paint chip samples were found to contain a level of lead above the HUD criteria for determination of paint as lead-based.

ASBESTOS: Presumed asbestos-containing floor tiles and associated mastic and pipe insulation were identified during this survey, however no Asbestos Operations and Maintenance Program was found on site. Until suspect materials have been sampled and determined not to contain asbestos, they must be presumed to be asbestos-containing and managed accordingly.

ERGONOMICS: Many of the work stations had ergonomic issues which require attention. Computer workstations were assessed during the walkthrough for ergonomic issues. The computer workstations in the facility did not meet the current Occupational Safety and Health Administration (OSHA) ergonomic recommendations. The chair armrests, keyboards, and desks were not adjustable. All workstations in the facility should be adjusted and monitored. The ergonomic issues with regard to the workstations and chairs need to be corrected by fitting the workplace to the worker.

NOISE: Area noise monitoring levels in the Readiness Center determined that noise levels were below the OSHA permissible exposure limit (PEL) and Department of Defense Instruction (DoDI) Hearing Conservation Standard (6055.12 3 December 2010) on the day of URS' site visit.

2.0 SUPPLY / TRAINING AREA

2.1 Operation Description

This Readiness Center is primarily used for weekend training drills and conducting administrative functions. The building includes offices, classrooms, a supply area, gender separate bathrooms, locker storage rooms, storage rooms, a mess hall, a kitchen, an Assembly Hall and a former Indoor Firing Range.

The Readiness Center was found to be cluttered and unorganized at the time of URS' site visit.

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. Interior carbon dioxide concentrations were found to be between 449 and 762 parts per million (ppm). Carbon dioxide levels were measured using a direct-reading TSI Q-Trak (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 human respiration. 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 but is typically 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.

To minimize air quality complaints, the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) has proposed that the carbon dioxide concentration within an occupied workspace be maintained below 700 ppm above ambient outside levels. For example, on the day of the survey, the outside carbon dioxide level was measured at 401 ppm. Therefore ASHRAE (Standard 62.1-2010) would recommend that interior carbon dioxide concentrations be maintained at or below